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Foreword

by Dan Glickman, Secretary

When Abraham Lincoln created the U.S. Department of Agriculture, its core mission was "to provide information about agriculture in the most comprehensive and general sense of the word." The ***1997 Agriculture Fact Book*** carries on with that charge, offering thousands of useful facts about U.S. agriculture and rural America.

The heart of USDA remains production agriculture, helping our farmers feed America and the world in a sustainable way. What many folks do not realize, however, is the diversity of responsibilities under the USDA umbrella:

- We run the Federal anti-hunger effort—everything from food stamps to the school lunch and breakfast programs to the WIC program.
- We are the country's largest conservation agency—carrying out voluntary efforts to protect soil, water, and wildlife on the 70 percent of America's lands that are in private hands.
- Nearly half of USDA employees work for the U.S. Forest Service.
- As the department of rural America, we bring housing, modern telecommunications, safe drinking water, and more to our country communities.
- We are largely responsible for the safety of the food on your plate.
- We are a research leader in everything from human nutrition to new crop technologies that allow us to grow more food and fiber using less water and less pesticides.

This book is a handy reference tool that offers convenient, one-stop shopping for information about U.S. agriculture, rural America, food, nutrition and consumer issues, trade, and more.

I am pleased to note that the ***1997 Agriculture Fact Book*** is high-tech, too. You can find this text and other helpful information on the Internet at USDA's Home Page at *HTTP://www.usda.gov*

In today's world, information is power. Whether you are a farmer, a rancher, or simply a curious citizen, this book holds something of value for you.

President Lincoln called USDA "the people's department." We work hard every day to live up to this name.

1. U.S. Agriculture—Linking Consumers and Producers

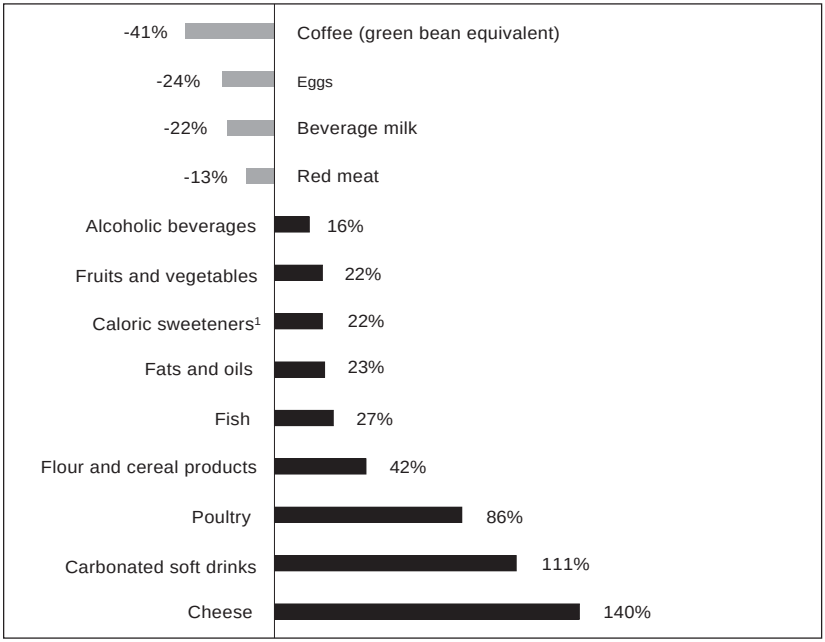
What Do Americans Eat?

The American diet has changed considerably over the last 25 years. Red meat consumption, for example, fell 13 percent between 1970 and 1995, while poultry consumption rose 86 percent and fish and shellfish 27 percent. Egg use declined by nearly a fourth, while cheese consumption more than doubled to 27 pounds per person in 1995. Consumption of coffee and milk has given way to icy cold carbonated soft drinks; bottled water; beer; canned iced tea; and fruit juices, drinks, cocktails, and ades.

Change has been driven by various factors: prices, consumer income, more food assistance for the poor, convenience, new products, more imports, more eating away from home, more snacking, expanded advertising programs, smaller households, more two-earner households, increased ethnic diversity, an aging population, an expanded scientific base relating diet and health, new *Dietary Guidelines for*

Figure 1-1.

Changes in U.S. per capita consumption, 1970-1995



[1]Includes caloric sweeteners used in soft drinks.

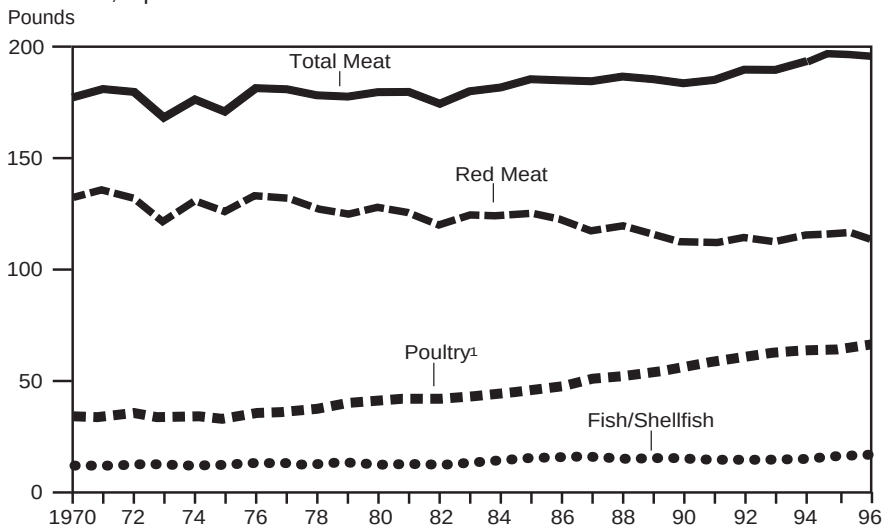
Americans designed to help people make food choices that promote health and prevent disease, improved nutrition labeling, and a burgeoning interest in nutrition.

USDA's Economic Research Service's (ERS) food supply (disappearance) data are based on the amount of food available for consumption in the United States. Estimates of food for domestic human consumption usually are calculated by subtracting measurable uses such as exports, industrial consumption, farm inputs, and end-of-year inventories from total supply (the sum of production, beginning inventories, and imports). Accordingly, the data are indirect measures of actual consumption. They may overstate what is actually eaten because they represent food supplies available in the market and do not account for waste. Food supply nutrient estimates are derived from the disappearance data by researchers in USDA's Center for Nutrition Policy and Promotion (CNPP).

Food Supply Providing More Grains, Vegetables, and Fruits and Less Saturated Fat and Cholesterol. Consistent with dietary and health recommendations, Americans now consume, on average, two-fifths more grain products and one-fifth more fruits and vegetables than did their 1970 counterparts. They drink lower fat milk than they did then; annual per capita butterfat consumption from beverage milk now is half what it was in 1970. And, they eat leaner meats—less red meat (leaner red meat, too) and more chicken and fish. Meat, poultry, and fish now contribute 25 percent of the total fat and 26 percent of the total saturated fat in the U.S. food supply, compared with 35 percent and 37 percent in 1970. This is so, even though per capita total meat consumption now is roughly a tenth higher than in 1970. Declining use of eggs, red meat (especially liver and other variety meats), and whole milk is behind a 13-percent decline since 1970 in per capita levels of dietary

Figure 1-2.

Per capita consumption of meat, poultry, and fish, boneless, trimmed,equivalent



[1]Includes skin, neck meat, and giblets.

Figure 1-3.

Per capita consumption of plain fluid milk

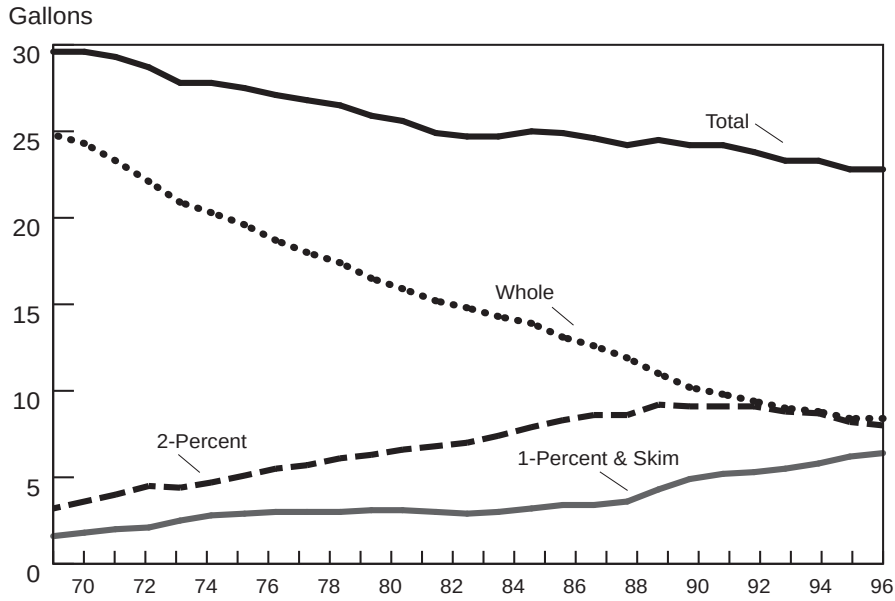
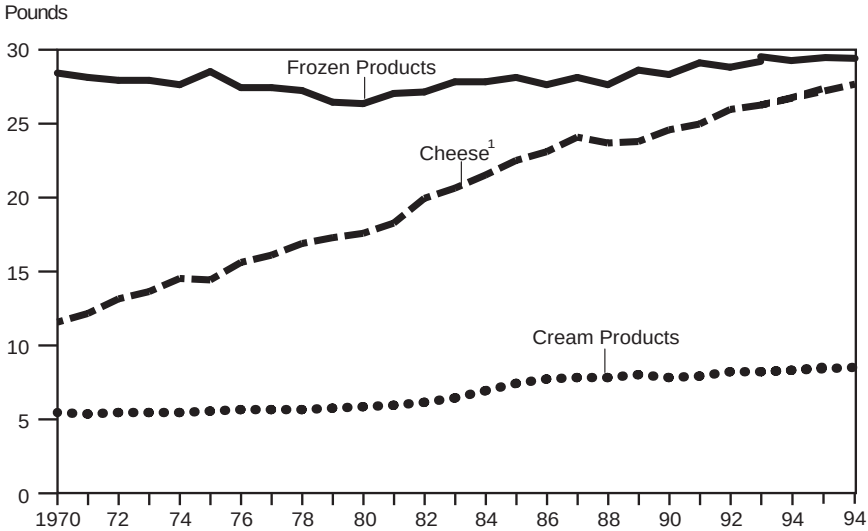


Figure 1-4.

Per capita consumption of selected dairy products



[1]Excludes full-skim American and cottage, pot, and baker's cheese.

cholesterol. Animal products now contribute less than half (48 percent in 1994) of the total fat in the food supply, compared with 61 percent in 1970.

Contrary to diet and health recommendations, however, Americans are consuming, on average, record-high amounts of added sugars and some high-fat dairy products and near record-high amounts of added fats and oils. The increase in added fats and oils probably results from the greatly expanded consumption of fried foods in foodservice outlets and high-fat snack foods, and the increased use of salad oils on salads consumed both at home and away.

We Are a Nation of Meat Eaters—Now More Than Ever. In 1996, total meat consumption (red meat, poultry, and fish) was 191 pounds (boneless, trimmed equivalent) per person, only 2 pounds below 1994's record high and 12 pounds above the 1980-84 annual average. Half-pound hamburgers and "value-priced" buckets of fried chicken draw slews of customers to foodservice outlets. Rotisserie chicken and Buffalo wings have become so popular that they have made inroads across the country, even in pizzarias. Americans love to barbecue meat on outdoor grills—boosting per capita consumption in warm months—and, increasingly, on indoor grills year round. A host of new lean-meat products cater to saturated-fat-wary consumers. Seasoned, ready-to-cook meats available in the fresh and frozen food cases and cooked meats in the self-serve and service delicatessens appeal to time-crunched consumers.

Long-Term Decline in Egg Consumption Levels Off in the 1990's. Between 1970 and 1989, annual consumption of eggs steadily declined from 309 eggs per person to 237. The average annual rate of decline during those 20 years was 3.6 eggs. During the 1990's total egg consumption has fluctuated between 234 and 238 eggs per person per year, but has shown an upward trend since 1991. Per capita consumption was 236 eggs in 1996 and has been projected to be 240 eggs in 1997. The record high for U.S. per capita egg consumption was 403 eggs in 1945.

Much of the decline in egg consumption since 1970 was due to changing lifestyles (for example, less time for breakfast preparation in the morning as large numbers of women joined the paid labor force) and the perceived ill effects of the cholesterol intake associated with egg consumption.

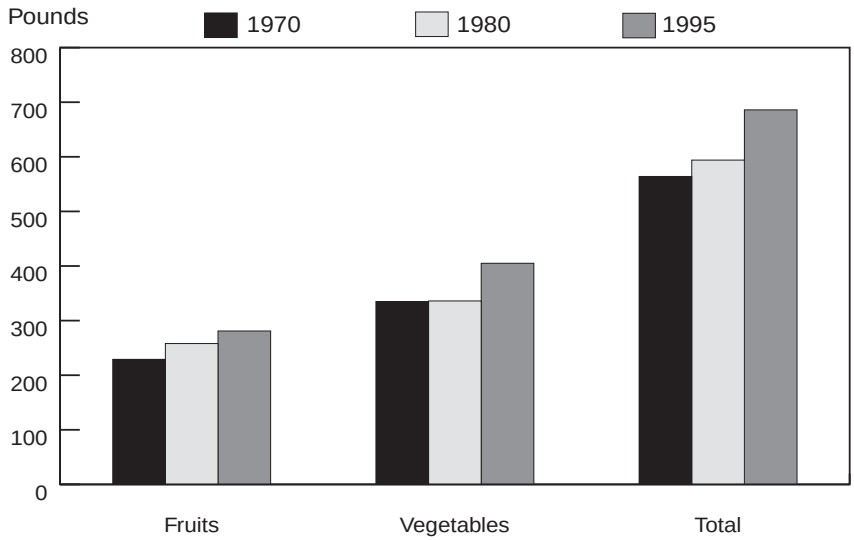
Declining retail egg prices between 1990 and 1994 may have spurred egg use in those years. The average retail price for a dozen large, Grade A eggs declined from $1.01 in 1990 to $0.86 in 1992 and 1994. Changing consumer attitudes toward eggs may also be responsible. New tests show eggs to contain less cholesterol than previously documented, leading the American Heart Association to increase its maximum recommended consumption from three eggs per week to four. Also, various research studies indicate that some Americans are relaxing their healthy eating habits and are indulging themselves in more traditional and flavorful foods.

Americans Drink Less Milk, Eat More Cheese. In 1996, Americans, on average, drank 22 percent less milk and ate nearly two and a half times as much cheese (excluding cottage types) as in 1970.

Annual per capita consumption of beverage milk declined from 31 gallons in 1970 to 24 gallons in 1996. Consumption of soft drinks may be displacing beverage milk in the diet. Big increases in eating away from home, especially at fast-food places, and in consumption of salty snack foods favored soft drink consumption.

Figure 1-5.

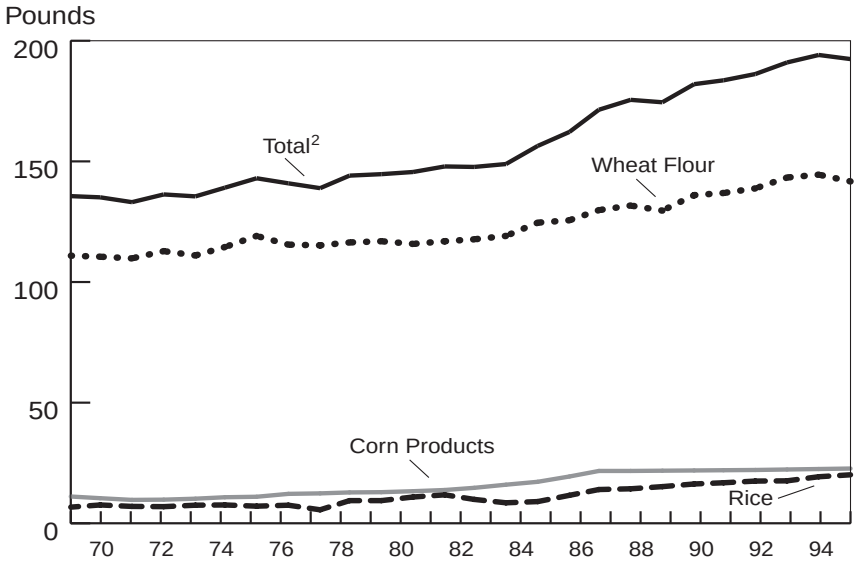
Per capita consumption of fruits and vegetables



[1]Farm-weight equivalent.

Figure 1-6.

Per capita consumption of grain products[1]



[1]Excludes quantities used in alcoholic beverages, fuel, and corn sweeteners.
[2]Includes oats, rye, and barley products.

The beverage milk trend is toward lower fat milk. While whole milk represented 81 percent of all beverage milk in 1970, its share dropped to 36 percent in 1996.

While Americans are switching to lower fat milk, they are also using more fluid cream products (half-and-half, light cream, heavy cream, eggnog, sour cream, and dips). Per capita consumption of fluid cream products jumped from an annual average of 10 half pints in 1970-74 to 16 half pints in 1996.

On balance, however, per capita consumption of milk-fat from all fluid milk and cream products declined 36 percent between 1970 and 1996, from 9.1 pounds per person to 5.8 pounds.

Average consumption of cheese—excluding full-skim American and cottage, pot, and baker's cheeses—increased 140 percent between 1970 and 1996, from 11 pounds per person to 27 pounds. The growth is concentrated in the ingredient and away-from-home markets. Rapidly expanding pizza sales and lifestyles that emphasize convenience foods are probably major forces behind the higher consumption. Advertising and new products—such as frozen broccoli and cheese combos and resealable bags of shredded cheeses—also had an effect.

Fruits and Vegetables—The Array of Choices Widens. As Americans increasingly embrace national health authorities' recommendation of consuming five fruits and vegetables a day, their array of choices continues to widen. Fresh-cut fruits and vegetables, prepackaged salads, locally grown items, and exotic produce—as well as hundreds of new varieties and processed products—have been introduced or expanded in the last decade.

Per capita use of fruits and vegetables rose in the early 1980's in response to higher consumer incomes, increased ethnic diversity, and burgeoning interest in healthful diets. By 1995, per capita consumption was 15 percent higher than in 1980 and 22 percent higher than in 1970. This trend is likely to continue expanding into the next decade as consumers heed nutritionists' message on healthful eating.

Supermarket produce departments carry over 400 produce items today, up from 250 in the late 1980's and 150 in the mid-1970's. Also, the number of ethnic, gourmet, and natural foodstores—which highlight fresh produce—continues to rise.

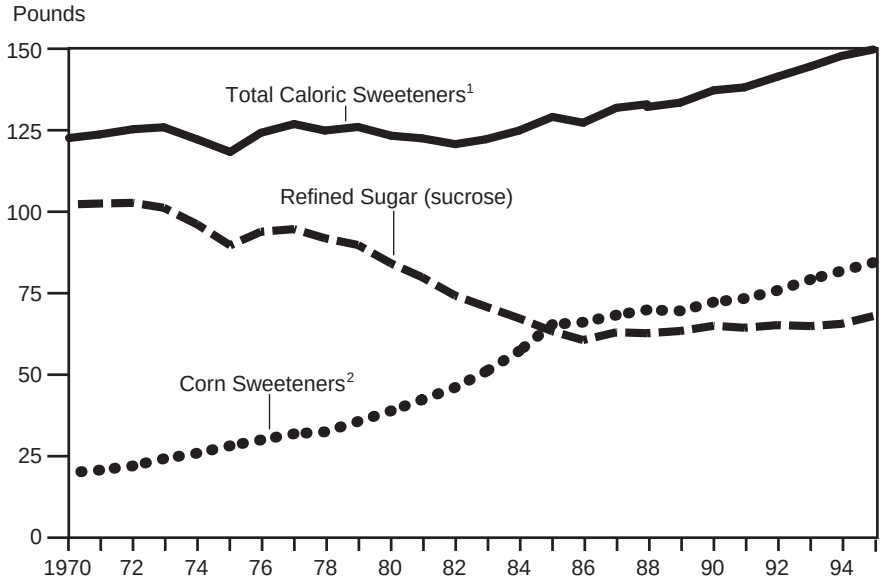
Consumers continue to have more access to fresh, local produce as well. The number of farmers' markets has grown substantially throughout the United States over the last several decades, and increased from 1,755 in 1993 to 2,116 by the end of 1995, according to USDA surveys.

Average Grain Consumption Up From 1970's But Far Below Early 1900's Highs. Per capita consumption of flour and cereal products reached 192 pounds in 1995 from an annual average of 147 pounds in 1980-84 and 135 pounds in 1970-74. The increase is far below the 300 pounds consumed per person in 1909 (the earliest year for which data are available). The expansion in supplies reflects ample grain stocks; strong consumer demand for variety breads and other bakery items; big increases in grain-based snack foods, breakfast cereals, and ethnic foods; and increasing sales of fast-food products made with buns, doughs, and tortillas. Grain products have overtaken caloric sweeteners to become the leading source of carbohydrates in the food supply.

Wheat is the major grain product eaten in the United States, with wheat flour and other wheat products representing 74 percent of U.S. grain consumption in 1995.

Figure 1-7.

Per capita consumption of caloric sweeteners



[1]Includes small quantities of honey, and molasses and other refiner's syrups. [2]Dry basis

However, wheat's share of total grain consumption declined 6 percentage points since 1985 as rice, corn products, and oat products gained momentum.

Americans Eating Record-High Amounts of Sugars. Total per capita consumption of caloric sweeteners (dry-weight basis)—comprised mainly of sucrose (table sugar made from cane and beets) and corn sweeteners (notably high-fructose corn syrup, or HFCS)—increased 28 pounds, or 22 percent, during 1970-95. In 1995, each American consumed, on average, 150 pounds of caloric sweeteners, compared with 122 pounds per person in 1970.

A striking change in the availability of specific sugars has occurred in the past two and half decades. Sucrose's share in total caloric sweetener consumption dropped from 83 percent in 1970 to 44 percent in 1995. In contrast, corn sweeteners' share increased from 16 percent in 1970 to 55 percent in 1995. All other caloric sweeteners, including honey, maple syrup, and molasses, maintained a 1-percent share.

Food Supply Providing More Calories and Higher Levels of Most Vitamins and Minerals. Evidence from various sources suggests that Americans are consuming, on average, more food, more snacks, bigger portions, and more calories than they did in 1970. The level of food energy (calories) in the food supply increased from 3,300 calories per person in 1970 to 3,800 calories in 1994. This 15-percent increase reflects higher levels of all three energy-yielding nutrients: carbohydrate, fat, and protein. The proportion of calories from carbohydrate increased from 47 to 51 percent, while the share from fat decreased from 42 to 38 percent. Protein has consistently accounted for about 11 percent of calories.

Table 1-1.

Major foods: U.S. per capita consumption

Food	*1970*	*1980*	*1995*
		Pounds	
Beef[1]	79.6	72.1	64.0
Pork[1]	48.0	52.1	49.1
Veal[1]	2.0	1.3	.8
Lamb and mutton[1]	2.1	1.0	.9
Chicken[1]	27.4	32.7	48.8
Turkey[1]	6.4	8.1	14.1
Fish and shellfish	11.7	12.4	14.9
Eggs (number)	308.9	271.1	234.6
Cheese[2]	11.4	17.5	27.3
Ice cream	17.8	17.5	15.7
Fluid cream products	5.2	5.6	8.4
All dairy products[3]	563.8	543.2	585.8
Fats and oils	52.6	57.2	64.1
Peanuts and tree nuts[4]	7.2	6.6	7.8
Fruits and vegetables[5]	564.4	594.4	685.9
Fruits	229.0	257.9	280.9
Vegetables	335.4	336.5	405.0
Caloric sweeteners[6]	122.3	123.0	150
Refined sugar (sucrose)	101.8	83.6	65.5
Corn sweeteners	19.1	38.2	83.2
Flour and cereal products[7]	135.6	144.7	192.4
Wheat flour	110.9	116.9	141.7
Rice	6.7	9.4	20.1
Corn products	11.1	12.9	22.7
Other[8]	6.0	4.9	7.2
Cocoa[9]	3.1	2.7	3.6
		Gallons	
Beverage milks	31.3	27.6	24.3
Whole	25.5	17.0	8.8
Lowfat and skim	5.8	10.5	15.6
Coffee	33.4	26.7	20.5
Tea	6.8	7.3	8.0
Soft drinks	24.3	35.1	51.2
Fruit juices	5.7	7.2	8.7
Bottled water	NA	2.4	11.6
Beer	18.5	24.3	22.0
Wine	1.3	2.1	1.8
Distilled spirits	1.8	2.0	1.2

NA = Not available.

[1]Boneless, trimmed equivalent. [2]Excludes full-skim American, cottage, pot, and baker's cheese. [3]Milk equivalent, milkfat basis. [4]Shelled basis. [5]Farmgate weight. [6]Dry basis. Includes honey and edible syrups. [7]Consumption of items at the processing level (excludes quantities used in alcoholic beverages and corn sweeteners). [8]Oats and barley. [9]Chocolate liquor equivalent; what remains after cocoa beans have been roasted and hulled.

The per capita level of total fat in the food supply increased 3 percent from 1970 to 1994, reflecting increased use of salad and cooking oils and shortening. Between 1970 and 1994, animal sources' share of total fat declined from 61 to 48 percent, while vegetable sources' share jumped from 39 to 52 percent.

In 1970, the meat, poultry, and fish group contributed the most saturated fat to the U.S. food supply—37 percent, followed by the fats and oils group at 33 percent. By 1994, the fats and oils group's contribution to total saturated fat had jumped up 8 percentage points, to 41 percent, and the meat, poultry, and fish group's contribution had dropped 11 percentage points, to 26 percent.

CNPP calculates the amounts per capita per day of food energy and 24 nutrients and food components in the U.S. food supply. Vitamin B_{12} is the only micronutrient (includes vitamins and minerals) whose level in the U.S. food supply declined between 1970 and 1994; the 19-percent decline in vitamin B_{12} reflects lower consumption of organ meats (for example, liver) and egg yolks. All other vitamins (A, C, E, B_6, thiamin, riboflavin, niacin, and folate) and all minerals (calcium, phosphorus, magnesium, iron, zinc, copper, and potassium) show gains in per capita supply from 1970 to 1994. For example, a 16-percent increase in vitamin C consumption reflects higher fruit consumption spurred by improvements in variety and year-round availability of many fresh fruits. Increases in thiamin, riboflavin, niacin, and iron reflect hikes in enrichment levels of flour called for by revisions in Federal standards in the 1970's as well as increased grain consumption in more recent years.

Cost of Food Services and Distribution

The estimated bill for marketing domestic farm foods—which does not include imported foods—was $421 billion in 1996. This amount covered all charges for transporting, processing, and distributing foods that originated on U.S. farms. It represented 77 percent of the $544 billion consumers spent for these foods. The remaining 23 percent, or $123 billion, represents the gross return paid to farmers.

The cost of marketing farm foods has increased considerably over the years, mainly because of rising costs of labor, transportation, food packaging materials, and other inputs used in marketing, and also because of the growing volume of food and the increase in services provided with the food.

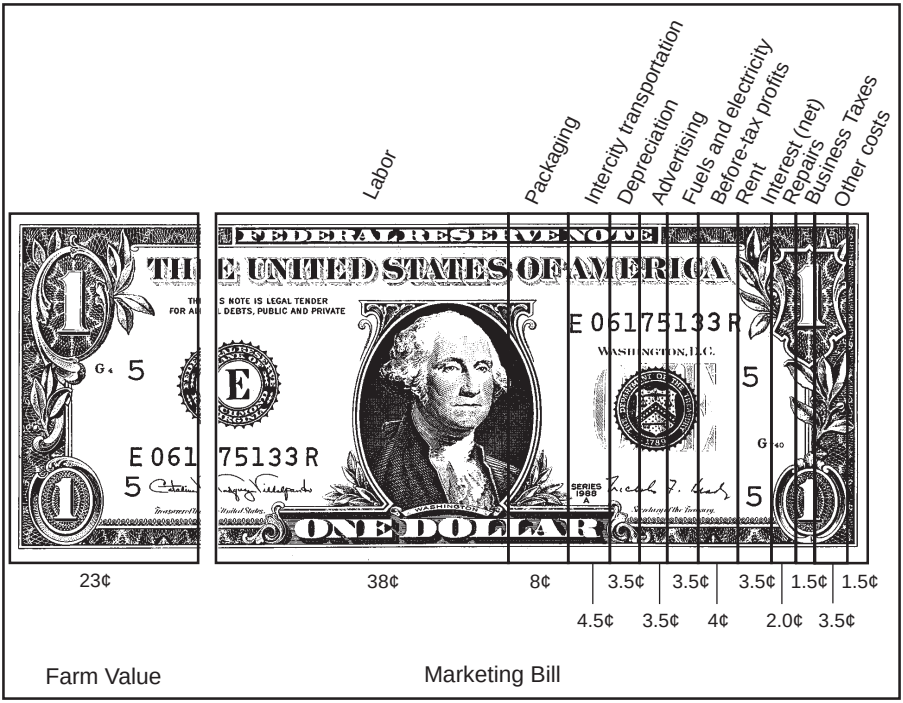
In 1986, the cost of marketing farm foods amounted to $271 billion. Over the following decade, the cost of marketing rose about 55 percent. In 1996, the marketing bill rose 1 percent.

These rising costs have been the principal factor affecting the rise in consumer food expenditures. From 1986 to 1996, consumer expenditures for farm foods rose $184 billion. About 80 percent of this increase resulted from an increase in the marketing bill.

The cost of labor is the biggest part of the total food marketing bill, accounting for nearly half of all marketing costs. Labor used by assemblers, manufacturers, wholesalers, retailers, and eating places cost more than $200 billion in 1996. This was 5 percent higher than in 1995 and 67 percent more than in 1986. The total number of food marketing workers in 1996 was about 13.5 million, about 21 percent

Figure 1-8.

What a dollar spent on food paid for in 1996



Includes food eaten at home and away from home. Other costs include property taxes and insurance, accounting and professional services, promotion, bad debts, and many miscellaneous items.

more than a decade earlier. Over two-thirds of the growth in food industry employment occurred in public eating places.

A wide variety of costs comprise the balance of the marketing bill. These costs include packaging, transportation, energy, advertising, business taxes, net interest, depreciation, rent, and repairs. Their relative proportions are illustrated in the accompanying dollar chart.

Food Expenditures and Prices

Total food expenditures, which include imports, fishery products, and food originating on farms, were $691.2 billion in 1996, an increase of 3.3 percent over these expenditures in 1995. The average was $2,605 per capita, 2.3 percent above the 1995 average.

Away-from-home meals and snacks captured 46 percent of the U.S. food dollar in 1996, up from 38 percent in 1976 and 43 percent in 1986.

The percentage of disposable personal income (income after taxes) that U.S. consumers spend on food continues to decline. From 1995 to 1996, disposable personal income increased 5.0 percent, a faster pace than the rise in food expenditures.

U.S. consumers in 1996 spent 10.9 percent of their disposable personal income on food, compared to 11.6 percent in 1990, 13.4 percent in 1980, and 13.8 percent in 1970.

In the United States, total retail food prices (including meals served in restaurants) rose 40.8 percent over the last 10 years (1986-96). Prices of food eaten away from home increased 35.6 percent, while retail foodstore prices increased 43.8 percent.

Prices of goods and services, excluding food, in the Consumer Price Index climbed 43.4 percent over the same 10 years. Transportation was up 39.8 percent; housing 37.8 percent; medical care 87.0 percent; and apparel and upkeep 24.4 percent.

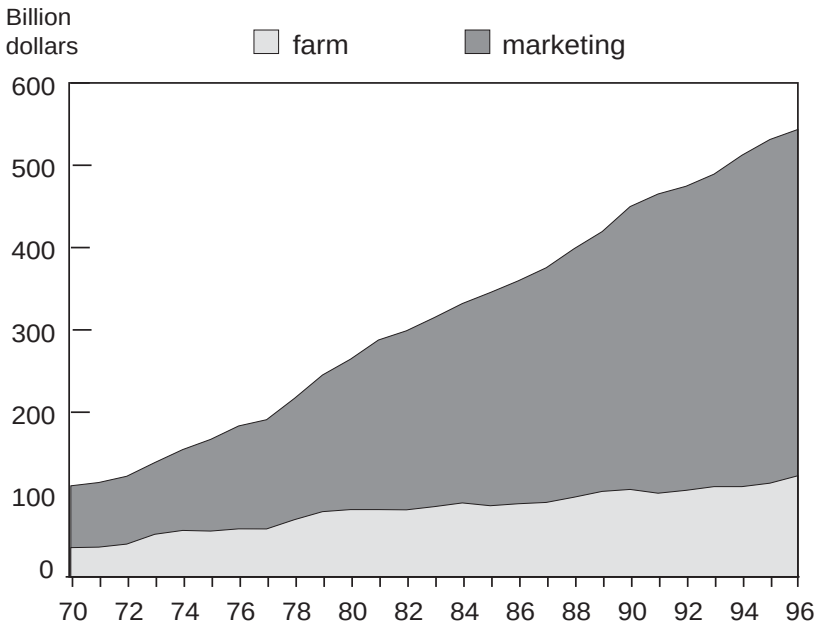
Farm-Retail Price Spread

Food prices include payments for both the raw farm product and marketing services. In 1996, the farm value, or payment for the raw product, averaged 25 percent of the retail cost of a market basket of U.S. farm foods sold in foodstores. The other 75 percent, the farm-retail price spread, consisted of all processing, transportation, wholesaling, and retailing charges incurred after farm products leave the farm.

Figure 1-9.

Distribution of food expenditures

The marketing bill is 77 percent of 1996 food expenditures



Data for foods of U.S. farm origin purchased by or for consumers for consumption both at home and away from home.

Figure 1-10.

Sources of food energy in the U.S. food supply

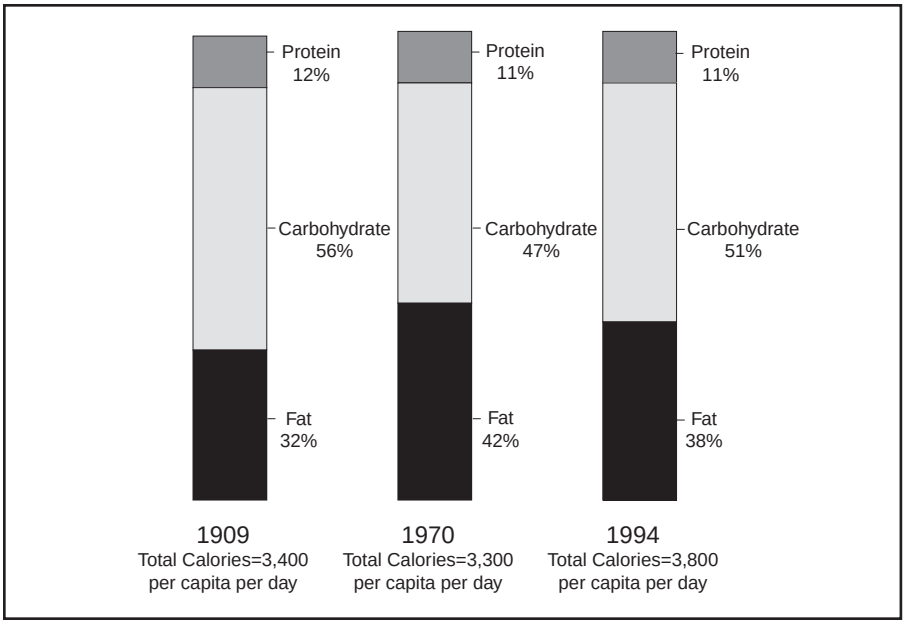


Figure 1-11.

Sources of total fat in the U.S. food supply

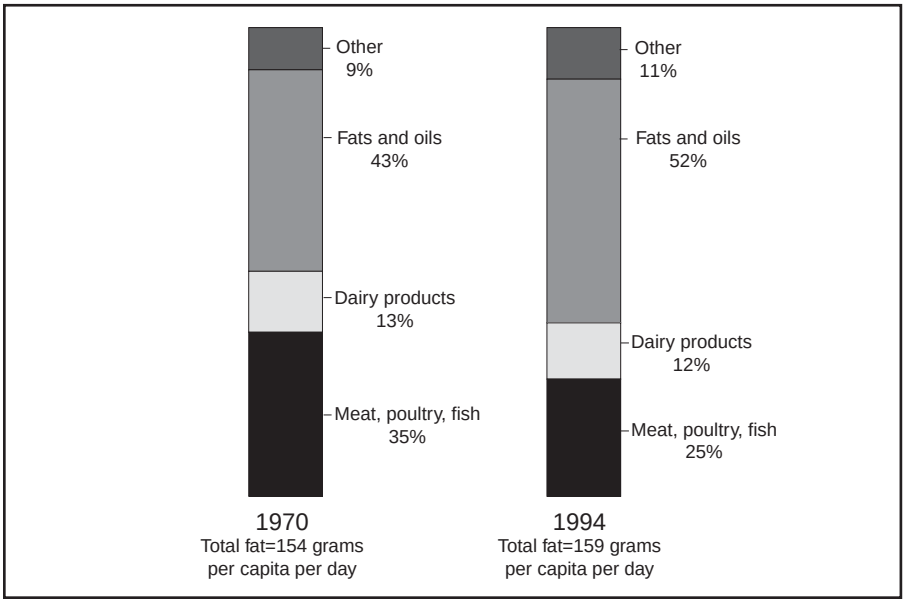
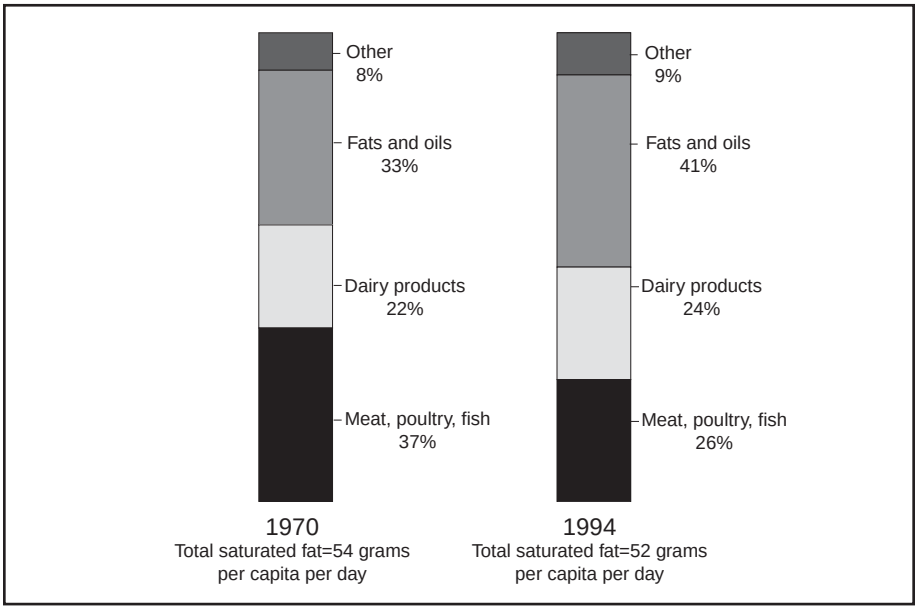


Figure 1-12.

Sources of saturated fat in the U.S. food supply



Farm-retail spreads have increased every year for the past 30 years, largely reflecting rising costs of labor, packaging, and other processing and marketing inputs. In 1996, farm-retail spreads rose an average of 3.3 percent and farmers received 2.2 percent less for the food they produced. The farm value as a percentage of retail prices was slightly higher in 1996 than in 1995. Meanwhile, retail food prices rose 4.4 percent. Widening farm-retail spreads continued to push up food costs in 1996.

The percentage of the retail price accounted for by the farm value varies widely among foods. Generally, it is larger for animal products than for crop-based foods, and smaller for foods that require considerable processing and packaging. The percentage generally decreases as the degree of processing increases. For example, the farm value of meat was 36 percent in 1996, while cereal and bakery products had a farm value averaging only 7 percent. The farm inputs needed to feed, house, and maintain the health of livestock are greater than the inputs required to grow crops. The additional manufacturing processes required for cereal and bakery products also result in a lower farm value than for meats. Most other foods also entail fewer inputs at the farm level. Other factors that influence the farm value percentage include transportation costs, product perishability, and retailing costs. Higher levels of these marketing factors tend to lower the farm value percentage.

Table 1-2.

Farm value as a percentage of retail price for domestically produced foods, 1986 and 1996

Items	*1986*	*1996*
	Percent	
Livestock products:		
Meats	47	36
Dairy	43	36
Poultry	54	44
Eggs	61	52
Crop products:		
Cereal and bakery	8	7
Fresh fruits	27	20
Fresh vegetables	28	20
Processed fruits and vegetables	23	19
Fats and oils	19	22

1. U.S. Agriculture—Linking Consumers and Producers

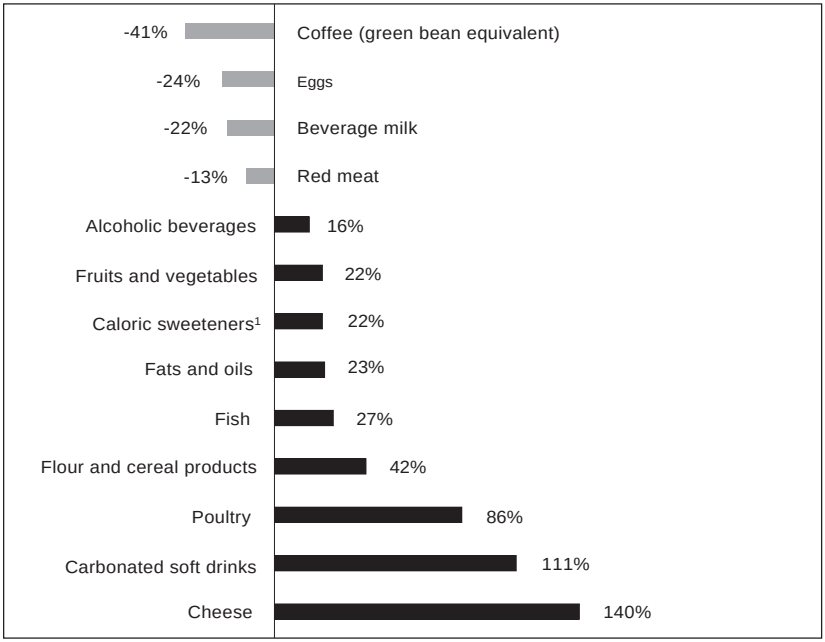
What Do Americans Eat?

The American diet has changed considerably over the last 25 years. Red meat consumption, for example, fell 13 percent between 1970 and 1995, while poultry consumption rose 86 percent and fish and shellfish 27 percent. Egg use declined by nearly a fourth, while cheese consumption more than doubled to 27 pounds per person in 1995. Consumption of coffee and milk has given way to icy cold carbonated soft drinks; bottled water; beer; canned iced tea; and fruit juices, drinks, cocktails, and ades.

Change has been driven by various factors: prices, consumer income, more food assistance for the poor, convenience, new products, more imports, more eating away from home, more snacking, expanded advertising programs, smaller households, more two-earner households, increased ethnic diversity, an aging population, an expanded scientific base relating diet and health, new *Dietary Guidelines for*

Figure 1-1.

Changes in U.S. per capita consumption, 1970-1995



[1]Includes caloric sweeteners used in soft drinks.

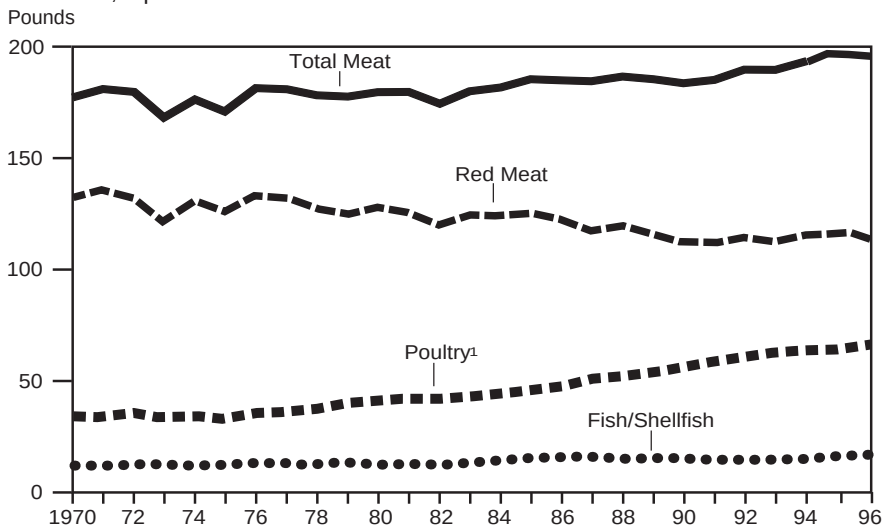
Americans designed to help people make food choices that promote health and prevent disease, improved nutrition labeling, and a burgeoning interest in nutrition.

USDA's Economic Research Service's (ERS) food supply (disappearance) data are based on the amount of food available for consumption in the United States. Estimates of food for domestic human consumption usually are calculated by subtracting measurable uses such as exports, industrial consumption, farm inputs, and end-of-year inventories from total supply (the sum of production, beginning inventories, and imports). Accordingly, the data are indirect measures of actual consumption. They may overstate what is actually eaten because they represent food supplies available in the market and do not account for waste. Food supply nutrient estimates are derived from the disappearance data by researchers in USDA's Center for Nutrition Policy and Promotion (CNPP).

Food Supply Providing More Grains, Vegetables, and Fruits and Less Saturated Fat and Cholesterol. Consistent with dietary and health recommendations, Americans now consume, on average, two-fifths more grain products and one-fifth more fruits and vegetables than did their 1970 counterparts. They drink lower fat milk than they did then; annual per capita butterfat consumption from beverage milk now is half what it was in 1970. And, they eat leaner meats—less red meat (leaner red meat, too) and more chicken and fish. Meat, poultry, and fish now contribute 25 percent of the total fat and 26 percent of the total saturated fat in the U.S. food supply, compared with 35 percent and 37 percent in 1970. This is so, even though per capita total meat consumption now is roughly a tenth higher than in 1970. Declining use of eggs, red meat (especially liver and other variety meats), and whole milk is behind a 13-percent decline since 1970 in per capita levels of dietary

Figure 1-2.

Per capita consumption of meat, poultry, and fish, boneless, trimmed,equivalent



[1]Includes skin, neck meat, and giblets.

Figure 1-3.

Per capita consumption of plain fluid milk

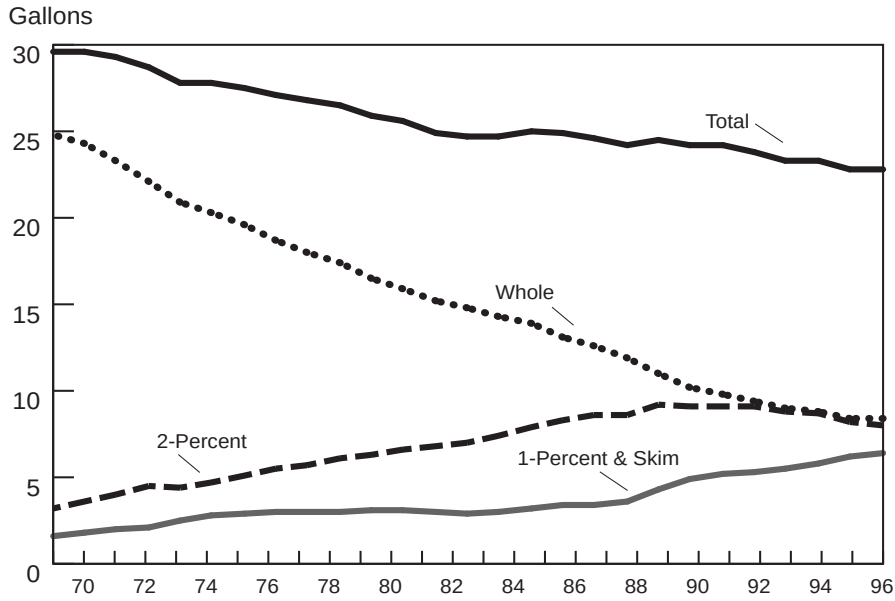
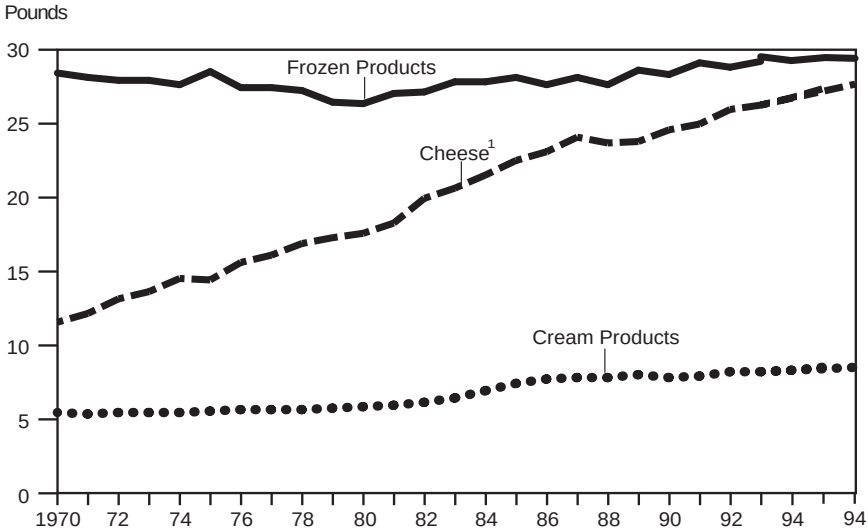


Figure 1-4.

Per capita consumption of selected dairy products



[1]Excludes full-skim American and cottage, pot, and baker's cheese.

cholesterol. Animal products now contribute less than half (48 percent in 1994) of the total fat in the food supply, compared with 61 percent in 1970.

Contrary to diet and health recommendations, however, Americans are consuming, on average, record-high amounts of added sugars and some high-fat dairy products and near record-high amounts of added fats and oils. The increase in added fats and oils probably results from the greatly expanded consumption of fried foods in foodservice outlets and high-fat snack foods, and the increased use of salad oils on salads consumed both at home and away.

We Are a Nation of Meat Eaters—Now More Than Ever. In 1996, total meat consumption (red meat, poultry, and fish) was 191 pounds (boneless, trimmed equivalent) per person, only 2 pounds below 1994's record high and 12 pounds above the 1980-84 annual average. Half-pound hamburgers and "value-priced" buckets of fried chicken draw slews of customers to foodservice outlets. Rotisserie chicken and Buffalo wings have become so popular that they have made inroads across the country, even in pizzarias. Americans love to barbecue meat on outdoor grills—boosting per capita consumption in warm months—and, increasingly, on indoor grills year round. A host of new lean-meat products cater to saturated-fat-wary consumers. Seasoned, ready-to-cook meats available in the fresh and frozen food cases and cooked meats in the self-serve and service delicatessens appeal to time-crunched consumers.

Long-Term Decline in Egg Consumption Levels Off in the 1990's. Between 1970 and 1989, annual consumption of eggs steadily declined from 309 eggs per person to 237. The average annual rate of decline during those 20 years was 3.6 eggs. During the 1990's total egg consumption has fluctuated between 234 and 238 eggs per person per year, but has shown an upward trend since 1991. Per capita consumption was 236 eggs in 1996 and has been projected to be 240 eggs in 1997. The record high for U.S. per capita egg consumption was 403 eggs in 1945.

Much of the decline in egg consumption since 1970 was due to changing lifestyles (for example, less time for breakfast preparation in the morning as large numbers of women joined the paid labor force) and the perceived ill effects of the cholesterol intake associated with egg consumption.

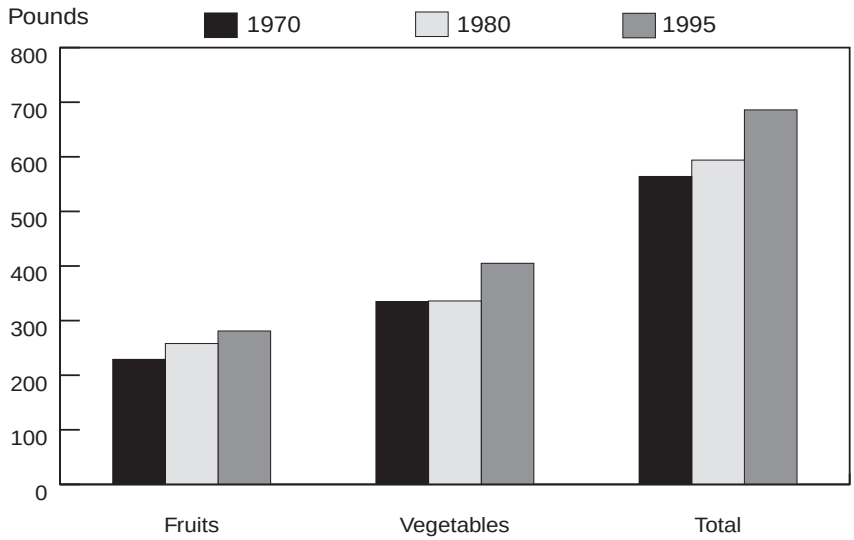
Declining retail egg prices between 1990 and 1994 may have spurred egg use in those years. The average retail price for a dozen large, Grade A eggs declined from $1.01 in 1990 to $0.86 in 1992 and 1994. Changing consumer attitudes toward eggs may also be responsible. New tests show eggs to contain less cholesterol than previously documented, leading the American Heart Association to increase its maximum recommended consumption from three eggs per week to four. Also, various research studies indicate that some Americans are relaxing their healthy eating habits and are indulging themselves in more traditional and flavorful foods.

Americans Drink Less Milk, Eat More Cheese. In 1996, Americans, on average, drank 22 percent less milk and ate nearly two and a half times as much cheese (excluding cottage types) as in 1970.

Annual per capita consumption of beverage milk declined from 31 gallons in 1970 to 24 gallons in 1996. Consumption of soft drinks may be displacing beverage milk in the diet. Big increases in eating away from home, especially at fast-food places, and in consumption of salty snack foods favored soft drink consumption.

Figure 1-5.

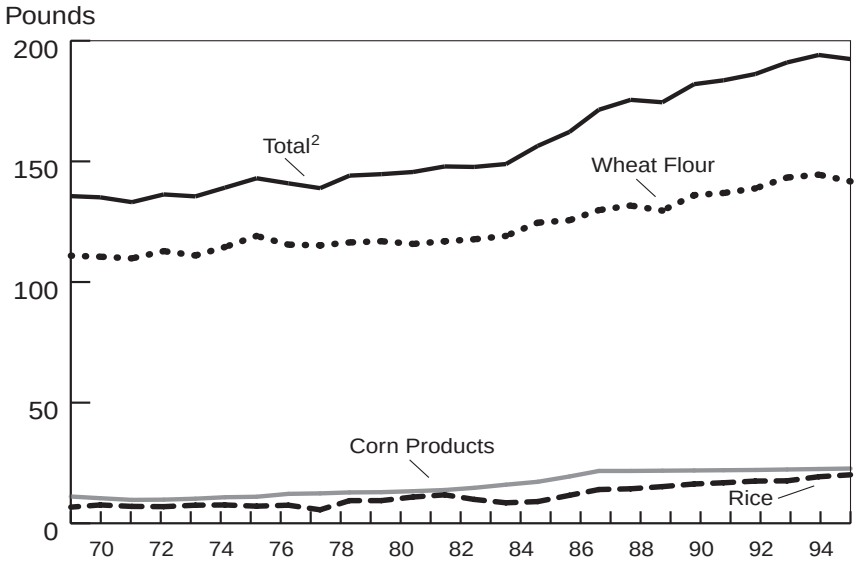
Per capita consumption of fruits and vegetables



[1]Farm-weight equivalent.

Figure 1-6.

Per capita consumption of grain products[1]



[1]Excludes quantities used in alcoholic beverages, fuel, and corn sweeteners.
[2]Includes oats, rye, and barley products.

The beverage milk trend is toward lower fat milk. While whole milk represented 81 percent of all beverage milk in 1970, its share dropped to 36 percent in 1996.

While Americans are switching to lower fat milk, they are also using more fluid cream products (half-and-half, light cream, heavy cream, eggnog, sour cream, and dips). Per capita consumption of fluid cream products jumped from an annual average of 10 half pints in 1970-74 to 16 half pints in 1996.

On balance, however, per capita consumption of milk-fat from all fluid milk and cream products declined 36 percent between 1970 and 1996, from 9.1 pounds per person to 5.8 pounds.

Average consumption of cheese—excluding full-skim American and cottage, pot, and baker's cheeses—increased 140 percent between 1970 and 1996, from 11 pounds per person to 27 pounds. The growth is concentrated in the ingredient and away-from-home markets. Rapidly expanding pizza sales and lifestyles that emphasize convenience foods are probably major forces behind the higher consumption. Advertising and new products—such as frozen broccoli and cheese combos and resealable bags of shredded cheeses—also had an effect.

Fruits and Vegetables—The Array of Choices Widens. As Americans increasingly embrace national health authorities' recommendation of consuming five fruits and vegetables a day, their array of choices continues to widen. Fresh-cut fruits and vegetables, prepackaged salads, locally grown items, and exotic produce—as well as hundreds of new varieties and processed products—have been introduced or expanded in the last decade.

Per capita use of fruits and vegetables rose in the early 1980's in response to higher consumer incomes, increased ethnic diversity, and burgeoning interest in healthful diets. By 1995, per capita consumption was 15 percent higher than in 1980 and 22 percent higher than in 1970. This trend is likely to continue expanding into the next decade as consumers heed nutritionists' message on healthful eating.

Supermarket produce departments carry over 400 produce items today, up from 250 in the late 1980's and 150 in the mid-1970's. Also, the number of ethnic, gourmet, and natural foodstores—which highlight fresh produce—continues to rise.

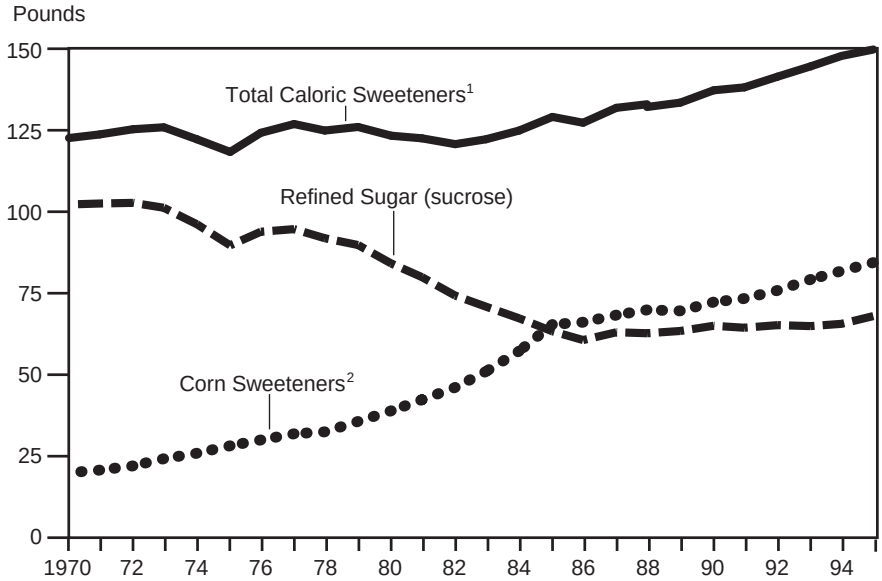
Consumers continue to have more access to fresh, local produce as well. The number of farmers' markets has grown substantially throughout the United States over the last several decades, and increased from 1,755 in 1993 to 2,116 by the end of 1995, according to USDA surveys.

Average Grain Consumption Up From 1970's But Far Below Early 1900's Highs. Per capita consumption of flour and cereal products reached 192 pounds in 1995 from an annual average of 147 pounds in 1980-84 and 135 pounds in 1970-74. The increase is far below the 300 pounds consumed per person in 1909 (the earliest year for which data are available). The expansion in supplies reflects ample grain stocks; strong consumer demand for variety breads and other bakery items; big increases in grain-based snack foods, breakfast cereals, and ethnic foods; and increasing sales of fast-food products made with buns, doughs, and tortillas. Grain products have overtaken caloric sweeteners to become the leading source of carbohydrates in the food supply.

Wheat is the major grain product eaten in the United States, with wheat flour and other wheat products representing 74 percent of U.S. grain consumption in 1995.

Figure 1-7.

Per capita consumption of caloric sweeteners



[1]Includes small quantities of honey, and molasses and other refiner's syrups. [2]Dry basis

However, wheat's share of total grain consumption declined 6 percentage points since 1985 as rice, corn products, and oat products gained momentum.

Americans Eating Record-High Amounts of Sugars. Total per capita consumption of caloric sweeteners (dry-weight basis)—comprised mainly of sucrose (table sugar made from cane and beets) and corn sweeteners (notably high-fructose corn syrup, or HFCS)—increased 28 pounds, or 22 percent, during 1970-95. In 1995, each American consumed, on average, 150 pounds of caloric sweeteners, compared with 122 pounds per person in 1970.

A striking change in the availability of specific sugars has occurred in the past two and half decades. Sucrose's share in total caloric sweetener consumption dropped from 83 percent in 1970 to 44 percent in 1995. In contrast, corn sweeteners' share increased from 16 percent in 1970 to 55 percent in 1995. All other caloric sweeteners, including honey, maple syrup, and molasses, maintained a 1-percent share.

Food Supply Providing More Calories and Higher Levels of Most Vitamins and Minerals. Evidence from various sources suggests that Americans are consuming, on average, more food, more snacks, bigger portions, and more calories than they did in 1970. The level of food energy (calories) in the food supply increased from 3,300 calories per person in 1970 to 3,800 calories in 1994. This 15-percent increase reflects higher levels of all three energy-yielding nutrients: carbohydrate, fat, and protein. The proportion of calories from carbohydrate increased from 47 to 51 percent, while the share from fat decreased from 42 to 38 percent. Protein has consistently accounted for about 11 percent of calories.

Table 1-1.

Major foods: U.S. per capita consumption

Food	*1970*	*1980*	*1995*
		Pounds	
Beef[1]	79.6	72.1	64.0
Pork[1]	48.0	52.1	49.1
Veal[1]	2.0	1.3	.8
Lamb and mutton[1]	2.1	1.0	.9
Chicken[1]	27.4	32.7	48.8
Turkey[1]	6.4	8.1	14.1
Fish and shellfish	11.7	12.4	14.9
Eggs (number)	308.9	271.1	234.6
Cheese[2]	11.4	17.5	27.3
Ice cream	17.8	17.5	15.7
Fluid cream products	5.2	5.6	8.4
All dairy products[3]	563.8	543.2	585.8
Fats and oils	52.6	57.2	64.1
Peanuts and tree nuts[4]	7.2	6.6	7.8
Fruits and vegetables[5]	564.4	594.4	685.9
Fruits	229.0	257.9	280.9
Vegetables	335.4	336.5	405.0
Caloric sweeteners[6]	122.3	123.0	150
Refined sugar (sucrose)	101.8	83.6	65.5
Corn sweeteners	19.1	38.2	83.2
Flour and cereal products[7]	135.6	144.7	192.4
Wheat flour	110.9	116.9	141.7
Rice	6.7	9.4	20.1
Corn products	11.1	12.9	22.7
Other[8]	6.0	4.9	7.2
Cocoa[9]	3.1	2.7	3.6
		Gallons	
Beverage milks	31.3	27.6	24.3
Whole	25.5	17.0	8.8
Lowfat and skim	5.8	10.5	15.6
Coffee	33.4	26.7	20.5
Tea	6.8	7.3	8.0
Soft drinks	24.3	35.1	51.2
Fruit juices	5.7	7.2	8.7
Bottled water	NA	2.4	11.6
Beer	18.5	24.3	22.0
Wine	1.3	2.1	1.8
Distilled spirits	1.8	2.0	1.2

NA = Not available.

[1]Boneless, trimmed equivalent. [2]Excludes full-skim American, cottage, pot, and baker's cheese. [3]Milk equivalent, milkfat basis. [4]Shelled basis. [5]Farmgate weight. [6]Dry basis. Includes honey and edible syrups. [7]Consumption of items at the processing level (excludes quantities used in alcoholic beverages and corn sweeteners). [8]Oats and barley. [9]Chocolate liquor equivalent; what remains after cocoa beans have been roasted and hulled.

The per capita level of total fat in the food supply increased 3 percent from 1970 to 1994, reflecting increased use of salad and cooking oils and shortening. Between 1970 and 1994, animal sources' share of total fat declined from 61 to 48 percent, while vegetable sources' share jumped from 39 to 52 percent.

In 1970, the meat, poultry, and fish group contributed the most saturated fat to the U.S. food supply—37 percent, followed by the fats and oils group at 33 percent. By 1994, the fats and oils group's contribution to total saturated fat had jumped up 8 percentage points, to 41 percent, and the meat, poultry, and fish group's contribution had dropped 11 percentage points, to 26 percent.

CNPP calculates the amounts per capita per day of food energy and 24 nutrients and food components in the U.S. food supply. Vitamin B_{12} is the only micronutrient (includes vitamins and minerals) whose level in the U.S. food supply declined between 1970 and 1994; the 19-percent decline in vitamin B_{12} reflects lower consumption of organ meats (for example, liver) and egg yolks. All other vitamins (A, C, E, B_6, thiamin, riboflavin, niacin, and folate) and all minerals (calcium, phosphorus, magnesium, iron, zinc, copper, and potassium) show gains in per capita supply from 1970 to 1994. For example, a 16-percent increase in vitamin C consumption reflects higher fruit consumption spurred by improvements in variety and year-round availability of many fresh fruits. Increases in thiamin, riboflavin, niacin, and iron reflect hikes in enrichment levels of flour called for by revisions in Federal standards in the 1970's as well as increased grain consumption in more recent years.

Cost of Food Services and Distribution

The estimated bill for marketing domestic farm foods—which does not include imported foods—was $421 billion in 1996. This amount covered all charges for transporting, processing, and distributing foods that originated on U.S. farms. It represented 77 percent of the $544 billion consumers spent for these foods. The remaining 23 percent, or $123 billion, represents the gross return paid to farmers.

The cost of marketing farm foods has increased considerably over the years, mainly because of rising costs of labor, transportation, food packaging materials, and other inputs used in marketing, and also because of the growing volume of food and the increase in services provided with the food.

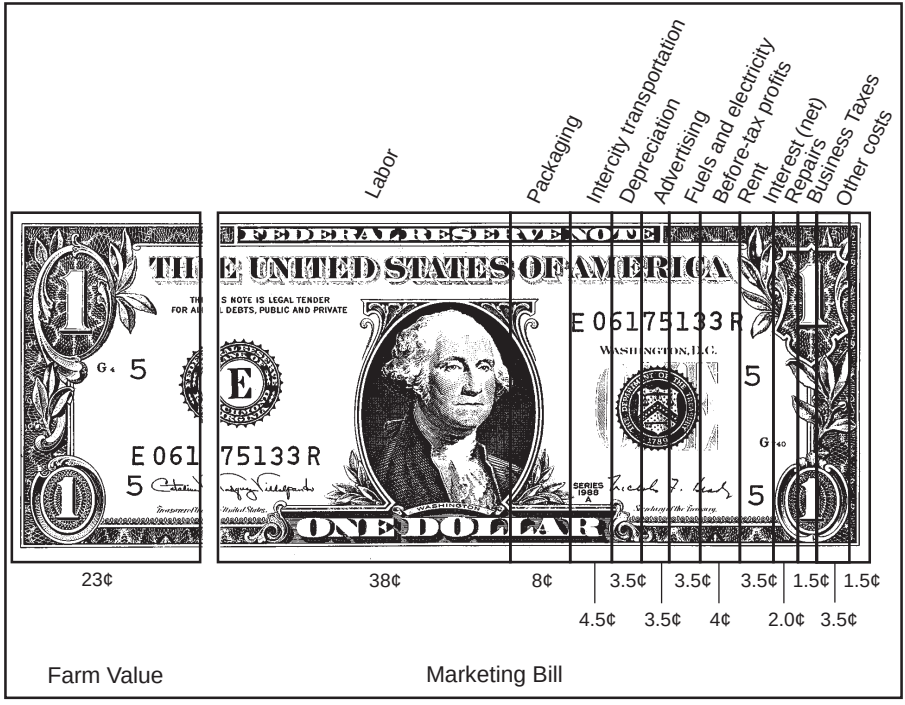
In 1986, the cost of marketing farm foods amounted to $271 billion. Over the following decade, the cost of marketing rose about 55 percent. In 1996, the marketing bill rose 1 percent.

These rising costs have been the principal factor affecting the rise in consumer food expenditures. From 1986 to 1996, consumer expenditures for farm foods rose $184 billion. About 80 percent of this increase resulted from an increase in the marketing bill.

The cost of labor is the biggest part of the total food marketing bill, accounting for nearly half of all marketing costs. Labor used by assemblers, manufacturers, wholesalers, retailers, and eating places cost more than $200 billion in 1996. This was 5 percent higher than in 1995 and 67 percent more than in 1986. The total number of food marketing workers in 1996 was about 13.5 million, about 21 percent

Figure 1-8.

What a dollar spent on food paid for in 1996



Includes food eaten at home and away from home. Other costs include property taxes and insurance, accounting and professional services, promotion, bad debts, and many miscellaneous items.

more than a decade earlier. Over two-thirds of the growth in food industry employment occurred in public eating places.

A wide variety of costs comprise the balance of the marketing bill. These costs include packaging, transportation, energy, advertising, business taxes, net interest, depreciation, rent, and repairs. Their relative proportions are illustrated in the accompanying dollar chart.

Food Expenditures and Prices

Total food expenditures, which include imports, fishery products, and food originating on farms, were $691.2 billion in 1996, an increase of 3.3 percent over these expenditures in 1995. The average was $2,605 per capita, 2.3 percent above the 1995 average.

Away-from-home meals and snacks captured 46 percent of the U.S. food dollar in 1996, up from 38 percent in 1976 and 43 percent in 1986.

The percentage of disposable personal income (income after taxes) that U.S. consumers spend on food continues to decline. From 1995 to 1996, disposable personal income increased 5.0 percent, a faster pace than the rise in food expenditures.

U.S. consumers in 1996 spent 10.9 percent of their disposable personal income on food, compared to 11.6 percent in 1990, 13.4 percent in 1980, and 13.8 percent in 1970.

In the United States, total retail food prices (including meals served in restaurants) rose 40.8 percent over the last 10 years (1986-96). Prices of food eaten away from home increased 35.6 percent, while retail foodstore prices increased 43.8 percent.

Prices of goods and services, excluding food, in the Consumer Price Index climbed 43.4 percent over the same 10 years. Transportation was up 39.8 percent; housing 37.8 percent; medical care 87.0 percent; and apparel and upkeep 24.4 percent.

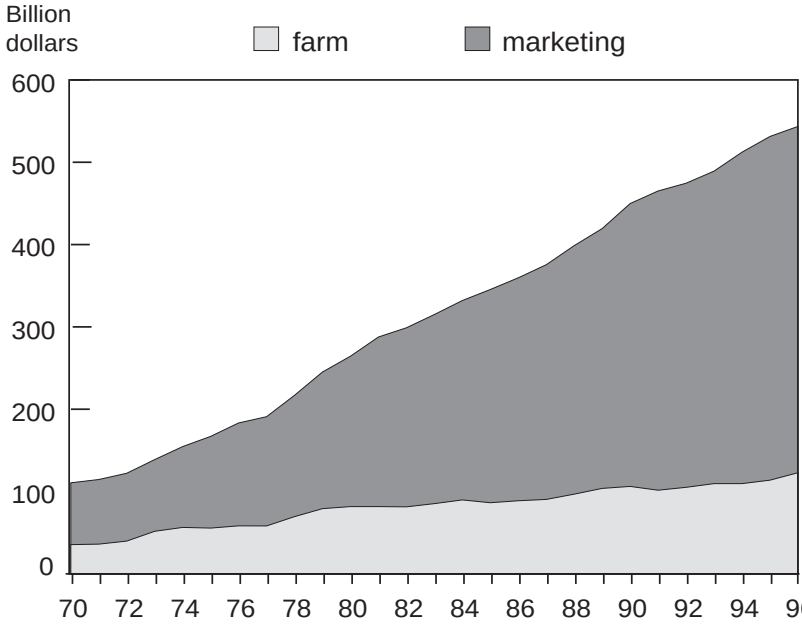
Farm-Retail Price Spread

Food prices include payments for both the raw farm product and marketing services. In 1996, the farm value, or payment for the raw product, averaged 25 percent of the retail cost of a market basket of U.S. farm foods sold in foodstores. The other 75 percent, the farm-retail price spread, consisted of all processing, transportation, wholesaling, and retailing charges incurred after farm products leave the farm.

Figure 1-9.

Distribution of food expenditures

The marketing bill is 77 percent of 1996 food expenditures



Data for foods of U.S. farm origin purchased by or for consumers for consumption both at home and away from home.

Figure 1-10.

Sources of food energy in the U.S. food supply

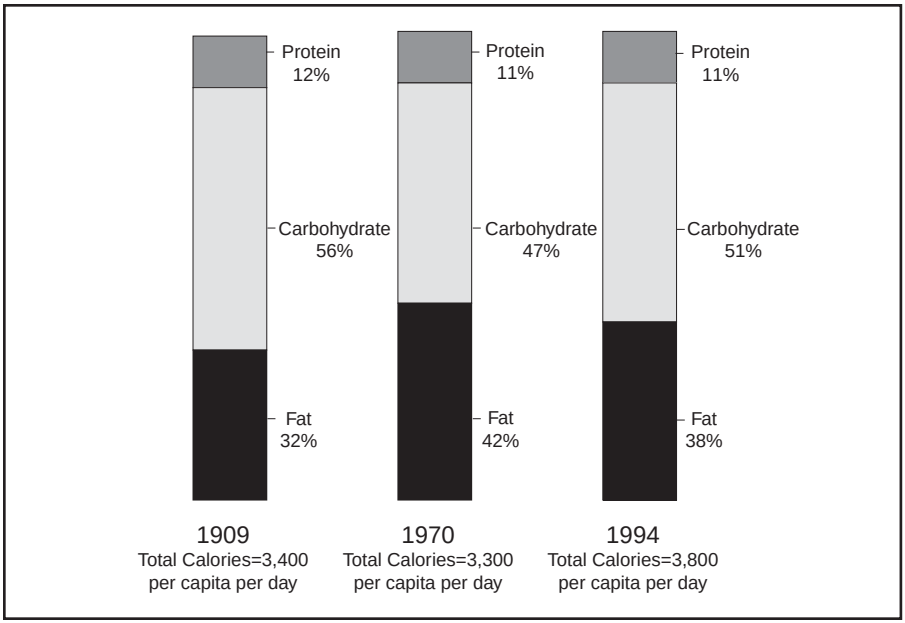


Figure 1-11.

Sources of total fat in the U.S. food supply

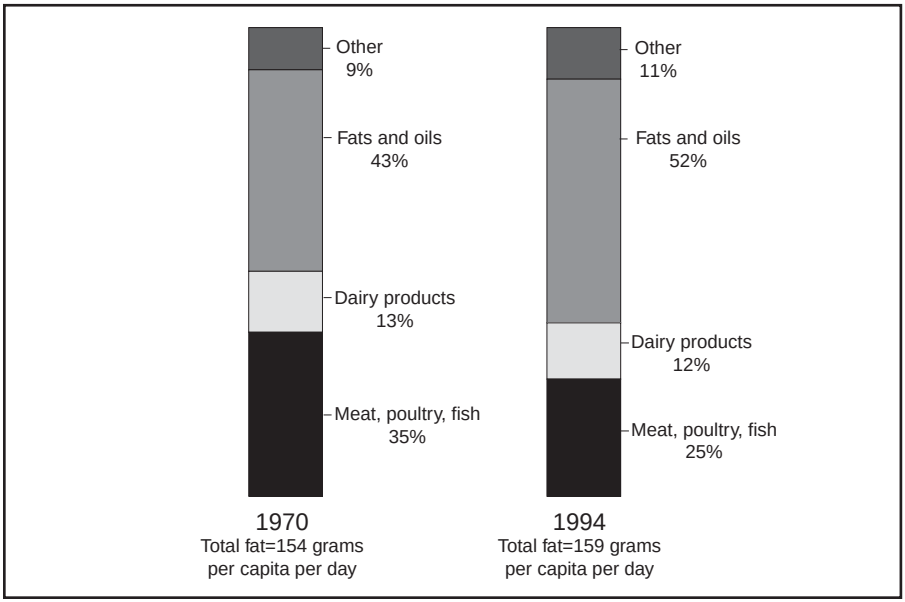
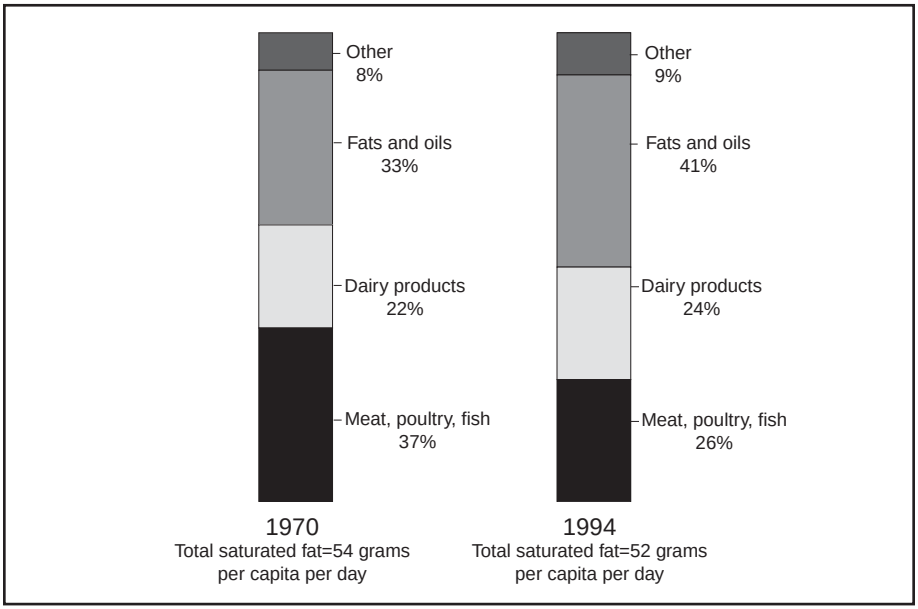


Figure 1-12.

Sources of saturated fat in the U.S. food supply



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Fresh fruits	27	20
Fresh vegetables	28	20
Processed fruits and vegetables	23	19
Fats and oils	19	22

2. Structure of U.S. Agriculture

Farming Regions

The 10 major farm production regions in the United States differ in soils, slope of land, climate, distance to market, and storage and marketing facilities. Together they comprise the agricultural face of the Nation.

The Northeastern States and the Lake States are the Nation's principal milk-producing areas. Climate and soil in these States are suited to raising grains and forage for cattle and for providing pastureland for grazing.

Broiler farming is important in Maine, Delaware, and Maryland. Fruit and vegetables are also important to the region.

The Appalachian region is the major tobacco-producing region in the Nation. Peanuts, cattle, and dairy production are also important there.

In the Southeast region, beef and broilers are important livestock products. Fruits, vegetables, and peanuts are grown in this region. Big citrus groves and winter vegetable production areas in Florida are major suppliers of agricultural goods. Cotton production is making a comeback.

In the Delta States, the principal cash crops are soybeans and cotton. Rice and sugarcane are also grown. With improved pastures, livestock production has gained in importance. This is a major broiler-producing region.

The Corn Belt has rich soil and good climate for excellent farming. Corn, beef, cattle, hogs, and dairy products are the major outputs of farms in the region. Other feed grains, soybeans, and wheat are also important.

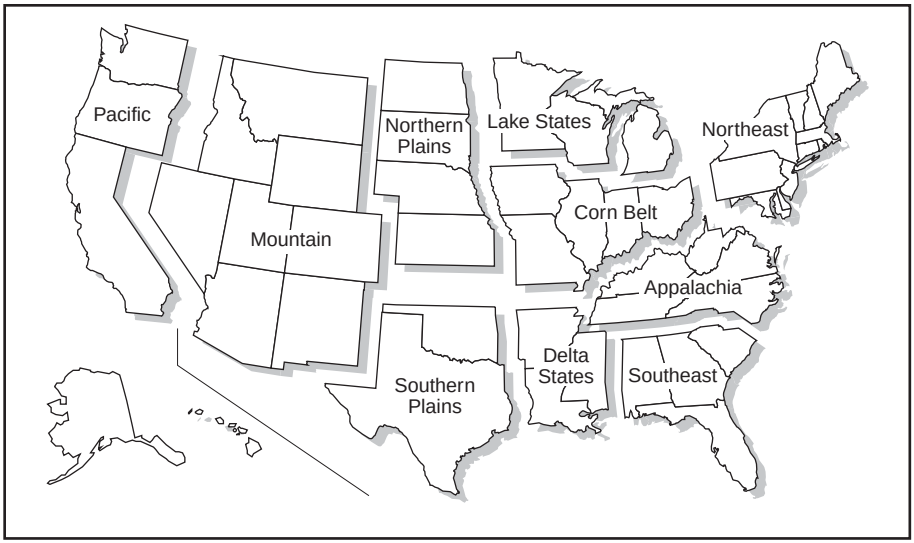
Agriculture in the northern and southern Plains, which extend north and south from Canada to Mexico, is restricted by rainfall in the western portion and by cold winters and short growing seasons in the northern part. About three-fifths of the Nation's winter and spring wheat is produced in this region. Other small grains, grain sorghum, hay, forage crops, and pastures form the basis for raising cattle. Cotton is produced in the southern part.

The Mountain States provide a still different terrain. Vast areas of this region are suited to raising cattle and sheep. Wheat is important in the northern parts. Irrigation in the valleys provides water for such crops as hay, sugar beets, potatoes, fruits, and vegetables.

The Pacific region includes the three Pacific Coast States plus Alaska and Hawaii. Farmers in Washington and Oregon specialize in raising wheat, fruit, and potatoes; vegetables, fruit, and cotton are important in California. Cattle are raised throughout the region. In Hawaii, sugarcane and pineapples are the major crops. Greenhouse/nursery and dairy products are Alaska's top-ranking commodities.

Figure 2-1.

U.S. farm production regions



Farms and Land in Farms

The United States had 2.06 million farms in 1996, down less than 1 percent from 1995. A farm is defined as any establishment from which $1,000 or more of agricultural products was sold or would normally be sold during the year. The number of farms declined annually about 1 percent from 1986 through 1996 except for an increase in 1995 of less than half a percent which was due in part to a change in definition; the overall decline for the period was 8 percent.

Land in farms continues to decline slowly; the total of 968 million acres in 1996 is down 0.4 percent from a year earlier and down 3.7 percent from 1986. Land in farms has declined every year since reaching its peak at 1.206 billion acres in 1954.

The number of farms has declined at a faster rate than land in farms; the average size of farms increased from 447 acres in 1986 to 469 acres in 1996.

Table 2-1.

Number of farms, land in farms, average farm size: United States, June 1, 1986-96[1]

Year	Number of Farms	Land in Farms	Average Farm Size
	In 1,000	*In 1,000 of acres*	*In acres*
1986	2,250	1,005,333	447
1987	2,213	998,923	451
1988	2,201	994,423	452
1989	2,175	990,723	456
1990	2,146	986,850	460
1991	2,117	981,736	464
1992	2,108	978,503	464
1993	2,083	976,463	469
1994	2,065	973,403	471
1995	2,072	972,253	469
1996	2,063	968,048	469

[1]A farm is any establishment from which $1,000 or more of agricultural products were sold or would normally be sold during the year.
Source: U.S. Department of Agriculture, National Agricultural Statistics Service, *Farms and Land in Farms*

Farms by Sales Class

Farms are commonly classified in size groups based on the total value of their gross farm sales. Data from the annual Farm Costs and Returns Survey, which is conducted by ERS and the National Agricultural Statistics Service, show that the greatest number of farms is in the lowest sales class, with over 60 percent reporting gross farm sales of less than $20,000 in 1994. According to the survey, these small farms accounted for only 16.2 percent of the acreage operated and 5 percent of the cash receipts from marketings.

A relatively small number of very large farms produce the largest share of farm sales. Only 2.3 percent of the farms in 1994 were large operations with sales of $500,000 or more, but they generated 38 percent of cash receipts from marketings and operated 14.8 percent of the land.

Average farm size increases consistently with sales class, ranging from 128 acres per farm in the less than $20,000 category to 3,032 acres for farms with receipts of $500,000 or more. The average farm in the $500,000 or more sales class reported farm sales of more than $1.4 million in 1994, compared with sales of more than $7,200 for the average farm in the less than $20,000 sales class.

Table 2-2.

Number of farms and land in farms: by State and United States, June 1, 1991-96[1]

State	Farms 1991	Farms 1992	Farms 1993	Land in farms 1991	Land in farms 1992	Land in farms 1993
	Number of farms			1,000 Acres		
AL	46,000	46,000	46,000	9,900	9,800	10,000
AK	560	540	530	970	950	940
AZ	7,600	7,500	7,400	35,800	35,600	35,500
AR	46,000	45,000	45,000	15,500	15,300	15,300
CA	83,000	82,000	79,000	30,500	30,200	30,000
CO	26,000	25,500	25,500	32,800	32,800	32,800
CT	3,900	4,000	3,800	420	410	400
DE	2,900	2,700	2,500	600	590	570
FL	40,000	39,000	39,000	10,500	10,500	10,300
GA	46,000	46,000	46,000	12,100	12,100	12,100
HI	4,700	4,800	4,800	1,630	1,590	1,590
ID	21,400	21,000	20,500	13,500	13,500	13,500
IL	82,000	81,000	79,000	28,300	28,200	28,100
IN	65,000	65,000	63,000	16,000	16,000	16,000
IA	103,000	103,000	102,000	33,500	33,400	33,300
KS	69,000	67,000	65,000	47,900	47,800	47,800
KY	91,000	91,000	91,000	14,100	14,100	14,100
LA	30,000	29,000	29,000	8,800	8,700	8,600
ME	7,100	7,300	7,300	1,420	1,420	1,400
MD	15,400	15,600	15,000	2,250	2,200	2,200
MA	6,400	6,400	6,200	630	630	610
MI	54,000	54,000	52,000	10,800	10,800	10,700
MN	88,000	88,000	87,000	30,000	29,800	29,700
MS	40,000	39,000	39,000	12,800	12,800	12,800
MO	107,000	107,000	106,000	30,400	30,300	30,200
MT	24,700	24,300	23,800	60,300	60,000	59,800
NE	56,000	56,000	55,000	47,100	47,100	47,100
NV	2,500	2,500	2,400	8,900	8,900	8,900
NH	2,700	2,700	2,500	440	440	440
NJ	8,500	9,000	8,900	880	880	870
NM	13,500	13,500	13,500	44,300	44,200	44,200
NY	38,000	38,000	37,500	8,300	8,200	8,100
NC	60,000	60,000	59,000	9,600	9,500	9,400
ND	33,000	33,000	32,500	40,400	40,400	40,400
OH	80,000	78,000	76,000	15,500	15,300	15,200
OK	70,000	71,000	70,500	33,000	34,000	34,000
OR	37,000	37,500	37,500	17,800	17,500	17,500
PA	53,000	52,000	51,000	8,100	8,000	7,900
RI	700	700	700	66	63	63
SC	24,500	24,500	24,000	5,200	5,200	5,150
SD	35,000	35,000	34,500	44,200	44,200	44,200
TN	85,000	85,000	84,000	12,100	12,100	12,100
TX	197,000	198,000	200,000	131,000	130,000	30,000
UT	13,300	13,200	13,000	11,300	11,300	11,200
VT	6,400	6,400	6,400	1,430	1,430	1,430
VA	45,000	45,000	45,000	8,800	8,700	8,600
WA	37,000	37,000	36,000	16,000	16,000	16,000
WV	20,000	20,000	20,000	3,700	3,700	3,700
WI	79,000	79,000	79,000	17,500	17,300	17,100
WY	9,000	9,200	9,200	34,700	34,600	34,600
US	2,116,760	2,107,840	2,083,430	981,736	978,503	976,463

See footnotes at end of table.

—*continued*

Table 2-2 continued.

Number of farms and land in farms, by State and U.S., June 1, 1991-96[1] (continued)

	Farms			Land in farms		
	1994	1995	1996	1994	1995	1996
	Number of farms			1,000 Acres		
AL	46,000	47,000	45,000	10,200	10,200	9,800
AK	520	520	510	930	920	920
AZ	7,400	7,400	7,500	35,400	35,400	35,400
AR	44,000	43,000	43,000	15,100	15,000	15,000
CA	79,000	80,000	82,000	29,900	30,000	30,000
CO	25,300	25,000	24,500	32,700	32,700	32,500
CT	3,800	3,800	3,800	390	380	380
DE	2,500	2,500	2,500	570	570	565
FL	39,000	39,000	40,000	10,300	10,300	10,300
GA	45,000	45,000	43,000	12,100	12,000	11,800
HI	4,800	4,800	4,600	1,590	1,590	1,590
ID	20,500	21,500	22,000	13,500	13,500	13,500
IL	77,000	77,000	76,000	28,100	28,100	28,100
IN	63,000	62,000	60,000	16,000	15,900	15,900
IA	101,000	100,000	98,000	33,200	33,200	33,200
KS	65,000	66,000	66,000	47,800	47,800	47,800
KY	89,000	89,000	88,000	14,100	14,000	14,000
LA	28,000	27,000	27,000	8,400	8,500	8,700
ME	7,600	7,600	7,400	1,360	1,350	1,340
MD	14,500	14,300	13,700	2,200	2,200	2,100
MA	6,000	6,000	6,200	600	570	570
MI	52,000	54,000	53,000	10,700	10,700	10,600
MN	85,000	87,000	87,000	29,700	29,800	29,800
MS	39,000	42,000	44,000	12,800	13,000	12,600
MO	105,000	105,000	104,000	30,100	30,000	30,000
MT	22,500	22,000	22,000	59,700	59,700	59,700
NE	55,000	56,000	56,000	47,100	47,000	47,000
NV	2,400	2,500	2,500	8,800	8,800	8,800
NH	2,400	2,300	2,400	440	440	430
NJ	8,900	9,000	9,200	860	850	840
NM	13,500	13,500	13,500	44,200	44,000	43,700
NY	36,000	36,000	36,000	7,900	7,700	7,700
NC	58,000	58,000	58,000	9,300	9,200	9,200
ND	32,000	32,000	31,000	40,400	40,300	40,300
OH	75,000	74,000	72,000	15,200	15,200	15,100
OK	70,000	71,000	72,000	34,000	34,000	34,000
OR	38,000	38,500	38,500	17,500	17,500	17,500
PA	51,000	50,000	50,000	7,800	7,700	7,700
RI	700	700	700	63	63	63
SC	23,000	22,000	21,500	5,100	5,050	5,000
SD	34,000	33,000	32,500	44,200	44,000	44,000
TN	83,000	81,000	80,000	12,000	12,000	11,800
TX	200,000	202,000	205,000	129,000	129,000	127,000
UT	13,000	13,400	13,400	11,100	11,100	11,000
VT	6,200	6,000	6,000	1,400	1,370	1,350
VA	46,000	47,000	48,000	8,600	8,600	8,600
WA	36,000	36,000	36,000	15,800	15,800	15,700
WV	20,000	20,000	20,000	3,700	3,700	3,700
WI	79,000	80,000	79,000	16,900	16,900	16,800
WY	9,200	9,200	9,100	34,600	34,600	34,600
US	2,064,720	2,071,520	2,063,010	973,403	972,253	968,048

[1]A farm is any establishment from which $1,000 or more of agricultural products were sold or normally would be sold during the year. Source: U.S. Department of Agriculture, National Agricultural Statistics Service, *Farms and Land in Farms.*

Table 2-3.

Percent of farms and land in farms: by economic sales class, United States, June 1, 1995-96[1]

Economic class (gross value of sales)	*Percent of total*				*Average size of farms (acres)*	
	Farms		*Land*			
	1995	*1996*	*1995*	*1996*	*1995*	*1996*
$1,000 - $2,499	21.5	22.5	2.7	3.0	59	63
$2,500 - $4,999	14.4	14.3	2.9	3.1	94	102
$5,000 - $9,999	13.0	12.6	4.1	4.5	148	168
$10,000 - $19,999	11.7	11.4	6.6	6.5	265	268
$20,000 - $39,999	10.5	10.2	9.8	9.8	438	451
$40,000 - $99,999	12.8	12.6	20.2	19.9	734	741
$100,000 - $249,999	10.3	10.2	25.7	25.2	1,170	1,159
$250,000 - $499,999	3.5	3.8	13.1	12.9	1,755	1,593
$500,000 +	2.3	2.4	14.9	15.1	3,038	2,952
Total	100.0	100.0	100.0	100.0	469	469

[1]A farm is any establishment from which $1,000 or more of agriculture products were sold or normally would be sold during the year. Source: U.S. Department of Agriculture, National Agricultural Statistics Service

Legal Structure of U.S. Farms (Individual, Partnership, Corporation)

Type of organization refers to the farm's form of business organization. Farms may broadly be classified as individual operations (proprietorships), partnerships, or corporations (family and nonfamily). Farm Costs and Returns Survey data indicate that individual operations are the most common type of farm organization. Nine out of ten farms in the 1995 survey were classified as individual operations. Partnerships and corporations make up a very small share of farms. About 87 percent of farm corporations are family corporations, with more than 50 percent of the stock held by people related by blood or marriage. Individual operations account for the largest share of farmland (74 percent) and gross farm sales (62 percent).

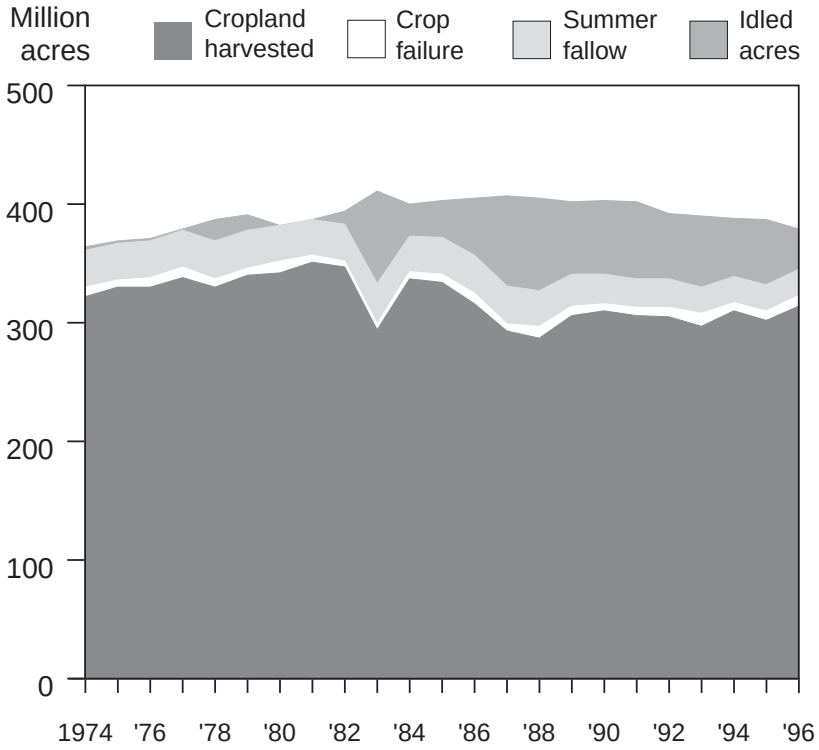
Corporate farms have the highest average farm sales. The average value of gross farm sales by corporate farms in 1995 was $576,900, while partnerships averaged $218,800. Gross sales for individual operations averaged $54,300, about one-tenth of the corporate level. Average acreage was also higher for corporate farms (1,608 acres) and for partnerships (1,154 acres) than for individual operations (351 acres).

Land Tenure

Land tenure describes the farm operator's ownership interest in the land farmed. The major land tenure categories are (1) full owners, who own all the land they operate, (2) part owners, who own some and rent the remainder of their land, and (3) tenants, who rent all of their land or work on shares for others. The majority of farms in the 1995 Farm Costs and Returns Survey (55 percent) reported full ownership of

Figure 2-2.

Major Uses of Cropland, 1974-96



the land they operated, while 36 percent owned part and rented part of the farmland they operated. Only 9 percent of operations reported that they rented all of their land.

Part owners generally operate the largest farms, averaging 714 acres in 1995, followed by tenants with 602 acres and full owners with 223 acres per farm. Part owners account for the largest share of acreage operated (59 percent of the total in 1995).

Gross farm sales are also concentrated on part-owner operations (51 percent of gross farm sales in 1995). The average value of gross farm sales for part owners in 1995 was $114,400, about $32,000 less than the average for tenants at $146,300. Gross farm sales for full-owner operations were much smaller, averaging $47,700.

Major Uses of U.S. Land

The major uses of U.S. cropland include cropland harvested, summer fallow, land idled in Federal programs and crop failure. Cropland harvested peaked in 1991 at about 351 million acres. Harvested cropland declined to 287 million acres in 1988 and is expected to have reached 314 million acres in 1996. Summer fallow acreage ranges between 22 million and 34 million acres per year. Cropland idled in Federal

commodity and conservation programs has ranged from none in 1980 and 1981 to 78 million acres in 1983 and 1988. Crop failure generally varies within a range of 5-11 million acres per year. The noticeable differences are often the result of weather conditions such as the drought in 1988, or the flood and wet weather at planting time in 1993.

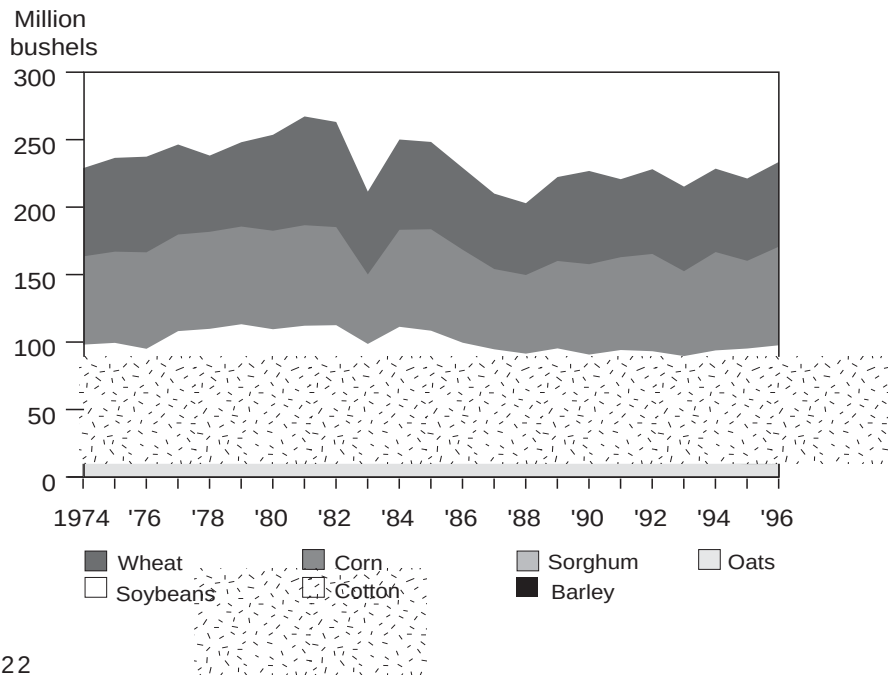
In 1983, the sharp decline in cropland harvested was the result of "PIK" (payment-in-kind), a USDA land retirement program that paid for the land retirement with surplus commodities. The idle acreage in 1993 included nearly 49 million acres in the PIK program and more than 29 million acres in the Acreage Conservation Reserve and Paid Land Diversion programs.

Acreage Harvested of Major Crops

The harvested acreage of corn in recent years has varied from 74.5 million acres in 1981 to 51.5 million acres in 1983, largely as the result of Federal acreage reduction programs. The PIK program idled nearly 22 million acres of corn acreage in 1983. Wheat acreage has ranged between a high of 80.6 million acres in 1981 to a low of 53.2 million acres in 1989. The PIK program removed about 18 million acres of wheat base from production in 1983. Barley and oat acreage harvested have been declining since the early 1970's. Acreage has tended to shift out of barley and oats to the more profitable crops. Soybean acreage harvested has fluctuated as the relative prices of soybeans and corn changed and as prices for soybeans in the world market were more or less favorable.

Figure 2-3.

Cropland Harvested



Foreign Ownership of U.S. Farmland

Foreign ownership of U.S. agricultural land remained relatively steady from 1981 through 1995—slightly above or below 1 percent of the privately owned agricultural land in the United States.

At the end of 1995, foreign persons owned 15.1 million acres—slightly more than 1 percent of the 1.3 billion acres of privately owned U.S. agricultural land (farm and forest land).

Forest land accounts for 49 percent of all foreign-owned acreage, cropland for 16 percent, pasture and other agricultural land for 32 percent, and nonagricultural land for 3 percent.

Corporations own 72 percent of the foreign-held acreage, partnerships own 20 percent, and individuals own 6 percent. The remaining 2 percent is held by estates, trusts, institutions, associations, and others.

About 56 percent of the reported foreign holdings involve land actually owned by U.S. corporations. The law requires them to register their land holdings as foreign if as little as 10 percent of their stock is held by foreign investors. The remaining 44 percent of the foreign-held land is owned by investors not affiliated with U.S. firms.

A total of 63 percent of foreign-held acreage is owned by investors (including individuals, corporations, partnerships, etc.) from Canada, the United Kingdom, Germany, Switzerland, the Netherlands Antilles, and the British Virgin Islands (in descending rank order). Japanese investors own only 3 percent of foreign-owned acreage.

Maine is the State with the largest number of acres (2,968,434) owned by foreign persons. Foreign holdings in Maine account for 16 percent of that States's privately owned agricultural land and 20 percent of all the reported foreign-owned agricultural land nationwide. Four companies own 91 percent of the foreign-held acres in Maine, almost all in forest land. Two of these companies are Canadian, one is French, and the fourth is a U.S. corporation that is partially Canadian owned.

Outside of Maine, foreign holdings are concentrated in the West and South, containing 34 and 32 percent, respectively, of all reported foreign holdings of U.S. agricultural land.

These findings are based on reports submitted to USDA under the Agricultural Foreign Investment Disclosure Act of 1978.

Table 2-4.

U.S. agricultural landholdings by country of foreign owner, December 31, 1995

Interests excluding U.S. Corporations with foreign shareholders

Country	*Acres*	*Country*	*Acres*
	Number		*Number*
		Lebanon	12,663
Argentina	12,578	Liberia	30,981
Australia	6,106	Liechtenstein	133,276
Austria	29,336	Luxembourg	3,109
Bahamas	36,325	Malaysia	7,948
Bahrain	313	Mexico	179,276
Belgium	65,586	Morocco	1,035
Belize	549	Namibia	197
Bermuda	73,835	Netherlands	112,104
Bolivia	11	Netherlands Antilles	355,382
Brazil	10,336	New Zealand	14,011
British Virgin Islands	124,062	Nicaragua	1,378
Canada	1,571,341	Norway	4,913
Cayman Islands	39,028	Oman	454
Chile	2,055	Pakistan	982
China	924	Panama	121,629
Colombia	11,414	Peru	308
Costa Rica	13,835	Philippines	3,816
Croatia	1,023	Poland	147
Cuba	58	Portugal	4,146
Czech Republic	347	Russia	771
Denmark	12,948	St. Vincent	2,637
Dominican Republic	2,108	Saudi Arabia	31,956
Ecuador	971	Senegal	10
Egypt	2,076	Singapore	504
El Salvador	128	Somalia	11
France	128,663	South Africa	2,673
Gambia	294	Spain	4,883
Germany	753,530	Sweden	54,880
Greece	60,491	Switzerland	286,005
Guatemala	1,102	Syria	2,689
Guyana	35	Taiwan	7,899
Honduras	1,018	Tanzania	10,143
Hong Kong	15,061	Thailand	1,835
Hungary	103	Trinidad & Tobago	94
India	1,754	Turkey	38
Indonesia	1,392	Turks Island	3,292
Iran	2,343	United Arab Emirates	4,149
Ireland	10,490	United Kingdom	1,798,722
Israel	951	Uruguay	10,807
Italy	81,477	Venezuela	22,339
Ivory Coast	119	Vietnam	152
Jamaica	567	Zimbabwe	230
Japan	199,980	Multiple [1]	54,843
Jordan	1,580	Third tier [2]	54,872
Kampuchea	31		
Korea (South)	1,570		
Kuwait	20,188		
Laos	31	Subtotal [3]	6,644,252

See footnotes at end of table.

—continued

Table 2-4 continued.

U.S. agricultural landholdings by country of foreign owner, December 31, 1995 (continued)

U.S. Corporations with foreign shareholders

Country	*Acres*	*Country*	*Acres*
	Number		*Number*
		US/Lebanon	411
US/Andorra	3,741	US/Liberia	24,064
US/Argentina	4,056	US/Libyan Arab Republic	280
US/Australia	5,030	US/Liechtenstein	101,202
US/Austria	26,138	US/Luxembourg	234,551
US/Bahamas	61,500	US/Malaysia	300
US/Barbados	41	US/Malta	500
US/Belgium	88,553	US/Mexico	254,395
US/Bermuda	37,571	US/Netherlands	384,297
US/Brazil	14,396	US/Netherlands Antilles	210,572
US/Brit. Virgin Islands	424,704	US/New Hebrides	883
US/Canada	1,799,034	US/New Zealand	50,455
US/Cayman Islands	52,536	US/Nicaragua	282
US/Chile	9,948	US/Norway	9,709
US/China	13,151	US/Pakistan	423
US/Colombia	11,435	US/Panama	151,088
US/Costa Rica	407	US/Paraguay	236
US/Denmark	8,228	US/Peru	1,696
US/Dominican Republic	589	US/Philippines	7,881
US/Ecuador	1,632	US/Portugal	1,683
US/Egypt	4,264	US/Qatar	219
US/El Salvador	607	US/Saudi Arabia	10,711
US/Finland	2,419	US/Singapore	73
US/France	1,100,081	US/South Africa	2,733
US/Germany	872,745	US/Spain	7,846
US/Greece	5,249	US/Sweden	4,094
US/Guatemala	412	US Switzerland	331,355
US/Guyana	334	US/Taiwan	45,029
US/Honduras	37	US/Thailand	252
US/Hong Kong	131,139	US/Trinidad & Tobago	20
US/Indonesia	644	US/Turkey	443
US/Iran	1,861	US/United Arab Emirates	4,543
US/Iraq	800	US/United Kingdom	1,044,245
US/Ireland	1,942	US/Uruguay	695
US/Israel	414	US/Venezuela	40,182
US/Italy	23,547	US/Multiple	178,776
US/Japan	290,936	US/Third Tier	342,754
US/Jordan	434		
US/Kenya	32	Subtotal [4]	8,457,880
US/Korea (South)	85		
US/Kuwait	8,330	Total all landholdings	15,102,037

[1]A report is processed as “multiple” when no single country predominates—for example, an equal partnership between a Canadian and a German.
[2]A report is processed as “third tier” if three or more levels of ownership are reported with no foreign interests stated.
[3]Total interests excluding U.S. corporations with foreign shareholders.
[4]Total interest of U.S. corporations with foreign shareholders.

Source: USDA, ERS, Agricultural Foreign Investment Disclosure Act data.

Table 2-5.

U.S. agricultural landholdings of foreign owners, by State, December 31, 1995

State or Territory	*Foreign-owned agricultural land*	*State or Territory*	*Foreign-owned agricultural land*	*State or Territory*	*Foreign-owned agricultural land*
	Acres		*Acres*		*Acres*
Alabama	299,579	Louisiana	682,366	Oklahoma	56,306
Alaska	75	Maine	2,968,434	Oregon	644,143
Arizona	338,653	Maryland	51,260	Pennsylvania	91,769
Arkansas	155,691	Massachusetts	2,029	Puerto Rico	839
California	954,052	Michigan	444,239	Rhode Island	17
Colorado	678,173	Minnesota	221,971	S. Carolina	198,852
Connecticut	881	Mississippi	444,286	S. Dakota	42,957
Delaware	5,878	Missouri	73,354	Tennessee	83,010
Florida	620,559	Montana	474,496	Texas	1,209,677
Georgia	558,953	Nebraska	74,769	Utah	61,013
Hawaii	180,058	Nevada	388,393	Vermont	86,532
Idaho	22,624	New Hampshire	16,477	Virginia	144,284
Illinois	209,549	New Jersey	18,369	Washington	389,777
Indiana	94,395	New Mexico	785,355	W. Virginia	166,974
Iowa	33,105	New York	280,614	Wisconsin	77,890
Kansas	69,490	N. Carolina	153,962	Wyoming	210,983
Kentucky	121,151	N. Dakota	27,839		
		Ohio	185,935	Total	15,102,037

Source: USDA, ERS, Agricultural Foreign Investment Disclosure Act data.

Farming Regions

The 10 major farm production regions in the United States differ in soils, slope of land, climate, distance to market, and storage and marketing facilities. Together they comprise the agricultural face of the Nation.

The Northeastern States and the Lake States are the Nation's principal milk-producing areas. Climate and soil in these States are suited to raising grains and forage for cattle and for providing pastureland for grazing.

Broiler farming is important in Maine, Delaware, and Maryland. Fruit and vegetables are also important to the region.

The Appalachian region is the major tobacco-producing region in the Nation. Peanuts, cattle, and dairy production are also important there.

In the Southeast region, beef and broilers are important livestock products. Fruits, vegetables, and peanuts are grown in this region. Big citrus groves and winter vegetable production areas in Florida are major suppliers of agricultural goods. Cotton production is making a comeback.

In the Delta States, the principal cash crops are soybeans and cotton. Rice and sugarcane are also grown. With improved pastures, livestock production has gained in importance. This is a major broiler-producing region.

The Corn Belt has rich soil and good climate for excellent farming. Corn, beef, cattle, hogs, and dairy products are the major outputs of farms in the region. Other feed grains, soybeans, and wheat are also important.

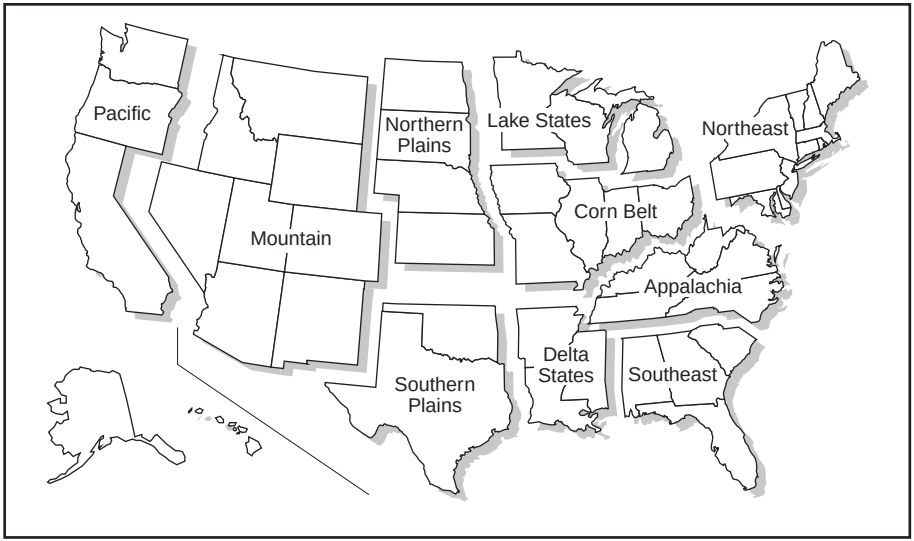
Agriculture in the northern and southern Plains, which extend north and south from Canada to Mexico, is restricted by rainfall in the western portion and by cold winters and short growing seasons in the northern part. About three-fifths of the Nation's winter and spring wheat is produced in this region. Other small grains, grain sorghum, hay, forage crops, and pastures form the basis for raising cattle. Cotton is produced in the southern part.

The Mountain States provide a still different terrain. Vast areas of this region are suited to raising cattle and sheep. Wheat is important in the northern parts. Irrigation in the valleys provides water for such crops as hay, sugar beets, potatoes, fruits, and vegetables.

The Pacific region includes the three Pacific Coast States plus Alaska and Hawaii. Farmers in Washington and Oregon specialize in raising wheat, fruit, and potatoes; vegetables, fruit, and cotton are important in California. Cattle are raised throughout the region. In Hawaii, sugarcane and pineapples are the major crops. Greenhouse/nursery and dairy products are Alaska's top-ranking commodities.

Figure 2-1.

U.S. farm production regions



Farms and Land in Farms

The United States had 2.06 million farms in 1996, down less than 1 percent from 1995. A farm is defined as any establishment from which $1,000 or more of agricultural products was sold or would normally be sold during the year. The number of farms declined annually about 1 percent from 1986 through 1996 except for an increase in 1995 of less than half a percent which was due in part to a change in definition; the overall decline for the period was 8 percent.

Land in farms continues to decline slowly; the total of 968 million acres in 1996 is down 0.4 percent from a year earlier and down 3.7 percent from 1986. Land in farms has declined every year since reaching its peak at 1.206 billion acres in 1954.

The number of farms has declined at a faster rate than land in farms; the average size of farms increased from 447 acres in 1986 to 469 acres in 1996.

Table 2-1.

Number of farms, land in farms, average farm size: United States, June 1, 1986-96[1]

Year	*Number of Farms*	*Land in Farms*	*Average Farm Size*
	In 1,000	*In 1,000 of acres*	*In acres*
1986	2,250	1,005,333	447
1987	2,213	998,923	451
1988	2,201	994,423	452
1989	2,175	990,723	456
1990	2,146	986,850	460
1991	2,117	981,736	464
1992	2,108	978,503	464
1993	2,083	976,463	469
1994	2,065	973,403	471
1995	2,072	972,253	469
1996	2,063	968,048	469

[1]A farm is any establishment from which $1,000 or more of agricultural products were sold or would normally be sold during the year.

Source: U.S. Department of Agriculture, National Agricultural Statistics Service, *Farms and Land in Farms*

Farms by Sales Class

Farms are commonly classified in size groups based on the total value of their gross farm sales. Data from the annual Farm Costs and Returns Survey, which is conducted by ERS and the National Agricultural Statistics Service, show that the greatest number of farms is in the lowest sales class, with over 60 percent reporting gross farm sales of less than $20,000 in 1994. According to the survey, these small farms accounted for only 16.2 percent of the acreage operated and 5 percent of the cash receipts from marketings.

A relatively small number of very large farms produce the largest share of farm sales. Only 2.3 percent of the farms in 1994 were large operations with sales of $500,000 or more, but they generated 38 percent of cash receipts from marketings and operated 14.8 percent of the land.

Average farm size increases consistently with sales class, ranging from 128 acres per farm in the less than $20,000 category to 3,032 acres for farms with receipts of $500,000 or more. The average farm in the $500,000 or more sales class reported farm sales of more than $1.4 million in 1994, compared with sales of more than $7,200 for the average farm in the less than $20,000 sales class.

Table 2-2.

Number of farms and land in farms: by State and United States, June 1, 1991-96[1]

State	Farms 1991	Farms 1992	Farms 1993	Land in farms 1991	Land in farms 1992	Land in farms 1993
	Number of farms			1,000 Acres		
AL	46,000	46,000	46,000	9,900	9,800	10,000
AK	560	540	530	970	950	940
AZ	7,600	7,500	7,400	35,800	35,600	35,500
AR	46,000	45,000	45,000	15,500	15,300	15,300
CA	83,000	82,000	79,000	30,500	30,200	30,000
CO	26,000	25,500	25,500	32,800	32,800	32,800
CT	3,900	4,000	3,800	420	410	400
DE	2,900	2,700	2,500	600	590	570
FL	40,000	39,000	39,000	10,500	10,500	10,300
GA	46,000	46,000	46,000	12,100	12,100	12,100
HI	4,700	4,800	4,800	1,630	1,590	1,590
ID	21,400	21,000	20,500	13,500	13,500	13,500
IL	82,000	81,000	79,000	28,300	28,200	28,100
IN	65,000	65,000	63,000	16,000	16,000	16,000
IA	103,000	103,000	102,000	33,500	33,400	33,300
KS	69,000	67,000	65,000	47,900	47,800	47,800
KY	91,000	91,000	91,000	14,100	14,100	14,100
LA	30,000	29,000	29,000	8,800	8,700	8,600
ME	7,100	7,300	7,300	1,420	1,420	1,400
MD	15,400	15,600	15,000	2,250	2,200	2,200
MA	6,400	6,400	6,200	630	630	610
MI	54,000	54,000	52,000	10,800	10,800	10,700
MN	88,000	88,000	87,000	30,000	29,800	29,700
MS	40,000	39,000	39,000	12,800	12,800	12,800
MO	107,000	107,000	106,000	30,400	30,300	30,200
MT	24,700	24,300	23,800	60,300	60,000	59,800
NE	56,000	56,000	55,000	47,100	47,100	47,100
NV	2,500	2,500	2,400	8,900	8,900	8,900
NH	2,700	2,700	2,500	440	440	440
NJ	8,500	9,000	8,900	880	880	870
NM	13,500	13,500	13,500	44,300	44,200	44,200
NY	38,000	38,000	37,500	8,300	8,200	8,100
NC	60,000	60,000	59,000	9,600	9,500	9,400
ND	33,000	33,000	32,500	40,400	40,400	40,400
OH	80,000	78,000	76,000	15,500	15,300	15,200
OK	70,000	71,000	70,500	33,000	34,000	34,000
OR	37,000	37,500	37,500	17,800	17,500	17,500
PA	53,000	52,000	51,000	8,100	8,000	7,900
RI	700	700	700	66	63	63
SC	24,500	24,500	24,000	5,200	5,200	5,150
SD	35,000	35,000	34,500	44,200	44,200	44,200
TN	85,000	85,000	84,000	12,100	12,100	12,100
TX	197,000	198,000	200,000	131,000	130,000	30,000
UT	13,300	13,200	13,000	11,300	11,300	11,200
VT	6,400	6,400	6,400	1,430	1,430	1,430
VA	45,000	45,000	45,000	8,800	8,700	8,600
WA	37,000	37,000	36,000	16,000	16,000	16,000
WV	20,000	20,000	20,000	3,700	3,700	3,700
WI	79,000	79,000	79,000	17,500	17,300	17,100
WY	9,000	9,200	9,200	34,700	34,600	34,600
US	2,116,760	2,107,840	2,083,430	981,736	978,503	976,463

See footnotes at end of table.

—*continued*

Table 2-2 continued.

Number of farms and land in farms, by State and U.S., June 1, 1991-96[1] (continued)

	Farms			Land in farms		
	1994	1995	1996	1994	1995	1996
	Number of farms			1,000 Acres		
AL	46,000	47,000	45,000	10,200	10,200	9,800
AK	520	520	510	930	920	920
AZ	7,400	7,400	7,500	35,400	35,400	35,400
AR	44,000	43,000	43,000	15,100	15,000	15,000
CA	79,000	80,000	82,000	29,900	30,000	30,000
CO	25,300	25,000	24,500	32,700	32,700	32,500
CT	3,800	3,800	3,800	390	380	380
DE	2,500	2,500	2,500	570	570	565
FL	39,000	39,000	40,000	10,300	10,300	10,300
GA	45,000	45,000	43,000	12,100	12,000	11,800
HI	4,800	4,800	4,600	1,590	1,590	1,590
ID	20,500	21,500	22,000	13,500	13,500	13,500
IL	77,000	77,000	76,000	28,100	28,100	28,100
IN	63,000	62,000	60,000	16,000	15,900	15,900
IA	101,000	100,000	98,000	33,200	33,200	33,200
KS	65,000	66,000	66,000	47,800	47,800	47,800
KY	89,000	89,000	88,000	14,100	14,000	14,000
LA	28,000	27,000	27,000	8,400	8,500	8,700
ME	7,600	7,600	7,400	1,360	1,350	1,340
MD	14,500	14,300	13,700	2,200	2,200	2,100
MA	6,000	6,000	6,200	600	570	570
MI	52,000	54,000	53,000	10,700	10,700	10,600
MN	85,000	87,000	87,000	29,700	29,800	29,800
MS	39,000	42,000	44,000	12,800	13,000	12,600
MO	105,000	105,000	104,000	30,100	30,000	30,000
MT	22,500	22,000	22,000	59,700	59,700	59,700
NE	55,000	56,000	56,000	47,100	47,000	47,000
NV	2,400	2,500	2,500	8,800	8,800	8,800
NH	2,400	2,300	2,400	440	440	430
NJ	8,900	9,000	9,200	860	850	840
NM	13,500	13,500	13,500	44,200	44,000	43,700
NY	36,000	36,000	36,000	7,900	7,700	7,700
NC	58,000	58,000	58,000	9,300	9,200	9,200
ND	32,000	32,000	31,000	40,400	40,300	40,300
OH	75,000	74,000	72,000	15,200	15,200	15,100
OK	70,000	71,000	72,000	34,000	34,000	34,000
OR	38,000	38,500	38,500	17,500	17,500	17,500
PA	51,000	50,000	50,000	7,800	7,700	7,700
RI	700	700	700	63	63	63
SC	23,000	22,000	21,500	5,100	5,050	5,000
SD	34,000	33,000	32,500	44,200	44,000	44,000
TN	83,000	81,000	80,000	12,000	12,000	11,800
TX	200,000	202,000	205,000	129,000	129,000	127,000
UT	13,000	13,400	13,400	11,100	11,100	11,000
VT	6,200	6,000	6,000	1,400	1,370	1,350
VA	46,000	47,000	48,000	8,600	8,600	8,600
WA	36,000	36,000	36,000	15,800	15,800	15,700
WV	20,000	20,000	20,000	3,700	3,700	3,700
WI	79,000	80,000	79,000	16,900	16,900	16,800
WY	9,200	9,200	9,100	34,600	34,600	34,600
US	2,064,720	2,071,520	2,063,010	973,403	972,253	968,048

[1]A farm is any establishment from which $1,000 or more of agricultural products were sold or normally would be sold during the year. Source: U.S. Department of Agriculture, National Agricultural Statistics Service, *Farms and Land in Farms.*

Table 2-3.

Percent of farms and land in farms: by economic sales class, United States, June 1, 1995-96[1]

Economic class (gross value of sales)	*Percent of total*				*Average size of farms (acres)*	
	Farms		*Land*			
	1995	*1996*	*1995*	*1996*	*1995*	*1996*
$1,000 - $2,499	21.5	22.5	2.7	3.0	59	63
$2,500 - $4,999	14.4	14.3	2.9	3.1	94	102
$5,000 - $9,999	13.0	12.6	4.1	4.5	148	168
$10,000 - $19,999	11.7	11.4	6.6	6.5	265	268
$20,000 - $39,999	10.5	10.2	9.8	9.8	438	451
$40,000 - $99,999	12.8	12.6	20.2	19.9	734	741
$100,000 - $249,999	10.3	10.2	25.7	25.2	1,170	1,159
$250,000 - $499,999	3.5	3.8	13.1	12.9	1,755	1,593
$500,000 +	2.3	2.4	14.9	15.1	3,038	2,952
Total	100.0	100.0	100.0	100.0	469	469

[1]A farm is any establishment from which $1,000 or more of agriculture products were sold or normally would be sold during the year. Source: U.S. Department of Agriculture, National Agricultural Statistics Service

Legal Structure of U.S. Farms (Individual, Partnership, Corporation)

Type of organization refers to the farm's form of business organization. Farms may broadly be classified as individual operations (proprietorships), partnerships, or corporations (family and nonfamily). Farm Costs and Returns Survey data indicate that individual operations are the most common type of farm organization. Nine out of ten farms in the 1995 survey were classified as individual operations. Partnerships and corporations make up a very small share of farms. About 87 percent of farm corporations are family corporations, with more than 50 percent of the stock held by people related by blood or marriage. Individual operations account for the largest share of farmland (74 percent) and gross farm sales (62 percent).

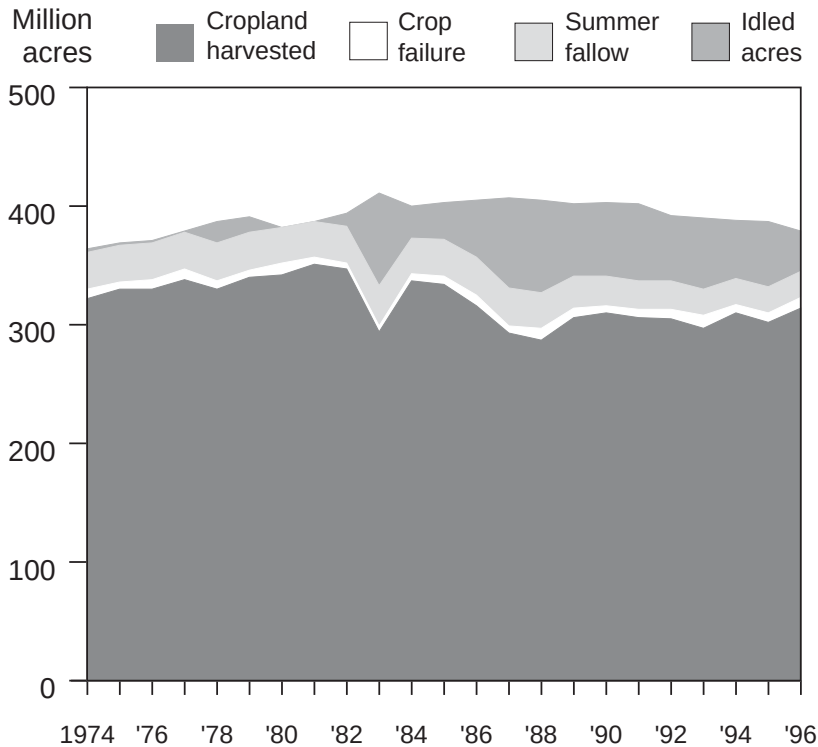
Corporate farms have the highest average farm sales. The average value of gross farm sales by corporate farms in 1995 was $576,900, while partnerships averaged $218,800. Gross sales for individual operations averaged $54,300, about one-tenth of the corporate level. Average acreage was also higher for corporate farms (1,608 acres) and for partnerships (1,154 acres) than for individual operations (351 acres).

Land Tenure

Land tenure describes the farm operator's ownership interest in the land farmed. The major land tenure categories are (1) full owners, who own all the land they operate, (2) part owners, who own some and rent the remainder of their land, and (3) tenants, who rent all of their land or work on shares for others. The majority of farms in the 1995 Farm Costs and Returns Survey (55 percent) reported full ownership of

Figure 2-2.

Major Uses of Cropland, 1974-96



the land they operated, while 36 percent owned part and rented part of the farmland they operated. Only 9 percent of operations reported that they rented all of their land.

Part owners generally operate the largest farms, averaging 714 acres in 1995, followed by tenants with 602 acres and full owners with 223 acres per farm. Part owners account for the largest share of acreage operated (59 percent of the total in 1995).

Gross farm sales are also concentrated on part-owner operations (51 percent of gross farm sales in 1995). The average value of gross farm sales for part owners in 1995 was $114,400, about $32,000 less than the average for tenants at $146,300. Gross farm sales for full-owner operations were much smaller, averaging $47,700.

Major Uses of U.S. Land

The major uses of U.S. cropland include cropland harvested, summer fallow, land idled in Federal programs and crop failure. Cropland harvested peaked in 1991 at about 351 million acres. Harvested cropland declined to 287 million acres in 1988 and is expected to have reached 314 million acres in 1996. Summer fallow acreage ranges between 22 million and 34 million acres per year. Cropland idled in Federal

commodity and conservation programs has ranged from none in 1980 and 1981 to 78 million acres in 1983 and 1988. Crop failure generally varies within a range of 5-11 million acres per year. The noticeable differences are often the result of weather conditions such as the drought in 1988, or the flood and wet weather at planting time in 1993.

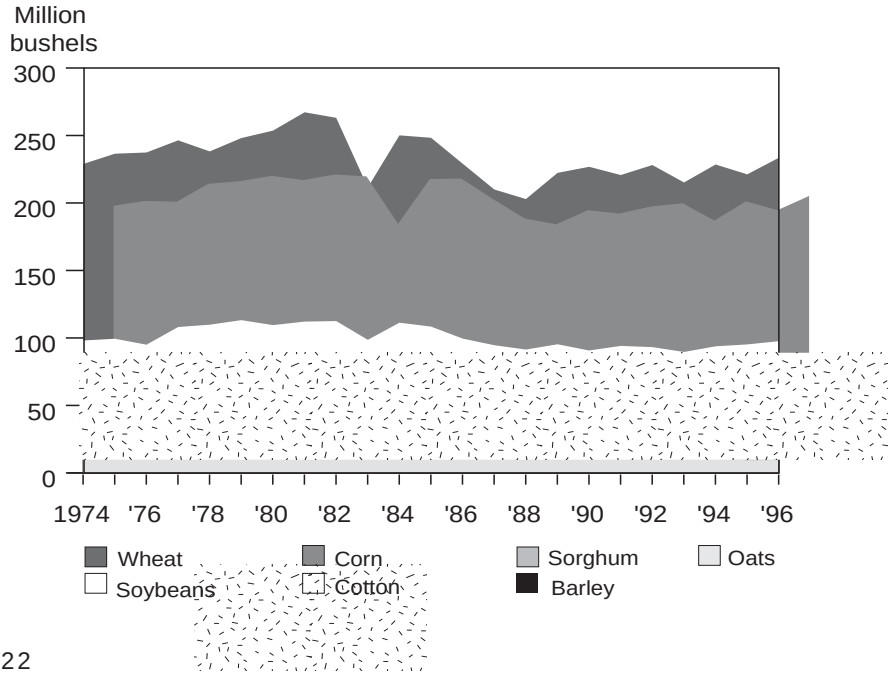
In 1983, the sharp decline in cropland harvested was the result of "PIK" (payment-in-kind), a USDA land retirement program that paid for the land retirement with surplus commodities. The idle acreage in 1993 included nearly 49 million acres in the PIK program and more than 29 million acres in the Acreage Conservation Reserve and Paid Land Diversion programs.

Acreage Harvested of Major Crops

The harvested acreage of corn in recent years has varied from 74.5 million acres in 1981 to 51.5 million acres in 1983, largely as the result of Federal acreage reduction programs. The PIK program idled nearly 22 million acres of corn acreage in 1983. Wheat acreage has ranged between a high of 80.6 million acres in 1981 to a low of 53.2 million acres in 1989. The PIK program removed about 18 million acres of wheat base from production in 1983. Barley and oat acreage harvested have been declining since the early 1970's. Acreage has tended to shift out of barley and oats to the more profitable crops. Soybean acreage harvested has fluctuated as the relative prices of soybeans and corn changed and as prices for soybeans in the world market were more or less favorable.

Figure 2-3.

Cropland Harvested



Foreign Ownership of U.S. Farmland

Foreign ownership of U.S. agricultural land remained relatively steady from 1981 through 1995—slightly above or below 1 percent of the privately owned agricultural land in the United States.

At the end of 1995, foreign persons owned 15.1 million acres—slightly more than 1 percent of the 1.3 billion acres of privately owned U.S. agricultural land (farm and forest land).

Forest land accounts for 49 percent of all foreign-owned acreage, cropland for 16 percent, pasture and other agricultural land for 32 percent, and nonagricultural land for 3 percent.

Corporations own 72 percent of the foreign-held acreage, partnerships own 20 percent, and individuals own 6 percent. The remaining 2 percent is held by estates, trusts, institutions, associations, and others.

About 56 percent of the reported foreign holdings involve land actually owned by U.S. corporations. The law requires them to register their land holdings as foreign if as little as 10 percent of their stock is held by foreign investors. The remaining 44 percent of the foreign-held land is owned by investors not affiliated with U.S. firms.

A total of 63 percent of foreign-held acreage is owned by investors (including individuals, corporations, partnerships, etc.) from Canada, the United Kingdom, Germany, Switzerland, the Netherlands Antilles, and the British Virgin Islands (in descending rank order). Japanese investors own only 3 percent of foreign-owned acreage.

Maine is the State with the largest number of acres (2,968,434) owned by foreign persons. Foreign holdings in Maine account for 16 percent of that States's privately owned agricultural land and 20 percent of all the reported foreign-owned agricultural land nationwide. Four companies own 91 percent of the foreign-held acres in Maine, almost all in forest land. Two of these companies are Canadian, one is French, and the fourth is a U.S. corporation that is partially Canadian owned.

Outside of Maine, foreign holdings are concentrated in the West and South, containing 34 and 32 percent, respectively, of all reported foreign holdings of U.S. agricultural land.

These findings are based on reports submitted to USDA under the Agricultural Foreign Investment Disclosure Act of 1978.

Table 2-4.

U.S. agricultural landholdings by country of foreign owner, December 31, 1995

Interests excluding U.S. Corporations with foreign shareholders

Country	*Acres*	*Country*	*Acres*
	Number		*Number*
		Lebanon	12,663
Argentina	12,578	Liberia	30,981
Australia	6,106	Liechtenstein	133,276
Austria	29,336	Luxembourg	3,109
Bahamas	36,325	Malaysia	7,948
Bahrain	313	Mexico	179,276
Belgium	65,586	Morocco	1,035
Belize	549	Namibia	197
Bermuda	73,835	Netherlands	112,104
Bolivia	11	Netherlands Antilles	355,382
Brazil	10,336	New Zealand	14,011
British Virgin Islands	124,062	Nicaragua	1,378
Canada	1,571,341	Norway	4,913
Cayman Islands	39,028	Oman	454
Chile	2,055	Pakistan	982
China	924	Panama	121,629
Colombia	11,414	Peru	308
Costa Rica	13,835	Philippines	3,816
Croatia	1,023	Poland	147
Cuba	58	Portugal	4,146
Czech Republic	347	Russia	771
Denmark	12,948	St. Vincent	2,637
Dominican Republic	2,108	Saudi Arabia	31,956
Ecuador	971	Senegal	10
Egypt	2,076	Singapore	504
El Salvador	128	Somalia	11
France	128,663	South Africa	2,673
Gambia	294	Spain	4,883
Germany	753,530	Sweden	54,880
Greece	60,491	Switzerland	286,005
Guatemala	1,102	Syria	2,689
Guyana	35	Taiwan	7,899
Honduras	1,018	Tanzania	10,143
Hong Kong	15,061	Thailand	1,835
Hungary	103	Trinidad & Tobago	94
India	1,754	Turkey	38
Indonesia	1,392	Turks Island	3,292
Iran	2,343	United Arab Emirates	4,149
Ireland	10,490	United Kingdom	1,798,722
Israel	951	Uruguay	10,807
Italy	81,477	Venezuela	22,339
Ivory Coast	119	Vietnam	152
Jamaica	567	Zimbabwe	230
Japan	199,980	Multiple [1]	54,843
Jordan	1,580	Third tier [2]	54,872
Kampuchea	31		
Korea (South)	1,570		
Kuwait	20,188		
Laos	31	Subtotal [3]	6,644,252

See footnotes at end of table.

—continued

Table 2-4 continued.

U.S. agricultural landholdings by country of foreign owner, December 31, 1995 (continued)

U.S. Corporations with foreign shareholders

Country	*Acres*	*Country*	*Acres*
	Number		*Number*
		US/Lebanon	411
US/Andorra	3,741	US/Liberia	24,064
US/Argentina	4,056	US/Libyan Arab Republic	280
US/Australia	5,030	US/Liechtenstein	101,202
US/Austria	26,138	US/Luxembourg	234,551
US/Bahamas	61,500	US/Malaysia	300
US/Barbados	41	US/Malta	500
US/Belgium	88,553	US/Mexico	254,395
US/Bermuda	37,571	US/Netherlands	384,297
US/Brazil	14,396	US/Netherlands Antilles	210,572
US/Brit. Virgin Islands	424,704	US/New Hebrides	883
US/Canada	1,799,034	US/New Zealand	50,455
US/Cayman Islands	52,536	US/Nicaragua	282
US/Chile	9,948	US/Norway	9,709
US/China	13,151	US/Pakistan	423
US/Colombia	11,435	US/Panama	151,088
US/Costa Rica	407	US/Paraguay	236
US/Denmark	8,228	US/Peru	1,696
US/Dominican Republic	589	US/Philippines	7,881
US/Ecuador	1,632	US/Portugal	1,683
US/Egypt	4,264	US/Qatar	219
US/El Salvador	607	US/Saudi Arabia	10,711
US/Finland	2,419	US/Singapore	73
US/France	1,100,081	US/South Africa	2,733
US/Germany	872,745	US/Spain	7,846
US/Greece	5,249	US/Sweden	4,094
US/Guatemala	412	US Switzerland	331,355
US/Guyana	334	US/Taiwan	45,029
US/Honduras	37	US/Thailand	252
US/Hong Kong	131,139	US/Trinidad & Tobago	20
US/Indonesia	644	US/Turkey	443
US/Iran	1,861	US/United Arab Emirates	4,543
US/Iraq	800	US/United Kingdom	1,044,245
US/Ireland	1,942	US/Uruguay	695
US/Israel	414	US/Venezuela	40,182
US/Italy	23,547	US/Multiple	178,776
US/Japan	290,936	US/Third Tier	342,754
US/Jordan	434		
US/Kenya	32	Subtotal [4]	8,457,880
US/Korea (South)	85		
US/Kuwait	8,330	Total all landholdings	15,102,037

[1]A report is processed as “multiple” when no single country predominates—for example, an equal partnership between a Canadian and a German.
[2]A report is processed as “third tier” if three or more levels of ownership are reported with no foreign interests stated.
[3]Total interests excluding U.S. corporations with foreign shareholders.
[4]Total interest of U.S. corporations with foreign shareholders.

Source: USDA, ERS, Agricultural Foreign Investment Disclosure Act data.

Table 2-5.

U.S. agricultural landholdings of foreign owners, by State, December 31, 1995

State or Territory	*Foreign-owned agricultural land*	*State or Territory*	*Foreign-owned agricultural land*	*State or Territory*	*Foreign-owned agricultural land*
	Acres		*Acres*		*Acres*
Alabama	299,579	Louisiana	682,366	Oklahoma	56,306
Alaska	75	Maine	2,968,434	Oregon	644,143
Arizona	338,653	Maryland	51,260	Pennsylvania	91,769
Arkansas	155,691	Massachusetts	2,029	Puerto Rico	839
California	954,052	Michigan	444,239	Rhode Island	17
Colorado	678,173	Minnesota	221,971	S. Carolina	198,852
Connecticut	881	Mississippi	444,286	S. Dakota	42,957
Delaware	5,878	Missouri	73,354	Tennessee	83,010
Florida	620,559	Montana	474,496	Texas	1,209,677
Georgia	558,953	Nebraska	74,769	Utah	61,013
Hawaii	180,058	Nevada	388,393	Vermont	86,532
Idaho	22,624	New Hampshire	16,477	Virginia	144,284
Illinois	209,549	New Jersey	18,369	Washington	389,777
Indiana	94,395	New Mexico	785,355	W. Virginia	166,974
Iowa	33,105	New York	280,614	Wisconsin	77,890
Kansas	69,490	N. Carolina	153,962	Wyoming	210,983
Kentucky	121,151	N. Dakota	27,839		
		Ohio	185,935	Total	15,102,037

Source: USDA, ERS, Agricultural Foreign Investment Disclosure Act data.

3. The U.S. Farm Sector

Farm Labor

Labor use on U.S. farms has changed dramatically over the last several decades. Average annual farm employment dropped from 9.9 million in 1950 to 2.8 million in 1995. This decrease resulted largely from the trend toward fewer and larger farms, increased farm mechanization and other technological innovations, and higher off-farm wages. However, farm employment appears to have stabilized in recent years as increases in mechanization and labor-saving technology have leveled off and the downward trend in farm numbers has slowed.

Family workers, including farm operators and unpaid workers, accounted for 69 percent of farm labor in 1995, while hired workers accounted for 31 percent. Service workers, including crew leaders and custom crews, accounted for 9 percent of all workers on farms in 1995.

The average wage rate for hired farm workers in the United States in 1995 was $6.54 per hour. Wages varied by type of worker: livestock workers averaged $5.99, field workers averaged $6.13, and supervisors averaged $10.27 in 1995.

A significant portion of total farm production expenses is spent on labor. The 1992 Census of Agriculture reported that expenditures for hired and contract labor on U.S. farms were $15.3 billion in 1992, or almost 12 percent of total farm production expenses. About 36 percent of all farms had hired labor expenses and 12 percent had contract labor expenses.

The importance of labor varied significantly by farm type and size of farm. The proportion of total farm production expenses attributed to hired and contract labor expenses was greatest on horticultural specialty farms (45 percent), fruit and tree nut farms (40 percent), and vegetable and melon farms (37 percent). These types of farms are the least mechanized, and many of the commodities they produce are still harvested by hand. At the other extreme, labor expenses comprised less than 5 percent of all production expenses on beef cattle, hogs, sheep, poultry, and cash grain farms.

Larger farms are more likely to have labor needs in excess of that provided by the farm family. Farms of 260 or more acres, which accounted for only 32 percent of all farms, had 70 percent of all labor expenses in 1992. In terms of sales class, the 27 percent of all farms with $50,000 or more in value of products sold accounted for 95 percent of all labor expenses.

Agricultural Credit

Farm business debt at the end of 1995 was $150.6 billion, up $3.9 billion from 1994. Farm real estate debt rose $1.5 billion from 1994 to $79.1 billion at the end of 1995. Farm business nonreal estate debt was $71.5 billion at the end of 1995, up 3 percent from 1994.

Farmers and lenders, despite concern about reduced short-term profitability in some livestock enterprises, maintain confidence in the long-run profitability of agriculture. The availability and use of credit play a significant role in the sustained profitability of farm enterprises. A symbiotic relationship exists between agricultural producers and their lenders; the health of one depends on the condition of the other.

Loans made to agricultural producers are classified as real estate and nonreal estate loans in the farm sector accounts. Real estate loans generally have terms of 10 to 40 years, and are ordinarily used to purchase farmland or to make major capital improvements to farm property. Nonreal estate loans are typically made for loan terms of less than 10 years, with the term depending on the purpose of the loan. Seasonal operating loans are made for less than 1 year, while loans to purchase machinery and equipment or livestock may run for 7 years or more.

At the end of 1995, the Farm Credit System held $24.8 billion in farm business real estate loans and $12.5 billion in nonreal estate loans. In total, the Farm Credit System held about 25 percent of farm business loans. While the Farm Credit System experienced difficulty in increasing loan balances and in regaining market share, it continued to report improved financial performance. Falling interest rates improved their earnings during 1990-95. Improved borrower financial conditions strengthened Farm Credit System performance.

Commercial banks held more than 40 percent of all farm business debt by the end of 1995, accounting for $22.2 billion in real estate loans (28 percent of total) and $37.7 billion in nonreal estate debt (53 percent). Life insurance companies maintained their presence in the agricultural credit market, as their total farm business debt rose slightly to $9.1 billion, giving them an 11-percent share of the farm business mortgage market. The Farm Service Agency (which includes the former Farmers Home Administration) direct loans to farm businesses dropped by $1.4 billion in 1995 as the Agency reduced its problem loan portfolio. The "Individuals and others" classification is composed primarily of sellers financing the sale of farmland, input suppliers, and some minor lending agencies. These accounted for $18.0 billion in real estate loans and $16.2 billion in nonreal estate loans at the end of 1995.

Table 3-1.

Farm business debt, selected years

	Farm debt outstanding, December 31										
	1950	*1960*	*1970*	*1980*	*1985*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*
Real estate debt:						*$ Billion*					
Farm Credit System	0.8	2.2	6.4	33.2	42.2	25.9	25.3	25.4	24.9	24.6	24.9
Life insurance companies	1.1	2.7	5.1	12.0	11.3	9.7	9.5	8.8	9.0	9.0	9.1
Banks	0.8	1.4	3.3	7.8	10.7	16.3	17.4	18.8	19.6	21.1	22.3
Farm Service Agency	0.2	0.6	2.2	7.4	9.8	7.6	7.0	6.4	5.8	5.5	5.1
Individuals and others	2.1	4.4	10.3	27.8	25.8	15.2	15.6	16.1	16.7	17.5	18.0
Total	5.2	11.3	27.5	89.7	100.1	74.7	74.9	75.4	76.0	77.7	79.3
Nonreal estate debt:											
Banks	2.4	4.7	10.5	30.0	33.7	31.3	32.9	32.9	34.9	36.7	37.7
Farm Credit System	0.5	1.5	5.3	19.7	14.0	9.8	10.2	10.3	10.5	11.2	12.5
Farm Service Agency	0.3	0.4	0.7	10.0	14.7	9.4	8.2	7.1	6.2	6.0	5.1
Individuals and others	2.5	4.5	4.8	17.4	15.1	12.7	13.0	13.2	14.2	15.2	16.2
Total	5.7	11.1	21.2	77.1	77.5	63.2	64.3	63.6	65.9	69.1	71.5
Total	10.9	22.4	48.8	166.8	177.6	138.0	139.2	139.1	142.0	146.8	150.8

Source: USDA, Economic Research Service, Rural Economy Division.

The Balance Sheet

Farm business asset values totaled $978.0 billion on December 31, 1995, an increase of 4 percent over the preceding year. Farm business debt rose 5 percent during 1995, reaching $150.8 billion at year's end. As a result, farm business equity rose 3 percent. Average equity per farm on December 31, 1995, was $399,000.

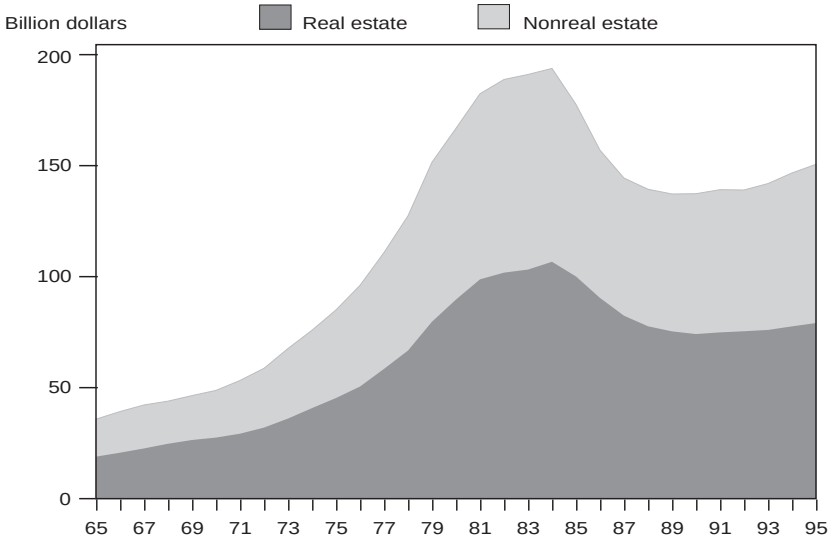
The debt-to-asset ratio (expressed as a percent) decreased from 15.6 to 15.4 during 1995. The ratio was substantially below the peak of 23 percent reached in 1985.

Real estate assets accounted for 77 percent of the value of farm business assets at the end of 1995. Real estate assets increased 7 percent during the year. The average real estate value per farm was $365,000 on December 31, 1995.

Nonreal estate assets decreased 4 percent during 1995. The year-end values of farm business livestock and poultry, machinery and motor vehicles, and purchased inputs fell, while only the value of crops stored and financial assets increased in 1995.

Figure 3-1.

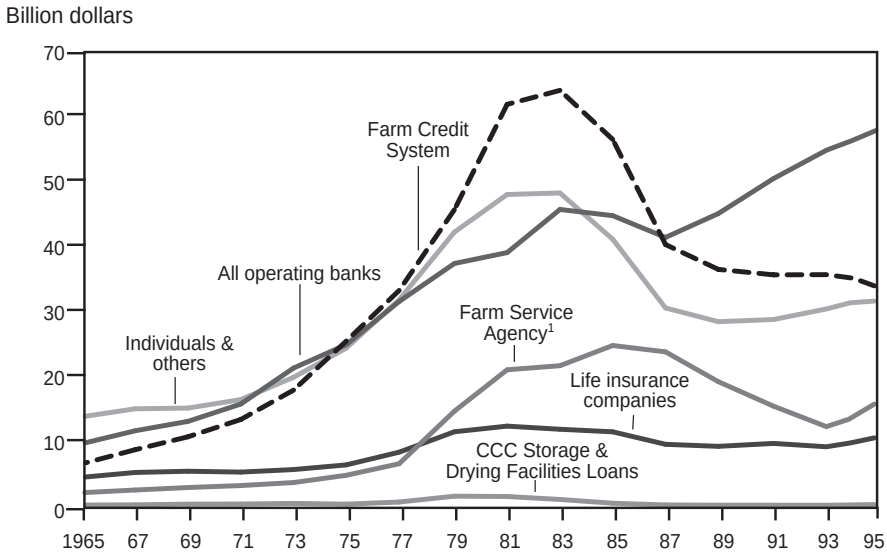
Farm business debt[1]



[1]Debt secured by farm real estate. [2] Debt for operating purposes.
Source: USDA, Economic Research Service, Rural Economy Division.

Figure 3-2.

Farm business debt by lender



[1]Includes the former Farmers Home Administration's loans.
Individuals and others include Commodity Credit Corporation real estate loans.
Source: USDA, Economic Research Service, Rural Economy Division.

Farm business real estate debt increased slightly in 1995, standing at $79.3 billion at the end of the year. Nonreal estate debt rose 3 percent to $71.5 billion. On December 31, 1995, commercial banks held 40 percent of farm business debt, and the Farm Credit System held 25 percent.

Table 3-2.

Farm business assets, debt, and equity[1]

Item	*1960*	*1970*	*1980*	*1990*	*1995[2]*
			Billion of current dollars		
Assets	174.2	278.9	981.5	839.9	978.0
Real estate	123.3	202.4	782.8	620.0	755.7
Nonreal estate [3]	51.1	76.4	198.7	219.8	222.2
Debt	22.4	48.8	166.8	138.0	150.8
Real estate [4]	11.3	27.5	89.7	74.7	79.3
Nonreal estate [5]	11.1	21.2	77.1	63.2	71.5
Equity (assets minus debt)	151.9	230.1	814.7	701.9	827.2

[1]As of December 31. [2]Preliminary. [3]Crop inventory value is value of non-CCC crops held on farms plus value above loan rate for crops held under CCC. [4]Includes CCC storage and drying facilities loans. [5]Excludes value of CCC crop loans.
Source: USDA, Economic Research Service, Rural Economy Division (now eliminated).

Net Cash Income and Net Farm Income

In 1995, both net cash income and net farm income reached low levels not seen since 1986. Although crop cash receipts reached a record high in 1995, net cash income from farming fell to $48.8 billion in 1995. Gross cash income was up $6.1 billion, but it was offset by a $7.7 billion rise in cash expenses. Net farm income fell sharply in 1995 as gross farm income declined by $5.4 billion and total production expenses rose by $8.1 billion. Increases in feed, cotton, and vegetable cash receipts boosted gross cash income while gross farm income declined due to the change in the value of inventory adjustment. Increases in purchased feed and other miscellaneous expenses boosted expenses.

Crop receipts rose $6.3 billion to reach $98.9 billion in 1995 while livestock receipts declined by $1.3 billion to $86.8 billion. Corn receipts rose $2.8 billion, cotton increased by $0.8 billion, and vegetables were up $1.0 billion. The increase in corn receipts resulted from higher corn prices in 1995 as corn production declined due to the 7.5 percent acreage reduction requirement and lower average yields. Cotton prices in 1995 averaged higher than in 1994 as production declined. The increase in vegetable cash receipts was led by lettuce sales as prices climbed due to the flooding in California's prime lettuce production areas. Cattle and calves cash receipts fell $2.4 billion in 1995 as ample supplies kept prices low.

The value of inventory adjustment was a negative $3.4 billion in 1995 as producers reduced their holdings of commodities due to lower grain production and tight grain supplies that kept grain prices high. In 1994, the value of inventory adjustment was $8.2 billion as producers held on to more crops due to the record crop production

in 1994. The change in the value of inventory adjustment, a negative $11.6 billion, caused gross farm income to decline while gross cash income rose in 1995. It is also the primary reason why net farm income declined by $13.6 billion while net cash income declined by $1.7 billion.

Cash expenses rose to $155.1 billion in 1995. Purchased feed expenses rose by $1.9 billion primarily due to increased corn prices. Other expenses rose $3.3 billion due to increases in general production and management expenses and a boost in the custom feeding expenses. Interest expenses rose $1.0 billion as the prices paid for interest index rose 12 percent in 1995.

Net cash income measures the farm sector's cash income generated from farming businesses during a calendar year. Farm businesses use the net cash income generated from farming to purchase farm assets, reduce farm debt, and meet living expenses. Net cash income is the sum of farm marketings, Government payments, and farm-related income minus cash expenses. Cash expenses include purchased feed, seed, livestock, fertilizer, lime, pesticides, fuel, oil, repair and maintenance, and other miscellaneous expenses. Cash expenses for interest, property taxes, labor, and net rent to nonoperator landlords are also included.

Net farm income measures the net value of agricultural commodities and services produced by the farm sector during a calendar year. It includes the income and expenses associated with the farmers' onfarm dwellings. The farm sector consists of sole proprietorships, multifamily farms, partnerships, contractors, and vertically integrated corporations involved in farming. Gross farm income is computed by summing the gross cash income from farming, noncash income, and the value of inventory adjustment. Total production expenses are the sums of intermediate production expenses, interest, labor, net rent to nonoperator landlords, capital consumption, and property taxes. Net farm income is the residual.

Farm Household Income

Farm operators have been surveyed by the annual Farm Costs and Returns Survey about the finances and production of their farms since 1985. Beginning in 1988 USDA has collected additional information about operator households. In 1995, the most recent year for which the survey data are available, about 98 percent of farms were covered in the household definition. Included are those run by individuals, legal partnerships, and family corporations. Nonfamily corporations, cooperatives, and institutional farms are not included in the household definition.

Like many other U.S. households, farm households receive income from a variety of sources, one of which is farming. The 1995 average household income for farm operator households was $44,400, which is on par with the average U.S. household. About 89 percent of the average farm operator’s household income came from off-farm sources, and many operators spent most of their work efforts in occupations other than farming. Off-farm income includes earned income such as wages and salaries from an off-farm job and net income from an off-farm business. Off-farm income also includes unearned income, such as interest and dividends, and Social Security.

Table 3-3.

Net cash income and net farm income, 1994-95

Items	Current dollars 1994	Current dollars 1995	1992 dollars[1] 1994	1992 dollars[1] 1995
	Million dollars			
Gross farm income	215,840	210,399	205,758	195,538
Gross cash income	197,808	203,883	188,568	189,482
Farm marketings	180,775	185,750	172,331	172,630
Crops	92,646	98,906	88,318	91,920
Livestock and products	88,129	86,844	84,013	80,710
Government payments	7,879	7,252	7,511	6,740
Farm-related income	9,154	10,881	8,726	10,112
Noncash income	9,808	9,892	9,350	9,193
Value of home consumption	481	495	459	460
Gross rental value of dwellings	9,327	9,397	8,891	8,733
Operator and other dwellings	8,893	8,834	8,477	8,210
Hired laborer dwellings	434	563	414	523
Value of inventory adjustment	8,224	(3,376)	7,840	(3,137)
Total production expenses	167,444	175,581	159,622	163,179
Intermediate product expenses	103,365	109,667	98,536	101,921
Farm origin	41,250	42,548	39,323	39,543
Feed purchased	22,628	24,528	21,571	22,796
Livestock and poultry purchased	13,250	12,557	12,631	11,670
Seed purchased	5,373	5,463	5,122	5,077
Manufactured inputs	21,723	23,440	20,708	21,785
Fertilizer and lime	9,181	10,034	8,752	9,326
Pesticides	7,219	7,719	6,881	7,173
Fuel and oil	5,323	5,687	5,075	5,286
Other	40,392	43,679	38,505	40,593
Repair and maintenance	9,185	9,427	8,756	8,761
Other miscellaneous	31,207	34,252	29,749	31,833
Interest	11,807	12,757	11,255	11,856
Real estate	5,853	6,067	5,580	5,639
Nonreal estate	5,954	6,690	5,676	6,217
Contract and hired labor expenses	15,308	16,285	14,593	15,135
Net rent to nonoperator landlords[2]	11,525	10,873	10,987	10,105
Capital consumption	18,780	19,107	17,903	17,758
Property taxes	6,659	6,891	6,348	6,404
NET FARM INCOME	48,396	34,819	46,136	32,359
Gross cash income	197,808	203,883	188,568	189,482
Cash expenses	147,357	155,121	140,474	144,164
Cash expenses, excluding net rent	134,446	142,840	128,165	132,751
Intermediate product expenses	102,315	108,761	97,536	101,079
Interest	11,391	12,326	10,859	11,456
Cash labor expenses	14,874	15,723	14,179	14,612
Property taxes	5,866	6,030	5,592	5,604
Net rent to nonoperator landlords[3]	12,912	12,280	12,308	11,413
NET CASH INCOME[4]	50,451	48,762	48,095	45,318

[1]Gross domestic product implicit price deflators are used to deflate the accounts to real dollars. [2]Includes landlord capital consumption. [3]Excludes landlord capital consumption. [4]Excludes noncash items and income and expenses of farm operator dwellings located on farms.

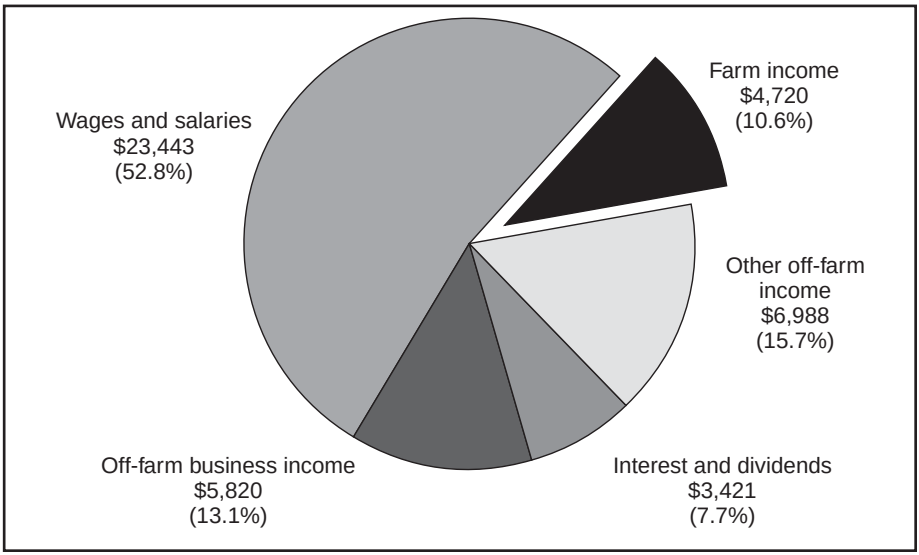
Source: USDA, Economic Research Service, Rural Economy Division.

For the majority of farm operator households, off-farm income is critical. Most U.S. farms are small (less than $50,000 in gross sales) and are run by households that depend mainly on off-farm income. About 49 percent of operators with small farms reported a nonfarm major occupation in 1995, and another 21 percent were retired. Most operators of larger farms reported farming as their major occupation, and their households were more likely to depend on farm income. In 1995, about a quarter of farm households operated commercial-size farms with sales of more than $50,000. These households provided most of U.S. farm production. However, even in households with the largest farms (sales of at least $500,000), off-farm income averaged $31,300 per household.

Average household income and dependence on off-farm income also varies among types of farm households. For example, 8 percent reported negative household income for 1995. On average, these households lost $40,700 from farming during the year. About 27 percent had household income of $50,000 or more, with farm income averaging $32,300. Among occupational categories, households of operators who reported occupations other than farming or retired had the highest average household income, largely from off-farm sources. Data on operators' age show that households associated with the oldest and youngest operators had the lowest average household income. Data on operators' educational level show significant increases in average income with each higher educational level.

Figure 3-3.

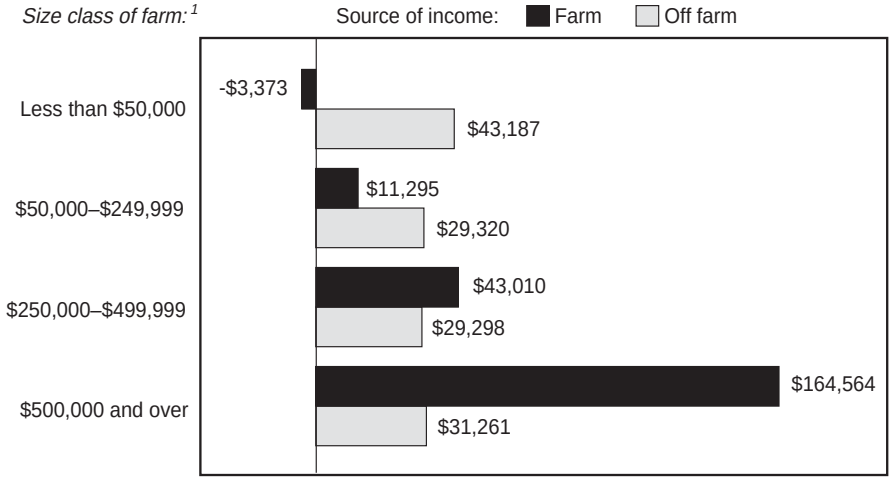
Sources of income for average farm operator household, 1995



Source: USDA, Economic Research Service, Rural Economy Division, 1995 Farm Costs and Returns Survey.

Figure 3-4.

Average farm and off-farm income for farm operator households, by size of farm, 1995



[1]Based on gross value of farm sales, which includes farm businesses', share landlords', and production contractors' shares of agricultural production.
Source: USDA, Economic Research Service, Rural Economy Division, 1995 Farm Costs and Returns Survey

Net Farm Income by State

The ranking of States by the aggregate value of net farm income reflects the size of the State, the proportion of its land that can be cultivated, the fertility of the land and climate within the State, and the State's comparative advantage in producing and marketing high-valued commodities. Because these factors do not readily change, the ranking of States remains stable over a period of years.

California led the Nation in 1995 with a net farm income of $4.3 billion, followed by North Carolina with $2.9 billion, Texas with $2.4 billion, Georgia with $2.0 billion, and Iowa with $1.8 billion.

California, at $22.3 billion in cash receipts, led the Nation in the value of cash receipts from all commodities. California's diversity in agricultural production is evidenced by the State's top five commodities from agricultural sales including dairy products, greenhouse and nursery products, grapes, cotton, and lettuce. These commodities accounted for 44 percent of the State's cash receipts. California was also the top producing State for agricultural sales from seven commodities: dairy products, greenhouse and nursery products, hay, grapes, tomatoes, lettuce, and almonds. California also had the highest production expenses of $19.1 billion.

North Carolina, the second leading State in net farm income, ranked eighth in gross farm income and ninth in production expense. North Carolina's top commodities include hogs, broilers, and tobacco. These commodities accounted for 50 percent of the State's agricultural commodity sales in 1995. North Carolina led the Nation in sales from tobacco and turkeys.

Table 3-4.

Farm operator households and household income, by selected characteristics, 1995

Item	*Number of households*	*Average household income*[1]	*Share from off-farm sources*[2]
	Number	*Dollars*	*Percent*
All operator households	2,036,810	44,392	89.4
Household income class:			
Negative	170,331	(28,968)	(40.4)
0-$9,999	210,182	5,470	183.0
$10,000 $24,999	443,779	17,643	112.7
$25,000 $49,999	668,579	36,507	96.2
$50,000 and over	543,938	113,918	71.7
Operator's major occupation:			
Farm or ranch work	903,820	40,342	64.8
Other	797,718	53,425	108.9
Retired	335,272	33,815	94.9
Operator's age class:			
Less than 35 years	168,825	32,506	93.4
35-44 years	407,345	47,266	89.3
45-54 years	476,807	51,953	91.6
55-64 years	469,052	50,421	87.7
65 years or older	514,780	33,518	87.2
Operator's educational level:			
Less than high school	425,612	30,173	94.4
High school	819,087	41,479	87.3
Some college	443,374	48,726	85.8
College	348,736	63,075	93.1

[1]The household income of farm operator households includes the net cash farm income that accrues to the farm operation, less depreciation, as well as wages paid to household members for work on the farm, net income from farmland rentals, and net income from another farm business, plus all sources of off-farm income accruing to the household. In cases where the net income from the farm was shared by two or more households, the net cash income was allocated to the primary operator's household based on the share that the operator reported receiving. [2]Income from off-farm sources is more than 100 percent of total household income if farm is negative.

Source: USDA, Economic Research Service, Rural Economy Division, 1995 Farm Costs and Returns Survey.

The third-ranking State in net farm income, Texas, ranked second in cash receipts from all commodities, with $13.3 billion in sales. Texas was first in livestock's receipts ($8.5 billion) and fourth in crop receipts ($4.8 billion) for the Nation. Texas is a more specialized State: 47 percent of its agricultural sales in 1995 came from the State's top commodity, cattle and calves. Texas also led the Nation in cotton sales. Texas ranked second in production expenses, $15.7 billion.

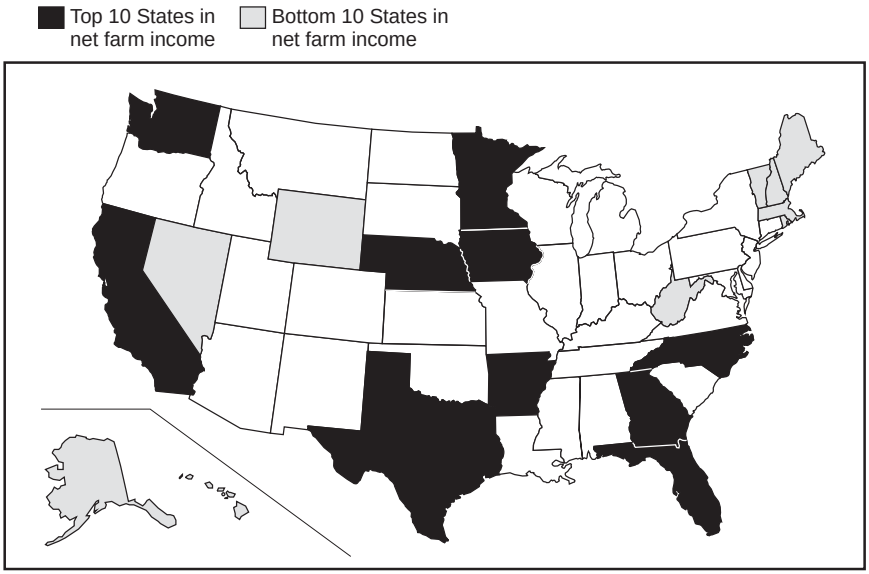
Georgia was the fourth leading State in net farm income. Georgia ranked eleventh in gross farm income and sixteenth in production expenses. The State ranked eleventh in cash receipts with $5.2 billion. The State's five leading commodities in 1995 were broilers, cotton, peanuts, eggs, and cattle and calves. Georgia led the Nation in the production of broilers and peanuts.

Iowa ranked fifth in net farm income, third in gross farm income and third in production expenses. Iowa's top five commodities—corn, hogs, soybeans, cattle and calves, and dairy products—comprised 81 percent of the State's sales from agricultural production in 1995. Iowa led the Nation in corn and hog sales.

Though Arkansas ranked eighth in net farm income and twenty-ninth in cash receipts from the sales of all agricultural commodities, the State led the Nation in sales from chicken eggs and rice in 1995.

Figure 3-5.

Net farm income, 1995



Source: USDA, Economic Research Service, Rural Economy Division

Table 3-5.

States ranked by cash receipts, 1995[1]

	Total		Livestock and products		Crops		State's top ranking commodities by value of cash receipts				
State	*Rank*	*Cash receipts*	*Rank*	*Cash receipts*	*Rank*	*Cash receipts*	*1*	*2*	*3*	*4*	*5*
Alabama	26	2,908	15	2,168	34	741	Broilers	Cattle/calves	Eggs	Cotton	Grnhs/nurs
Alaska	50	30	50	6	50	24	Grnhs/nrs	Potatoes	Hay	Dairy prods	Barley
Arizona	13	5,065	9	3,023	18	2,042	Lettuce	Cattle/calves	Cotton	Dairy prods	Cantaloupes
Arkansas	29	2,256	31	810	22	1,446	Broilers	Cotton	Soybean	Rice	Cattle/calves
California	1	22,261	2	5,549	1	16,713	Dairy prods	Grnhs/nurs	Grapes	Cotton	Lettuce
Colorado	17	3,985	11	2,624	26	1,361	Cattle/calves	Wheat	Corn	Dairy prods	Hay
Connecticut	41	484	43	257	40	228	Grnhs/nrs	Eggs	Dairy prods	Aquaculture	Cattle/calves
Delaware	40	676	39	516	44	159	Broilers	Soybean	Grnhs/nurs	Corn	Dairy prods
Florida	9	5,849	27	1,130	5	4,719	Oranges	Grnhs/nurs	Cane/sugar	Tomatoes	Dairy prods
Georgia	11	5,166	10	2,789	14	2,377	Broilers	Cotton	Peanuts	Eggs	Cattle/calves
Hawaii	42	483	47	72	38	412	Cane/sugar	Pineapples	Grnhs/nurs	Macad. nuts	Dairy prods
Idaho	22	3,166	26	1,221	19	1,945	Potatoes	Cattle/calves	Dairy prods	Wheat	Hay
Illinois	5	7,887	18	1,710	2	6,177	Corn	Soybean	Hogs	Cattle/calves	Dairy prods
Indiana	14	4,981	17	1,741	10	3,240	Corn	Soybean	Hogs	Dairy prods	Cattle/calves
Iowa	3	10,959	4	5,068	3	5,891	Corn	Hogs	Soybean	Cattle/calves	Dairy prods
Kansas	6	7,521	5	4,693	12	2,829	Cattle/calves	Wheat	Corn	Sorghum grain	Soybean
Kentucky	25	3,059	21	1,616	23	1,444	Tobacco	Horses/mules	Cattle/calves	Corn	Dairy prods
Louisiana	32	2,025	34	630	25	1,395	Cotton	Cane/sugar	Rice	Soybean	Dairy prods
Maine	43	479	42	281	42	198	Eggs	Potatoes	Dairy prods	Aquaculture	Grnhs/nurs
Maryland	36	1,402	30	830	36	572	Broilers	Grnhs/nurs	Dairy prods	Soybean	Cattle/calves
Massachusetts	45	430	46	103	39	327	Grnhs/nurs	Cranberries	Dairy prods	Christ. trees	Apples
Michigan	20	3,521	25	1,324	15	2,197	Dairy prods	Grnhs/nurs	Corn	Soybean	Cattle/calves
Minnesota	7	7,002	8	3,451	7	3,551	Corn	Dairy prods	Soybean	Hogs	Cattle/calves
Mississippi	24	3,126	19	1,685	24	1,441	Broilers	Cotton	Soybean	Aquaculture	Cattle/calves
Missouri	16	4,399	14	2,265	16	2,134	Soybean	Cattle/calves	Hogs	Corn	Dairy prods
Montana	33	1,845	32	798	30	1,047	Wheat	Cattle/calves	Barley	Hay	Sugar beets
Nebraska	4	8,690	3	5,187	8	3,503	Cattle/calves	Corn	Hogs	Soybean	Wheat

Table 3-5 continued.

States ranked by cash receipts, 1995[1] (continued)

	Total		Livestock and products		Crops		State's top ranking commodities by value of cash receipts				
State	*Rank*	*Cash receipts*	*Rank*	*Cash receipts*	*Rank*	*Cash receipts*	*1*	*2*	*3*	*4*	*5*
Nevada	47	286	45	164	45	122	Cattle/calves	Hay	Dairy prods	Potatoes	Onions
New Hampshire	48	152	48	64	47	88	Dairy prods	Grnhs/nurs	Apples	Christ. trees	Cattle/calves
New Jersey	38	773	44	200	35	573	Grnhs/nrs	Dairy prods	Eggs	Tomatoes	Blueberries
New Mexico	35	1,415	28	963	37	452	Cattle/calves	Dairy prods	Hay	Pecans	Onions
New York	27	2,877	16	1,865	31	1,012	Dairy prods	Grnhs/nurs	Cattle/calves	Potatoes	Corn
North Carolina	8	6,987	7	3,735	9	3,251	Hogs	Broilers	Tobacco	Grnhs/nurs	Turkeys
North Dakota	23	3,154	37	566	13	2,588	Wheat	Cattle/calves	Barley	Sunflower	Sugar beets
Ohio	15	4,576	23	1,589	11	2,987	Soybean	Corn	Dairy prods	Grnhs/nurs	Hogs
Oklahoma	19	3,705	12	2,571	29	1,133	Cattle/calves	Wheat	Broilers	Grnhs/nurs	Hogs
Oregon	28	2,720	33	665	17	2,055	Grnhs/nurs	Cattle/calves	Wheat	Hay	Dairy prods
Pennsylvania	18	3,738	13	2,552	28	1,186	Dairy prods	Cattle/calves	Grnhs/nurs	Mushrooms	Eggs
Rhode Island	49	80	49	10	49	70	Grnhs/nurs	Dairy prods	Eggs	Corn, sweet	Potatoes
South Carolina	34	1,441	35	611	33	830	Broilers	Tobacco	Grnhs/nurs	Cotton	Cattle/calves
South Dakota	21	3,384	20	1,676	20	1,707	Cattle/calves	Corn	Soybean	Wheat	Hogs
Tennessee	31	2,127	29	868	27	1,258	Cattle/calves	Cotton	Dairy prods	Tobacco	Soybean
Texas	2	13,288	1	8,454	4	4,834	Cattle/calves	Cotton	Grnhs/nurs	Dairy prods	Broilers
Utah	37	815	36	592	41	223	Cattle/calves	Dairy prods	Hay	Grnhs/nurs	Wheat
Vermont	44	472	40	380	46	92	Dairy prods	Cattle/calves	Grnhs/nurs	Hay	Christ. trees
Virginia	30	2,248	24	1,393	32	855	Broilers	Dairy prods	Cattle/calves	Turkeys	Tobacco
Washington	12	5,158	22	1,594	6	3,564	Apples	Dairy prods	Cattle/calves	Wheat	Potatoes
West Virginia	46	386	41	312	48	74	Broilers	Cattle/calves	Turkeys	Dairy prods	Eggs
Wisconsin	10	5,582	6	3,926	21	1,656	Dairy prods	Corn	Cattle/calves	Soybean	Hogs
Wyoming	39	726	38	544	43	182	Cattle/calves	Hay	Sugar beets	Sheep/lambs	Wheat
United States		185,750		86,844		98,906					

[1] All cash receipts data are reported in million dollars.

Source: USDA, Economic Research Service, Rural Economy Division

Table 3-6.

Leading States for cash receipts, 1995[1]

Commodities	Rank	Value	Top 10 States by their value of cash receipts 1	2	3	4	5	6	7	8	9	10
		Million dollars	State and million dollars									
Total		185,750	CA 22,261	TX 13,288	IA 10,959	NE 8,690	IL 7,887	KS 7,521	MN 7,002	NC 6,987	FL 5,849	WI 5,582
Livestock & poultry	1	86,843	TX 8,454	CA 5,549	NE 5,187	IA 5,068	KS 4,693	WI 3,926	NC 3,735	MN 3,451	AR 3,023	GA 2,789
Crops	2	98,906	CA 16,713	IL 6,177	IA 5,891	TX 4,834	FL 4,719	WA 3,564	MN 3,551	NE 3,503	NC 3,251	IN 3,240
Cattle and calves	1	33,983	TX 6,296	KS 4,235	NE 4,158	CO 2,081	OK 1,759	IA 1,705	CA 1,290	SD 1,046	MN 835	MT 668
Dairy products	2	19,923	CA 3,078	WI 2,916	NY 1,494	PA 1,456	MN 1,186	TX 792	MI 717	WA 684	OH 599	ID 508
Corn	3	17,400	IA 3,368	IL 3,116	NE 2,021	IN 1,590	MN 1,196	OH 924	WI 623	TX 603	KS 579	SD 526
Soybeans	4	13,203	IL 2,334	IA 2,318	IN 1,198	MN 1,168	OH 956	MO 886	NE 651	AR 591	SD 444	KS 352
Broilers	5	11,760	GA 1,772	AR 1,769	AL 1,438	NC 1,162	MS 992	TX 646	DE 474	MD 462	VA 401	CA 383
Greenhouse & nursery	6	10,407	CA 2,172	FL 1,093	NC 858	TX 792	OH 491	MI 425	OR 399	PA 314	OK 264	NJ 257
Hogs	7	10,073	IA 2,550	NC 1,274	MN 865	NE 739	IN 720	IL 664	MO 603	SD 312	OH 298	KS 231

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Table 3-6 continued.

Leading States for cash receipts, 1995[1] (continued)

Commodities	Rank	Value	Top 10 States by their value of cash receipts 1	2	3	4	5	6	7	8	9	10
		Million dollars	State and million dollars									
Wheat	8		ND	KS	MT	WA	OK	CO	ID	SD	NE	TX
		8,769	1,388	1,262	714	607	458	385	383	362	335	285
Cotton	9		TX	CA	MS	GA	AR	LA	AZ	NC	TN	MO
		7,566	1,666	1,393	806	767	611	538	387	314	308	226
Chicken eggs	10		AR	GA	CA	PA	OH	IN	TX	AL	NC	IA
		3,958	294	290	288	265	253	236	218	216	203	146
Hay	11		CA	OR	WA	ID	CO	TX	SD	KS	MN	IA
		3,617	633	233	215	209	171	127	116	113	108	102
Turkeys	12		NC	MN	AR	MO	CA	VA	IN	PA	IA	SC
		2,774	582	299	241	232	213	199	141	92	89	76
Tobacco	13		NC	KY	TN	VA	SC	GA	OH	FL	IN	MD
		2,594	1,049	636	233	191	189	149	32	31	22	21
Potatoes	14		ID	WA	CA	WI	OR	CO	ND	ME	MN	MI
		2,594	702	440	177	148	135	125	114	99	94	91
Grapes	15		CA	WA	NY	AZ	MI	OR	PA	AR	GA	OH
		2,022	1,837	74	36	23	15	13	11	4	3	2
Lettuce	16		CA	AZ	NJ	FL	NM	CO	WA	OH	NY	HI
		1,915	1,385	483	11	10	8	7	5	4	2	1

—continued

Table 3-6 continued.

Leading States for cash receipts, 1995[1] (continued)

Commodities	Rank	Value	Top 10 States by their value of cash receipts 1	2	3	4	5	6	7	8	9	10
		Million dollars	State and million dollars									
Oranges	17		FL	CA	TX	AZ	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		1,605	1,166	423	9	7						
Apples	18		WA	CA	MI	PA	VA	NC	OH	OR	WV	IL
		1,601	877	152	102	47	38	23	22	18	16	15
Tomatoes	19		CA	FL	GA	VA	OH	SC	NJ	MI	IN	TN
		1,577	865	388	57	44	37	31	27	20	19	17
Rice	20		AR	CA	LA	TX	MS	MO	n.a.	n.a.	n.a.	n.a.
		1,280	507	279	197	130	123	45				
Sorghum grain	21		KS	TX	NE	MO	AR	OK	IL	LA	SD	CO
		1,221	422	351	171	86	39	34	31	18	17	14
Sugar beets	22		MN	ND	MI	CA	MT	WY	NE	OR	WA	TX
		1,083	311	158	112	108	50	48	43	14	14	13
Peanuts	23		GA	TX	AL	NC	VA	OK	FL	NM	SC	n.a.
		1,013	417	155	139	103	62	60	52	14	9	
Cane for sugar	24		FL	LA	HI	TX	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		886	458	257	129	42						
Almonds	25		CA	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		857	857									

n.a. = not applicable.
Source: USDA, Economic Research Service, Rural Economy Division.

State Rankings by Cash Receipts

A ranking by cash receipts of leading commodities within States conveys significant information about the product mix within a State. Similarly, a ranking of States by cash receipts from sales of a specific commodity or commodity group can convey information about the relative importance of the commodity to individual States and geographic regions. Such rankings are an aid in analyzing the effects of weather, changes in farm programs, or economic conditions affecting commodity prices.

Government Payments by Program and State

Government payments were $7.3 billion in 1995, down 8 percent ($0.6 billion) from the previous year. Government payments comprised 3.6 percent of gross cash farm income in 1995. Government payments for cotton reached a record low in 1995 due to high cotton prices. Some cotton producers had to refund a portion of the previous fiscal year's advanced deficiency payments because cotton market prices exceeded the established target price. Strong wheat prices kept 1995 wheat Government payments to a low level not seen since 1980. Government payments for feed grains more than doubled in 1995 as record corn production in the fall of 1994 kept corn prices low in 1995.

Government payments are direct, nonrecoverable transfer payments to participating producers. The roles of farm commodity programs and conservation policies instituted through direct Government payments are to support prices through restricting the supply of specific commodities (Acreage Reduction Program, etc.), to directly support farm incomes through cash transfers to farm operators (deficiency payments, etc.), to support farm income in times of adverse weather or natural catastrophes (disaster payments), and to maintain quality production and environmental controls through conservation reserve programs (Wetlands Reserve Program, etc.).

Annual changes in the payment distribution among States reflect farm sector and U.S. economic environment changes, crop yields, weather conditions, market prices, and farm legislation modifications. Farm businesses that participate in commodity programs vary in type and size across States depending on the State's production specialty, environmental and conservational needs, and the number of acres operated.

The Federal Agriculture Improvement and Reform Act of 1996, which was signed into law in April 1996, fundamentally redesigns income support and supply management programs for producers of wheat, corn, grain sorghum, barley, oats, rice, and upland cotton. Government payments to producers who signed up for the program are now fixed and are scheduled to decline through 2002. Dairy policy also changes dramatically as price supports are phased out and milk marketing orders are consolidated. The 1996 Act also alters the sugar and peanut programs. Farmers are freer to alter their crop production in response to relative price signals from the marketplace. Farm income is likely to become more variable under the Act in response to year-to-year changes in the supply and demand for covered commodities. Marketing alternatives to manage price and production risk will become more important for many farmers.

Table 3-7.

Government payments, by program and State, 1995

State	Feed Grain	Wheat	Rice	Cotton[1]	Wool Act	Conservation[2]	Miscellaneous[3]	Total
				1,000 dollars				
Alabama	3,368	1,740	0	1,611	42	31,713	14,912	53,386
Alaska	57	0	0	0	1	1,056	621	1,735
Arizona	1,904	2,115	0	2,166	771	1,787	758	9,501
Arkansas	6,332	9,759	312,711	1,307	128	15,330	37,698	383,265
California	8,606	11,743	155,898	5,278	5,797	15,379	35,059	237,760
Colorado	43,505	21,733	0	0	4,838	83,149	13,828	167,053
Connecticut	720	0	0	0	20	382	1,260	2,382
Delaware	2,178	151	0	0	1	373	406	3,109
Florida	1,638	215	163	14	4	10,249	43,433	55,716
Georgia	9,812	3,713	0	-176	27	32,169	20,921	66,466
Hawaii	0	0	0	0	0	406	541	947
Idaho		7,555	22,513	0	0	3,078	40,914	15,476
89,536	Illinois		453,034	9,270	0	0	384	66,018
15,029	543,735	Indiana	200,255	4,348	0	0	180	35,744
5,539246,066	Iowa		590,872	87	0	0	1,391	183,685
8,604784,639								
Kansas	154,847	96,786	0	-3	911	157,489	12,991	423,021
Kentucky	34,005	2,618	33	0	94	28,217	2,406	67,373
Louisiana	4,320	2,259	122,172	2,187	14	9,045	17,318	157,315
Maine	577	0	0	0	54	3,575	9,874	14,080
Maryland	9,724	667	0	0	85	2,370	2,301	15,147
Massachusetts	425	0	0	0	38	498	1,497	2,458
Michigan	86,348	5,190	0	0	475	22,829	36,167	151,009
Minnesota	268,636	27,763	0	0	1,057	106,098	64,347	467,901
Mississippi	3,438	2,588	61,397	4,471	16	38,555	18,696	129,161
Missouri	84,974	11,379	25,097	340	588	119,044	14,574	255,996
Montana	18,141	46,841	0	0	6,983	104,194	9,172	185,331
Nebraska	382,887	20,308	0	0	817	81,412	21,923	507,347
Nevada	108	342	0	0	732	785	2,298	4,265

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Table 3-7 continued.

Government payments, by program and State, 1995 (continued)

State	Feed Grain	Wheat	Rice	Cotton[1]	Wool Act	Conservation[2]	Miscellaneous[3]	Total
New Hampshire	267	0	0	0	32	575	309	1,183
New Jersey	2,209	129	0	0	28	402	2,724	5,492
New Mexico	7,977	3,412	0	-82	4,753	20,615	18,483	55,158
New York	25,591	1,367	0	0	306	6,157	10,067	43,488
North Carolina	19,860	1,944	0	-666	67	9,213	9,741	40,159
North Dakota	48,132	88,001	0	0	1,761	113,714	44,594	296,202
Ohio	121,510	7,604	0	0	792	28,865	8,536	167,307
Oklahoma	9,631	55,781	227	945	932	52,854	44,304	164,674
Oregon	2,641	12,104	0	0	1,853	28,800	6,652	52,050
Pennsylvania	16,538	432	0	0	434	9,638	14,013	41,055
Rhode Island	5	0	0	0	4	206	103	318
South Carolina	10,165	2,937	0	671	5	12,995	7,009	33,782
South Dakota	104,102	28,629	0	0	5,614	75,900	30,790	245,035
Tennessee	13,236	2,652	177	496	52	25,807	4,918	47,338
Texas	128,230	40,614	106,755	11,397	38,284	174,099	143,499	642,878
Utah	1,622	1,839	0	0	4,759	10,510	5,777	24,507
Vermont	796	0	0	0	100	1,783	1,643	4,322
Virginia	9,645	1,261	0	-36	466	6,526	7,531	25,393
Washington	9,709	33,311	0	0	507	55,912	16,488	115,927
West Virginia	1,470	29	0	0	245	1,635	1,857	5,236
Wisconsin	110,848	717	0	0	354	51,180	20,741	183,840
Wyoming	2,113	1,714	0	0	8,403	11,717	7,279	31,226
United States	3,024,563	588,605	784,630	29,920	98,277	1,891,568	834,707	7,252,270

[1]Negative values indicate that the current fiscal year's advanced deficiency payments are less than the refunds from producers to the government because advanced deficiency payments in the previous fiscal year exceeded the final determination of the deficiency payments. [2]Includes amount paid under agriculture and conservation programs (Conservation Reserve, Agriculture Conservation, Emergency Conservation, and Great Plains Program). [3]The programs included Rural Clean Water, Forestry Incentive Annual, Forestry Incentive Long Term, Water Bank Annual, Water Bank Practice Cost Share, Dairy Indemnity, Dairy Termination, Extended Warehouse Storage, Extended Farm Storage, Colorado River Salinity, Livestock Emergency Assistance, Interest Payments, Disaster, Loan Deficiency, Market Gains, Naval Stores Conservation, Milk Marketing Fee, Options Pilot, Milk Diversion, Emergency Feed, Rice Marketing, 90 Day Rule, Payment Limitation

Source: USDA, Economic Research Service, Rural Economy Division.

Federal Government Program Participation and Direct Payments

More than half of the farms specializing in crops were enrolled in Government programs in 1995, and they accounted for three-quarters of the direct Government payments received by farmers. Cash grain farms, including corn and wheat farms, had the highest participation rates.

About 20 percent of farms specializing in livestock received direct Government payments during 1995; dairy farms had the highest participation rate among livestock farms (43 percent). Many farmers growing program-eligible crops fed the grain to their livestock.

Direct Government payments were higher for crop farms, on average, than for livestock farms. The U.S. average direct payment to all participating farms was $8,207, but ranged from a low of $3,895 for poultry farms to $11,938 for corn farms.

Number of Farms and Net Cash Income by Sales Class

The number of farms increased slightly to 2,071,520 in 1995, and the percent of farms in each major sales class remained relatively constant. Almost three-quarters of all U.S. farms have annual sales of less than $50,000, while less than 1 percent of all farms have sales greater than $1 million.

Farms with over $250,000 in sales account for less than 6 percent of all farms but dominate American agricultural output. These large farms sell over 62 percent of the Nation's livestock and over 57 percent of the crops. They have 58 percent of the gross cash income compared with 53 percent of the cash expenses. In 1995 approximately 75 percent of the Nation's net cash income was earned by them. Less than one-third of the direct Government payments went to these farms.

Farms in the largest sales class category, those with gross sales over $1 million, tend to be specialized in certain commodities. In 1995, nearly one-third of the largest farms were classified as fruit, vegetable, greenhouse, and nursery farms, meaning that 50 percent or more of their gross sales were derived from these products. Cattle and dairy operations were tied for second place, with each accounting for slightly over 17 percent of the largest farms.

More than a third of the largest farms were located in the Pacific region This is due to the heavy concentration of farms specializing in fruit, vegetable, greenhouse, and nursery in that region. Each of the remaining regions contained less than 10 percent of the largest farms, with the Delta region accounting for the smallest number of the largest farms.

Large farms, those with sales from $500,000 to $999,999, have different characteristics from the largest farms. More than 25 percent of the large farms focused on cash grain production. Next in importance were farms specialized in fruit, vegetables, greenhouse, and nursery products. Each of the following farm types account for 9 to 12 percent of the large farms: corn and soybeans, poultry, hogs, and dairy.

With cash grains and hogs being important enterprise types for large farms, it is not surprising to find the Corn Belt region has the greatest number of large farms, with 24 percent of the total in 1995. The Pacific region, with large numbers of the fruit, vegetable, greenhouse and nursery farms, has the second largest number of large farms, followed by the Southeast region, where large poultry operations are concentrated.

Mid-sized farm operations, those with sales of $50,000 or more but less than $500,000, are dominated by operations specializing in cash grains. Corn and soybean and other cash grain operations account for roughly 38 percent of these farms. Both dairy and cattle operations account for more than 10 percent of the total mid-size farms. Not surprisingly, the Corn Belt also has the largest number of mid-size farms, followed by the Northern Plains and the Lake States regions.

Small farm operations, those with sales under $50,000, are dominated by cattle operations, which accounted for 40 percent of these farms. Field crop operations and other livestock operations each account for slightly more than 15 percent of these small farms. Cash grain farms make up 13 percent of the total. The Corn Belt, Appalachian, and Southern Plains regions each have over 15 percent of the smaller farm operations due to the large number of small cattle operations in each of these regions.

Table 3-8.

Direct Government payments, by program, 1950-95[1]

Year	Feed grains	Wheat	Rice	Cotton[1]	Wool	Conservation[2]	Miscellaneous[3]	Total
				Million dollars				
1950	np	np	np	np	np	246	37	283
1951	np	np	np	np	np	246	40	286
1952	np	np	np	np	np	242	33	275
1953	np	np	np	np	np	181	32	213
1954	np	np	np	np	np	217	40	257
1955	np	np	np	np	np	188	41	229
1956	np	np	np	np	54	220	280	554
1957	np	np	np	np	53	230	732	1,015
1958	np	np	np	np	14	215	859	1,088
1959	np	np	np	np	82	233	367	682
1960	np	np	np	np	51	223	429	703
1961	772	42	np	np	56	236	387	1,493
1962	841	253	np	np	54	230	368	1,746
1963	843	215	np	np	37	231	370	1,696
1964	1,163	438	np	39	25	236	278	2,179
1965	1,391	525	np	70	18	224	235	2,463
1966	1,293	679	np	773	34	231	267	3,277
1967	865	731	np	932	29	237	284	3,078
1968	1,366	747	np	787	66	229	268	3,463
1969	1,643	858	np	828	61	204	199	3,793
1970	1,504	871	np	919	49	208	166	3,717
1971	1,054	878	np	822	69	173	149	3,145
1972	1,845	856	np	813	110	198	140	3,962
1973	1,142	474	np	718	65	72	136	2,607

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Table 3-8.

Direct Government payments, by program, 1950-95[1] (continued)

Year	Feed grains	Wheat	Rice	Cotton[1]	Wool	Conservation[2]	Miscellaneous[3]	Total
				Million dollars				
1974	101	70	np	42	[4]	192	125	530
1975	279	77	np	138	13	193	107	807
1976	196	135	[4]	108	39	209	47	734
1977	187	887	130	89	5	328	192	1,818
1978	1,172	963	3	127	27	239	499	3,030
1979	494	114	59	185	33	197	294	1,376
1980	382	211	2	172	28	214	276	1,285
1981	243	625	2	222	35	201	605	1,933
1982	713	652	156	800	46	179	946	3,492
1983	1,346	864	278	662	84	188	5,874	9,296
1984	367	1,795	192	275	118	191	5,493	8,431
1985	2,861	1,950	577	1,106	98	189	924	7,705
1986	5,158	3,500	423	1,042	112	254	1,325	11,814
1987	8,490	2,931	475	1,204	144	1,531	1,972	16,747
1988	7,219	1,842	465	924	117	1,607	2,306	14,480
1989	3,141	603	671	1,184	81	1,771	3,436	10,887
1990	2,701	2,311	465	441	96	1,898	1,386	9,298
1991	2,649	2,166	550	407	154	1,858	431	8,215
1992	2,499	1,403	512	751	188	1,899	1,916	9,168
1993	4,844	1,909	650	1,226	173	1,967	2,633	13,402
1994	1,447	156	337	826	202	1,978	1,933	7,879
1995	3,025	589	785	30	98	1,892	835	7,252

np = no program. [1]Components may not add due to rounding. Includes both cash payments and payments-in-kind (PIK). [2]Includes Great Plains and other conservation programs. [3]Through 1970, total amounts are for Soil Bank program, which was discontinued in 1971. Starting with 1971, amounts include all other programs. [4]Less than $500,000.
Source: USDA, Economic Research Service, Rural Economy Division.

Table 3-9.

Number of farms and net cash income by value of sales class, 1995

Year	$1,000,000 and over	$500,000 to $999,999	$250,000 to $499,999	$100,000 to $249,999	$50,000 to $99,999	$20,000 to $49,999	Less than $20,000
				Thousands			
Number of farms	17	30	75	219	195	261	1,273
				Million dollars			
Total:							
Gross cash income	59,011	26,750	32,389	44,967	18,951	11,308	9,948
Cash receipts from marketings	56,391	24,683	29,455	40,490	17,134	9,762	7,277
Crops	24,091	14,424	18,338	22,928	9,719	5,749	3,659
Livestock	32,300	10,259	11,117	17,563	7,415	4,013	3,618
Direct Government payment commodities	2,208	6,194	9,802	11,874	4,122	2,116	846
Price support only commodities	543	1,871	3,455	4,619	2,076	1,117	536
Nonsupported commodities	53,640	16,618	16,198	23,997	10,936	6,529	5,895
Government payments	281	688	1,372	2,115	838	805	1,152
Farm-related income	2,339	1,380	1,563	2,361	979	741	1,519
Cash expenses	39,490	17,955	23,490	33,461	14,913	10,265	15,545
Net cash income	19,521	8,795	8,900	11,506	4,039	1,043	(5,597)
				Percent			
Percent of total:							
Number of farms	0.8	1.5	3.6	10.6	9.4	12.6	61.5
Gross cash income	29.0	13.2	15.9	22.1	9.3	5.6	4.9
Cash receipts from marketings	30.4	13.3	15.9	21.9	9.3	5.3	3.9
Crops	24.4	14.6	18.5	23.2	9.8	5.8	3.7
Livestock	37.4	11.9	12.9	20.4	8.6	4.7	4.2

—*continued*

Table 3-9 continued.

Number of farms and net cash income by value of sales class, 1995 (continued)

Year	$1,000,000 and over	$500,000 to $999,999[1]	$250,000 to $499,999[2]	$100,000 to $249,999[3]	$50,000 to $99,999	$20,000 to $49,999	Less than $20,000
Direct Government payment commodities	5.9	16.7	26.4	32.0	11.1	5.7	2.3
Price support only commodities	3.8	13.2	24.3	32.5	14.6	7.9	3.8
Nonsupported commodities	40.1	12.4	12.1	17.9	8.2	4.9	4.4
Government payments	3.9	9.5	18.9	29.2	11.6	11.1	15.9
Farm-related income	21.5	12.7	14.4	21.7	9.0	6.8	14.0
Cash expenses	25.5	11.6	15.1	21.6	9.6	6.6	10.0
Net cash income	40.5	18.2	18.5	23.9	8.4	2.2	-11.6
				Dollars			
Per farm operation:[1]							
Gross cash income	3,392,377	883,252	429,923	205,008	97,324	43,324	7,813
Cash receipts from marketings	3,241,742	814,993	390,967	184,600	87,992	37,402	5,715
Direct Government payment commodities	126,935	204,531	130,101	54,136	21,168	8,107	664
Price support only commodities	31,208	61,769	45,862	21,060	10,661	4,279	421
Nonsupported commodities	3,083,600	548,693	215,004	109,405	56,163	25,016	4,629
Government payments	16,176	22,706	18,213	9,645	4,305	3,084	905
Farm-related income	134,458	45,554	20,743	10,763	5,027	2,839	1,193
Cash expenses	2,270,188	601,696	305,456	150,266	90,025	25,898	11,679
Net cash income	1,122,189	290,397	118,132	52,456	20,740	3,997	(4,396)

Farm Labor

Labor use on U.S. farms has changed dramatically over the last several decades. Average annual farm employment dropped from 9.9 million in 1950 to 2.8 million in 1995. This decrease resulted largely from the trend toward fewer and larger farms, increased farm mechanization and other technological innovations, and higher off-farm wages. However, farm employment appears to have stabilized in recent years as increases in mechanization and labor-saving technology have leveled off and the downward trend in farm numbers has slowed.

Family workers, including farm operators and unpaid workers, accounted for 69 percent of farm labor in 1995, while hired workers accounted for 31 percent. Service workers, including crew leaders and custom crews, accounted for 9 percent of all workers on farms in 1995.

The average wage rate for hired farm workers in the United States in 1995 was $6.54 per hour. Wages varied by type of worker: livestock workers averaged $5.99, field workers averaged $6.13, and supervisors averaged $10.27 in 1995.

A significant portion of total farm production expenses is spent on labor. The 1992 Census of Agriculture reported that expenditures for hired and contract labor on U.S. farms were $15.3 billion in 1992, or almost 12 percent of total farm production expenses. About 36 percent of all farms had hired labor expenses and 12 percent had contract labor expenses.

The importance of labor varied significantly by farm type and size of farm. The proportion of total farm production expenses attributed to hired and contract labor expenses was greatest on horticultural specialty farms (45 percent), fruit and tree nut farms (40 percent), and vegetable and melon farms (37 percent). These types of farms are the least mechanized, and many of the commodities they produce are still harvested by hand. At the other extreme, labor expenses comprised less than 5 percent of all production expenses on beef cattle, hogs, sheep, poultry, and cash grain farms.

Larger farms are more likely to have labor needs in excess of that provided by the farm family. Farms of 260 or more acres, which accounted for only 32 percent of all farms, had 70 percent of all labor expenses in 1992. In terms of sales class, the 27 percent of all farms with $50,000 or more in value of products sold accounted for 95 percent of all labor expenses.

Agricultural Credit

Farm business debt at the end of 1995 was $150.6 billion, up $3.9 billion from 1994. Farm real estate debt rose $1.5 billion from 1994 to $79.1 billion at the end of 1995. Farm business nonreal estate debt was $71.5 billion at the end of 1995, up 3 percent from 1994.

Farmers and lenders, despite concern about reduced short-term profitability in some livestock enterprises, maintain confidence in the long-run profitability of agriculture. The availability and use of credit play a significant role in the sustained profitability of farm enterprises. A symbiotic relationship exists between agricultural producers and their lenders; the health of one depends on the condition of the other.

Loans made to agricultural producers are classified as real estate and nonreal estate loans in the farm sector accounts. Real estate loans generally have terms of 10 to 40 years, and are ordinarily used to purchase farmland or to make major capital improvements to farm property. Nonreal estate loans are typically made for loan terms of less than 10 years, with the term depending on the purpose of the loan. Seasonal operating loans are made for less than 1 year, while loans to purchase machinery and equipment or livestock may run for 7 years or more.

At the end of 1995, the Farm Credit System held $24.8 billion in farm business real estate loans and $12.5 billion in nonreal estate loans. In total, the Farm Credit System held about 25 percent of farm business loans. While the Farm Credit System experienced difficulty in increasing loan balances and in regaining market share, it continued to report improved financial performance. Falling interest rates improved their earnings during 1990-95. Improved borrower financial conditions strengthened Farm Credit System performance.

Commercial banks held more than 40 percent of all farm business debt by the end of 1995, accounting for $22.2 billion in real estate loans (28 percent of total) and $37.7 billion in nonreal estate debt (53 percent). Life insurance companies maintained their presence in the agricultural credit market, as their total farm business debt rose slightly to $9.1 billion, giving them an 11-percent share of the farm business mortgage market. The Farm Service Agency (which includes the former Farmers Home Administration) direct loans to farm businesses dropped by $1.4 billion in 1995 as the Agency reduced its problem loan portfolio. The "Individuals and others" classification is composed primarily of sellers financing the sale of farmland, input suppliers, and some minor lending agencies. These accounted for $18.0 billion in real estate loans and $16.2 billion in nonreal estate loans at the end of 1995.

Table 3-1.

Farm business debt, selected years

	Farm debt outstanding, December 31										
	1950	*1960*	*1970*	*1980*	*1985*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*
Real estate debt:						*$ Billion*					
Farm Credit System	0.8	2.2	6.4	33.2	42.2	25.9	25.3	25.4	24.9	24.6	24.9
Life insurance companies	1.1	2.7	5.1	12.0	11.3	9.7	9.5	8.8	9.0	9.0	9.1
Banks	0.8	1.4	3.3	7.8	10.7	16.3	17.4	18.8	19.6	21.1	22.3
Farm Service Agency	0.2	0.6	2.2	7.4	9.8	7.6	7.0	6.4	5.8	5.5	5.1
Individuals and others	2.1	4.4	10.3	27.8	25.8	15.2	15.6	16.1	16.7	17.5	18.0
Total	5.2	11.3	27.5	89.7	100.1	74.7	74.9	75.4	76.0	77.7	79.3
Nonreal estate debt:											
Banks	2.4	4.7	10.5	30.0	33.7	31.3	32.9	32.9	34.9	36.7	37.7
Farm Credit System	0.5	1.5	5.3	19.7	14.0	9.8	10.2	10.3	10.5	11.2	12.5
Farm Service Agency	0.3	0.4	0.7	10.0	14.7	9.4	8.2	7.1	6.2	6.0	5.1
Individuals and others	2.5	4.5	4.8	17.4	15.1	12.7	13.0	13.2	14.2	15.2	16.2
Total	5.7	11.1	21.2	77.1	77.5	63.2	64.3	63.6	65.9	69.1	71.5
Total	10.9	22.4	48.8	166.8	177.6	138.0	139.2	139.1	142.0	146.8	150.8

Source: USDA, Economic Research Service, Rural Economy Division.

The Balance Sheet

Farm business asset values totaled $978.0 billion on December 31, 1995, an increase of 4 percent over the preceding year. Farm business debt rose 5 percent during 1995, reaching $150.8 billion at year's end. As a result, farm business equity rose 3 percent. Average equity per farm on December 31, 1995, was $399,000.

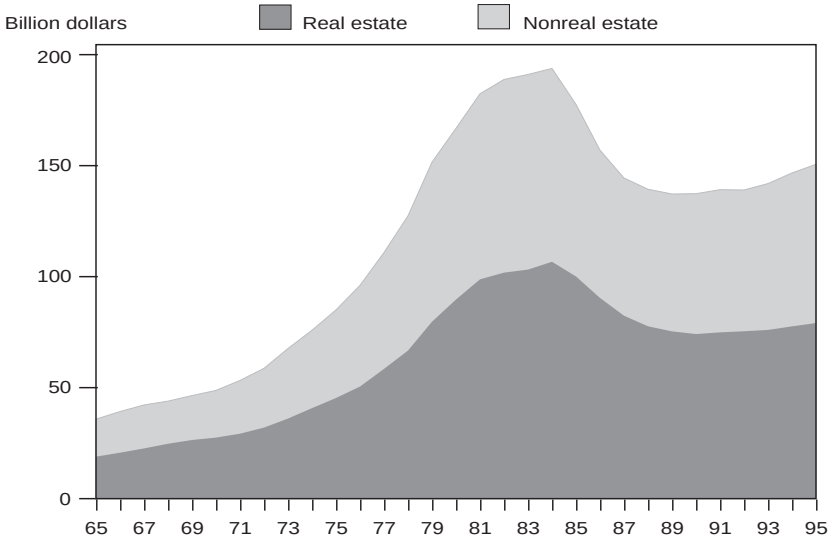
The debt-to-asset ratio (expressed as a percent) decreased from 15.6 to 15.4 during 1995. The ratio was substantially below the peak of 23 percent reached in 1985.

Real estate assets accounted for 77 percent of the value of farm business assets at the end of 1995. Real estate assets increased 7 percent during the year. The average real estate value per farm was $365,000 on December 31, 1995.

Nonreal estate assets decreased 4 percent during 1995. The year-end values of farm business livestock and poultry, machinery and motor vehicles, and purchased inputs fell, while only the value of crops stored and financial assets increased in 1995.

Figure 3-1.

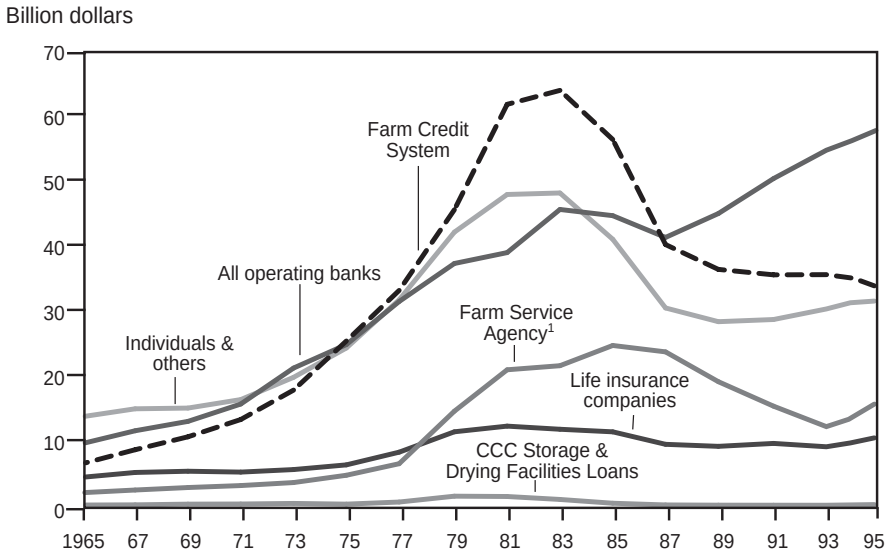
Farm business debt[1]



[1]Debt secured by farm real estate. [2] Debt for operating purposes.
Source: USDA, Economic Research Service, Rural Economy Division.

Figure 3-2.

Farm business debt by lender



[1]Includes the former Farmers Home Administration's loans.
Individuals and others include Commodity Credit Corporation real estate loans.
Source: USDA, Economic Research Service, Rural Economy Division.

Farm business real estate debt increased slightly in 1995, standing at $79.3 billion at the end of the year. Nonreal estate debt rose 3 percent to $71.5 billion. On December 31, 1995, commercial banks held 40 percent of farm business debt, and the Farm Credit System held 25 percent.

Table 3-2.

Farm business assets, debt, and equity[1]

Item	*1960*	*1970*	*1980*	*1990*	*1995[2]*
			Billion of current dollars		
Assets	174.2	278.9	981.5	839.9	978.0
Real estate	123.3	202.4	782.8	620.0	755.7
Nonreal estate [3]	51.1	76.4	198.7	219.8	222.2
Debt	22.4	48.8	166.8	138.0	150.8
Real estate [4]	11.3	27.5	89.7	74.7	79.3
Nonreal estate [5]	11.1	21.2	77.1	63.2	71.5
Equity (assets minus debt)	151.9	230.1	814.7	701.9	827.2

[1]As of December 31. [2]Preliminary. [3]Crop inventory value is value of non-CCC crops held on farms plus value above loan rate for crops held under CCC. [4]Includes CCC storage and drying facilities loans. [5]Excludes value of CCC crop loans.

Source: USDA, Economic Research Service, Rural Economy Division (now eliminated).

Net Cash Income and Net Farm Income

In 1995, both net cash income and net farm income reached low levels not seen since 1986. Although crop cash receipts reached a record high in 1995, net cash income from farming fell to $48.8 billion in 1995. Gross cash income was up $6.1 billion, but it was offset by a $7.7 billion rise in cash expenses. Net farm income fell sharply in 1995 as gross farm income declined by $5.4 billion and total production expenses rose by $8.1 billion. Increases in feed, cotton, and vegetable cash receipts boosted gross cash income while gross farm income declined due to the change in the value of inventory adjustment. Increases in purchased feed and other miscellaneous expenses boosted expenses.

Crop receipts rose $6.3 billion to reach $98.9 billion in 1995 while livestock receipts declined by $1.3 billion to $86.8 billion. Corn receipts rose $2.8 billion, cotton increased by $0.8 billion, and vegetables were up $1.0 billion. The increase in corn receipts resulted from higher corn prices in 1995 as corn production declined due to the 7.5 percent acreage reduction requirement and lower average yields. Cotton prices in 1995 averaged higher than in 1994 as production declined. The increase in vegetable cash receipts was led by lettuce sales as prices climbed due to the flooding in California's prime lettuce production areas. Cattle and calves cash receipts fell $2.4 billion in 1995 as ample supplies kept prices low.

The value of inventory adjustment was a negative $3.4 billion in 1995 as producers reduced their holdings of commodities due to lower grain production and tight grain supplies that kept grain prices high. In 1994, the value of inventory adjustment was $8.2 billion as producers held on to more crops due to the record crop production

in 1994. The change in the value of inventory adjustment, a negative $11.6 billion, caused gross farm income to decline while gross cash income rose in 1995. It is also the primary reason why net farm income declined by $13.6 billion while net cash income declined by $1.7 billion.

Cash expenses rose to $155.1 billion in 1995. Purchased feed expenses rose by $1.9 billion primarily due to increased corn prices. Other expenses rose $3.3 billion due to increases in general production and management expenses and a boost in the custom feeding expenses. Interest expenses rose $1.0 billion as the prices paid for interest index rose 12 percent in 1995.

Net cash income measures the farm sector's cash income generated from farming businesses during a calendar year. Farm businesses use the net cash income generated from farming to purchase farm assets, reduce farm debt, and meet living expenses. Net cash income is the sum of farm marketings, Government payments, and farm-related income minus cash expenses. Cash expenses include purchased feed, seed, livestock, fertilizer, lime, pesticides, fuel, oil, repair and maintenance, and other miscellaneous expenses. Cash expenses for interest, property taxes, labor, and net rent to nonoperator landlords are also included.

Net farm income measures the net value of agricultural commodities and services produced by the farm sector during a calendar year. It includes the income and expenses associated with the farmers' onfarm dwellings. The farm sector consists of sole proprietorships, multifamily farms, partnerships, contractors, and vertically integrated corporations involved in farming. Gross farm income is computed by summing the gross cash income from farming, noncash income, and the value of inventory adjustment. Total production expenses are the sums of intermediate production expenses, interest, labor, net rent to nonoperator landlords, capital consumption, and property taxes. Net farm income is the residual.

Farm Household Income

Farm operators have been surveyed by the annual Farm Costs and Returns Survey about the finances and production of their farms since 1985. Beginning in 1988 USDA has collected additional information about operator households. In 1995, the most recent year for which the survey data are available, about 98 percent of farms were covered in the household definition. Included are those run by individuals, legal partnerships, and family corporations. Nonfamily corporations, cooperatives, and institutional farms are not included in the household definition.

Like many other U.S. households, farm households receive income from a variety of sources, one of which is farming. The 1995 average household income for farm operator households was $44,400, which is on par with the average U.S. household. About 89 percent of the average farm operator's household income came from off-farm sources, and many operators spent most of their work efforts in occupations other than farming. Off-farm income includes earned income such as wages and salaries from an off-farm job and net income from an off-farm business. Off-farm income also includes unearned income, such as interest and dividends, and Social Security.

Table 3-3.

Net cash income and net farm income, 1994-95

Items	Current dollars 1994	Current dollars 1995	1992 dollars[1] 1994	1992 dollars[1] 1995
	Million dollars			
Gross farm income	215,840	210,399	205,758	195,538
Gross cash income	197,808	203,883	188,568	189,482
Farm marketings	180,775	185,750	172,331	172,630
Crops	92,646	98,906	88,318	91,920
Livestock and products	88,129	86,844	84,013	80,710
Government payments	7,879	7,252	7,511	6,740
Farm-related income	9,154	10,881	8,726	10,112
Noncash income	9,808	9,892	9,350	9,193
Value of home consumption	481	495	459	460
Gross rental value of dwellings	9,327	9,397	8,891	8,733
Operator and other dwellings	8,893	8,834	8,477	8,210
Hired laborer dwellings	434	563	414	523
Value of inventory adjustment	8,224	(3,376)	7,840	(3,137)
Total production expenses	167,444	175,581	159,622	163,179
Intermediate product expenses	103,365	109,667	98,536	101,921
Farm origin	41,250	42,548	39,323	39,543
Feed purchased	22,628	24,528	21,571	22,796
Livestock and poultry purchased	13,250	12,557	12,631	11,670
Seed purchased	5,373	5,463	5,122	5,077
Manufactured inputs	21,723	23,440	20,708	21,785
Fertilizer and lime	9,181	10,034	8,752	9,326
Pesticides	7,219	7,719	6,881	7,173
Fuel and oil	5,323	5,687	5,075	5,286
Other	40,392	43,679	38,505	40,593
Repair and maintenance	9,185	9,427	8,756	8,761
Other miscellaneous	31,207	34,252	29,749	31,833
Interest	11,807	12,757	11,255	11,856
Real estate	5,853	6,067	5,580	5,639
Nonreal estate	5,954	6,690	5,676	6,217
Contract and hired labor expenses	15,308	16,285	14,593	15,135
Net rent to nonoperator landlords[2]	11,525	10,873	10,987	10,105
Capital consumption	18,780	19,107	17,903	17,758
Property taxes	6,659	6,891	6,348	6,404
NET FARM INCOME	48,396	34,819	46,136	32,359
Gross cash income	197,808	203,883	188,568	189,482
Cash expenses	147,357	155,121	140,474	144,164
Cash expenses, excluding net rent	134,446	142,840	128,165	132,751
Intermediate product expenses	102,315	108,761	97,536	101,079
Interest	11,391	12,326	10,859	11,456
Cash labor expenses	14,874	15,723	14,179	14,612
Property taxes	5,866	6,030	5,592	5,604
Net rent to nonoperator landlords[3]	12,912	12,280	12,308	11,413
NET CASH INCOME[4]	50,451	48,762	48,095	45,318

[1]Gross domestic product implicit price deflators are used to deflate the accounts to real dollars. [2]Includes landlord capital consumption. [3]Excludes landlord capital consumption. [4]Excludes noncash items and income and expenses of farm operator dwellings located on farms.

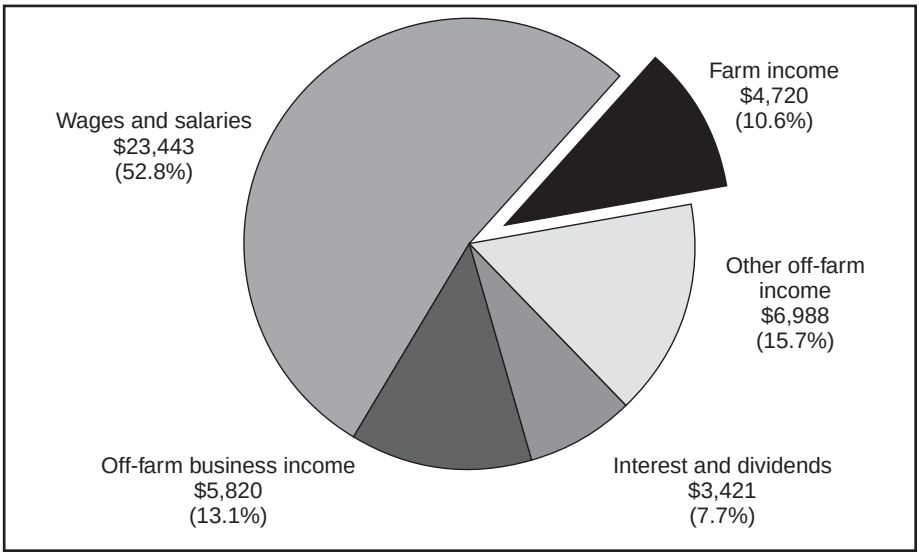
Source: USDA, Economic Research Service, Rural Economy Division.

For the majority of farm operator households, off-farm income is critical. Most U.S. farms are small (less than $50,000 in gross sales) and are run by households that depend mainly on off-farm income. About 49 percent of operators with small farms reported a nonfarm major occupation in 1995, and another 21 percent were retired. Most operators of larger farms reported farming as their major occupation, and their households were more likely to depend on farm income. In 1995, about a quarter of farm households operated commercial-size farms with sales of more than $50,000. These households provided most of U.S. farm production. However, even in households with the largest farms (sales of at least $500,000), off-farm income averaged $31,300 per household.

Average household income and dependence on off-farm income also varies among types of farm households. For example, 8 percent reported negative household income for 1995. On average, these households lost $40,700 from farming during the year. About 27 percent had household income of $50,000 or more, with farm income averaging $32,300. Among occupational categories, households of operators who reported occupations other than farming or retired had the highest average household income, largely from off-farm sources. Data on operators' age show that households associated with the oldest and youngest operators had the lowest average household income. Data on operators' educational level show significant increases in average income with each higher educational level.

Figure 3-3.

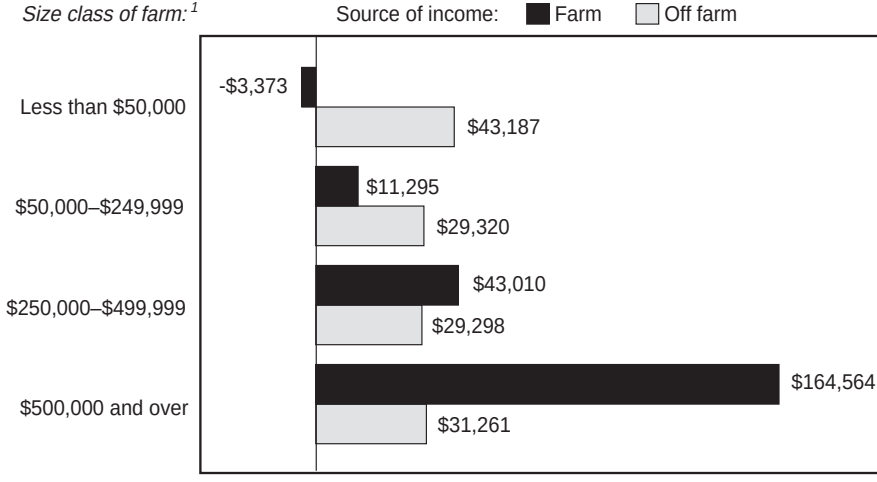
Sources of income for average farm operator household, 1995



Source: USDA, Economic Research Service, Rural Economy Division, 1995 Farm Costs and Returns Survey.

Figure 3-4.

Average farm and off-farm income for farm operator households, by size of farm, 1995



[1]Based on gross value of farm sales, which includes farm businesses', share landlords', and production contractors' shares of agricultural production.

Source: USDA, Economic Research Service, Rural Economy Division, 1995 Farm Costs and Returns Survey

Net Farm Income by State

The ranking of States by the aggregate value of net farm income reflects the size of the State, the proportion of its land that can be cultivated, the fertility of the land and climate within the State, and the State's comparative advantage in producing and marketing high-valued commodities. Because these factors do not readily change, the ranking of States remains stable over a period of years.

California led the Nation in 1995 with a net farm income of $4.3 billion, followed by North Carolina with $2.9 billion, Texas with $2.4 billion, Georgia with $2.0 billion, and Iowa with $1.8 billion.

California, at $22.3 billion in cash receipts, led the Nation in the value of cash receipts from all commodities. California's diversity in agricultural production is evidenced by the State's top five commodities from agricultural sales including dairy products, greenhouse and nursery products, grapes, cotton, and lettuce. These commodities accounted for 44 percent of the State's cash receipts. California was also the top producing State for agricultural sales from seven commodities: dairy products, greenhouse and nursery products, hay, grapes, tomatoes, lettuce, and almonds. California also had the highest production expenses of $19.1 billion.

North Carolina, the second leading State in net farm income, ranked eighth in gross farm income and ninth in production expense. North Carolina's top commodities include hogs, broilers, and tobacco. These commodities accounted for 50 percent of the State's agricultural commodity sales in 1995. North Carolina led the Nation in sales from tobacco and turkeys.

Table 3-4.

Farm operator households and household income, by selected characteristics, 1995

Item	*Number of households*	*Average household income*[1]	*Share from off-farm sources*[2]
	Number	*Dollars*	*Percent*
All operator households	2,036,810	44,392	89.4
Household income class:			
Negative	170,331	(28,968)	(40.4)
0-$9,999	210,182	5,470	183.0
$10,000 $24,999	443,779	17,643	112.7
$25,000 $49,999	668,579	36,507	96.2
$50,000 and over	543,938	113,918	71.7
Operator's major occupation:			
Farm or ranch work	903,820	40,342	64.8
Other	797,718	53,425	108.9
Retired	335,272	33,815	94.9
Operator's age class:			
Less than 35 years	168,825	32,506	93.4
35-44 years	407,345	47,266	89.3
45-54 years	476,807	51,953	91.6
55-64 years	469,052	50,421	87.7
65 years or older	514,780	33,518	87.2
Operator's educational level:			
Less than high school	425,612	30,173	94.4
High school	819,087	41,479	87.3
Some college	443,374	48,726	85.8
College	348,736	63,075	93.1

[1]The household income of farm operator households includes the net cash farm income that accrues to the farm operation, less depreciation, as well as wages paid to household members for work on the farm, net income from farmland rentals, and net income from another farm business, plus all sources of off-farm income accruing to the household. In cases where the net income from the farm was shared by two or more households, the net cash income was allocated to the primary operator's household based on the share that the operator reported receiving. [2]Income from off-farm sources is more than 100 percent of total household income if farm is negative.

Source: USDA, Economic Research Service, Rural Economy Division, 1995 Farm Costs and Returns Survey.

The third-ranking State in net farm income, Texas, ranked second in cash receipts from all commodities, with $13.3 billion in sales. Texas was first in livestock's receipts ($8.5 billion) and fourth in crop receipts ($4.8 billion) for the Nation. Texas is a more specialized State: 47 percent of its agricultural sales in 1995 came from the State's top commodity, cattle and calves. Texas also led the Nation in cotton sales. Texas ranked second in production expenses, $15.7 billion.

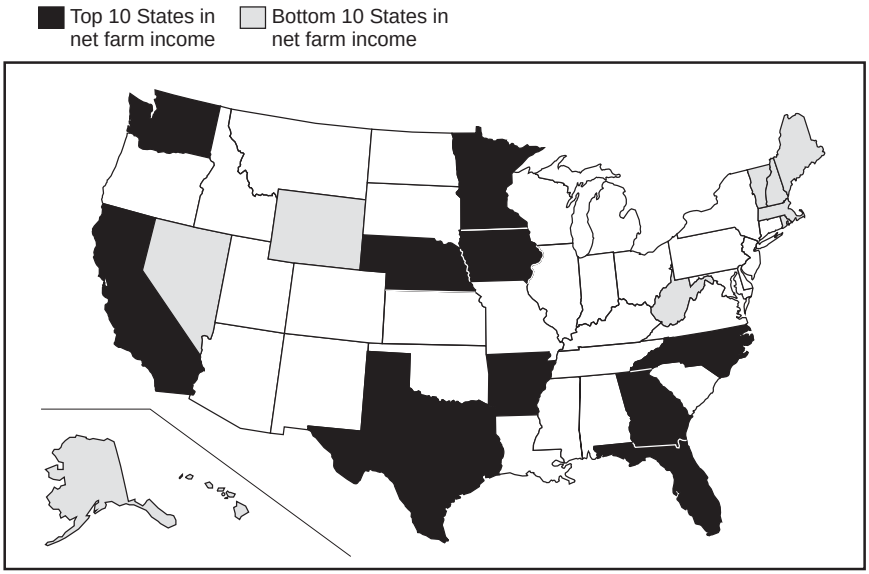
Georgia was the fourth leading State in net farm income. Georgia ranked eleventh in gross farm income and sixteenth in production expenses. The State ranked eleventh in cash receipts with $5.2 billion. The State's five leading commodities in 1995 were broilers, cotton, peanuts, eggs, and cattle and calves. Georgia led the Nation in the production of broilers and peanuts.

Iowa ranked fifth in net farm income, third in gross farm income and third in production expenses. Iowa's top five commodities—corn, hogs, soybeans, cattle and calves, and dairy products—comprised 81 percent of the State's sales from agricultural production in 1995. Iowa led the Nation in corn and hog sales.

Though Arkansas ranked eighth in net farm income and twenty-ninth in cash receipts from the sales of all agricultural commodities, the State led the Nation in sales from chicken eggs and rice in 1995.

Figure 3-5.

Net farm income, 1995



Source: USDA, Economic Research Service, Rural Economy Division

Table 3-5.

States ranked by cash receipts, 1995[1]

	Total		Livestock and products		Crops		State's top ranking commodities by value of cash receipts				
State	*Rank*	*Cash receipts*	*Rank*	*Cash receipts*	*Rank*	*Cash receipts*	*1*	*2*	*3*	*4*	*5*
Alabama	26	2,908	15	2,168	34	741	Broilers	Cattle/calves	Eggs	Cotton	Grnhs/nurs
Alaska	50	30	50	6	50	24	Grnhs/nrs	Potatoes	Hay	Dairy prods	Barley
Arizona	13	5,065	9	3,023	18	2,042	Lettuce	Cattle/calves	Cotton	Dairy prods	Cantaloupes
Arkansas	29	2,256	31	810	22	1,446	Broilers	Cotton	Soybean	Rice	Cattle/calves
California	1	22,261	2	5,549	1	16,713	Dairy prods	Grnhs/nurs	Grapes	Cotton	Lettuce
Colorado	17	3,985	11	2,624	26	1,361	Cattle/calves	Wheat	Corn	Dairy prods	Hay
Connecticut	41	484	43	257	40	228	Grnhs/nrs	Eggs	Dairy prods	Aquaculture	Cattle/calves
Delaware	40	676	39	516	44	159	Broilers	Soybean	Grnhs/nurs	Corn	Dairy prods
Florida	9	5,849	27	1,130	5	4,719	Oranges	Grnhs/nurs	Cane/sugar	Tomatoes	Dairy prods
Georgia	11	5,166	10	2,789	14	2,377	Broilers	Cotton	Peanuts	Eggs	Cattle/calves
Hawaii	42	483	47	72	38	412	Cane/sugar	Pineapples	Grnhs/nurs	Macad. nuts	Dairy prods
Idaho	22	3,166	26	1,221	19	1,945	Potatoes	Cattle/calves	Dairy prods	Wheat	Hay
Illinois	5	7,887	18	1,710	2	6,177	Corn	Soybean	Hogs	Cattle/calves	Dairy prods
Indiana	14	4,981	17	1,741	10	3,240	Corn	Soybean	Hogs	Dairy prods	Cattle/calves
Iowa	3	10,959	4	5,068	3	5,891	Corn	Hogs	Soybean	Cattle/calves	Dairy prods
Kansas	6	7,521	5	4,693	12	2,829	Cattle/calves	Wheat	Corn	Sorghum grain	Soybean
Kentucky	25	3,059	21	1,616	23	1,444	Tobacco	Horses/mules	Cattle/calves	Corn	Dairy prods
Louisiana	32	2,025	34	630	25	1,395	Cotton	Cane/sugar	Rice	Soybean	Dairy prods
Maine	43	479	42	281	42	198	Eggs	Potatoes	Dairy prods	Aquaculture	Grnhs/nurs
Maryland	36	1,402	30	830	36	572	Broilers	Grnhs/nurs	Dairy prods	Soybean	Cattle/calves
Massachusetts	45	430	46	103	39	327	Grnhs/nurs	Cranberries	Dairy prods	Christ. trees	Apples
Michigan	20	3,521	25	1,324	15	2,197	Dairy prods	Grnhs/nurs	Corn	Soybean	Cattle/calves
Minnesota	7	7,002	8	3,451	7	3,551	Corn	Dairy prods	Soybean	Hogs	Cattle/calves
Mississippi	24	3,126	19	1,685	24	1,441	Broilers	Cotton	Soybean	Aquaculture	Cattle/calves
Missouri	16	4,399	14	2,265	16	2,134	Soybean	Cattle/calves	Hogs	Corn	Dairy prods
Montana	33	1,845	32	798	30	1,047	Wheat	Cattle/calves	Barley	Hay	Sugar beets
Nebraska	4	8,690	3	5,187	8	3,503	Cattle/calves	Corn	Hogs	Soybean	Wheat

Table 3-5 continued.

States ranked by cash receipts, 1995[1] (continued)

	Total		Livestock and products		Crops		State's top ranking commodities by value of cash receipts				
State	*Rank*	*Cash receipts*	*Rank*	*Cash receipts*	*Rank*	*Cash receipts*	*1*	*2*	*3*	*4*	*5*
Nevada	47	286	45	164	45	122	Cattle/calves	Hay	Dairy prods	Potatoes	Onions
New Hampshire	48	152	48	64	47	88	Dairy prods	Grnhs/nurs	Apples	Christ. trees	Cattle/calves
New Jersey	38	773	44	200	35	573	Grnhs/nrs	Dairy prods	Eggs	Tomatoes	Blueberries
New Mexico	35	1,415	28	963	37	452	Cattle/calves	Dairy prods	Hay	Pecans	Onions
New York	27	2,877	16	1,865	31	1,012	Dairy prods	Grnhs/nurs	Cattle/calves	Potatoes	Corn
North Carolina	8	6,987	7	3,735	9	3,251	Hogs	Broilers	Tobacco	Grnhs/nurs	Turkeys
North Dakota	23	3,154	37	566	13	2,588	Wheat	Cattle/calves	Barley	Sunflower	Sugar beets
Ohio	15	4,576	23	1,589	11	2,987	Soybean	Corn	Dairy prods	Grnhs/nurs	Hogs
Oklahoma	19	3,705	12	2,571	29	1,133	Cattle/calves	Wheat	Broilers	Grnhs/nurs	Hogs
Oregon	28	2,720	33	665	17	2,055	Grnhs/nurs	Cattle/calves	Wheat	Hay	Dairy prods
Pennsylvania	18	3,738	13	2,552	28	1,186	Dairy prods	Cattle/calves	Grnhs/nurs	Mushrooms	Eggs
Rhode Island	49	80	49	10	49	70	Grnhs/nurs	Dairy prods	Eggs	Corn, sweet	Potatoes
South Carolina	34	1,441	35	611	33	830	Broilers	Tobacco	Grnhs/nurs	Cotton	Cattle/calves
South Dakota	21	3,384	20	1,676	20	1,707	Cattle/calves	Corn	Soybean	Wheat	Hogs
Tennessee	31	2,127	29	868	27	1,258	Cattle/calves	Cotton	Dairy prods	Tobacco	Soybean
Texas	2	13,288	1	8,454	4	4,834	Cattle/calves	Cotton	Grnhs/nurs	Dairy prods	Broilers
Utah	37	815	36	592	41	223	Cattle/calves	Dairy prods	Hay	Grnhs/nurs	Wheat
Vermont	44	472	40	380	46	92	Dairy prods	Cattle/calves	Grnhs/nurs	Hay	Christ. trees
Virginia	30	2,248	24	1,393	32	855	Broilers	Dairy prods	Cattle/calves	Turkeys	Tobacco
Washington	12	5,158	22	1,594	6	3,564	Apples	Dairy prods	Cattle/calves	Wheat	Potatoes
West Virginia	46	386	41	312	48	74	Broilers	Cattle/calves	Turkeys	Dairy prods	Eggs
Wisconsin	10	5,582	6	3,926	21	1,656	Dairy prods	Corn	Cattle/calves	Soybean	Hogs
Wyoming	39	726	38	544	43	182	Cattle/calves	Hay	Sugar beets	Sheep/lambs	Wheat
United States		185,750		86,844		98,906					

[1] All cash receipts data are reported in million dollars.

Source: USDA, Economic Research Service, Rural Economy Division

Table 3-6.

Leading States for cash receipts, 1995[1]

Commodities	Rank	Value	Top 10 States by their value of cash receipts 1	2	3	4	5	6	7	8	9	10
		Million dollars	State and million dollars									
Total		185,750	CA 22,261	TX 13,288	IA 10,959	NE 8,690	IL 7,887	KS 7,521	MN 7,002	NC 6,987	FL 5,849	WI 5,582
Livestock & poultry	1	86,843	TX 8,454	CA 5,549	NE 5,187	IA 5,068	KS 4,693	WI 3,926	NC 3,735	MN 3,451	AR 3,023	GA 2,789
Crops	2	98,906	CA 16,713	IL 6,177	IA 5,891	TX 4,834	FL 4,719	WA 3,564	MN 3,551	NE 3,503	NC 3,251	IN 3,240
Cattle and calves	1	33,983	TX 6,296	KS 4,235	NE 4,158	CO 2,081	OK 1,759	IA 1,705	CA 1,290	SD 1,046	MN 835	MT 668
Dairy products	2	19,923	CA 3,078	WI 2,916	NY 1,494	PA 1,456	MN 1,186	TX 792	MI 717	WA 684	OH 599	ID 508
Corn	3	17,400	IA 3,368	IL 3,116	NE 2,021	IN 1,590	MN 1,196	OH 924	WI 623	TX 603	KS 579	SD 526
Soybeans	4	13,203	IL 2,334	IA 2,318	IN 1,198	MN 1,168	OH 956	MO 886	NE 651	AR 591	SD 444	KS 352
Broilers	5	11,760	GA 1,772	AR 1,769	AL 1,438	NC 1,162	MS 992	TX 646	DE 474	MD 462	VA 401	CA 383
Greenhouse & nursery	6	10,407	CA 2,172	FL 1,093	NC 858	TX 792	OH 491	MI 425	OR 399	PA 314	OK 264	NJ 257
Hogs	7	10,073	IA 2,550	NC 1,274	MN 865	NE 739	IN 720	IL 664	MO 603	SD 312	OH 298	KS 231

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Table 3-6 continued.

Leading States for cash receipts, 1995[1] (continued)

Commodities	Rank	Value	Top 10 States by their value of cash receipts 1	2	3	4	5	6	7	8	9	10
		Million dollars	State and million dollars									
Wheat	8		ND	KS	MT	WA	OK	CO	ID	SD	NE	TX
		8,769	1,388	1,262	714	607	458	385	383	362	335	285
Cotton	9		TX	CA	MS	GA	AR	LA	AZ	NC	TN	MO
		7,566	1,666	1,393	806	767	611	538	387	314	308	226
Chicken eggs	10		AR	GA	CA	PA	OH	IN	TX	AL	NC	IA
		3,958	294	290	288	265	253	236	218	216	203	146
Hay	11		CA	OR	WA	ID	CO	TX	SD	KS	MN	IA
		3,617	633	233	215	209	171	127	116	113	108	102
Turkeys	12		NC	MN	AR	MO	CA	VA	IN	PA	IA	SC
		2,774	582	299	241	232	213	199	141	92	89	76
Tobacco	13		NC	KY	TN	VA	SC	GA	OH	FL	IN	MD
		2,594	1,049	636	233	191	189	149	32	31	22	21
Potatoes	14		ID	WA	CA	WI	OR	CO	ND	ME	MN	MI
		2,594	702	440	177	148	135	125	114	99	94	91
Grapes	15		CA	WA	NY	AZ	MI	OR	PA	AR	GA	OH
		2,022	1,837	74	36	23	15	13	11	4	3	2
Lettuce	16		CA	AZ	NJ	FL	NM	CO	WA	OH	NY	HI
		1,915	1,385	483	11	10	8	7	5	4	2	1

—continued

Table 3-6 continued.

Leading States for cash receipts, 1995[1] (continued)

Commodities	Rank	Value	Top 10 States by their value of cash receipts 1	2	3	4	5	6	7	8	9	10
		Million dollars	State and million dollars									
Oranges	17		FL	CA	TX	AZ	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		1,605	1,166	423	9	7						
Apples	18		WA	CA	MI	PA	VA	NC	OH	OR	WV	IL
		1,601	877	152	102	47	38	23	22	18	16	15
Tomatoes	19		CA	FL	GA	VA	OH	SC	NJ	MI	IN	TN
		1,577	865	388	57	44	37	31	27	20	19	17
Rice	20		AR	CA	LA	TX	MS	MO	n.a.	n.a.	n.a.	n.a.
		1,280	507	279	197	130	123	45				
Sorghum grain	21		KS	TX	NE	MO	AR	OK	IL	LA	SD	CO
		1,221	422	351	171	86	39	34	31	18	17	14
Sugar beets	22		MN	ND	MI	CA	MT	WY	NE	OR	WA	TX
		1,083	311	158	112	108	50	48	43	14	14	13
Peanuts	23		GA	TX	AL	NC	VA	OK	FL	NM	SC	n.a.
		1,013	417	155	139	103	62	60	52	14	9	
Cane for sugar	24		FL	LA	HI	TX	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		886	458	257	129	42						
Almonds	25		CA	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
		857	857									

n.a. = not applicable.
Source: USDA, Economic Research Service, Rural Economy Division.

State Rankings by Cash Receipts

A ranking by cash receipts of leading commodities within States conveys significant information about the product mix within a State. Similarly, a ranking of States by cash receipts from sales of a specific commodity or commodity group can convey information about the relative importance of the commodity to individual States and geographic regions. Such rankings are an aid in analyzing the effects of weather, changes in farm programs, or economic conditions affecting commodity prices.

Government Payments by Program and State

Government payments were $7.3 billion in 1995, down 8 percent ($0.6 billion) from the previous year. Government payments comprised 3.6 percent of gross cash farm income in 1995. Government payments for cotton reached a record low in 1995 due to high cotton prices. Some cotton producers had to refund a portion of the previous fiscal year's advanced deficiency payments because cotton market prices exceeded the established target price. Strong wheat prices kept 1995 wheat Government payments to a low level not seen since 1980. Government payments for feed grains more than doubled in 1995 as record corn production in the fall of 1994 kept corn prices low in 1995.

Government payments are direct, nonrecoverable transfer payments to participating producers. The roles of farm commodity programs and conservation policies instituted through direct Government payments are to support prices through restricting the supply of specific commodities (Acreage Reduction Program, etc.), to directly support farm incomes through cash transfers to farm operators (deficiency payments, etc.), to support farm income in times of adverse weather or natural catastrophes (disaster payments), and to maintain quality production and environmental controls through conservation reserve programs (Wetlands Reserve Program, etc.).

Annual changes in the payment distribution among States reflect farm sector and U.S. economic environment changes, crop yields, weather conditions, market prices, and farm legislation modifications. Farm businesses that participate in commodity programs vary in type and size across States depending on the State's production specialty, environmental and conservational needs, and the number of acres operated.

The Federal Agriculture Improvement and Reform Act of 1996, which was signed into law in April 1996, fundamentally redesigns income support and supply management programs for producers of wheat, corn, grain sorghum, barley, oats, rice, and upland cotton. Government payments to producers who signed up for the program are now fixed and are scheduled to decline through 2002. Dairy policy also changes dramatically as price supports are phased out and milk marketing orders are consolidated. The 1996 Act also alters the sugar and peanut programs. Farmers are freer to alter their crop production in response to relative price signals from the marketplace. Farm income is likely to become more variable under the Act in response to year-to-year changes in the supply and demand for covered commodities. Marketing alternatives to manage price and production risk will become more important for many farmers.

Table 3-7.

Government payments, by program and State, 1995

State	Feed Grain	Wheat	Rice	Cotton[1]	Wool Act	Conservation[2]	Miscellaneous[3]	Total
				1,000 dollars				
Alabama	3,368	1,740	0	1,611	42	31,713	14,912	53,386
Alaska	57	0	0	0	1	1,056	621	1,735
Arizona	1,904	2,115	0	2,166	771	1,787	758	9,501
Arkansas	6,332	9,759	312,711	1,307	128	15,330	37,698	383,265
California	8,606	11,743	155,898	5,278	5,797	15,379	35,059	237,760
Colorado	43,505	21,733	0	0	4,838	83,149	13,828	167,053
Connecticut	720	0	0	0	20	382	1,260	2,382
Delaware	2,178	151	0	0	1	373	406	3,109
Florida	1,638	215	163	14	4	10,249	43,433	55,716
Georgia	9,812	3,713	0	-176	27	32,169	20,921	66,466
Hawaii	0	0	0	0	0	406	541	947
Idaho		7,555	22,513	0	0	3,078	40,914	15,476
89,536	Illinois		453,034	9,270	0	0	384	66,018
15,029	543,735	Indiana	200,255	4,348	0	0	180	35,744
5,539246,066	Iowa		590,872	87	0	0	1,391	183,685
8,604784,639								
Kansas	154,847	96,786	0	-3	911	157,489	12,991	423,021
Kentucky	34,005	2,618	33	0	94	28,217	2,406	67,373
Louisiana	4,320	2,259	122,172	2,187	14	9,045	17,318	157,315
Maine	577	0	0	0	54	3,575	9,874	14,080
Maryland	9,724	667	0	0	85	2,370	2,301	15,147
Massachusetts	425	0	0	0	38	498	1,497	2,458
Michigan	86,348	5,190	0	0	475	22,829	36,167	151,009
Minnesota	268,636	27,763	0	0	1,057	106,098	64,347	467,901
Mississippi	3,438	2,588	61,397	4,471	16	38,555	18,696	129,161
Missouri	84,974	11,379	25,097	340	588	119,044	14,574	255,996
Montana	18,141	46,841	0	0	6,983	104,194	9,172	185,331
Nebraska	382,887	20,308	0	0	817	81,412	21,923	507,347
Nevada	108	342	0	0	732	785	2,298	4,265

—continued

Table 3-7 continued.

Government payments, by program and State, 1995 (continued)

State	Feed Grain	Wheat	Rice	Cotton[1]	Wool Act	Conservation[2]	Miscellaneous[3]	Total
New Hampshire	267	0	0	0	32	575	309	1,183
New Jersey	2,209	129	0	0	28	402	2,724	5,492
New Mexico	7,977	3,412	0	-82	4,753	20,615	18,483	55,158
New York	25,591	1,367	0	0	306	6,157	10,067	43,488
North Carolina	19,860	1,944	0	-666	67	9,213	9,741	40,159
North Dakota	48,132	88,001	0	0	1,761	113,714	44,594	296,202
Ohio	121,510	7,604	0	0	792	28,865	8,536	167,307
Oklahoma	9,631	55,781	227	945	932	52,854	44,304	164,674
Oregon	2,641	12,104	0	0	1,853	28,800	6,652	52,050
Pennsylvania	16,538	432	0	0	434	9,638	14,013	41,055
Rhode Island	5	0	0	0	4	206	103	318
South Carolina	10,165	2,937	0	671	5	12,995	7,009	33,782
South Dakota	104,102	28,629	0	0	5,614	75,900	30,790	245,035
Tennessee	13,236	2,652	177	496	52	25,807	4,918	47,338
Texas	128,230	40,614	106,755	11,397	38,284	174,099	143,499	642,878
Utah	1,622	1,839	0	0	4,759	10,510	5,777	24,507
Vermont	796	0	0	0	100	1,783	1,643	4,322
Virginia	9,645	1,261	0	-36	466	6,526	7,531	25,393
Washington	9,709	33,311	0	0	507	55,912	16,488	115,927
West Virginia	1,470	29	0	0	245	1,635	1,857	5,236
Wisconsin	110,848	717	0	0	354	51,180	20,741	183,840
Wyoming	2,113	1,714	0	0	8,403	11,717	7,279	31,226
United States	3,024,563	588,605	784,630	29,920	98,277	1,891,568	834,707	7,252,270

[1]Negative values indicate that the current fiscal year's advanced deficiency payments are less than the refunds from producers to the government because advanced deficiency payments in the previous fiscal year exceeded the final determination of the deficiency payments. [2]Includes amount paid under agriculture and conservation programs (Conservation Reserve, Agriculture Conservation, Emergency Conservation, and Great Plains Program). [3]The programs included Rural Clean Water, Forestry Incentive Annual, Forestry Incentive Long Term, Water Bank Annual, Water Bank Practice Cost Share, Dairy Indemnity, Dairy Termination, Extended Warehouse Storage, Extended Farm Storage, Colorado River Salinity, Livestock Emergency Assistance, Interest Payments, Disaster, Loan Deficiency, Market Gains, Naval Stores Conservation, Milk Marketing Fee, Options Pilot, Milk Diversion, Emergency Feed, Rice Marketing, 90 Day Rule, Payment Limitation

Source: USDA, Economic Research Service, Rural Economy Division.

Federal Government Program Participation and Direct Payments

More than half of the farms specializing in crops were enrolled in Government programs in 1995, and they accounted for three-quarters of the direct Government payments received by farmers. Cash grain farms, including corn and wheat farms, had the highest participation rates.

About 20 percent of farms specializing in livestock received direct Government payments during 1995; dairy farms had the highest participation rate among livestock farms (43 percent). Many farmers growing program-eligible crops fed the grain to their livestock.

Direct Government payments were higher for crop farms, on average, than for livestock farms. The U.S. average direct payment to all participating farms was $8,207, but ranged from a low of $3,895 for poultry farms to $11,938 for corn farms.

Number of Farms and Net Cash Income by Sales Class

The number of farms increased slightly to 2,071,520 in 1995, and the percent of farms in each major sales class remained relatively constant. Almost three-quarters of all U.S. farms have annual sales of less than $50,000, while less than 1 percent of all farms have sales greater than $1 million.

Farms with over $250,000 in sales account for less than 6 percent of all farms but dominate American agricultural output. These large farms sell over 62 percent of the Nation's livestock and over 57 percent of the crops. They have 58 percent of the gross cash income compared with 53 percent of the cash expenses. In 1995 approximately 75 percent of the Nation's net cash income was earned by them. Less than one-third of the direct Government payments went to these farms.

Farms in the largest sales class category, those with gross sales over $1 million, tend to be specialized in certain commodities. In 1995, nearly one-third of the largest farms were classified as fruit, vegetable, greenhouse, and nursery farms, meaning that 50 percent or more of their gross sales were derived from these products. Cattle and dairy operations were tied for second place, with each accounting for slightly over 17 percent of the largest farms.

More than a third of the largest farms were located in the Pacific region This is due to the heavy concentration of farms specializing in fruit, vegetable, greenhouse, and nursery in that region. Each of the remaining regions contained less than 10 percent of the largest farms, with the Delta region accounting for the smallest number of the largest farms.

Large farms, those with sales from $500,000 to $999,999, have different characteristics from the largest farms. More than 25 percent of the large farms focused on cash grain production. Next in importance were farms specialized in fruit, vegetables, greenhouse, and nursery products. Each of the following farm types account for 9 to 12 percent of the large farms: corn and soybeans, poultry, hogs, and dairy.

With cash grains and hogs being important enterprise types for large farms, it is not surprising to find the Corn Belt region has the greatest number of large farms, with 24 percent of the total in 1995. The Pacific region, with large numbers of the fruit, vegetable, greenhouse and nursery farms, has the second largest number of large farms, followed by the Southeast region, where large poultry operations are concentrated.

Mid-sized farm operations, those with sales of $50,000 or more but less than $500,000, are dominated by operations specializing in cash grains. Corn and soybean and other cash grain operations account for roughly 38 percent of these farms. Both dairy and cattle operations account for more than 10 percent of the total mid-size farms. Not surprisingly, the Corn Belt also has the largest number of mid-size farms, followed by the Northern Plains and the Lake States regions.

Small farm operations, those with sales under $50,000, are dominated by cattle operations, which accounted for 40 percent of these farms. Field crop operations and other livestock operations each account for slightly more than 15 percent of these small farms. Cash grain farms make up 13 percent of the total. The Corn Belt, Appalachian, and Southern Plains regions each have over 15 percent of the smaller farm operations due to the large number of small cattle operations in each of these regions.

Table 3-8.

Direct Government payments, by program, 1950-95[1]

Year	Feed grains	Wheat	Rice	Cotton[1]	Wool	Conservation[2]	Miscellaneous[3]	Total
				Million dollars				
1950	np	np	np	np	np	246	37	283
1951	np	np	np	np	np	246	40	286
1952	np	np	np	np	np	242	33	275
1953	np	np	np	np	np	181	32	213
1954	np	np	np	np	np	217	40	257
1955	np	np	np	np	np	188	41	229
1956	np	np	np	np	54	220	280	554
1957	np	np	np	np	53	230	732	1,015
1958	np	np	np	np	14	215	859	1,088
1959	np	np	np	np	82	233	367	682
1960	np	np	np	np	51	223	429	703
1961	772	42	np	np	56	236	387	1,493
1962	841	253	np	np	54	230	368	1,746
1963	843	215	np	np	37	231	370	1,696
1964	1,163	438	np	39	25	236	278	2,179
1965	1,391	525	np	70	18	224	235	2,463
1966	1,293	679	np	773	34	231	267	3,277
1967	865	731	np	932	29	237	284	3,078
1968	1,366	747	np	787	66	229	268	3,463
1969	1,643	858	np	828	61	204	199	3,793
1970	1,504	871	np	919	49	208	166	3,717
1971	1,054	878	np	822	69	173	149	3,145
1972	1,845	856	np	813	110	198	140	3,962
1973	1,142	474	np	718	65	72	136	2,607

—continued

Table 3-8.

Direct Government payments, by program, 1950-95[1] (continued)

Year	Feed grains	Wheat	Rice	Cotton[1]	Wool	Conservation[2]	Miscellaneous[3]	Total
				Million dollars				
1974	101	70	np	42	[4]	192	125	530
1975	279	77	np	138	13	193	107	807
1976	196	135	[4]	108	39	209	47	734
1977	187	887	130	89	5	328	192	1,818
1978	1,172	963	3	127	27	239	499	3,030
1979	494	114	59	185	33	197	294	1,376
1980	382	211	2	172	28	214	276	1,285
1981	243	625	2	222	35	201	605	1,933
1982	713	652	156	800	46	179	946	3,492
1983	1,346	864	278	662	84	188	5,874	9,296
1984	367	1,795	192	275	118	191	5,493	8,431
1985	2,861	1,950	577	1,106	98	189	924	7,705
1986	5,158	3,500	423	1,042	112	254	1,325	11,814
1987	8,490	2,931	475	1,204	144	1,531	1,972	16,747
1988	7,219	1,842	465	924	117	1,607	2,306	14,480
1989	3,141	603	671	1,184	81	1,771	3,436	10,887
1990	2,701	2,311	465	441	96	1,898	1,386	9,298
1991	2,649	2,166	550	407	154	1,858	431	8,215
1992	2,499	1,403	512	751	188	1,899	1,916	9,168
1993	4,844	1,909	650	1,226	173	1,967	2,633	13,402
1994	1,447	156	337	826	202	1,978	1,933	7,879
1995	3,025	589	785	30	98	1,892	835	7,252

np = no program. [1]Components may not add due to rounding. Includes both cash payments and payments-in-kind (PIK). [2]Includes Great Plains and other conservation programs. [3]Through 1970, total amounts are for Soil Bank program, which was discontinued in 1971. Starting with 1971, amounts include all other programs. [4]Less than $500,000.
Source: USDA, Economic Research Service, Rural Economy Division.

Table 3-9.

Number of farms and net cash income by value of sales class, 1995

Year	$1,000,000 and over	$500,000 to $999,999	$250,000 to $499,999	$100,000 to $249,999	$50,000 to $99,999	$20,000 to $49,999	Less than $20,000
				Thousands			
Number of farms	17	30	75	219	195	261	1,273
				Million dollars			
Total:							
Gross cash income	59,011	26,750	32,389	44,967	18,951	11,308	9,948
Cash receipts from marketings	56,391	24,683	29,455	40,490	17,134	9,762	7,277
Crops	24,091	14,424	18,338	22,928	9,719	5,749	3,659
Livestock	32,300	10,259	11,117	17,563	7,415	4,013	3,618
Direct Government payment commodities	2,208	6,194	9,802	11,874	4,122	2,116	846
Price support only commodities	543	1,871	3,455	4,619	2,076	1,117	536
Nonsupported commodities	53,640	16,618	16,198	23,997	10,936	6,529	5,895
Government payments	281	688	1,372	2,115	838	805	1,152
Farm-related income	2,339	1,380	1,563	2,361	979	741	1,519
Cash expenses	39,490	17,955	23,490	33,461	14,913	10,265	15,545
Net cash income	19,521	8,795	8,900	11,506	4,039	1,043	(5,597)
				Percent			
Percent of total:							
Number of farms	0.8	1.5	3.6	10.6	9.4	12.6	61.5
Gross cash income	29.0	13.2	15.9	22.1	9.3	5.6	4.9
Cash receipts from marketings	30.4	13.3	15.9	21.9	9.3	5.3	3.9
Crops	24.4	14.6	18.5	23.2	9.8	5.8	3.7
Livestock	37.4	11.9	12.9	20.4	8.6	4.7	4.2

—*continued*

Table 3-9 continued.

Number of farms and net cash income by value of sales class, 1995 (continued)

Year	$1,000,000 and over	$500,000 to $999,999[1]	$250,000 to $499,999[2]	$100,000 to $249,999[3]	$50,000 to $99,999	$20,000 to $49,999	Less than $20,000
Direct Government payment commodities	5.9	16.7	26.4	32.0	11.1	5.7	2.3
Price support only commodities	3.8	13.2	24.3	32.5	14.6	7.9	3.8
Nonsupported commodities	40.1	12.4	12.1	17.9	8.2	4.9	4.4
Government payments	3.9	9.5	18.9	29.2	11.6	11.1	15.9
Farm-related income	21.5	12.7	14.4	21.7	9.0	6.8	14.0
Cash expenses	25.5	11.6	15.1	21.6	9.6	6.6	10.0
Net cash income	40.5	18.2	18.5	23.9	8.4	2.2	-11.6
				Dollars			
Per farm operation:[1]							
Gross cash income	3,392,377	883,252	429,923	205,008	97,324	43,324	7,813
Cash receipts from marketings	3,241,742	814,993	390,967	184,600	87,992	37,402	5,715
Direct Government payment commodities	126,935	204,531	130,101	54,136	21,168	8,107	664
Price support only commodities	31,208	61,769	45,862	21,060	10,661	4,279	421
Nonsupported commodities	3,083,600	548,693	215,004	109,405	56,163	25,016	4,629
Government payments	16,176	22,706	18,213	9,645	4,305	3,084	905
Farm-related income	134,458	45,554	20,743	10,763	5,027	2,839	1,193
Cash expenses	2,270,188	601,696	305,456	150,266	90,025	25,898	11,679
Net cash income	1,122,189	290,397	118,132	52,456	20,740	3,997	(4,396)

4. Rural America

Rural Population

Today, the United States is primarily metropolitan. People who live in large cities and their suburbs account for 80 percent of the total population. Nonmetropolitan people outside large cities and suburban counties numbered about 53.9 million in 1996.

Although nonmetro population increased in both the 1970's and 1980's, its proportion of the total population fell slightly because the metro population grew even more rapidly.

After 1970, most nonmetro counties that were losing population in the 1960's began to grow again because of job development, commuting, or the development of retirement communities that drew retirees in from other areas. However, after 1980, low farm income conditions and a slump in mining and manufacturing employment led to a slow but widespread decline in rural population. From 1980 to 1990, about half of all nonmetro counties decreased in population, generally in the same areas that declined before 1970. Some nonmetro counties, though, grew enough as retirement or recreation areas, or from commuting to metro jobs, to produce overall nonmetro population growth during the decade.

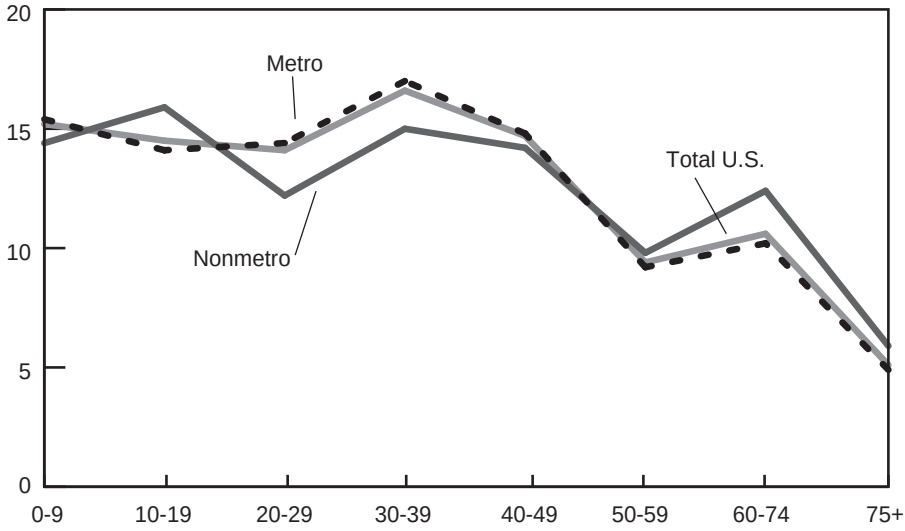
Since 1990, there is evidence once again of increased retention of people in rural areas. From 1990 to 1996, the population of nonmetro counties grew at an annual pace more than double that of the 1980's, with far fewer counties declining. This change has affected all types of counties and most regions of the country. Improvement in rural economic conditions is thought to be generally responsible for this change. But, recreation and retirement counties continue to be the most rapidly developing group. Declining population is still characteristic of areas that are dependent on farming, three-fourths of which have continued to have more people moving out than in.

Age and Race

Age distributions reflect past demographic events (births, deaths, and migrations) and provide important clues about future changes in the labor supply and the demand for goods and services. The age distribution of the U.S. population is still dominated by the post-World War II rise in fertility rates known as the baby boom, whose members were born in 1946-64. From the time the youngest baby boomers

Figure 4-1.

Age distribution of U.S. Metro and Nonmetro population, 1996



graduated from high school and began their entry into the labor force in 1982 until the oldest members reach 65 in 2011, the United States has had and will continue to have a favorable balance of people in income-producing age groups. All parts of the country benefit from the current age structure.

A metro area, by definition, must have an urban nucleus of at least 50,000 people, and may include fringe counties that are linked to that nucleus because their workers commute to the central area. All other counties are nonmetro. Because of migration, which consists primarily of young adults and their children, metro areas captured a much higher percentage of the “baby boomers.” The higher metro percentage of working-age adults has been a persistent pattern for most of this century. Metro/nonmetro differences among the youngest and oldest have become increasingly large. In a reversal of previous trends, the birth rates in metro areas in the last 5 years have been greater than in nonmetro areas. In large measure, this reversal is due to the delayed childbearing among women in the large metro baby boom segment. Birth rates for nonmetro women are higher at younger ages, particularly for women in their twenties, an age group not well represented in nonmetro areas.

Increases in life expectancy over the past 50 years and the aging of the large population segment born in the 1920's increased the proportion of elderly between 1970 and 1990. The percentage of the population over age 75 rose dramatically, especially in nonmetro areas. Retirement migration to nonmetro areas, coupled with historically high levels of nonmetro outmigration of young adults and their children, placed a higher proportion of older people in nonmetro areas; the percentage of nonmetro population age 60 or older was 18 percent in 1996, compared with 15 percent in metro areas. For the first time since 1960, metro children under 10 outnumber metro preteens and teenagers. This is not true for nonmetro areas.

In 1990, 8.7 million nonmetro residents belonged to one of four minority groups: Blacks, Hispanics, Asians (including Pacific Islanders), and Native Americans. Blacks made up close to two-thirds of the nonmetro minority population in 1980, but their share declined as other groups grew much faster during the 1980's. Minorities constituted only 14 percent of the total nonmetro population in 1980, but they accounted for 50 percent of the people added during the 1980's. Their 15 percent rate of growth was more than five times the rate for Whites. For all minorities except Native Americans, however, growth rates were even higher in metro areas during the 1980's, so that the share of U.S. minorities living in nonmetro areas declined slightly from 16 to 14 percent. Minorities are still much more likely than Whites to live in metro areas, but their presence in nonmetro areas is increasing.

Table 4-1.

Nonmetro population by race and ethnicity, 1980-1990

	Population				*Share of U.S. population in nonmetro areas*	
Race/ethnic group	*1980*	*1990*	*Change 1980–90*	*Change 1980–90*	*1980*	*1990*
	Thousands				*Percent*	
White	46,753	47,863	1,110	2.4	25.4	24.7
Minority	7,624	8,688	1,064	14.0	16.5	14.1
Black	4,770	4,923	153	3.2	18.0	16.4
Hispanic[1]	1,786	2,329	543	30.4	12.2	10.4
Native American[2]	759	971	212	27.9	49.5	49.6
Asian	309	465	156	50.5	8.3	6.4

[1]Hispanics can be of any race.
[2]Native Americans include American Indians, Eskimos, and Aleuts.
Source: 1980 and 1990 Censuses of Population.

Nonmetropolitan Industry and Job Growth

Goods-Producing Industries

Manufacturing, natural resource-based industries such as farming and mining, and other goods-producing industries have historically been the mainstay of the rural economy. Growth in the number of rural goods producing jobs was stronger during the 1970's than during the 1980's or early 1990's. Much of the growth during the 1970's was attributable to national manufacturing firms that opened branch plants in rural areas and also to booming construction activities. While goods-producing industries normally spring back during economic recovery, in more recent years, over periods of recession and recovery, job growth in these industries has been sluggish. In nonmetro areas during the 1980's, jobs in farming declined by 386,000 (1.8 percent annually) and jobs in mining declined by 119,000 (2.4 percent annually), while manufacturing increased slightly by 15,000 jobs. Nonmetro areas also lost goods-producing jobs during the 1990-91 recession, but have gained jobs in more recent years. For the early 1990's as a whole, the number of nonmetro goods-producing jobs increased

by 230,000, with manufacturing, construction, and agricultural services/forestry/fishing jobs increasing while farming and mining jobs continued to decline.

Service-Producing Industries

Nonmetro service-producing industries grew steadily during 1969-94, creating almost 6.2 million new jobs in the period. Local consumer activities, business services, recreational services, and retailing accounted for most of the job growth in rural areas. Similar to the goods producing industries, the number of rural services-producing jobs grew faster during the 1970's (3 percent annually) than during the 1980's (2 percent annually). But during the early 1990's nonmetro services producing jobs nearly regained their rapid growth rate of the 1970's, adding about 1.7 million jobs during 1989-94 (2.8 percent).

Total Employment

Nonmetro areas gained jobs at a rate comparable to that of metro areas during the 1970's, but fell far behind metro growth during the 1980's. Nonmetro areas suffered more in the two recessions of the early 1980's and benefited less from the 1982-89 recovery than did metro areas. As a result, employment growth was considerably slower in nonmetro (0.9 percent annually) than in metro areas (2.1 percent annually) during 1979 89. More encouraging is the most recent performance of rural areas. In contrast to the 1980's trend, rural areas weathered the 1990-91 recession better than urban areas. In nonmetro areas, total jobs grew at a 1.8 percent annual rate during 1989-94; in metro areas, jobs grew at only a 1.0 percent annual rate. Most of the non-metro growth was in services producing industries, 1.7 million out of 2.2 million total new jobs. Goods producing industries contributed 230,000 new nonmetro jobs while nearly 1.2 million goods-producing jobs were lost by metro areas.

Table 4-2.

Nonmetro and metro job growth in selected industries, 1969-94

Industry	*1969*	*1979*	*1989*	*1994*	*Change 1989-94*
			Thousands		*Percent*
Nonmetro total	17,738	21,713	23,849	26,054	9.2
Goods-producing	7,467	8,553	8,227	8,457	2.8
Manufacturing	3,599	4,229	4,244	4,411	3.9
Services-producing	7,107	9,521	11,605	13,299	14.6
Services	2,673	3,567	4,812	5,775	20.0
Government	3,163	3,639	4,018	4,299	7.0
Metro total	73,140	91,250	112,565	118,337	5.1
Goods-producing	22,698	24,610	24,614	23,462	-4.7
Manufacturing	16,944	17,264	15,786	14,614	-7.4
Services-producing	37,523	51,743	71,211	77,548	8.9
Services	13,757	20,153	31,452	36,464	15.9
Government	12,919	14,897	16,740	17,326	3.5

Source: U.S. Department of Commerce, Bureau of Economic Analysis

Table 4-3.

Nonmetro job growth by industry, 1969-94

Industry	*1969*	*1979*	*1989*	*1994*	*Change 1989-94*
		Thousands			*Percent*
Nonmetro	17,738	21,713	23,849	26,054	9.2
Goods-producing	7,467	8,553	8,227	8,457	2.8
Farming	2,542	2,355	1,968	1,834	-6.8
ASFF*	165	241	363	470	29.3
Mining	360	549	430	376	-12.5
Construction	801	1,179	1,221	1,366	11.9
Manufacturing	3,599	4,229	4,244	4,411	3.9
Services-producing	7,107	9,521	11,605	13,299	14.6
TCPU**	729	909	987	1,094	10.9
Wholesale trade	426	757	787	843	7.0
Retail trade	2,545	3,235	3,916	4,439	13.4
FIRE***	734	1,053	1,103	1,148	4.1
Services	2,673	3,567	4,812	5,775	20.0
Government	3,163	3,639	4,018	4,299	7.0

*Agricultural services, forestry, and fishing
**Transportation, communication, and public utilities
***Finance, insurance, and real estate
Sources: U.S. Department of Commerce, Bureau of Economic Analysis.

Nonmetropolitan Employment and Wages

In 1996, 25.3 million people 16 years old and older were in the nonmetropolitan work force, either at work or looking for work. On average, 5.6 percent or 1.4 million of these workers were unemployed during the year. Unemployment rates are particularly high among nonmetro minorities and teenagers. In 1996, 15.2 percent of teenagers, 12.9 percent of Blacks, and 8.4 percent of Hispanics in nonmetro areas were unemployed. The official unemployment rate excludes those jobless people not actively seeking work, but who indicate they want or are available for work (marginally attached workers), and part-time workers who want full-time jobs. The nonmetro adjusted unemployment rate, which includes marginally attached workers and involuntary part-time workers, was 9.1 percent.

Nonmetro unemployment fell from 7.2 percent in 1992 to 5.6 percent in 1996, as rural areas participated in the continuing national economic expansion. During the 1980's, unemployment rates were consistently higher in nonmetro areas than in metro. Although the nonmetro rate dipped below the metro rate for a few years after the 1990-91 recession, metro and nonmetro unemployment rates were similar in 1996 (5.4 and 5.6 percent, respectively). The nonmetro adjusted unemployment rate has remained higher than the metro rate throughout the 1990's. In 1996, the nonmetro unadjusted rate was 9.1 percent, slightly above the 8.8 percent metro rate.

Nonmetro earnings failed to keep pace with inflation during the 1980's. The inflation-adjusted, average nonmetro weekly earnings for wage and salary workers fell 12.5 percent between 1979 and 1990, from $472 to $413 (1996 dollars). Average metro weekly earnings fell a smaller 1.3 percent between 1979 and 1993. As a result, the metro/nonmetro average weekly earnings gap grew by 74.3 percent, increasing from $70 to $122 (1996 dollars). From 1990 to 1996, however, nonmetro weekly earnings increased 4.8 percent, to $432 (1996 dollars), while metro earnings continued to fall. About half the widening of the metro/nonmetro earnings gap that occurred in the 1980's closed after 1990.

Table 4-4.

Average weekly earnings for metro and nonmetro wage and salary workers, 1979-96

Year	*U.S.*	*Metro*	*Nonmetro*	*Rural Wage Gap*
			1996 dollars	
1979	521	542	472	70
1990	510	535	413	122
1996	510	527	432	95
			Percent	
1979-90 change	-2.1	-1.3	-12.5	74.3
1990-96 change	0.0	-1.4	4.8	-22.1

Source: Current Population Survey, Bureau of the Census

Table 4-5.

Unemployment rates among various metro and nonmetro groups, 1996

	Nonmetro	*Metro*	*United States*
		Thousands	
Civilian labor force	25,318	108,540	133,943
Total employment	23,904	102,656	126,708
Unemployed	1,414	5,883	7,236
Unemployment rate:		*Percent*	
All civilian workers	5.6	5.4	5.4
Men	5.4	5.4	5.4
Women	5.8	5.4	5.5
Teenagers	15.2	17.3	16.8
White	4.7	4.1	4.2
Black	12.9	10.3	10.6
Hispanic	8.4	9.0	8.9
Adjusted unemployment rate[1]	9.1	8.8	8.9

[1]Unemployment rate adjusted to include marginally attached workers and workers employed part-time for economic reasons.
Source: Current Population Survey, Bureau of the Census.

Table 4-6.

Median household income by race and Hispanic ethnicity

Rural household income is well below that in urban areas, and rural minorities experience substantial economic disadvantage.

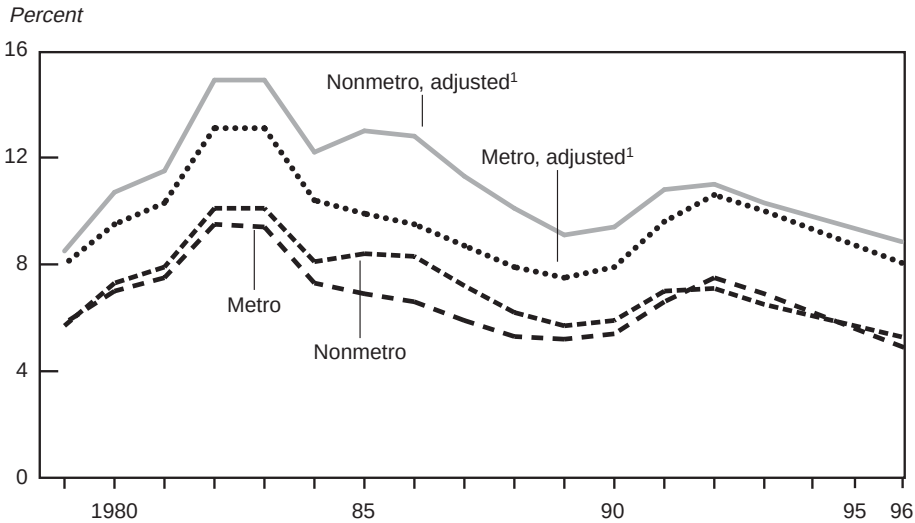
Race-ethnicity	Household income *1994*		*Nonmetro-metro gap**	*Real change*	
	Nonmetro	*Metro*		*Nonmetro 1993-94*	*Nonmetro 1990-94*
	Dollars		Percent		
Total	26,280	34,518	23.9	1.6	-2.1
White non-Hispanic	27,746	38,286	27.5	2.4	-2.9
Black	15,780	22,220	29.0	NA	NA
Hispanic	18,759	23,917	21.6	NA	NA

Note: Nonmetro-metro difference is statistically significant in each race ethnic category. Change in nonmetro income is statistically significant only for white non-Hispanics from 1990-94. Sample sizes are too small to reliably estimate change over time for Blacks and Hispanics.

*Percent by which nonmetro income is lower than metro.

Figure 4-2.

Unemployment rates by residence, 1979-96



[1]Separate metro and nonmetro estimates are not available for 1994 and 1995.

Table 4-7.

Median household income by household type

Household type	1994 household income Nonmetro	Metro	Nonmetro-metro gap*
	Dollars		Percent
Married-couple household	35,535	49,490	28.2
Male householder with family	26,357	32,277	18.3
Female householder with family	15,962	21,156	21.7
Male living alone	11,192	16,556	32.4

Note: Nonmetro-metro difference is statistically significant in each category.
*Percent by which nonmetro income is lower than metro.
Source: prepared by ERS using U.S. Bureau of the Census Current Population Survey data.

Rural Income and Poverty

Rural median household income was $26,280 in 1994, up 1.6 percent from 1993 after adjusting for inflation, but still slightly below the median at the beginning of the decade. Median rural household income continues to fall short of that in urban areas by nearly 24 percent. Incomes were substantially lower for rural minorities, for families headed by women, and for women living alone.

The poverty rate in rural America was 16.4 percent in 1994. The rural urban poverty gap, at 2.4 percentage points, was as small as it has been since poverty statistics have been calculated. Although the decrease of nearly a percentage point in the rural poverty rate from 1993-94 was not statistically significant, the trend of gradually increasing poverty observed during the previous years appears to have stopped. Over half of the rural poor (52 percent) live in the South, a disproportionate concentration compared with the South's 44 percent of the total rural population.

Families headed by women experienced the highest poverty rates of all family types (45.0 percent in rural areas and 36.8 percent in urban), and a high proportion of rural women living alone were also poor (33.0 percent). Nearly one-fourth of rural children lived in poor families.

Poverty among Blacks in inner cities receives much more public attention than does that among rural Blacks, yet the 1994 poverty rate for rural blacks (36.4 percent) was comparable to that for central-city Blacks (33.6 percent). And nearly half of all rural Black children (48.2 percent) lived in families with below-poverty-level income.

Rural Public Services

Rural local governments face special problems in providing services for their citizens. The following are rural characteristics that affect ways in which rural local governments provide services:

- **Isolation,** the geographic separation of rural areas from metropolitan centers, leads to low utilization rates for rural public services, inadequate response times for emergency services, and the detachment of service delivery professionals from their colleagues.

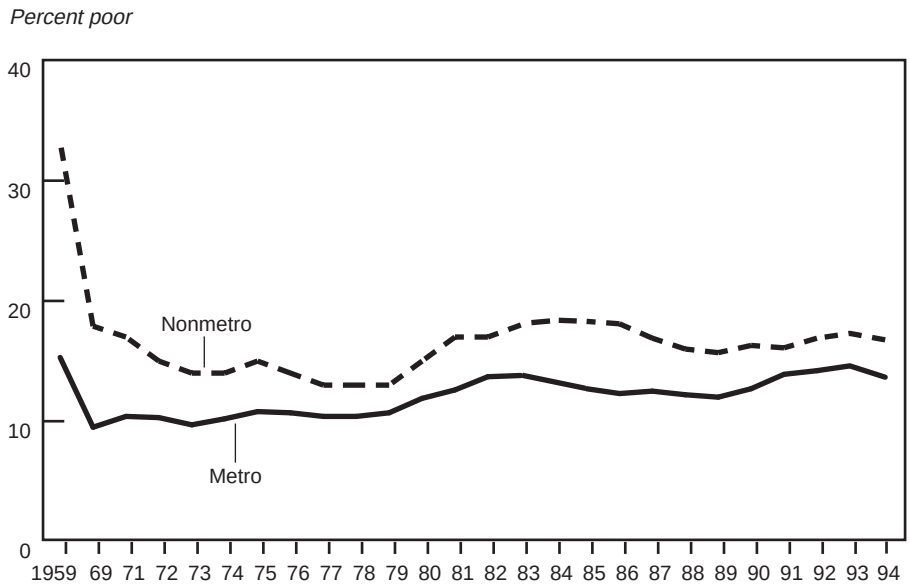
- **Low population density** means higher per unit costs of some services and the inability to supply specialized help (for example, for the handicapped) because the area cannot support the services for so few clients.
- **Lack of fiscal resources** puts many rural communities in a financial squeeze with resulting service deprivation for local residents.
- **The lack of an adequate supply of trained personnel** has several implications for service delivery in rural communities. Critical functions may go understaffed, scarce employees are often overworked, service quality and quantity suffer, and long-range planning becomes difficult.

Isolated rural communities often suffer from medical services and facilities that are of lower quality than those found in metro areas. Even if medical care services were evenly distributed across the Nation, and were of equal quality, it is likely that nonmetro residents with chronically low incomes would still have serious difficulty receiving adequate care in a complex medical system where access is based mainly on the ability to pay.

Because many rural communities are small and isolated, and lack financial resources and trained personnel, similar problems are encountered in the provision of

Figure 4-3.

Poverty rate by residence, 1959-1994



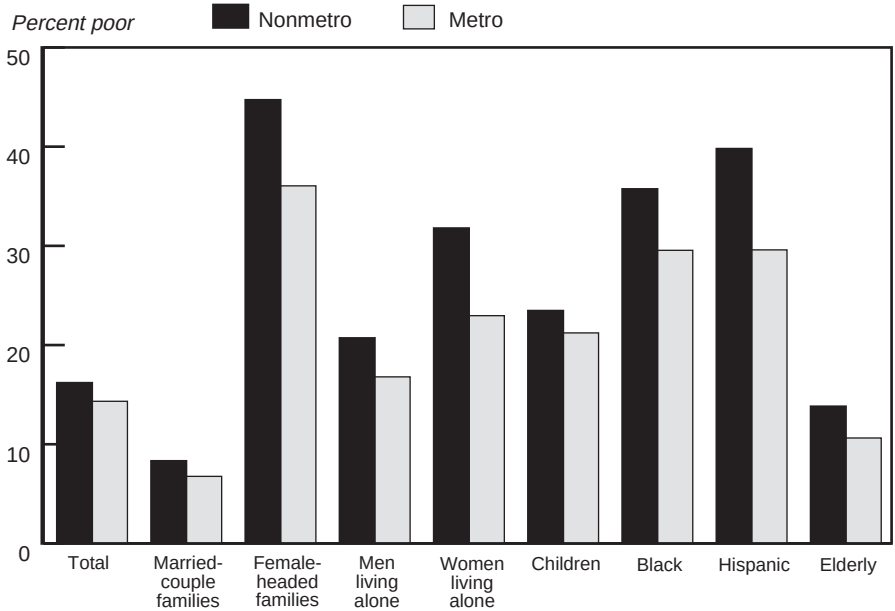
* Poverty rates for 1985 to 1994 are based on the 1983 metropolitan area delineations.

Source: Prepared by ERS using data from U.S. Bureau of the Census P-60 series 1974-1994 and Current Population Survey data March 1995.

Figure 4-4.

Poverty rates by population group, 1994

Nonmetro residence increased poverty risk for all groups.



Source: U.S. Bureau of the Census Current Population Survey

other rural public services. Various approaches have been taken to deal with these problems:

- Some communities contract with private-sector firms to provide services. For example, 36 percent of rural localities contract out legal services to for-profit firms rather than perform such services themselves.
- Some communities that want to attract new residents and businesses may find it beneficial to cooperate with other towns and share in the cost of furnishing services they cannot afford by themselves. Rural communities can work together in a variety of ways, and mutual aid is one way. Such an approach is commonly used for fire and police protection.
- Another approach is for one community to sell a particular service to another. About 23 percent of isolated rural governments contract with other governments for solid waste disposal, about 19 percent for the operation of libraries, and 18 percent for tax assessing.
- Still another method of cooperation is joint action, especially for large projects such as building and operating hospitals or airports. Various methods of dividing costs and creating joint committees or governing boards are worked out for such projects.

Although most rural community residents do not enjoy the same level of public services available to urban area residents, much progress has been made in improving some rural services over the last 30 years. Rising incomes and increased aid from

higher level governments have made possible more and better programs for rural governments.

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Still, the institutional base of rural governments is more fragile than that of urban areas, and these isolated governments remain more vulnerable to external changes than do metropolitan governments.

Federal Funding for Rural Area Development

In 1994, Federal funds reaching nonmetro counties averaged $4,469 per person, while funding to metro counties averaged $5,261 per person.

Federal funding includes grants, loans, and other payments to support agriculture, forest management, housing, transportation, education, health, public assistance, Social Security, veterans' benefits, defense, energy, and so on. Figures on the metro-nonmetro distribution of funds are based on the share of Federal funds that can be reliably traced to county levels. Interest on the national debt has been excluded for analytic purposes.

Nonmetro counties received a much larger share of their funds from income security programs, especially retirement and disability programs. About 40 percent of nonmetro funds were for such programs, compared with 30 percent of the metro funds. However, significant regional differences exist. The nonmetro Midwest received the least amount of Federal funds, $4,304 per person, while the nonmetro Northeast and South received only slightly higher amounts per person. The nonmetro West received the highest amount of Federal funds, $4,833 per person. The nonmetro West received the highest amounts of per capita loans, salary and wages, and procurement contracts from the Federal Government. However, the nonmetro West received only about 35 percent of its Federal funds per person for income security programs, compared to about 40 percent for the nonmetro Northeast, 41 percent for nonmetro Midwest, and 42 percent for the nonmetro South.

Table 4-8.

Federal funds per capita, FY 1994

Object class of funds	*All counties*	*Metro counties*	*Nonmetro counties*
		Dollars	
All Federal funds, including loans	5,100	5,261	4,469
Salaries and wages	643	712	371
Procurement contracts	669	771	273
Direct Payments to individuals	2,530	2,494	2,669
For retirement and disability	1,643	1,601	1,807
Other than retirement	887	893	862
Other direct payments	44	16	154
Grants	645	641	663
Loans	568	627	338
Direct loans	59	43	123
Guaranteed loans	509	584	215
All expenditures, excluding loans	4,532	4,634	4,131

Note: Details may not add due to rounding.
Source: Prepared by the ERS/RED staff using data from the U.S. Bureau of the Census.

Table 4-9.

Distribution of Federal funds per capita in the nonmetro regions, FY 1994

Object class of funds	*Northeast Region*	*Midwest Region*	*South Region*	*West Region*
			Dollars	
All Federal funds, including loans	4,453	4,304	4,463	4,833
Salaries and wages	457	309	324	576
Procurement contracts	308	164	235	535
Direct Payments to individuals	2,712	2,669	2,760	2,382
For retirement disability	1,801	1,769	1,878	1,688
Other than retirement	911	900	882	694
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Rural Population

Today, the United States is primarily metropolitan. People who live in large cities and their suburbs account for 80 percent of the total population. Nonmetropolitan people outside large cities and suburban counties numbered about 53.9 million in 1996.

Although nonmetro population increased in both the 1970's and 1980's, its proportion of the total population fell slightly because the metro population grew even more rapidly.

After 1970, most nonmetro counties that were losing population in the 1960's began to grow again because of job development, commuting, or the development of retirement communities that drew retirees in from other areas. However, after 1980, low farm income conditions and a slump in mining and manufacturing employment led to a slow but widespread decline in rural population. From 1980 to 1990, about half of all nonmetro counties decreased in population, generally in the same areas that declined before 1970. Some nonmetro counties, though, grew enough as retirement or recreation areas, or from commuting to metro jobs, to produce overall nonmetro population growth during the decade.

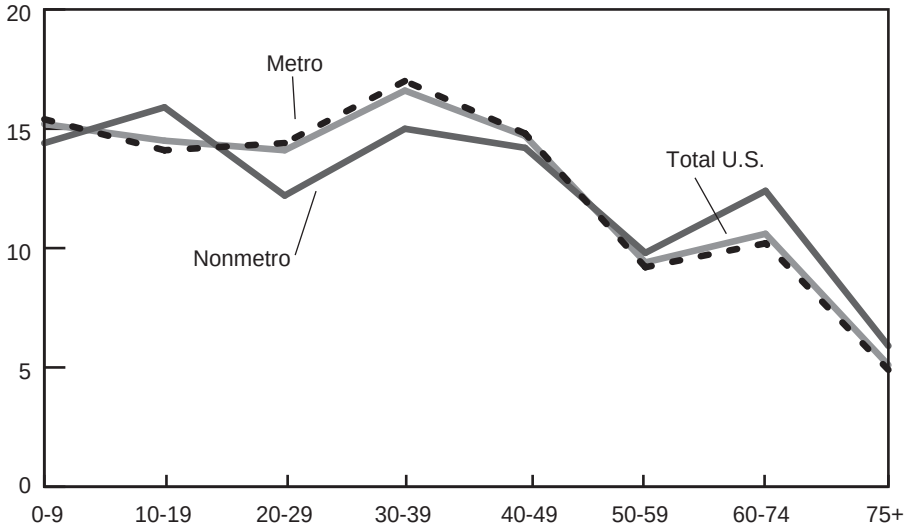
Since 1990, there is evidence once again of increased retention of people in rural areas. From 1990 to 1996, the population of nonmetro counties grew at an annual pace more than double that of the 1980's, with far fewer counties declining. This change has affected all types of counties and most regions of the country. Improvement in rural economic conditions is thought to be generally responsible for this change. But, recreation and retirement counties continue to be the most rapidly developing group. Declining population is still characteristic of areas that are dependent on farming, three-fourths of which have continued to have more people moving out than in.

Age and Race

Age distributions reflect past demographic events (births, deaths, and migrations) and provide important clues about future changes in the labor supply and the demand for goods and services. The age distribution of the U.S. population is still dominated by the post-World War II rise in fertility rates known as the baby boom, whose members were born in 1946-64. From the time the youngest baby boomers

Figure 4-1.

Age distribution of U.S. Metro and Nonmetro population, 1996



graduated from high school and began their entry into the labor force in 1982 until the oldest members reach 65 in 2011, the United States has had and will continue to have a favorable balance of people in income-producing age groups. All parts of the country benefit from the current age structure.

A metro area, by definition, must have an urban nucleus of at least 50,000 people, and may include fringe counties that are linked to that nucleus because their workers commute to the central area. All other counties are nonmetro. Because of migration, which consists primarily of young adults and their children, metro areas captured a much higher percentage of the “baby boomers.” The higher metro percentage of working-age adults has been a persistent pattern for most of this century. Metro/nonmetro differences among the youngest and oldest have become increasingly large. In a reversal of previous trends, the birth rates in metro areas in the last 5 years have been greater than in nonmetro areas. In large measure, this reversal is due to the delayed childbearing among women in the large metro baby boom segment. Birth rates for nonmetro women are higher at younger ages, particularly for women in their twenties, an age group not well represented in nonmetro areas.

Increases in life expectancy over the past 50 years and the aging of the large population segment born in the 1920's increased the proportion of elderly between 1970 and 1990. The percentage of the population over age 75 rose dramatically, especially in nonmetro areas. Retirement migration to nonmetro areas, coupled with historically high levels of nonmetro outmigration of young adults and their children, placed a higher proportion of older people in nonmetro areas; the percentage of nonmetro population age 60 or older was 18 percent in 1996, compared with 15 percent in metro areas. For the first time since 1960, metro children under 10 outnumber metro preteens and teenagers. This is not true for nonmetro areas.

In 1990, 8.7 million nonmetro residents belonged to one of four minority groups: Blacks, Hispanics, Asians (including Pacific Islanders), and Native Americans. Blacks made up close to two-thirds of the nonmetro minority population in 1980, but their share declined as other groups grew much faster during the 1980's. Minorities constituted only 14 percent of the total nonmetro population in 1980, but they accounted for 50 percent of the people added during the 1980's. Their 15 percent rate of growth was more than five times the rate for Whites. For all minorities except Native Americans, however, growth rates were even higher in metro areas during the 1980's, so that the share of U.S. minorities living in nonmetro areas declined slightly from 16 to 14 percent. Minorities are still much more likely than Whites to live in metro areas, but their presence in nonmetro areas is increasing.

Table 4-1.

Nonmetro population by race and ethnicity, 1980-1990

	Population				*Share of U.S. population in nonmetro areas*	
Race/ethnic group	*1980*	*1990*	*Change 1980–90*	*Change 1980–90*	*1980*	*1990*
	Thousands				*Percent*	
White	46,753	47,863	1,110	2.4	25.4	24.7
Minority	7,624	8,688	1,064	14.0	16.5	14.1
Black	4,770	4,923	153	3.2	18.0	16.4
Hispanic[1]	1,786	2,329	543	30.4	12.2	10.4
Native American[2]	759	971	212	27.9	49.5	49.6
Asian	309	465	156	50.5	8.3	6.4

[1]Hispanics can be of any race.
[2]Native Americans include American Indians, Eskimos, and Aleuts.
Source: 1980 and 1990 Censuses of Population.

Goods-Producing Industries

Manufacturing, natural resource-based industries such as farming and mining, and other goods-producing industries have historically been the mainstay of the rural economy. Growth in the number of rural goods producing jobs was stronger during the 1970's than during the 1980's or early 1990's. Much of the growth during the 1970's was attributable to national manufacturing firms that opened branch plants in rural areas and also to booming construction activities. While goods-producing industries normally spring back during economic recovery, in more recent years, over periods of recession and recovery, job growth in these industries has been sluggish. In nonmetro areas during the 1980's, jobs in farming declined by 386,000 (1.8 percent annually) and jobs in mining declined by 119,000 (2.4 percent annually), while manufacturing increased slightly by 15,000 jobs. Nonmetro areas also lost goods-producing jobs during the 1990-91 recession, but have gained jobs in more recent years. For the early 1990's as a whole, the number of nonmetro goods-producing jobs increased

by 230,000, with manufacturing, construction, and agricultural services/forestry/fishing jobs increasing while farming and mining jobs continued to decline.

Service-Producing Industries

Nonmetro service-producing industries grew steadily during 1969-94, creating almost 6.2 million new jobs in the period. Local consumer activities, business services, recreational services, and retailing accounted for most of the job growth in rural areas. Similar to the goods producing industries, the number of rural services-producing jobs grew faster during the 1970's (3 percent annually) than during the 1980's (2 percent annually). But during the early 1990's nonmetro services producing jobs nearly regained their rapid growth rate of the 1970's, adding about 1.7 million jobs during 1989-94 (2.8 percent).

Total Employment

Nonmetro areas gained jobs at a rate comparable to that of metro areas during the 1970's, but fell far behind metro growth during the 1980's. Nonmetro areas suffered more in the two recessions of the early 1980's and benefited less from the 1982-89 recovery than did metro areas. As a result, employment growth was considerably slower in nonmetro (0.9 percent annually) than in metro areas (2.1 percent annually) during 1979 89. More encouraging is the most recent performance of rural areas. In contrast to the 1980's trend, rural areas weathered the 1990-91 recession better than urban areas. In nonmetro areas, total jobs grew at a 1.8 percent annual rate during 1989-94; in metro areas, jobs grew at only a 1.0 percent annual rate. Most of the non-metro growth was in services producing industries, 1.7 million out of 2.2 million total new jobs. Goods producing industries contributed 230,000 new nonmetro jobs while nearly 1.2 million goods-producing jobs were lost by metro areas.

Table 4-2.

Nonmetro and metro job growth in selected industries, 1969-94

Industry	*1969*	*1979*	*1989*	*1994*	*Change 1989-94*
			Thousands		*Percent*
Nonmetro total	17,738	21,713	23,849	26,054	9.2
Goods-producing	7,467	8,553	8,227	8,457	2.8
Manufacturing	3,599	4,229	4,244	4,411	3.9
Services-producing	7,107	9,521	11,605	13,299	14.6
Services	2,673	3,567	4,812	5,775	20.0
Government	3,163	3,639	4,018	4,299	7.0
Metro total	73,140	91,250	112,565	118,337	5.1
Goods-producing	22,698	24,610	24,614	23,462	-4.7
Manufacturing	16,944	17,264	15,786	14,614	-7.4
Services-producing	37,523	51,743	71,211	77,548	8.9
Services	13,757	20,153	31,452	36,464	15.9
Government	12,919	14,897	16,740	17,326	3.5

Source: U.S. Department of Commerce, Bureau of Economic Analysis

Table 4-3.

Nonmetro job growth by industry, 1969-94

Industry	*1969*	*1979*	*1989*	*1994*	*Change 1989-94*
		Thousands			*Percent*
Nonmetro	17,738	21,713	23,849	26,054	9.2
Goods-producing	7,467	8,553	8,227	8,457	2.8
Farming	2,542	2,355	1,968	1,834	-6.8
ASFF*	165	241	363	470	29.3
Mining	360	549	430	376	-12.5
Construction	801	1,179	1,221	1,366	11.9
Manufacturing	3,599	4,229	4,244	4,411	3.9
Services-producing	7,107	9,521	11,605	13,299	14.6
TCPU**	729	909	987	1,094	10.9
Wholesale trade	426	757	787	843	7.0
Retail trade	2,545	3,235	3,916	4,439	13.4
FIRE***	734	1,053	1,103	1,148	4.1
Services	2,673	3,567	4,812	5,775	20.0
Government	3,163	3,639	4,018	4,299	7.0

*Agricultural services, forestry, and fishing
**Transportation, communication, and public utilities
***Finance, insurance, and real estate
Sources: U.S. Department of Commerce, Bureau of Economic Analysis.

Nonmetropolitan Employment and Wages

In 1996, 25.3 million people 16 years old and older were in the nonmetropolitan work force, either at work or looking for work. On average, 5.6 percent or 1.4 million of these workers were unemployed during the year. Unemployment rates are particularly high among nonmetro minorities and teenagers. In 1996, 15.2 percent of teenagers, 12.9 percent of Blacks, and 8.4 percent of Hispanics in nonmetro areas were unemployed. The official unemployment rate excludes those jobless people not actively seeking work, but who indicate they want or are available for work (marginally attached workers), and part-time workers who want full-time jobs. The nonmetro adjusted unemployment rate, which includes marginally attached workers and involuntary part-time workers, was 9.1 percent.

Nonmetro unemployment fell from 7.2 percent in 1992 to 5.6 percent in 1996, as rural areas participated in the continuing national economic expansion. During the 1980's, unemployment rates were consistently higher in nonmetro areas than in metro. Although the nonmetro rate dipped below the metro rate for a few years after the 1990-91 recession, metro and nonmetro unemployment rates were similar in 1996 (5.4 and 5.6 percent, respectively). The nonmetro adjusted unemployment rate has remained higher than the metro rate throughout the 1990's. In 1996, the nonmetro unadjusted rate was 9.1 percent, slightly above the 8.8 percent metro rate.

Nonmetro earnings failed to keep pace with inflation during the 1980's. The inflation-adjusted, average nonmetro weekly earnings for wage and salary workers fell 12.5 percent between 1979 and 1990, from $472 to $413 (1996 dollars). Average metro weekly earnings fell a smaller 1.3 percent between 1979 and 1993. As a result, the metro/nonmetro average weekly earnings gap grew by 74.3 percent, increasing from $70 to $122 (1996 dollars). From 1990 to 1996, however, nonmetro weekly earnings increased 4.8 percent, to $432 (1996 dollars), while metro earnings continued to fall. About half the widening of the metro/nonmetro earnings gap that occurred in the 1980's closed after 1990.

Table 4-4.

Average weekly earnings for metro and nonmetro wage and salary workers, 1979-96

Year	*U.S.*	*Metro*	*Nonmetro*	*Rural Wage Gap*
			1996 dollars	
1979	521	542	472	70
1990	510	535	413	122
1996	510	527	432	95
			Percent	
1979-90 change	-2.1	-1.3	-12.5	74.3
1990-96 change	0.0	-1.4	4.8	-22.1

Source: Current Population Survey, Bureau of the Census

Table 4-5.

Unemployment rates among various metro and nonmetro groups, 1996

	Nonmetro	*Metro*	*United States*
		Thousands	
Civilian labor force	25,318	108,540	133,943
Total employment	23,904	102,656	126,708
Unemployed	1,414	5,883	7,236
Unemployment rate:		*Percent*	
All civilian workers	5.6	5.4	5.4
Men	5.4	5.4	5.4
Women	5.8	5.4	5.5
Teenagers	15.2	17.3	16.8
White	4.7	4.1	4.2
Black	12.9	10.3	10.6
Hispanic	8.4	9.0	8.9
Adjusted unemployment rate[1]	9.1	8.8	8.9

[1]Unemployment rate adjusted to include marginally attached workers and workers employed part-time for economic reasons.
Source: Current Population Survey, Bureau of the Census.

Table 4-6.

Median household income by race and Hispanic ethnicity

Rural household income is well below that in urban areas, and rural minorities experience substantial economic disadvantage.

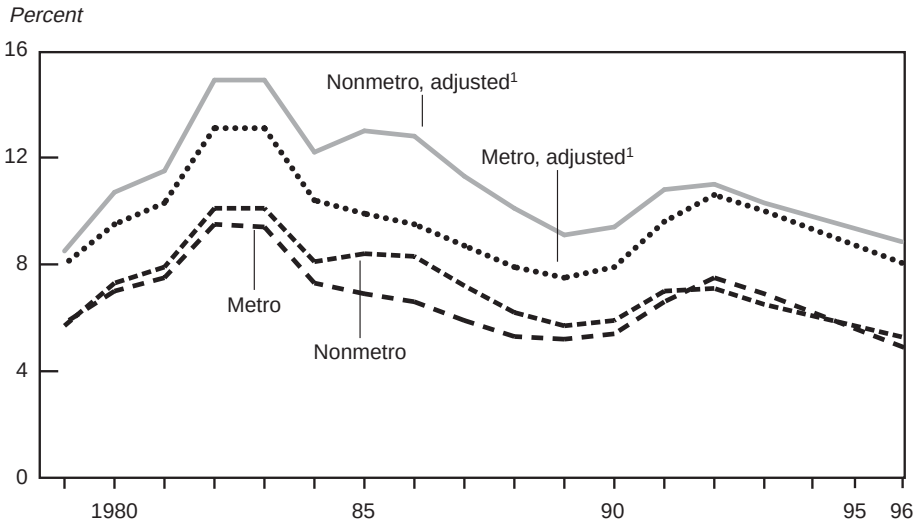
Race-ethnicity	Household income *1994*		*Nonmetro-metro gap**	*Real change*	
	Nonmetro	*Metro*		*Nonmetro 1993-94*	*Nonmetro 1990-94*
	Dollars		Percent		
Total	26,280	34,518	23.9	1.6	-2.1
White non-Hispanic	27,746	38,286	27.5	2.4	-2.9
Black	15,780	22,220	29.0	NA	NA
Hispanic	18,759	23,917	21.6	NA	NA

Note: Nonmetro-metro difference is statistically significant in each race ethnic category. Change in nonmetro income is statistically significant only for white non-Hispanics from 1990-94. Sample sizes are too small to reliably estimate change over time for Blacks and Hispanics.

*Percent by which nonmetro income is lower than metro.

Figure 4-2.

Unemployment rates by residence, 1979-96



[1]Separate metro and nonmetro estimates are not available for 1994 and 1995.

Table 4-7.

Median household income by household type

Household type	*1994 household income*		*Nonmetro-metro gap**
	Nonmetro	*Metro*	
	Dollars		*Percent*
Married-couple household	35,535	49,490	28.2
Male householder with family	26,357	32,277	18.3
Female householder with family	15,962	21,156	21.7
Male living alone	11,192	16,556	32.4

Note: Nonmetro-metro difference is statistically significant in each category.
*Percent by which nonmetro income is lower than metro.
Source: prepared by ERS using U.S. Bureau of the Census Current Population Survey data.

Rural Income and Poverty

Rural median household income was $26,280 in 1994, up 1.6 percent from 1993 after adjusting for inflation, but still slightly below the median at the beginning of the decade. Median rural household income continues to fall short of that in urban areas by nearly 24 percent. Incomes were substantially lower for rural minorities, for families headed by women, and for women living alone.

The poverty rate in rural America was 16.4 percent in 1994. The rural urban poverty gap, at 2.4 percentage points, was as small as it has been since poverty statistics have been calculated. Although the decrease of nearly a percentage point in the rural poverty rate from 1993-94 was not statistically significant, the trend of gradually increasing poverty observed during the previous years appears to have stopped. Over half of the rural poor (52 percent) live in the South, a disproportionate concentration compared with the South's 44 percent of the total rural population.

Families headed by women experienced the highest poverty rates of all family types (45.0 percent in rural areas and 36.8 percent in urban), and a high proportion of rural women living alone were also poor (33.0 percent). Nearly one-fourth of rural children lived in poor families.

Poverty among Blacks in inner cities receives much more public attention than does that among rural Blacks, yet the 1994 poverty rate for rural blacks (36.4 percent) was comparable to that for central-city Blacks (33.6 percent). And nearly half of all rural Black children (48.2 percent) lived in families with below-poverty-level income.

Rural Public Services

Rural local governments face special problems in providing services for their citizens. The following are rural characteristics that affect ways in which rural local governments provide services:

- **Isolation,** the geographic separation of rural areas from metropolitan centers, leads to low utilization rates for rural public services, inadequate response times for emergency services, and the detachment of service delivery professionals from their colleagues.

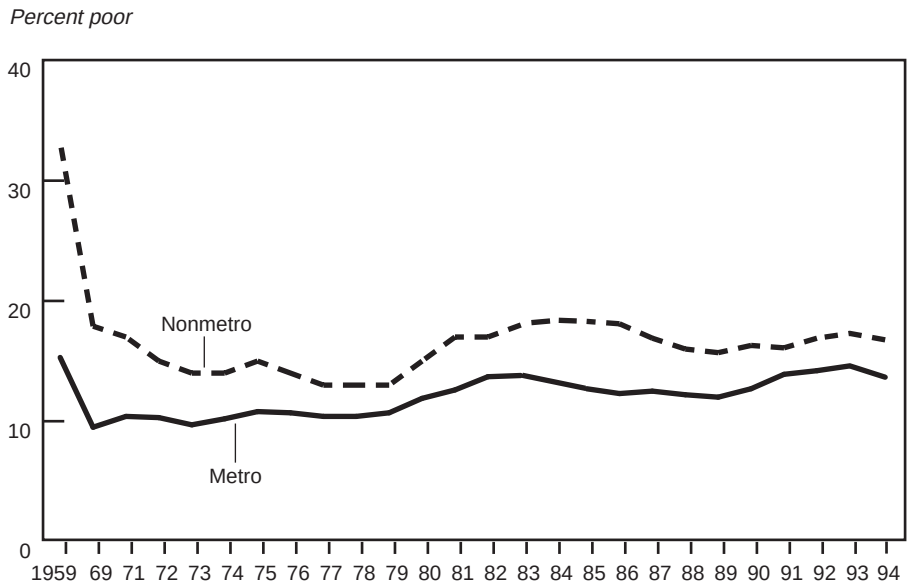
- **Low population density** means higher per unit costs of some services and the inability to supply specialized help (for example, for the handicapped) because the area cannot support the services for so few clients.
- **Lack of fiscal resources** puts many rural communities in a financial squeeze with resulting service deprivation for local residents.
- **The lack of an adequate supply of trained personnel** has several implications for service delivery in rural communities. Critical functions may go understaffed, scarce employees are often overworked, service quality and quantity suffer, and long-range planning becomes difficult.

Isolated rural communities often suffer from medical services and facilities that are of lower quality than those found in metro areas. Even if medical care services were evenly distributed across the Nation, and were of equal quality, it is likely that nonmetro residents with chronically low incomes would still have serious difficulty receiving adequate care in a complex medical system where access is based mainly on the ability to pay.

Because many rural communities are small and isolated, and lack financial resources and trained personnel, similar problems are encountered in the provision of

Figure 4-3.

Poverty rate by residence, 1959-1994



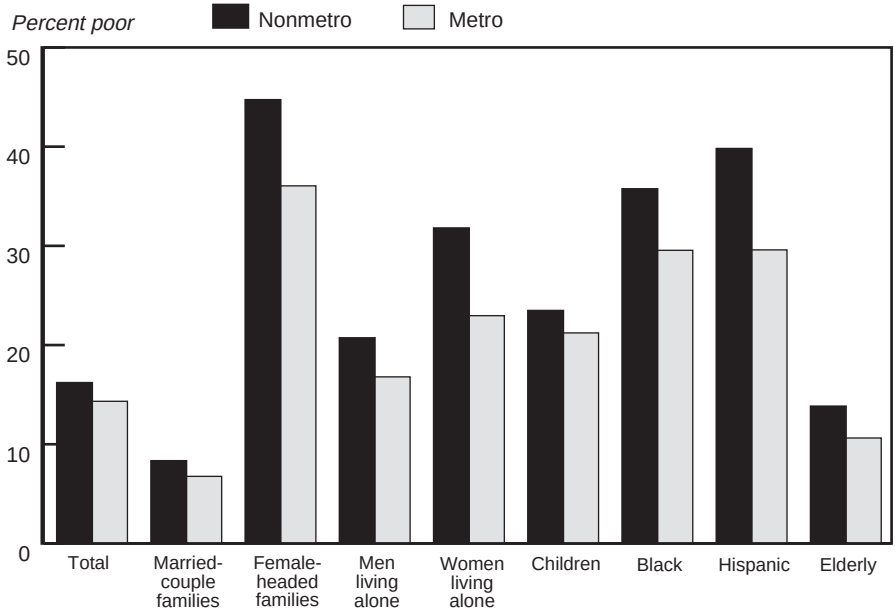
* Poverty rates for 1985 to 1994 are based on the 1983 metropolitan area delineations.

Source: Prepared by ERS using data from U.S. Bureau of the Census P-60 series 1974-1994 and Current Population Survey data March 1995.

Figure 4-4.

Poverty rates by population group, 1994

Nonmetro residence increased poverty risk for all groups.



Source: U.S. Bureau of the Census Current Population Survey

other rural public services. Various approaches have been taken to deal with these problems:

- Some communities contract with private-sector firms to provide services. For example, 36 percent of rural localities contract out legal services to for-profit firms rather than perform such services themselves.
- Some communities that want to attract new residents and businesses may find it beneficial to cooperate with other towns and share in the cost of furnishing services they cannot afford by themselves. Rural communities can work together in a variety of ways, and mutual aid is one way. Such an approach is commonly used for fire and police protection.
- Another approach is for one community to sell a particular service to another. About 23 percent of isolated rural governments contract with other governments for solid waste disposal, about 19 percent for the operation of libraries, and 18 percent for tax assessing.
- Still another method of cooperation is joint action, especially for large projects such as building and operating hospitals or airports. Various methods of dividing costs and creating joint committees or governing boards are worked out for such projects.

Although most rural community residents do not enjoy the same level of public services available to urban area residents, much progress has been made in improving some rural services over the last 30 years. Rising incomes and increased aid from

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The management capacity of rural governments to plan and carry out these programs has improved. For example, in the 1960's and 1970's a nationwide system of multicounty substate regional agencies was developed to help rural communities plan for and manage their new population growth.

Still, the institutional base of rural governments is more fragile than that of urban areas, and these isolated governments remain more vulnerable to external changes than do metropolitan governments.

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Nonmetro counties received a much larger share of their funds from income security programs, especially retirement and disability programs. About 40 percent of nonmetro funds were for such programs, compared with 30 percent of the metro funds. However, significant regional differences exist. The nonmetro Midwest received the least amount of Federal funds, $4,304 per person, while the nonmetro Northeast and South received only slightly higher amounts per person. The nonmetro West received the highest amount of Federal funds, $4,833 per person. The nonmetro West received the highest amounts of per capita loans, salary and wages, and procurement contracts from the Federal Government. However, the nonmetro West received only about 35 percent of its Federal funds per person for income security programs, compared to about 40 percent for the nonmetro Northeast, 41 percent for nonmetro Midwest, and 42 percent for the nonmetro South.

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Table 4-9.

Distribution of Federal funds per capita in the nonmetro regions, FY 1994

Object class of funds	*Northeast Region*	*Midwest Region*	*South Region*	*West Region*
			Dollars	
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5. U.S. Department of Agriculture

USDA is the third-largest civilian Department of the U. S. Government, overseeing a variety of agencies, Government corporations, and other entities that employ more than 100,000 people at over 15,000 locations in all 50 States and 80 countries.

The Department has undergone a historic reorganization to improve coordination among its broad range of programs and agencies. This reorganization, which affects headquarters and field structures, was authorized by the Federal Crop Insurance Reform and Department of Agriculture Reorganization Act of 1994 (P.L. 103-354), signed into law in October 1994.

The reorganization focused the Department's work under the following seven mission areas, which are described in chapters 6-12 of this Agriculture Fact Book:

Rural Development,
Farm and Foreign Agricultural Services,
Food, Nutrition, and Consumer Services,
Food Safety,
Natural Resources and Environment,
Research, Education, and Economics, and
Marketing and Regulatory Programs.

Some programs serve the entire Department of Agriculture, including all mission areas. Among these are the Assistant Secretary for Administration (Departmental Administration), Office of the Chief Economist, Office of Inspector General, Office of the Chief Financial Officer, and Office of the Chief Information Officer, all of which report directly to the Secretary of Agriculture. The Director of Native American Programs also works with all mission areas in the role of liaison with Indian tribes and their members.

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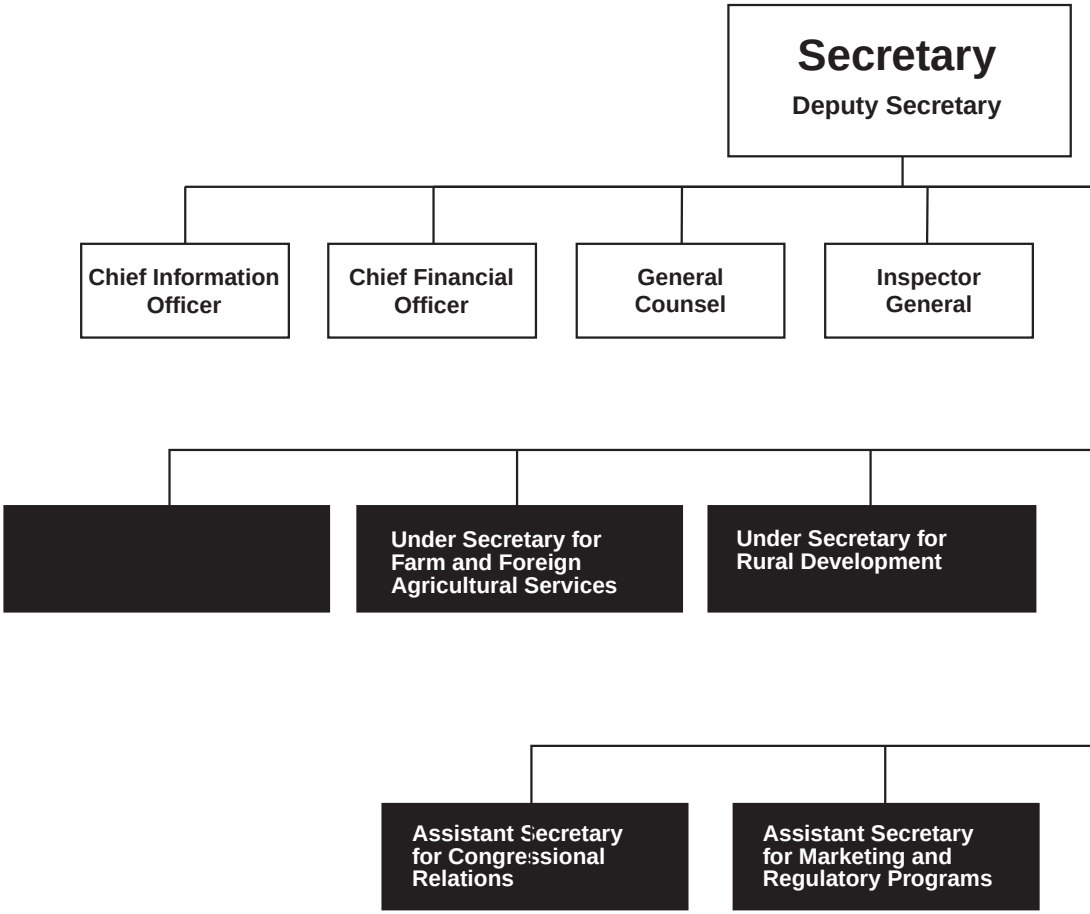
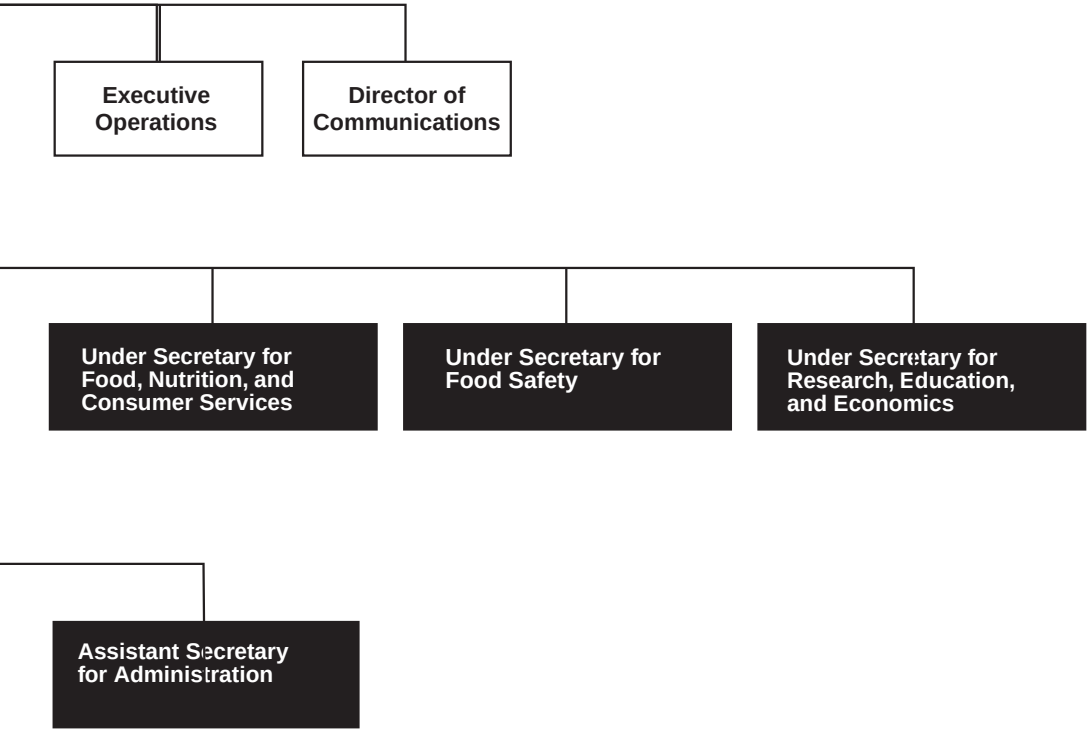
U.S. Department of Agriculture Headquarters Organization

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1961	85,238	1986	102,997
1962	89,168	1987	102,579
1963	94,527	1988	106,552
1964	94,781	1989	109,567
1965	94,548	1990	110,754
1966	98,688	1991	110,357
1967	102,175	1992	113,405
1968	105,628	1993	112,457
1969	101,848	1994	108,132
1970	100,860	1995	108,620
1971	102,698	1996	106,272
1972	104,540	1997**	106,000

*Full-time equivalent (FTE). For example, two half-time employees would count as one FTE.
**Projections from USDA Streamlining Plan, February 1995.

■ *In 1996, USDA had nearly 1,100 employees with targeted disabilities in permanent full-time positions.*

Table 5-2.

Where do USDA Employees Work?

State	Number of employees*
Alabama	1,204
Alaska	1,002
Arkansas	1,942
Arizona	1,691
California	7,615
Colorado	2,587
Connecticut	165
Delaware	208
District of Columbia	7,001
Florida	1,579
Georgia	2,588
Hawaii	416
Idaho	2,720
Illinois	1,601
Indiana	750
Iowa	1,805
Kansas	1,167
Kentucky	1,159
Louisiana	2,921
Maine	277
Maryland	3,034
Massachusetts	341
Michigan	1,242
Minnesota	1,650
Mississippi	1,974
Missouri	3,708
Montana	2,730
Nebraska	1,370
Nevada	333
New Hampshire	300
New Jersey	535
New Mexico	1,366
New York	1,055
North Carolina	1,853
North Dakota	782
Ohio	836
Oklahoma	930
Oregon	5,097
Pennsylvania	1,535
Rhode Island	38
South Carolina	960
South Dakota	823
Tennessee	1,077
Texas	3,729
Utah	1,452
Vermont	249
Virginia	2,141
Washington	2,436
West Virginia	707
Wisconsin	1,504
Wyoming	736

Territory	Number of employees*
American Samoa	6
Commonwealth of Northern Mariana Islands	7
Federated States of Micronesia	2
Guam	31
Puerto Rico	616
Marshall Island	1
U.S. Virgin Islands	29

—continued

Table 5-2 continued.

Where do USDA Employees Work?

Country	Number of employees*	Country	Number of employees*
Argentina	2	Korea, Republic of	4
Australia	3	Morocco	1
Austria	5	Mexico	24
Bermuda	1	Malaysia	1
Belgium	7	Nigeria	1
Bahamas	2	Netherlands	3
Brazil	4	Nicaragua	4
Bulgaria	2	New Zealand	1
Canada	3	Peru	2
China	7	Pakistan	1
Chile	3	Poland	2
Colombia	2	Panama	2
Costa Rica	5	Trust Territories of the Pacific	3
Denmark	1	Philippines	3
Dominican Republic	3	Russia	5
Egypt	2	Saudi Arabia	1
Federated States of Micronesia	10	South Africa	3
France	7	Singapore	3
Germany	4	Spain	2
Greece	1	Sweden	1
Guatemala	3	Switzerland	4
Hong Kong	1	United Arab Emirates	1
Honduras	1	Thailand	2
Indonesia	2	Tunisia	1
India	2	Turkey	3
Italy	5	United Kingdom	3
Ivory Coast	1	Venezuela	2
Japan	7	Vietnam	1
Kenya	3		

*Permanent, full-time employees in 1996

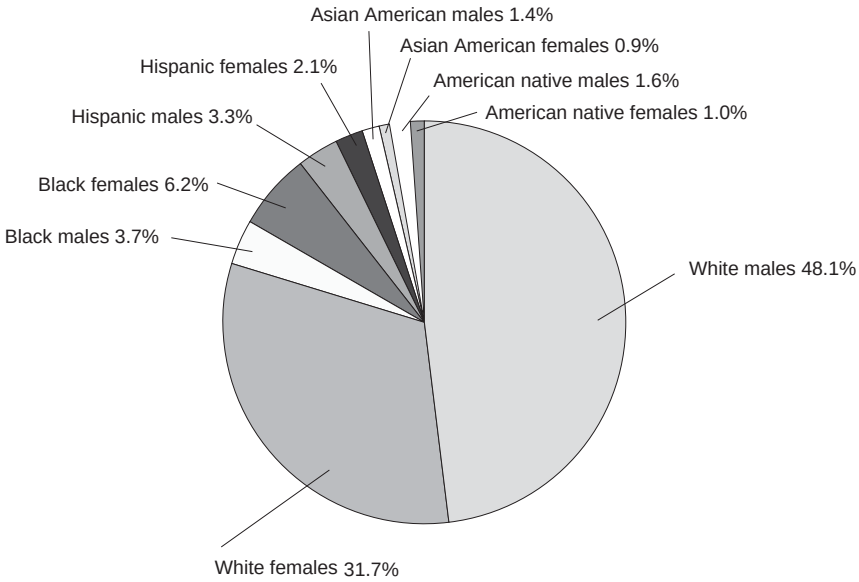
Modernization of Administrative Processes (MAP)

The Modernization of Administrative Processes (MAP) program is USDA's initiative to improve and streamline the processes and systems involved in the administrative functions of the Department. These functions include procurement, human resources management/civil rights, information resources management (IRM), property, and administrative leadership and management. MAP helps USDA fulfill its highest priorities in administrative improvements, carrying out its work through business modernization initiatives. Through these efforts, MAP plans to achieve at least $250 million in cost savings/redistribution by 1999.

MAP has six major ongoing initiatives. In the area of procurement, these involve purchase card and convenience checking as well as procurement systems modernization. In human resources management/civil rights, one initiative is on time and atten-

Figure 5-1.

USDA Workforce Profile by Race and Gender Group



dance and the other is on human resources management analysis. One IRM initiative is on redesigning telecommunications services, and another is on analysis of the IRM business processes.

Hazardous Waste Management Group

The Hazardous Waste Management Group, in Departmental Administration, manages the USDA Hazardous Waste Central Account, conducts environmental management and compliance oversight reviews at USDA facilities, represents USDA on the National Response Team, and provides advice and guidance on hazardous waste and pollution prevention issues.

American Indian and Alaska Native Programs

The Director of Native American Programs, located in the Office of Congressional and Intergovernmental Relations, is USDA's primary contact with tribal governments and their members. The director serves as the principal adviser and representative on all matters related to USDA policy and programs which benefit and affect American Indians and Alaska Natives. The director also chairs USDA's Native American Working Group, which reports to the Secretary and provides advice, sup-

port, and other assistance to the director. In 1992, USDA adopted an American Indian and Alaska Native policy which guides USDA's interactions with Native Americans.

USDA provides a wide range of services to American Indian and Alaska Native communities. In recent years, the Department has reached out to advise American Indians and Alaska Natives about USDA services available to them, to deliver programs more effectively to Indian tribes, and to initiate new programs in response to the needs of tribes. Following are highlights of recent agency activities and programs in USDA mission areas which serve Indian tribes and their members.

Natural Resources and Environment

Several USDA agencies—including the Natural Resources Conservation Service (NRCS) as the lead agency, the Farm Service Agency (FSA), the Foreign Agricultural Service (FAS), and the Animal and Plant Health Inspection Service (APHIS)—are implementing an extensive 2-year joint outreach effort with the Intertribal Agriculture Council (IAC) to heighten awareness of USDA services available to American Indian and Alaska Native communities. With 65 member tribes, the IAC is a nonprofit corporation devoted to improving agriculture as a source of economic development for Indian people. NRCS has designated a full-time American Indian Liaison in order to work more closely with the IAC. NRCS has worked with the IAC to help tribes establish 33 full-time and 73 part time NRCS offices at tribal headquarters and 15 American Indian Conservation Districts under tribal law, with an additional 2 Districts in the development phase. NRCS has conducted 20 "Working Effectively with American Indians" workshops which focus on historical, legal, and cultural issues that are significant for effective program delivery to Native Americans.

The Forest Service has an American Indian and Alaska Native policy referred to as Forest Service American Indian/Alaska Native Policy—Friends and Partners. The Forest Service has also published a national tribal resource book entitled *Forest Service National Resource Book on American Indian and Alaska Native Relations* to promote cooperative relations with Indian tribes and Alaska Natives. The Forest Service works with Indian tribes to coordinate the management of National Forest lands and resources with adjacent Indian tribes; to honor Indian water rights and reserved rights to hunt, fish, gather, and graze on present-day National Forests through consultation and agreement with affected Indian tribes; to engage in ongoing consultation with tribes to accommodate traditional, cultural sites on public lands; and to provide research, technology transfer, and technical assistance to tribes.

Farm and Foreign Agricultural Services

Much of the 54 million acres of Indian land is cropland and grazing land that the U.S. Government holds in trust for Indian people. USDA is working more aggressively to help tribes and individual Indian farmers realize the agricultural potential of their landholdings. In order to increase farm services to tribes, FSA is conducting a formal outreach campaign with other USDA agencies and the IAC to host meetings and presentations at reservation sites. The communication campaign helps tribal staff and Indian farmers become more familiar with the current array of farm crop, conservation, financial credit, and crop insurance programs, as well as the farm program

changes resulting from the Federal Agriculture Improvement and Reform Act of 1996 (the 1996 Act).

FSA also provides services at suboffices established on reservations. FSA is cooperating with the Bureau of Indian Affairs (BIA) to increase tribal participation in USDA farm programs. In 1996,USDA and the BIA worked together to ensure that Indian lands had the full opportunity to be enrolled in production flexibility contracts authorized by the 1996 Act. The two agencies are continuing to help tribes establish conservation practices on reservation land and resolve the credit problems of individual Indian farmers. FSA also administers the Indian Tribal Land Acquisition Program, which provides long term loans to Indian Tribes to acquire land within their reservations.

Rural Development

USDA's Rural Development programs are administered through three rural development services: the Rural Business-Cooperative Service (RBS), the Rural Housing Service (RHS), and the Rural Utilities Service (RUS). The eligibility requirements vary according to each program.

Increased emphasis has been placed on economic and rural development activities and programs on reservations. RBS, RHS, and RUS have increased their investments in tribal water and waste, community facilities, and business projects. Rural Development has established Native American Program Coordinators in most of the States with significant American Indian populations.

RHS is striving to expand its role in financing needed housing on tribal lands. In conjunction with the President's Home Ownership Initiative, RHS identified barriers to delivery of the Section 502 Direct Single Family Housing Loan Program on reservation trust lands and developed recommendations to resolve these barriers and increase home ownership of tribal members living on trust lands. The RHS Native American pilot loan program was designed to meet the home ownership needs of Native Americans residing on trust lands. Under the pilot, 25 tribes will work in partnership with USDA and Fannie Mae to assist tribal members to obtain guaranteed Section 502 housing loans for homes on these reservations.

RHS developed a handbook for Rural Development staff regarding lending on tribal lands in order to better serve tribal customers.

Food, Nutrition, and Consumer Services

The Food and Consumer Service (FCS) administers the Food Distribution Program on Indian Reservations (FDPIR), which is offered in lieu of food stamps. In FY 1996, an estimated 120,000 American Indian and Alaska Native participants received FDPIR food packages, and FCS distributed food valued at an estimated $51.3 million to Native American households through FDPIR. About 125,000 other Native American households receive food stamps each month. FCS is undertaking a FDPIR food package review, in full partnership with Indian cooperators. FCS has established a pilot project under which fresh produce is made available to tribes participating in FDPIR. The FCS Supplemental Nutrition Program for Women, Infants, and Children (WIC) developed a new packet of materials to increase awareness of Fetal Alcohol Syndrome (FAS) among American Indians and Alaska Natives.

Research, Education, and Economics

The Cooperative State Research, Education, and Extension Service (CSREES) administers the Extension Indian Reservation Program, which provides extension agents to selected Indian tribes. The extension agents conduct education programs on reservations in response to tribally identified needs. CSREES also has an endowment fund for the 29 Tribal Colleges designated as 1994 land-grant institutions under P.L. 103-382. Interest earned is distributed to these institutions to facilitate teaching programs in the food and agricultural sciences. The Tribal Colleges Education Equity Grants Program provides a $50,000 award to each of the 29 designated 1994 land-grant institutions to strengthen instruction programs in the food and agricultural sciences.

The Extension Services at the 1994 Institutions program provide competitive grants to address a wide range of agricultural issues, including crop and animal production, farm business management, marketing techniques, decisionmaking skills, and environmental considerations. This program can also be used to enhance community resource and economic development; family development and resource management; 4-H and youth development; leadership and volunteer development; natural resources and environment; and nutrition, diet, and health.

Since 1991 the Children, Youth, and Families at Risk Initiative, supported by CSREES, has provided funding and technical support to Native American and other underserved populations for a broad spectrum of prevention-oriented education programs to strengthen individuals and families with children, prenatal to late teens. The goal of this national initiative is to empower the whole family to enable those at risk to develop necessary life skills and become strong, productive adults.

Marketing and Regulatory Programs

The Animal and Plant Health Inspection Service (APHIS) has ongoing programs with Indian tribes that generally focus on agricultural, natural resource, facility, or human health and safety protection. Examples include the vaccination of dogs and livestock on reservations by Veterinary Services, control of noxious weeds and grasshoppers on several reservations, and protection of sheep and cattle from excessive loss to predators. As mentioned above, APHIS has joined other USDA agencies to fund an outreach program with the Intertribal Agriculture Council to tribes. APHIS has chartered a Native American Working Group within the Agency and has a World Wide Web page on this topic. The address is *http://www.aphis.usda.gov/anawg/amerind.html*

Food Safety

The Food Safety and Inspection Service (FSIS), in coordination with the Intertribal Basin Council and USDA's Rural Business-Cooperative Service, provides design expertise, approval, and funding for mobile livestock slaughtering units to be used on reservations. In addition, the Emergency Programs Office offers expertise in planning and training for Tribal and State Radiological Emergency Preparedness programs.

For More Information

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Public Information Officer
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Rm 5143-S Washington, DC 20250-3812
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rbridge@oce.usda.gov

Office of the Inspector General
Director, Info Mngt Div
Diane Smith
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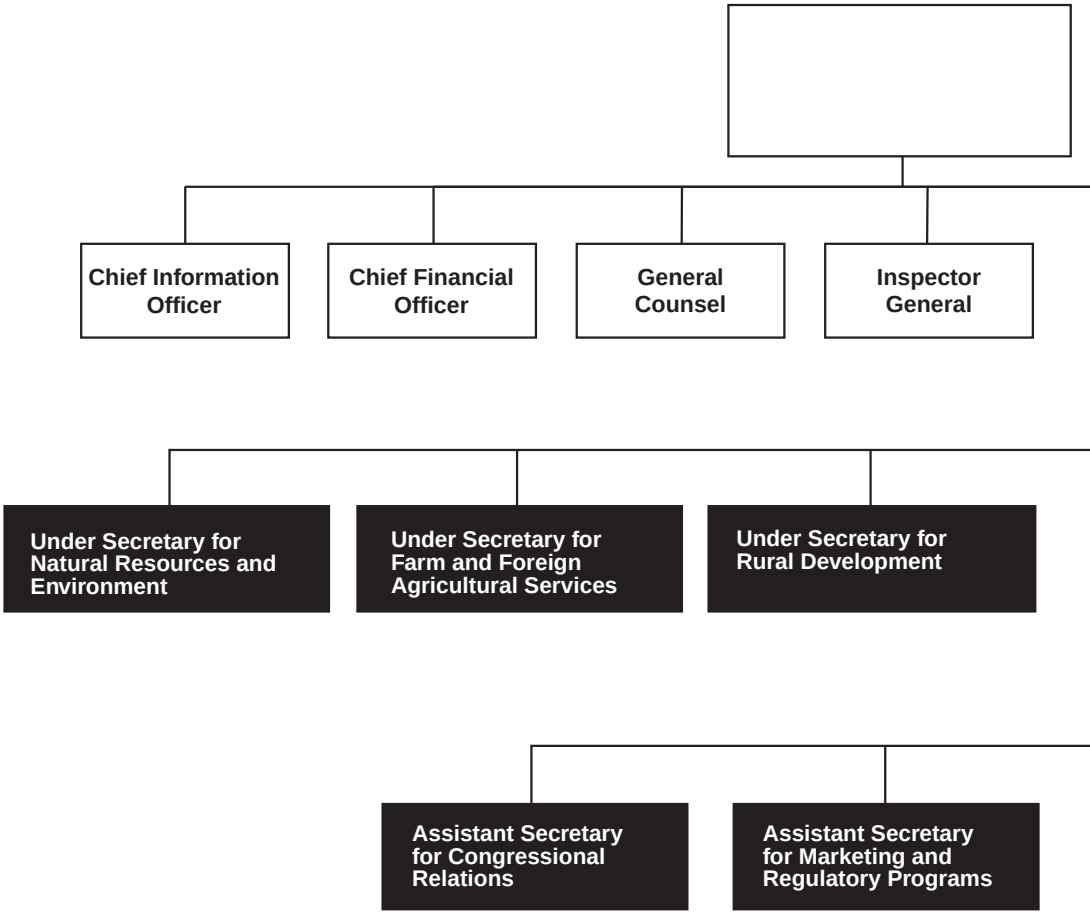

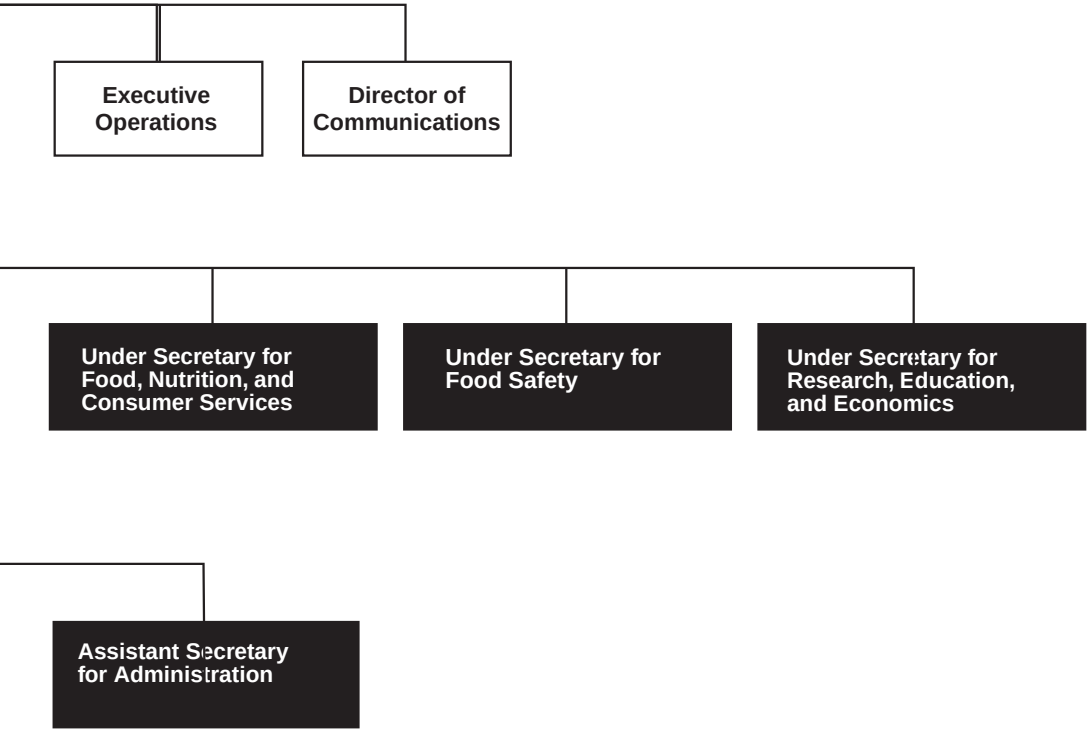
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1960	81,585	1985	106,665
1961	85,238	1986	102,997
1962	89,168	1987	102,579
1963	94,527	1988	106,552
1964	94,781	1989	109,567
1965	94,548	1990	110,754
1966	98,688	1991	110,357
1967	102,175	1992	113,405
1968	105,628	1993	112,457
1969	101,848	1994	108,132
1970	100,860	1995	108,620
1971	102,698	1996	106,272
1972	104,540	1997**	106,000

*Full-time equivalent (FTE). For example, two half-time employees would count as one FTE.
**Projections from USDA Streamlining Plan, February 1995.

■ *In 1996, USDA had nearly 1,100 employees with targeted disabilities in permanent full-time positions.*

Table 5-2.

Where do USDA Employees Work?

State	Number of employees*
Alabama	1,204
Alaska	1,002
Arkansas	1,942
Arizona	1,691
California	7,615
Colorado	2,587
Connecticut	165
Delaware	208
District of Columbia	7,001
Florida	1,579
Georgia	2,588
Hawaii	416
Idaho	2,720
Illinois	1,601
Indiana	750
Iowa	1,805
Kansas	1,167
Kentucky	1,159
Louisiana	2,921
Maine	277
Maryland	3,034
Massachusetts	341
Michigan	1,242
Minnesota	1,650
Mississippi	1,974
Missouri	3,708
Montana	2,730
Nebraska	1,370
Nevada	333
New Hampshire	300
New Jersey	535
New Mexico	1,366
New York	1,055
North Carolina	1,853
North Dakota	782
Ohio	836
Oklahoma	930
Oregon	5,097
Pennsylvania	1,535
Rhode Island	38
South Carolina	960
South Dakota	823
Tennessee	1,077
Texas	3,729
Utah	1,452
Vermont	249
Virginia	2,141
Washington	2,436
West Virginia	707
Wisconsin	1,504
Wyoming	736

Territory	Number of employees*
American Samoa	6
Commonwealth of Northern Mariana Islands	7
Federated States of Micronesia	2
Guam	31
Puerto Rico	616
Marshall Island	1
U.S. Virgin Islands	29

—continued

Table 5-2 continued.

Where do USDA Employees Work?

Country	Number of employees*	Country	Number of employees*
Argentina	2	Korea, Republic of	4
Australia	3	Morocco	1
Austria	5	Mexico	24
Bermuda	1	Malaysia	1
Belgium	7	Nigeria	1
Bahamas	2	Netherlands	3
Brazil	4	Nicaragua	4
Bulgaria	2	New Zealand	1
Canada	3	Peru	2
China	7	Pakistan	1
Chile	3	Poland	2
Colombia	2	Panama	2
Costa Rica	5	Trust Territories of the Pacific	3
Denmark	1	Philippines	3
Dominican Republic	3	Russia	5
Egypt	2	Saudi Arabia	1
Federated States of Micronesia	10	South Africa	3
France	7	Singapore	3
Germany	4	Spain	2
Greece	1	Sweden	1
Guatemala	3	Switzerland	4
Hong Kong	1	United Arab Emirates	1
Honduras	1	Thailand	2
Indonesia	2	Tunisia	1
India	2	Turkey	3
Italy	5	United Kingdom	3
Ivory Coast	1	Venezuela	2
Japan	7	Vietnam	1
Kenya	3		

*Permanent, full-time employees in 1996

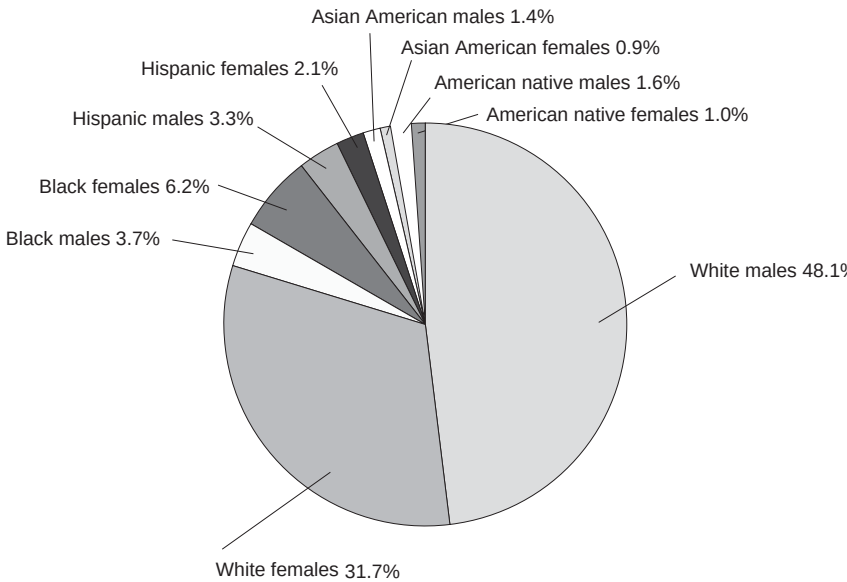
Modernization of Administrative Processes (MAP)

The Modernization of Administrative Processes (MAP) program is USDA's initiative to improve and streamline the processes and systems involved in the administrative functions of the Department. These functions include procurement, human resources management/civil rights, information resources management (IRM), property, and administrative leadership and management. MAP helps USDA fulfill its highest priorities in administrative improvements, carrying out its work through business modernization initiatives. Through these efforts, MAP plans to achieve at least $250 million in cost savings/redistribution by 1999.

MAP has six major ongoing initiatives. In the area of procurement, these involve purchase card and convenience checking as well as procurement systems modernization. In human resources management/civil rights, one initiative is on time and atten-

Figure 5-1.

USDA Workforce Profile by Race and Gender Group



dance and the other is on human resources management analysis. One IRM initiative is on redesigning telecommunications services, and another is on analysis of the IRM business processes.

Hazardous Waste Management Group

The Hazardous Waste Management Group, in Departmental Administration, manages the USDA Hazardous Waste Central Account, conducts environmental management and compliance oversight reviews at USDA facilities, represents USDA on the National Response Team, and provides advice and guidance on hazardous waste and pollution prevention issues.

American Indian and Alaska Native Programs

The Director of Native American Programs, located in the Office of Congressional and Intergovernmental Relations, is USDA's primary contact with tribal governments and their members. The director serves as the principal adviser and representative on all matters related to USDA policy and programs which benefit and affect American Indians and Alaska Natives. The director also chairs USDA's Native American Working Group, which reports to the Secretary and provides advice, sup-

port, and other assistance to the director. In 1992, USDA adopted an American Indian and Alaska Native policy which guides USDA's interactions with Native Americans.

USDA provides a wide range of services to American Indian and Alaska Native communities. In recent years, the Department has reached out to advise American Indians and Alaska Natives about USDA services available to them, to deliver programs more effectively to Indian tribes, and to initiate new programs in response to the needs of tribes. Following are highlights of recent agency activities and programs in USDA mission areas which serve Indian tribes and their members.

Natural Resources and Environment

Several USDA agencies—including the Natural Resources Conservation Service (NRCS) as the lead agency, the Farm Service Agency (FSA), the Foreign Agricultural Service (FAS), and the Animal and Plant Health Inspection Service (APHIS)—are implementing an extensive 2-year joint outreach effort with the Intertribal Agriculture Council (IAC) to heighten awareness of USDA services available to American Indian and Alaska Native communities. With 65 member tribes, the IAC is a nonprofit corporation devoted to improving agriculture as a source of economic development for Indian people. NRCS has designated a full-time American Indian Liaison in order to work more closely with the IAC. NRCS has worked with the IAC to help tribes establish 33 full-time and 73 part time NRCS offices at tribal headquarters and 15 American Indian Conservation Districts under tribal law, with an additional 2 Districts in the development phase. NRCS has conducted 20 "Working Effectively with American Indians" workshops which focus on historical, legal, and cultural issues that are significant for effective program delivery to Native Americans.

The Forest Service has an American Indian and Alaska Native policy referred to as Forest Service American Indian/Alaska Native Policy—Friends and Partners. The Forest Service has also published a national tribal resource book entitled *Forest Service National Resource Book on American Indian and Alaska Native Relations* to promote cooperative relations with Indian tribes and Alaska Natives. The Forest Service works with Indian tribes to coordinate the management of National Forest lands and resources with adjacent Indian tribes; to honor Indian water rights and reserved rights to hunt, fish, gather, and graze on present-day National Forests through consultation and agreement with affected Indian tribes; to engage in ongoing consultation with tribes to accommodate traditional, cultural sites on public lands; and to provide research, technology transfer, and technical assistance to tribes.

Farm and Foreign Agricultural Services

Much of the 54 million acres of Indian land is cropland and grazing land that the U.S. Government holds in trust for Indian people. USDA is working more aggressively to help tribes and individual Indian farmers realize the agricultural potential of their landholdings. In order to increase farm services to tribes, FSA is conducting a formal outreach campaign with other USDA agencies and the IAC to host meetings and presentations at reservation sites. The communication campaign helps tribal staff and Indian farmers become more familiar with the current array of farm crop, conservation, financial credit, and crop insurance programs, as well as the farm program

changes resulting from the Federal Agriculture Improvement and Reform Act of 1996 (the 1996 Act).

FSA also provides services at suboffices established on reservations. FSA is cooperating with the Bureau of Indian Affairs (BIA) to increase tribal participation in USDA farm programs. In 1996,USDA and the BIA worked together to ensure that Indian lands had the full opportunity to be enrolled in production flexibility contracts authorized by the 1996 Act. The two agencies are continuing to help tribes establish conservation practices on reservation land and resolve the credit problems of individual Indian farmers. FSA also administers the Indian Tribal Land Acquisition Program, which provides long term loans to Indian Tribes to acquire land within their reservations.

Rural Development

USDA's Rural Development programs are administered through three rural development services: the Rural Business-Cooperative Service (RBS), the Rural Housing Service (RHS), and the Rural Utilities Service (RUS). The eligibility requirements vary according to each program.

Increased emphasis has been placed on economic and rural development activities and programs on reservations. RBS, RHS, and RUS have increased their investments in tribal water and waste, community facilities, and business projects. Rural Development has established Native American Program Coordinators in most of the States with significant American Indian populations.

RHS is striving to expand its role in financing needed housing on tribal lands. In conjunction with the President's Home Ownership Initiative, RHS identified barriers to delivery of the Section 502 Direct Single Family Housing Loan Program on reservation trust lands and developed recommendations to resolve these barriers and increase home ownership of tribal members living on trust lands. The RHS Native American pilot loan program was designed to meet the home ownership needs of Native Americans residing on trust lands. Under the pilot, 25 tribes will work in partnership with USDA and Fannie Mae to assist tribal members to obtain guaranteed Section 502 housing loans for homes on these reservations.

RHS developed a handbook for Rural Development staff regarding lending on tribal lands in order to better serve tribal customers.

Food, Nutrition, and Consumer Services

The Food and Consumer Service (FCS) administers the Food Distribution Program on Indian Reservations (FDPIR), which is offered in lieu of food stamps. In FY 1996, an estimated 120,000 American Indian and Alaska Native participants received FDPIR food packages, and FCS distributed food valued at an estimated $51.3 million to Native American households through FDPIR. About 125,000 other Native American households receive food stamps each month. FCS is undertaking a FDPIR food package review, in full partnership with Indian cooperators. FCS has established a pilot project under which fresh produce is made available to tribes participating in FDPIR. The FCS Supplemental Nutrition Program for Women, Infants, and Children (WIC) developed a new packet of materials to increase awareness of Fetal Alcohol Syndrome (FAS) among American Indians and Alaska Natives.

Research, Education, and Economics

The Cooperative State Research, Education, and Extension Service (CSREES) administers the Extension Indian Reservation Program, which provides extension agents to selected Indian tribes. The extension agents conduct education programs on reservations in response to tribally identified needs. CSREES also has an endowment fund for the 29 Tribal Colleges designated as 1994 land-grant institutions under P.L. 103-382. Interest earned is distributed to these institutions to facilitate teaching programs in the food and agricultural sciences. The Tribal Colleges Education Equity Grants Program provides a $50,000 award to each of the 29 designated 1994 land-grant institutions to strengthen instruction programs in the food and agricultural sciences.

The Extension Services at the 1994 Institutions program provide competitive grants to address a wide range of agricultural issues, including crop and animal production, farm business management, marketing techniques, decisionmaking skills, and environmental considerations. This program can also be used to enhance community resource and economic development; family development and resource management; 4-H and youth development; leadership and volunteer development; natural resources and environment; and nutrition, diet, and health.

Since 1991 the Children, Youth, and Families at Risk Initiative, supported by CSREES, has provided funding and technical support to Native American and other underserved populations for a broad spectrum of prevention-oriented education programs to strengthen individuals and families with children, prenatal to late teens. The goal of this national initiative is to empower the whole family to enable those at risk to develop necessary life skills and become strong, productive adults.

Marketing and Regulatory Programs

The Animal and Plant Health Inspection Service (APHIS) has ongoing programs with Indian tribes that generally focus on agricultural, natural resource, facility, or human health and safety protection. Examples include the vaccination of dogs and livestock on reservations by Veterinary Services, control of noxious weeds and grasshoppers on several reservations, and protection of sheep and cattle from excessive loss to predators. As mentioned above, APHIS has joined other USDA agencies to fund an outreach program with the Intertribal Agriculture Council to tribes. APHIS has chartered a Native American Working Group within the Agency and has a World Wide Web page on this topic. The address is *http://www.aphis.usda.gov/anawg/amerind.html*

Food Safety

The Food Safety and Inspection Service (FSIS), in coordination with the Intertribal Basin Council and USDA's Rural Business-Cooperative Service, provides design expertise, approval, and funding for mobile livestock slaughtering units to be used on reservations. In addition, the Emergency Programs Office offers expertise in planning and training for Tribal and State Radiological Emergency Preparedness programs.

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6. Rural Development: Creating Opportunity for Rural Americans

USDA Rural Development is forging new partnerships with rural America by funding development projects and providing technical assistance and information to create quality jobs, services, housing, and utilities. The need to revitalize rural America is essential if it is to maintain or regain its posture as a place where millions of rural people can achieve the American dream. This need is evident from the following:

- More than 53 million people live in rural areas of the United States, 16.4 percent of whom live in households with income below the Federal poverty level.
- 45 percent of the rural population lives in relatively isolated communities which often lack access to the same level of services as are available in urbanized areas.
- During the last 20 years, the number of rural workers employed on farms has been cut approximately in half; 80 percent of all rural Americans now earn their living from nonfarm sources. To sustain the economic viability of rural areas, jobs lost to more efficient farming methods need to be replaced with new businesses or industries.
- 535 rural counties endure persistent poverty, with more than 20 percent of their residents living below the poverty level.

USDA's Rural Development mission area was created in 1994 as a result of the reorganization of the Farmers Home Administration, the Rural Development Administration, and the Rural Electrification Administration. Agencies that provide services to rural America were put together so they look alike, act alike, and work alike.

Rural Development is comprised of three sister agencies. The Rural Utilities Service (RUS) addresses rural America's need for basic services such as clean running water, sewers and waste disposal, electricity, and telecommunications. The Rural Housing Service (RHS) addresses rural America's need for single-family and multi-family housing as well as health facilities, fire and police stations, and other community facilities. The Rural Business-Cooperative Service (RBS) addresses rural America's need for help in developing new economic opportunities and allowing businesses and cooperatives to remain viable in a changing economy.

In addition, the Federal Government is seeking to form partnerships with other entities—such as State, local, and tribal governments, private and nonprofit organizations, and member-owned cooperatives—to engage in rural revitalization efforts. Rural Development programs are provided across the Nation through 47 State offices and 1,222 area and local offices. During 1997, Rural Development plans to close or consolidate 399 of its field (area and local) offices.

How Rural Development Works

The following examples illustrate ways in which Rural Development agencies are working to serve rural citizens and bolster the quality of life in rural communities:

- In Woodland, CA, a plastic bag manufacturing plant which employed 180 workers closed down. With the help of financing secured under the RBS Business and Industry Loan Guarantee program, the plant was able to reopen under new ownership and rehire many of the workers who lost their jobs. The town's mayor says the reopening of the plant symbolizes what can happen when private industry and Government work as partners.
- In Indianola, MS, residents are fulfilling their dreams of homeownership by participating in the RHS Self-Help Housing program. Participants learn basic construction skills which enable them to invest "sweat equity" to cover the down payment on their own homes. In this way, the program has helped about 25,000 low-income families acquire homes. In Coahoma (population 390), another Mississippi Delta town, USDA/RHS secured funding for a multi-family elderly rental project, the area's first Federal assistance for housing in more than 50 years.
- In East Prairie, MO, the unemployment rate has decreased from 10.3 to 6.7 percent thanks to economic stimulus programs made possible by its inclusion in the Rural Empowerment Zones/Enterprise Communities (EZ/EC) program of USDA. The dramatic decrease is due to the establishment of a plant that employs 161 people to manufacture small motors. The EZ/EC program made it possible to renovate the plant and nearby access roads.
- In Villa Ridge, IL, residents have always obtained drinking water by gathering rain water in a cistern or by buying costly bottled water. Under the Water 2000 program of RUS, they are being supplied with a community water system that will bring safe, clean drinking water into their homes.
- In Frisco City, AL, more than 250 workers lost their jobs when fire destroyed a garment factory. The local electrical cooperative obtained an interest-free loan from RUS, which it used to attract a medical garment factory to town, creating 210 new jobs with a possibility of 200 more jobs to be added later.
- In Zeeland, MI, an $8 million loan guarantee from RBS is financing construction and purchase of machinery and equipment for a new soybean processing plant. The new plant is expected to add 25 new employees and expand the facilities of Zeeland Farm Services, giving it the capacity to process about 50 percent of the soybeans grown within an 80-mile area of the plant. It will also provide the region with a soybean meal processing facility to help meet the needs of the rapidly expanding poultry and livestock industries of western Michigan.
- In Chico, CA, a small pinto bean-marketing cooperative was suffering from declining membership and changing market conditions. RBS staff members led management of Chico Bean Growers through an extensive strategic planning process. The co-op then launched a new business to serve a growing fertilizer market while continuing to process pinto beans. The cooperative has returned to profitability and has a bright future.

- In New Mexico, the nonprofit Tierra del Sol Corporation used $530,000 in RHS self-help funds and $3.8 million in 502 direct homeownership funds, together with more than $1.1 million in private funding, to make homeownership possible for families earning about $9,200 annually. This helped to stabilize the community by providing jobs (which the project created) and an increased tax base.
- A medical crisis was created when the last doctor serving 11 communities in a rural area of Massachusetts retired. A modern clinic was built with funding provided by RHS, enabling community leaders to recruit several doctors. This would not have been possible without the new clinic.
- In the Bristol Bay area of Alaska, children from several isolated villages had to be flown to school daily. Using technology grants from RUS, Bristol is establishing a distance-learning link which will allow students to participate in classes without the daily flight to school.

The following overviews describe the three Rural Development Agencies and their main programs.

Rural Business-Cooperative Service (RBS)

Creation of viable new and improved businesses and cooperatives in rural America is the top priority of this Agency. RBS works through partnerships with public and private community-based organizations to provide financial assistance, business planning, and technical assistance to rural businesses. It also conducts research into rural economic issues, including rural cooperatives, and provides educational material to the public

Business and Industry (B&I) Loan Guarantees help finance rural business and industry projects that enhance employment opportunities and improve the economic and environmental climate in rural communities, including pollution abatement and control. Loan guarantees are made for projects that foster lasting community benefits and bolster existing private credit structures. Priority for B&I loan guarantees is given to applications for loans from rural areas or cities of 25,000 or less, with loans limited to areas not within the outer boundary of a city having a population of 50,000 or more and its immediately adjacent urbanized or urbanizing area. Loans are limited to $25 million for any one borrower.

Direct Business and Industry (B&I) Loans are made to public, private, and cooperative organizations, Indian Tribes or tribal groups, corporate entities, or individuals to improve the economic climate in rural areas. The program is an economic stimulus tool which can be delivered to areas of rural America in greatest need.

Intermediary Relending Program Loans finance business facilities and community development projects in rural areas, including cities of less than 25,000. Funds loaned by RBS to intermediaries support new business facilities and community development projects in rural areas.

Rural Economic Development Loans and Grants promote rural economic development and job creation projects, including feasibility studies, startup costs,

and other reasonable project expenses. The maximum amount of a grant or loan is $400,000. Loans have a maximum term of 10 years and are repaid without interest. These loans and grants are available to existing Rural Utilities Service electric and telecommunications borrowers.

Rural Business Enterprise Grants assist public bodies, nonprofit corporations, and federally recognized Indian Tribal groups to finance small and emerging private business enterprises located in rural areas. A rural area is defined as an area outside the boundary of a city with a population of 50,000 or more and its immediately adjacent urbanized or urbanizing area. Funds may be used to finance and develop small and emerging private business enterprises. Grant funds may be used for acquisition and development of land and the construction of buildings, plants, equipment, access streets and roads, parking areas, and utility and service extensions. In addition, funds may be used for refinancing, fees for professional services, technical assistance, startup costs and working capital, financial assistance to a third party, production of television programs targeted for rural residents, and rural distance-learning networks.

Rural Cooperative Development Grants finance the establishment and operation of centers for cooperative development. The primary purpose of the program is to enhance the economic conditions of rural areas through the development of new cooperatives and improved operations of existing ones.

The **Appropriate Technology Transfer for Rural Areas** program provides information to farmers and other rural users on a variety of sustainable agricultural practices, including crop and livestock operations. It helps agriculture by giving reliable, practical information on production techniques and practices that reduce costs and that are friendly to the environment. Farmers can request information via a toll-free telephone number.

The **National Sheep Industry Improvement Center,** authorized in the Federal Agriculture Improvement and Reform Act of 1996 (called the 1996 Farm Bill), promotes strategic development activities to strengthen and enhance production and marketing of sheep and goat products in the United States. The center, which will have a board of directors to oversee its activities, operates a revolving fund for loans and grants.

Cooperative Services helps improve the performance of the Nation's cooperatives and promotes understanding and use of the cooperative business system. By working together for their mutual benefit in cooperatives, rural residents are often able to reduce costs for production supplies and consumer goods, obtain services that might otherwise be unavailable, and achieve greater returns for their products. Cooperative Services accomplishes its mission by (1) responding to requests for technical assistance from rural residents who want to organize a cooperative or improve operations of an existing cooperative, (2) providing information and educational materials relating to cooperatives, (3) conducting research on cooperative financial, structural, managerial, policy, member governance, legal, and social issues, and (4) collecting and disseminating statistics to support research and technical assistance work.

The mission of the **Alternative Agricultural Research and Commercialization Corporation (AARC)** is to expedite the commercialization of new industrial prod-

ucts or of new uses for agricultural and forestry materials and animal byproducts. The corporation makes repayable investments in small businesses in rural areas. Repayments go into a revolving fund for investment in other projects. Applicants are expected to match AARC funds with an equal amount of funding from other sources.

Rural Business Opportunity Grants, authorized by the 1996 Farm Bill, can be made annually for up to $1.5 million to establish centers for training, technology, and trade to provide assistance to rural businesses for interactive communication technologies to be used to develop export markets.

A **Rural Venture Capital Demonstration Program,** authorized by the 1996 Farm Bill, is being developed to provide a guarantee for projects that serve as a catalyst to attract private investments in businesses in rural areas. The amount of the guarantee may not exceed 30 percent of any pool of funds provided by up to 10 community development venture capital organizations.

Rural Housing Service

Decent, safe, sanitary, affordable housing and essential community facilities are indispensable to vibrant rural communities. USDA's Rural Housing Service has the responsibility to make these essential elements available to rural Americans. RHS programs help finance new or improved housing for more than 70,000 moderate- or low-income families each year. These programs also help rural communities finance construction, enlargement, or improvement of fire stations, libraries, hospitals, clinics, day-care centers, industrial parks, and other essential community facilities.

In October 1996, a Centralized Service Center in St. Louis, MO, opened to provide automated loan servicing to RHS single-family housing borrowers. This effort is considered a showcase project for the reinvention of government, intended to make government services work better and cost less. The new service, when fully implemented in October 1997, will greatly expand services to borrowers while substantially reducing the amount of staff needed to operate the program nationally.

Home Ownership Loans provide opportunities and assistance to low income households in rural communities, helping them to purchase, construct, repair, or relocate a home. Borrowers are offered 33-year loans at fixed interest rates as low as 1 percent, depending on the family's adjusted income. Moderate-income rural residents can be assisted with loan guarantees offered through private lenders. The loans, both direct and guaranteed, can cover up to 100 percent of market value or acquisition cost, whichever is less.

Home Improvement and Repair Loans and Grants enable very-low-income rural homeowners to remove health and safety hazards from their homes and to make homes accessible for people with disabilities. Loans have a maximum interest rate of 1 percent. Grants are available for people age 62 and older who cannot afford to repay a loan. A combination of funds from a loan and grant can be used by eligible elderly residents. Housing preservation grants are made to nonprofit groups and government agencies to finance rehabilitation of rental units for low-income residents.

Rural Rental Housing Loans finance construction of rental and cooperative housing for low-income individuals and families, including elderly or disabled persons. Loans have a maximum term of 50 years, can equal up to 100 percent of the appraised value or development cost, and can be used to construct new housing or to purchase or rehabilitate existing structures.

Rental Assistance payments subsidize rental costs to ensure that low-income tenants will pay no more than 30 percent of their income for rent.

Community Facilities Loans, Loan Guarantees, and Grants are used to finance the construction, enlargement, extension, or other improvements for community facilities providing essential services in rural areas and towns with a population of 20,000 or less. Funds are available to public entities such as municipalities, counties, special-purpose districts, Indian Tribes, and nonprofit corporations.

Rural Utilities Service

The programs of the Rural Utilities Service (RUS) touch the lives of tens of millions of rural Americans daily. Through project financing and technical assistance, RUS builds infrastructure to provide rural businesses and households with modern telecommunications, electric energy, and water. Today, this also means bringing the "information superhighway" to rural America.

A new initiative, Water 2000, is an ambitious undertaking by RUS to extend safe, dependable drinking water to the 1.4 million rural Americans who currently lack this service, and to the 2.4 million people who consistently experience water-related health problems, dry or shallow drinking wells, or frequent orders to boil their drinking water. In the last 2 years, RUS has invested $300 million in loans and grants to the Nation's highest priority Water 2000 projects.

RUS is more than a new name for the successful programs of predecessor agencies. It is a partner with rural business and economic development efforts, providing infrastructure that is the foundation for competitiveness. It is a technical and financial resource in a time of change for rural utilities.

Rural Telecommunications Loans and Loan Guarantees build modern rural communications systems. They provide rural areas with "ramps" to the information superhighway by making financing available for telecommunications facilities. Loans are made to rural telephone cooperatives and companies which bring reliable and affordable telecommunications services to more than 15 million rural Americans.

Rural Electric Loans and Loan Guarantees provide reliable, safe, and affordable electric energy to rural America by financing power distribution, generation, and transmission systems. Loans are made to nonprofit and cooperative associations, public bodies, and other utilities which serve more than 25 million rural Americans.

Distance Learning and Medical Link Loans and Grants bring distance learning and telemedicine to rural America. Education and adequate medical care are crucial to the survival of rural communities, but are becoming increasingly difficult to provide. This program employs innovative ways to use existing telecommunications infrastructure to extend the reach of educational and medical expertise into communities without that expertise. The new loan program, authorized in the 1996 Farm Bill, is being developed to further expand rural telecommunications infrastructure.

Water and Waste Disposal Loans and Grants develop water and waste disposal systems (including solid waste disposal and storm drainage) in rural areas and towns with populations under 10,000. The funds are available to public entities such as municipalities, counties, special purpose districts, Indian Tribes, and non-profit corporations. RUS also guarantees water and waste disposal loans made by banks and other eligible lenders.

Emergency Community Water Assistance Grants help rural communities that have experienced a significant decline in drinking water quantity or quality to make emergency repairs and replace existing facilities. Grants can be made in rural areas and towns with a population of 10,000 or less and a median household income of no more than 100 percent of the State's median nonmetropolitan household income.

Rural Empowerment Zones and Enterprise Communities

USDA Rural Development is involved in an ambitious new effort to help revive the rural economies of some of the Nation's most economically depressed rural areas. USDA Rural Development is now working closely with three Rural Empowerment Zones (EZ) and 30 Rural Enterprise Communities (EC) which are benefiting from special economic stimulus programs to help overcome persistently high poverty rates. These EZ/EC designations are helping to revitalize local communities by putting Americans to work.

The EZ/EC designations are based on strategic plans developed by local leaders, organizations, State officials, and the private sector. Each EZ and EC designation means special consideration for various Federal programs and other assistance, including social service block grants, new tax-exempt facility bonds, tax incentives for employment, and other special consideration for existing Federal programs.

Authority for a second round of EZ/EC designations will be sought in 1997.

The Rural Empowerment Zones are:

- Kentucky Highlands (Clinton, Jackson, and Wayne Counties),
- Mid-Delta in Mississippi (Bolivar, Sunflower, Leflore, Washington, Humphries, and Holmes Counties), and
- Rio Grande Valley in Texas (Starr, Cameron, Hidalgo, and Willacy Counties).

The 30 Enterprise Communities include counties and towns across the Nation. States with one or more ECs include: Alabama, Arizona, Arkansas, California, Florida, Georgia, Louisiana, Michigan, Mississippi, Missouri, New Mexico, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Virginia, Washington, and West Virginia.

Employers in the EZ will qualify for tax credits for each qualified worker who resides in the zone. Each EZ receives $40 million and each EC receives $2.95 million to implement the strategic plans. In addition, each EZ and EC receives priority for certain programs available through Rural Development agencies.

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How Rural Development Works

The following examples illustrate ways in which Rural Development agencies are working to serve rural citizens and bolster the quality of life in rural communities:

- In Woodland, CA, a plastic bag manufacturing plant which employed 180 workers closed down. With the help of financing secured under the RBS Business and Industry Loan Guarantee program, the plant was able to reopen under new ownership and rehire many of the workers who lost their jobs. The town's mayor says the reopening of the plant symbolizes what can happen when private industry and Government work as partners.
- In Indianola, MS, residents are fulfilling their dreams of homeownership by participating in the RHS Self-Help Housing program. Participants learn basic construction skills which enable them to invest "sweat equity" to cover the down payment on their own homes. In this way, the program has helped about 25,000 low-income families acquire homes. In Coahoma (population 390), another Mississippi Delta town, USDA/RHS secured funding for a multi-family elderly rental project, the area's first Federal assistance for housing in more than 50 years.
- In East Prairie, MO, the unemployment rate has decreased from 10.3 to 6.7 percent thanks to economic stimulus programs made possible by its inclusion in the Rural Empowerment Zones/Enterprise Communities (EZ/EC) program of USDA. The dramatic decrease is due to the establishment of a plant that employs 161 people to manufacture small motors. The EZ/EC program made it possible to renovate the plant and nearby access roads.
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- In Frisco City, AL, more than 250 workers lost their jobs when fire destroyed a garment factory. The local electrical cooperative obtained an interest-free loan from RUS, which it used to attract a medical garment factory to town, creating 210 new jobs with a possibility of 200 more jobs to be added later.
- In Zeeland, MI, an $8 million loan guarantee from RBS is financing construction and purchase of machinery and equipment for a new soybean processing plant. The new plant is expected to add 25 new employees and expand the facilities of Zeeland Farm Services, giving it the capacity to process about 50 percent of the soybeans grown within an 80-mile area of the plant. It will also provide the region with a soybean meal processing facility to help meet the needs of the rapidly expanding poultry and livestock industries of western Michigan.
- In Chico, CA, a small pinto bean-marketing cooperative was suffering from declining membership and changing market conditions. RBS staff members led management of Chico Bean Growers through an extensive strategic planning process. The co-op then launched a new business to serve a growing fertilizer market while continuing to process pinto beans. The cooperative has returned to profitability and has a bright future.

- In New Mexico, the nonprofit Tierra del Sol Corporation used $530,000 in RHS self-help funds and $3.8 million in 502 direct homeownership funds, together with more than $1.1 million in private funding, to make homeownership possible for families earning about $9,200 annually. This helped to stabilize the community by providing jobs (which the project created) and an increased tax base.
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Business and Industry (B&I) Loan Guarantees help finance rural business and industry projects that enhance employment opportunities and improve the economic and environmental climate in rural communities, including pollution abatement and control. Loan guarantees are made for projects that foster lasting community benefits and bolster existing private credit structures. Priority for B&I loan guarantees is given to applications for loans from rural areas or cities of 25,000 or less, with loans limited to areas not within the outer boundary of a city having a population of 50,000 or more and its immediately adjacent urbanized or urbanizing area. Loans are limited to $25 million for any one borrower.

Direct Business and Industry (B&I) Loans are made to public, private, and cooperative organizations, Indian Tribes or tribal groups, corporate entities, or individuals to improve the economic climate in rural areas. The program is an economic stimulus tool which can be delivered to areas of rural America in greatest need.

Intermediary Relending Program Loans finance business facilities and community development projects in rural areas, including cities of less than 25,000. Funds loaned by RBS to intermediaries support new business facilities and community development projects in rural areas.

Rural Economic Development Loans and Grants promote rural economic development and job creation projects, including feasibility studies, startup costs,

and other reasonable project expenses. The maximum amount of a grant or loan is $400,000. Loans have a maximum term of 10 years and are repaid without interest. These loans and grants are available to existing Rural Utilities Service electric and telecommunications borrowers.

Rural Business Enterprise Grants assist public bodies, nonprofit corporations, and federally recognized Indian Tribal groups to finance small and emerging private business enterprises located in rural areas. A rural area is defined as an area outside the boundary of a city with a population of 50,000 or more and its immediately adjacent urbanized or urbanizing area. Funds may be used to finance and develop small and emerging private business enterprises. Grant funds may be used for acquisition and development of land and the construction of buildings, plants, equipment, access streets and roads, parking areas, and utility and service extensions. In addition, funds may be used for refinancing, fees for professional services, technical assistance, startup costs and working capital, financial assistance to a third party, production of television programs targeted for rural residents, and rural distance-learning networks.

Rural Cooperative Development Grants finance the establishment and operation of centers for cooperative development. The primary purpose of the program is to enhance the economic conditions of rural areas through the development of new cooperatives and improved operations of existing ones.

The **Appropriate Technology Transfer for Rural Areas** program provides information to farmers and other rural users on a variety of sustainable agricultural practices, including crop and livestock operations. It helps agriculture by giving reliable, practical information on production techniques and practices that reduce costs and that are friendly to the environment. Farmers can request information via a toll-free telephone number.

The **National Sheep Industry Improvement Center,** authorized in the Federal Agriculture Improvement and Reform Act of 1996 (called the 1996 Farm Bill), promotes strategic development activities to strengthen and enhance production and marketing of sheep and goat products in the United States. The center, which will have a board of directors to oversee its activities, operates a revolving fund for loans and grants.

Cooperative Services helps improve the performance of the Nation's cooperatives and promotes understanding and use of the cooperative business system. By working together for their mutual benefit in cooperatives, rural residents are often able to reduce costs for production supplies and consumer goods, obtain services that might otherwise be unavailable, and achieve greater returns for their products. Cooperative Services accomplishes its mission by (1) responding to requests for technical assistance from rural residents who want to organize a cooperative or improve operations of an existing cooperative, (2) providing information and educational materials relating to cooperatives, (3) conducting research on cooperative financial, structural, managerial, policy, member governance, legal, and social issues, and (4) collecting and disseminating statistics to support research and technical assistance work.

The mission of the **Alternative Agricultural Research and Commercialization Corporation (AARC)** is to expedite the commercialization of new industrial prod-

ucts or of new uses for agricultural and forestry materials and animal byproducts. The corporation makes repayable investments in small businesses in rural areas. Repayments go into a revolving fund for investment in other projects. Applicants are expected to match AARC funds with an equal amount of funding from other sources.

Rural Business Opportunity Grants, authorized by the 1996 Farm Bill, can be made annually for up to $1.5 million to establish centers for training, technology, and trade to provide assistance to rural businesses for interactive communication technologies to be used to develop export markets.

A **Rural Venture Capital Demonstration Program,** authorized by the 1996 Farm Bill, is being developed to provide a guarantee for projects that serve as a catalyst to attract private investments in businesses in rural areas. The amount of the guarantee may not exceed 30 percent of any pool of funds provided by up to 10 community development venture capital organizations.

Rural Housing Service

Decent, safe, sanitary, affordable housing and essential community facilities are indispensable to vibrant rural communities. USDA's Rural Housing Service has the responsibility to make these essential elements available to rural Americans. RHS programs help finance new or improved housing for more than 70,000 moderate- or low-income families each year. These programs also help rural communities finance construction, enlargement, or improvement of fire stations, libraries, hospitals, clinics, day-care centers, industrial parks, and other essential community facilities.

In October 1996, a Centralized Service Center in St. Louis, MO, opened to provide automated loan servicing to RHS single-family housing borrowers. This effort is considered a showcase project for the reinvention of government, intended to make government services work better and cost less. The new service, when fully implemented in October 1997, will greatly expand services to borrowers while substantially reducing the amount of staff needed to operate the program nationally.

Home Ownership Loans provide opportunities and assistance to low income households in rural communities, helping them to purchase, construct, repair, or relocate a home. Borrowers are offered 33-year loans at fixed interest rates as low as 1 percent, depending on the family's adjusted income. Moderate-income rural residents can be assisted with loan guarantees offered through private lenders. The loans, both direct and guaranteed, can cover up to 100 percent of market value or acquisition cost, whichever is less.

Home Improvement and Repair Loans and Grants enable very-low-income rural homeowners to remove health and safety hazards from their homes and to make homes accessible for people with disabilities. Loans have a maximum interest rate of 1 percent. Grants are available for people age 62 and older who cannot afford to repay a loan. A combination of funds from a loan and grant can be used by eligible elderly residents. Housing preservation grants are made to nonprofit groups and government agencies to finance rehabilitation of rental units for low-income residents.

Rural Rental Housing Loans finance construction of rental and cooperative housing for low-income individuals and families, including elderly or disabled persons. Loans have a maximum term of 50 years, can equal up to 100 percent of the appraised value or development cost, and can be used to construct new housing or to purchase or rehabilitate existing structures.

Rental Assistance payments subsidize rental costs to ensure that low-income tenants will pay no more than 30 percent of their income for rent.

Community Facilities Loans, Loan Guarantees, and Grants are used to finance the construction, enlargement, extension, or other improvements for community facilities providing essential services in rural areas and towns with a population of 20,000 or less. Funds are available to public entities such as municipalities, counties, special-purpose districts, Indian Tribes, and nonprofit corporations.

Rural Utilities Service

The programs of the Rural Utilities Service (RUS) touch the lives of tens of millions of rural Americans daily. Through project financing and technical assistance, RUS builds infrastructure to provide rural businesses and households with modern telecommunications, electric energy, and water. Today, this also means bringing the "information superhighway" to rural America.

A new initiative, Water 2000, is an ambitious undertaking by RUS to extend safe, dependable drinking water to the 1.4 million rural Americans who currently lack this service, and to the 2.4 million people who consistently experience water-related health problems, dry or shallow drinking wells, or frequent orders to boil their drinking water. In the last 2 years, RUS has invested $300 million in loans and grants to the Nation's highest priority Water 2000 projects.

RUS is more than a new name for the successful programs of predecessor agencies. It is a partner with rural business and economic development efforts, providing infrastructure that is the foundation for competitiveness. It is a technical and financial resource in a time of change for rural utilities.

Rural Telecommunications Loans and Loan Guarantees build modern rural communications systems. They provide rural areas with "ramps" to the information superhighway by making financing available for telecommunications facilities. Loans are made to rural telephone cooperatives and companies which bring reliable and affordable telecommunications services to more than 15 million rural Americans.

Rural Electric Loans and Loan Guarantees provide reliable, safe, and affordable electric energy to rural America by financing power distribution, generation, and transmission systems. Loans are made to nonprofit and cooperative associations, public bodies, and other utilities which serve more than 25 million rural Americans.

Distance Learning and Medical Link Loans and Grants bring distance learning and telemedicine to rural America. Education and adequate medical care are crucial to the survival of rural communities, but are becoming increasingly difficult to provide. This program employs innovative ways to use existing telecommunications infrastructure to extend the reach of educational and medical expertise into communities without that expertise. The new loan program, authorized in the 1996 Farm Bill, is being developed to further expand rural telecommunications infrastructure.

Water and Waste Disposal Loans and Grants develop water and waste disposal systems (including solid waste disposal and storm drainage) in rural areas and towns with populations under 10,000. The funds are available to public entities such as municipalities, counties, special purpose districts, Indian Tribes, and non-profit corporations. RUS also guarantees water and waste disposal loans made by banks and other eligible lenders.

Emergency Community Water Assistance Grants help rural communities that have experienced a significant decline in drinking water quantity or quality to make emergency repairs and replace existing facilities. Grants can be made in rural areas and towns with a population of 10,000 or less and a median household income of no more than 100 percent of the State's median nonmetropolitan household income.

Rural Empowerment Zones and Enterprise Communities

USDA Rural Development is involved in an ambitious new effort to help revive the rural economies of some of the Nation's most economically depressed rural areas. USDA Rural Development is now working closely with three Rural Empowerment Zones (EZ) and 30 Rural Enterprise Communities (EC) which are benefiting from special economic stimulus programs to help overcome persistently high poverty rates. These EZ/EC designations are helping to revitalize local communities by putting Americans to work.

The EZ/EC designations are based on strategic plans developed by local leaders, organizations, State officials, and the private sector. Each EZ and EC designation means special consideration for various Federal programs and other assistance, including social service block grants, new tax-exempt facility bonds, tax incentives for employment, and other special consideration for existing Federal programs.

Authority for a second round of EZ/EC designations will be sought in 1997.

The Rural Empowerment Zones are:

- Kentucky Highlands (Clinton, Jackson, and Wayne Counties),
- Mid-Delta in Mississippi (Bolivar, Sunflower, Leflore, Washington, Humphries, and Holmes Counties), and
- Rio Grande Valley in Texas (Starr, Cameron, Hidalgo, and Willacy Counties).

The 30 Enterprise Communities include counties and towns across the Nation. States with one or more ECs include: Alabama, Arizona, Arkansas, California, Florida, Georgia, Louisiana, Michigan, Mississippi, Missouri, New Mexico, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Virginia, Washington, and West Virginia.

Employers in the EZ will qualify for tax credits for each qualified worker who resides in the zone. Each EZ receives $40 million and each EC receives $2.95 million to implement the strategic plans. In addition, each EZ and EC receives priority for certain programs available through Rural Development agencies.

6. Rural Development: Creating Opportunity for Rural Americans

USDA Rural Development is forging new partnerships with rural America by funding development projects and providing technical assistance and information to create quality jobs, services, housing, and utilities. The need to revitalize rural America is essential if it is to maintain or regain its posture as a place where millions of rural people can achieve the American dream. This need is evident from the following:

- More than 53 million people live in rural areas of the United States, 16.4 percent of whom live in households with income below the Federal poverty level.
- 45 percent of the rural population lives in relatively isolated communities which often lack access to the same level of services as are available in urbanized areas.
- During the last 20 years, the number of rural workers employed on farms has been cut approximately in half; 80 percent of all rural Americans now earn their living from nonfarm sources. To sustain the economic viability of rural areas, jobs lost to more efficient farming methods need to be replaced with new businesses or industries.
- 535 rural counties endure persistent poverty, with more than 20 percent of their residents living below the poverty level.

USDA's Rural Development mission area was created in 1994 as a result of the reorganization of the Farmers Home Administration, the Rural Development Administration, and the Rural Electrification Administration. Agencies that provide services to rural America were put together so they look alike, act alike, and work alike.

Rural Development is comprised of three sister agencies. The Rural Utilities Service (RUS) addresses rural America's need for basic services such as clean running water, sewers and waste disposal, electricity, and telecommunications. The Rural Housing Service (RHS) addresses rural America's need for single-family and multi-family housing as well as health facilities, fire and police stations, and other community facilities. The Rural Business-Cooperative Service (RBS) addresses rural America's need for help in developing new economic opportunities and allowing businesses and cooperatives to remain viable in a changing economy.

In addition, the Federal Government is seeking to form partnerships with other entities—such as State, local, and tribal governments, private and nonprofit organizations, and member-owned cooperatives—to engage in rural revitalization efforts. Rural Development programs are provided across the Nation through 47 State offices and 1,222 area and local offices. During 1997, Rural Development plans to close or consolidate 399 of its field (area and local) offices.

How Rural Development Works

The following examples illustrate ways in which Rural Development agencies are working to serve rural citizens and bolster the quality of life in rural communities:

- In Woodland, CA, a plastic bag manufacturing plant which employed 180 workers closed down. With the help of financing secured under the RBS Business and Industry Loan Guarantee program, the plant was able to reopen under new ownership and rehire many of the workers who lost their jobs. The town's mayor says the reopening of the plant symbolizes what can happen when private industry and Government work as partners.
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The EZ/EC designations are based on strategic plans developed by local leaders, organizations, State officials, and the private sector. Each EZ and EC designation means special consideration for various Federal programs and other assistance, including social service block grants, new tax-exempt facility bonds, tax incentives for employment, and other special consideration for existing Federal programs.

Authority for a second round of EZ/EC designations will be sought in 1997.

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Employers in the EZ will qualify for tax credits for each qualified worker who resides in the zone. Each EZ receives $40 million and each EC receives $2.95 million to implement the strategic plans. In addition, each EZ and EC receives priority for certain programs available through Rural Development agencies.

For More Information

Rural Development

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7. Farm and Foreign Agricultural Services

Farm Service Agency

What Is the Farm Service Agency?

Stabilizing farm income, helping farmers conserve land and water resources, providing credit to new or disadvantaged farmers and ranchers, and helping farm operations recover from the effects of disaster: These are the missions of USDA's Farm Service Agency (FSA).

FSA was set up when the Department was reorganized in 1994, incorporating programs from several agencies, including the Agricultural Stabilization and Conservation Service, the Federal Crop Insurance Corporation (now a separate Risk Management Agency), and the Farmers Home Administration. Though its name has changed over the years, the Agency's relationship with farmers goes back to the 1930's.

At that time, Congress set up a unique system under which Federal farm programs are administered locally. Farmers who are eligible to participate in these programs elect a three- to five-person county committee, which reviews county office operations and makes many of the decisions on how to apply the programs. This grassroots approach gives farmers a much-needed say in how Federal actions affect their communities and their individual operations. After more than 60 years, it remains a cornerstone of FSA's efforts to preserve and promote American agriculture.

1996 Farm Bill

The 1996 Farm Bill, which became law on April 4, 1996, significantly changed U.S. agricultural policy by removing the link between income support payments and farm prices. Farmers who participated in the wheat, feed grains, cotton, and rice programs in any one of the previous 5 years could enter into 7-year production flexibility contracts and receive a series of fixed annual "transition payments." These payments are independent of farm prices and specific crop production, in contrast to the past, when deficiency payments were based on farm prices and the production of specific crops.

The Federal Government no longer requires land to be idled or denies payments if farmers switch from their historical crop. The contract, however, requires participating producers to comply with existing conservation plans for the farm, wetland provisions, and planting flexibility provisions, as well as to keep the land in agricultural uses.

The law provided for a one-time signup which ended August 1, 1996, for producers to enter into production flexibility contracts. There will be no additional signups except for land coming out of the Conservation Reserve Program. Farmers who entered into a contract also are eligible for market transition loans at FSA county offices.

Commodity Loan Programs

FSA administers commodity loan programs for wheat, rice, corn, grain sorghum, barley, oats, oilseeds, tobacco, peanuts, upland and extra-long-staple cotton, and sugar.

The Agency provides the operating personnel for the Commodity Credit Corporation (CCC), which supports the prices of some agricultural commodities through loans and purchases. This provides farmers with interim financing, and helps maintain balanced and adequate supplies of farm commodities, and their orderly distribution, throughout the year and during times of surplus and scarcity.

Instead of immediately selling the crop after harvest, a farmer who grows one or more of most field crops can store the produce and take out a "nonrecourse" loan for its value, pledging the crop itself as collateral. Nonrecourse means that the producer can discharge debts in full by forfeiting, or delivering, the commodity to the Government.

The nonrecourse loan allows farmers to pay their bills and other loan payments when they come due, without having to sell crops at a time of year when prices tend to be at their lowest. Later, when market conditions are more favorable, farmers can sell crops and repay the loan with the proceeds. Or, if the prevailing price of the crop remains below the loan level set by USDA, farmers can keep loan proceeds, and give the crop to the CCC instead.

CCC loan rates are designed to keep crops competitive in the marketplace. A producer must have entered into a production flexibility contract to be eligible for nonrecourse marketing assistance loans for wheat, feed grains, rice, and upland cotton. Any production of a contract commodity by a producer who has entered into a production flexibility contract is eligible for loans.

Nonrecourse loans are also available for oilseeds, tobacco, peanuts, extra-long-staple cotton, raw cane sugar, and refined beet sugar, regardless of whether the producer has entered into a production flexibility contract. Price support for the marketing quota crops—tobacco and peanuts—is made available through producer loan associations. By law, these programs must operate at no-net-cost to the U.S. Treasury, and no-net-cost and marketing assessments are applied to both producers and purchasers.

If the tariff rate quota (TRQ) on imported sugar exceeds 1.5 million tons, sugar loans are nonrecourse. If the TRQ is less than that amount, sugar loans are recourse, which means borrowers cannot necessarily discharge their debts in full by simply forfeiting the commodity to the Government.

Commodity Purchase Programs

Forfeitures under nonrecourse commodity loan programs are not the only means by which CCC acquires inventory. Under the dairy price support program, CCC buys surplus butter, cheese, and nonfat dry milk from processors at announced prices to support the price of milk. These purchases help maintain market prices at the legislated support level. The 1996 Farm Bill eliminates dairy price support after December 31, 1999.

CCC can store purchased food in over 10,000 commercial warehouses across the Nation approved for this purpose. However, commodity inventories are not simply kept in storage. FSA employees work to return stored commodities to private trade channels. At the Agency's Kansas City Commodity Office in Kansas City, Missouri, FSA merchandisers regularly sell and swap CCC inventories, using commercial telecommunications trading networks.

Beyond the marketplace, CCC commodities fill the need for hunger relief both in the United States and in foreign countries. FSA employees work closely with USDA's Food and Consumer Service to purchase and deliver foods for the National School Lunch and many other domestic feeding programs. And, donated to "Food for Peace" and programs administered by voluntary organizations, these U.S. farm products and foods help USDA fight hunger worldwide.

Crop Insurance

Federal crop insurance protects farmers and ranchers from unexpected production losses from natural causes, including drought, excessive moisture, hail, wind, flooding, hurricanes, tornadoes, and lightning. It does not cover losses resulting from neglect, poor farming practices, theft, or low prices. At this time, insurance is available for 64 different crops.

Recent legislation replaced traditional crop disaster assistance with new, enhanced crop insurance programs. These are the Catastrophic (CAT) Program and the Noninsured Crop Disaster Assistance Program (NAP).

Catastrophic coverage compensates a farmer for crop losses greater than 50 percent of the operation's average yield, at 60 percent of the expected market price. CAT can be obtained at local FSA offices in most States or from private crop insurance agents for a nominal processing fee. This fee may be waived for limited-resource farmers.

Higher levels of insurance protection are available through private crop insurance agents. USDA subsidizes the premiums for these policies to encourage farmers to take advantage of them. Buying this additional coverage is the only way farmers can benefit from attractive policy features permitting smaller operational units, replanting payments, and coverage for certain quality losses.

Producers who decide not to buy crop insurance when it is available still may participate in USDA's commodity, conservation, and credit programs. However, they must sign a waiver agreeing to give up eligibility for emergency crop disaster assistance. This waiver does not disqualify an eligible producer from getting an FSA emergency loan or a payment under NAP. Any producer who signs a waiver, and subsequently decides to buy crop insurance, becomes eligible for disaster assistance for the insured crop.

The **Noninsured Crop Disaster Assistance Program** protects growers of many crops for which Federal crop insurance is not available. In addition, any losses resulting from natural disasters not covered by the crop insurance policy may also be eligible. NAP assistance is available for crops grown commercially for food and fiber. Floriculture, ornamental nursery products, Christmas tree crops, turfgrass sod, seed crops, aquaculture, and industrial crops are also included.

FSA makes NAP payments to eligible producers when both the expected "area" yield is less than 65 percent of normal, and individual crop losses are in excess of 50 percent of the average yield. If these conditions are met, the Agency pays 60 percent of the expected market price for each unit of production lost above 50 percent.

Unlike previous disaster assistance programs, to be eligible for NAP, producers must annually file an acreage and production report with the local FSA office. If a farmer does not report acres and yields by the yearly deadline, NAP assistance may be withheld following a major crop loss.

Other Emergency Assistance

In the aftermath of a natural disaster, FSA makes available a variety of emergency assistance programs to farmers in counties that have been designated or declared disaster areas. The Agency can offer cost-share assistance to producers who do not have enough feed to maintain their eligible livestock because of a loss of a substantial amount of their normal feed production. Emergency loans are available to eligible farmers who suffer qualifying losses as a result of a natural disaster. And, to help rehabilitate farmland damaged by a natural disaster, FSA can often share the cost of some emergency conservation practices.

In the event of a national emergency, FSA is responsible for assuring adequate food production and distribution, as well as the continued availability of feed, seed, fertilizer, and farm machinery.

Farm Loans

FSA offers direct and guaranteed farm ownership and operating loan programs to farmers who are temporarily unable to obtain private, commercial credit. Often, these are beginning farmers who can't qualify for conventional loans because they have insufficient net worth. The Agency also helps established farmers who have suffered financial setbacks from natural disasters, or whose resources are too limited to maintain profitable farming operations.

Under the guaranteed loan program, the Agency guarantees loans made by conventional agricultural lenders for up to 95 percent of principal. The lender may sell the loan to a third party; however, the lender is always responsible for servicing the loan. All loans must meet certain qualifying criteria to be eligible for guarantees, and FSA has the right to monitor the lender's servicing activities. Farmers interested in guaranteed loans must apply to a conventional lender, who then arranges for the guarantee.

For those unable to qualify for a guaranteed loan, FSA also lends directly. Direct loans are made and serviced by FSA officials, who also provide borrowers with supervision and credit counseling. Funding authorities for direct loans are limited,

and applicants may have to wait until funds become available. To qualify for a direct farm ownership or operating loan, the applicant must be able to show sufficient repayment ability and pledge enough collateral to fully secure the loan.

Conservation Programs

The Conservation Reserve Program protects our most fragile farmland by encouraging farmers to stop growing crops on highly erodible and other environmentally sensitive acreage. In return for planting a protective cover of grass or trees on vulnerable property, the owner receives a rental payment each year of a multiyear contract. Cost-share payments are also available to help establish permanent areas of grass, legumes, trees, windbreaks, or plants that improve water quality and give shelter and food to wildlife.

FSA works with USDA's Natural Resources Conservation Service and other agencies to deliver other conservation programs, including the Environmental Quality Incentives Program (EQIP). EQIP helps farmers and ranchers improve their property to protect the environment and conserve soil and water resources. Participants can take advantage of education in new conservation management practices, technical support, cost-share assistance, and incentive payments.

Congress has authorized $1.3 billion for EQIP over 7 years, and the program is expected to maximize environmental benefits per dollar expended. At least half of the funding is earmarked for addressing environmental concerns associated with livestock production. The program awards 5- to 10-year cost-share or incentive payment contracts for certain land management and structural practices, based on a competitive application and evaluation process.

Where to Go for More Information

Further information and applications for the programs described in above are available at local FSA county offices. These are usually listed in telephone directories in the section set aside for governmental/public organizations under "U.S. Department of Agriculture, Farm Service Agency."

FSA State offices supervise the Agency's county offices, and are usually located in the State capital, or near the State land-grant university.

For information on commodity sales and purchases, contact:
USDA FSA Kansas City Commodity Office
P.O. Box 419205
Kansas City, MO 64141-6205
Telephone: (816) 926-6364

For general information about the Agency and its programs, contact:
USDA FSA Public Affairs Staff
1400 Independence Ave., S.W. STOP 0506
Washington, DC 20250-0506
Telephone: (202) 720-5237

Information on FSA can also be found on the FSA home page at *www.fsa.usda.gov*

Aerial Photographs

FSA's aerial photographs of U.S. farmlands are used extensively by government and private organizations and the public. Order forms and an index are available from FSA county offices. For more information on photographic services, including high-altitude photography, contact:

USDA FSA Aerial Photography Field Office
P.O. Box 30010
Salt Lake City, UT 84130-0010
Telephone: (801) 975-3503

Foreign Agricultural Service

The Agency and Its Mission

The Foreign Agricultural Service (FAS) is a USDA Agency that represents the diverse interests of U.S. farmers and the food and agricultural sector abroad. It also collects, analyzes, and disseminates information about global supply and demand, trade trends, and emerging market opportunities. FAS seeks improved market access for U.S. products and implements programs designed to build new markets and to maintain the competitive position of U.S. products in the global marketplace.

FAS also carries out food aid and market-related technical assistance programs, and operates a variety of Congressionally mandated import and export programs. FAS helps USDA and other Federal agencies, U.S. universities, and others enhance the global competitiveness of U.S. agriculture and helps increase income and food availability in developing nations by mobilizing expertise for agriculturally led economic growth.

Formed in 1953 by executive reorganization, FAS is one of the smaller USDA agencies, with a personnel strength of about 900. FAS operates worldwide with personnel located in more than 75 posts covering more than 130 countries. Its overseas staff is backed up by a team of analysts, negotiators, and marketing specialists located in Washington, DC.

Roughly 70 percent of the annual FAS budget is devoted to building markets overseas for U.S. farm products. This includes the funding for all of FAS' trade and attache offices overseas, as well as its work with U.S. commodity associations on cooperative promotion projects. The remaining funds cover other trade functions, including the gathering and dissemination of market information and trade policy efforts.

To get a complete picture of the services offered and information available for exporters, the Foreign Agricultural Service (FAS) invites you to visit its homepage address at: *http://www.fas.usda.gov*

Exports of U.S. Agricultural, Fish, and Wood Products

The United States is the world's top exporter of agricultural, fish, and wood products—with sales of $69.7 billion in FY 1996. Many factors affect trade in these products, including economic growth, currency exchange rates, national support programs, changing food preferences and consumer lifestyles, public and private sector market promotion efforts, and tariff and nontariff barriers.

Agricultural, fish, and wood product exports are vitally important to the Nation's economy as a whole; they represent 11 percent of total U.S. exports. Exports provide agricultural producers, harvesters of fish and wood products, food processing companies, and associated manufacturing firms and transport companies an expanded market for their products and a better income. Exports also enhance our ability to use land, labor, and capital more efficiently. This, in turn, allows our producers and industries to produce at a lower cost and transport efficiently, giving the United States a comparative advantage in the production of these goods.

U.S. exports of agricultural products (excluding wood and fish products) rose to $59.8 billion and created an estimated 958,000 full-time domestic jobs in 1996, or 16,000 jobs for every $1 billion in products shipped. With respect to agricultural products, many of these jobs are created off the farm, and many of those employed live in urban areas. About 330,000 workers, or 9 percent of the U.S. farm labor force, are employed to produce agricultural products for the overseas market. However, beyond the farm gate, another 628,000 people work to finance, store, package, process, and ship agricultural exports. USDA economists calculate that, at the very least, each dollar received from agricultural exports stimulates another $1.38 in business activity for the economy. In 1996, U.S. agricultural exports generated $83 billion in additional economic activity. Of the 11 major U.S. industrial sectors, agriculture generated the largest trade surplus of $27.5 billion in 1996.

Agricultural products moving into the world market can be classified as bulk, intermediate, or consumer-oriented products. Bulk products include those commodities free from processing, such as wheat, corn, barley, and soybeans. Intermediate products (such as wheat flour, vegetable oils, and hides and skins) receive some processing, but are generally not yet ready for final consumption. Consumer-oriented foods and beverages include products that have undergone various degrees of processing or unprocessed commodities that have relatively high per unit costs due to transportation or storage, like fresh fruit.

In FY 1996, U.S. exports of bulk commodities surged to $28.8 billion, up $4.3 billion from the previous year. Strong wheat, corn, and soybean prices and larger wheat shipments accounted for much of the growth. Coarse grain exports rose to $9.3 billion, up $1.9 billion, while wheat exports jumped 39 percent to $6.9 billion. The value of soybean exports rose 20 percent, reaching $6.3 billion.

U.S. exports of intermediate products reached nearly $11 billion in FY 1996, down $500 million from 1995. Declines for soybean oil, animal fats, and wheat flour (down $537 million, $173 million, and $100 million, respectively) more than offset the record export levels of feeds and fodder and planting seeds (up $59 million and $47 million, respectively).

U.S. exports of consumer-oriented products continued their strong growth in FY 1996, reaching a new record of $20 billion and represented one-third of total

Table 7-1.

Top 15 U.S. agricultural, fish, and wood product exports, FY 1996

Product	*Category*	*$Billion*
Coarse grains	B	9.3
Wheat	B	6.9
Soybeans	B	6.3
Red meats	C	4.6
Cotton	B	3.0
Poultry meat	C	2.4
Lumber	W	2.3
Logs	W	2.1
Fruit, fresh	C	2.0
Feeds & fodders	I	1.9
Fruit & vegetables, processed	C	1.9
Hides & skins	I	1.6
Tobacco	B	1.4
Tree nuts	C	1.4
Soybean meal	I	1.3
Subtotal		**48.5**
Total U.S. exports		**69.7**

Note: (B) bulk, (I) intermediate, (C) consumer-oriented, (W) wood

agricultural exports. Increases in FY 1996 were broad-based with 13 of the 16 product categories setting new record highs.

U.S. exports of fish and seafood products climbed 10 percent to $2.9 billion in FY 1996. U.S. exports of wood products declined from the previous year's record level to $7 billion in FY 1996.

Major Markets

Although U.S. exports of agricultural, fish, and wood products are shipped to virtually every country in the world, the top 10 markets account for over three-quarters of all sales. U.S. exports rose to new records in eight of 1996's top 10 markets: Japan, Canada, Mexico, South Korea, Taiwan, Hong Kong, Egypt, and Russia. Sales to Canada increased slightly (up $48 million) while those to Mexico increased nearly 31 percent (up $1.2 billion). Sales to China fell $586 million from the previous year's record level, due mostly to lower corn exports.

Table 7-2.

Top 10 markets for U.S. agricultural, fish, and wood products, FY 1996

Market	*Exports (Billion dollars)*	*Share of Total U.S. Exports (Percent)*
Japan*	16.6	23.9
European Union-15	10.5	15
Canada*	7.7	11
Mexico*	5.3	7.5
South Korea*	4.1	6
Taiwan*	3.1	4.5
China	1.9	2.8
Hong Kong*	1.6	2.4
Egypt*	1.4	2
Russian Federation*	1.3	1.8
Subtotal	**53.5**	
Total U.S. exports	**69.7**	

* Record exports in FY 1996

Imports of U.S. Agricultural, Fish, and Wood Products

Along with the European Union and Japan, the United States ranks among the world's largest importers of agricultural, fish, and wood products. However, unlike these other major importers, these products make up only a small portion of total U.S. merchandise imports. In FY 1996, the $49.8 billion in U.S. purchases of agricultural, fish, and wood products accounted for only 6 percent of total U.S. merchandise imports.

Imports provide consumers with products that are either not produced or not available in sufficient quantities in the United States. Major agricultural imports generally not domestically produced include spices, teas, cocoa, coffee, bananas, natural rubber, and silk. Domestic production of other products, such as certain cheeses, olives, olive oil, wools, lumber, shrimp, tuna, and tobacco, is insufficient to meet domestic demand. Some seasonal items, such as fresh fruits and vegetables, are imported during periods when U.S. production cannot meet domestic demand. Finally, certain products such as some spices and sugar are purchased in their raw form for processing and packaging in the United States because foreign producers have a cost advantage over U.S. producers.

Agricultural, fish, and wood product imports provide U.S. consumers with a wider variety of lower priced goods than would be available by relying solely on the domestic market. Many of these products are used as ingredients in high-value foods, beverages, and industrial products that are purchased at home and abroad. Imports also support domestic jobs in the storage, processing, distribution, and retail industries. U.S. imports also provide foreign countries with needed foreign exchange that, in turn, can be used to purchase U.S. products.

Leading Products

Imports of agricultural products rose 9 percent to a record $32.3 billion in FY 1996. Fish and seafood imports fell 2 percent from the previous year's record level to $65 billion, while wood product imports increased 13 percent to a record high $11 billion.

Agricultural imports can be divided into three main categories based on level of processing and end market use: bulk commodities, high-value intermediate products, and high-value consumer-oriented foods and beverages. In FY 1996, bulk commodity imports remained stable at $6.6 billion, with higher tobacco and cocoa beans (up $198 and $227 million, respectively) offsetting declines in coffee and sugar (down $449 and $77 million, respectively).

Intermediate products rose 14 percent in 1996 to a record $7.4 billion as a result of rising purchases of sugar/sweeteners and vegetable oils (up $522 million and $200 million, respectively). Consumer food and beverage imports rose 10 percent to a record $18.3 billion based on gains across most major product groups.

Table 7-3.

Top 15 U.S. agricultural, fish, and wood product imports, FY 1996

Product	*Category*	*$Billion*
Lumber*	W	6.4
Raw coffee	B	2.3
Shrimp	FS	2.5
Red meats	C	2.3
Wine & beer*	C	2.6
Panel products*	W	2.3
Fruit & vegs., processed*	C	1.8
Vegetables, fresh*	C	1.7
Live animals	I	1.6
Rubber & allied products	B	1.5
Snack foods*	C	1.4
Sugars & sweeteners*	I	1.3
Bananas*	C	1.2
Fruit, fresh (excl. bananas)*	C	1.2
Nursery products*	C	0.9
Subtotal		**30.7**
Total U.S. imports		**49.8**

Note: (B) bulk agriculture, (I) intermediate agriculture, (C) consumer-oriented agriculture, (W) wood, (FS) fish & seafood. *Record import value in 1996.

Major suppliers

Although the United States imported products from virtually every country in the world, the top 15 countries supplied more than 85 percent of U.S. agricultural, fish, and forest imports in FY 1996. Canada was the top supplier, with record sales of $15.8 billion. The major products imported from Canada were lumber, wood panel products, live cattle, red meats, and snack foods. At $6.8 billion, the European Union ranked second, mainly supplying high-value consumer foods. The major products were wine and malt beverages, snack foods (including confectioneries and biscuits), processed fruits and vegetables, and cheeses. Other major suppliers include: Mexico (fresh fruits and vegetables, raw coffee beans, and shrimp); Thailand (shrimp, tuna, rubber, and processed fruit and vegetables); Indonesia (rubber, wood panel products, raw coffee beans, and tropical spices); and Brazil (raw coffee beans, tobacco, fruit juices, tree nuts, and wood panel products).

Many important suppliers of agricultural, fish, and wood products to the United States are developing countries. These countries depend heavily on the export of these products to generate foreign exchange that, in turn, is used to purchase imports. In FY 1996 imports from developing countries accounted for nearly 40 percent of all U.S. purchases of agricultural, fish, and wood products.

Table 7-4.

Top 15 suppliers of agricultural, fish, and wood products, FY 1996

Supplier	*Imports (Billion dollars)*	*Share of Total U.S. Imports (Percent)*
Canada	15.8	31.6
European Union-15	6.8	13.6
Mexico	4.5	9.0
Thailand	2.1	4.2
Indonesia	2.1	4.3
Brazil	1.7	3.4
Colombia	1.2	2.4
Chile	1.1	2.3
Ecuador	1.0	2.1
China	1.0	2.1
New Zealand	1.0	1.9
Australia	0.9	1.8
Argentina	0.8	1.6
Costa Rica	0.7	1.5
Philippines	0.7	1.4
Top 15	**42.6**	**85.5**
World Total	**49.8**	

Food Aid Programs

The Federal Agriculture Improvement and Reform Act of 1996 (the 1996 Farm Bill) reauthorized and added activities to one of the oldest U.S. export assistance programs—Public Law (P.L.) 480, also known as Food for Peace.

Current estimates of FY 1997 commodity funding available for food aid under P.L. 480 total $769 million, including $204.4 for Title I (including Title I/Food for Progress), $542 million for Title II (including Title II/World Food Program), and $22.5 million for Title III.

The 1996 Farm Bill reauthorized Title I government-to-government concessional sales, and included authority to sign agreements with private entities. The Act also modified the repayment terms for Title I credit, including elimination of the minimum repayment period of 10 years and reduction of the maximum grace period from 7 to 5 years. Agricultural trade organizations will be allowed to carry out projects or programs in developing countries using funds from the sales of Title I commodities if the organization has a market development plan approved by the Secretary. FY 1997 planned programming for P.L. 480, Title I, as of April 18, 1997, provides $185.6 million for 18 countries. Under these planned programs, approximately 774,350 metric tons of commodities are expected to be exported. These totals do not reflect ocean freight costs for Title I. Thus far in FY 1997, $18.8 million of Title I funds for commodities have been set aside to fund a number of Food for Progress country programs.

The 1996 Farm Bill reauthorized the Title II emergency and private assistance donations program. It increased the maximum level of funding that can be provided as overseas administrative support from $13.5 million to $28 million and added intergovernmental organizations such as the World Food Program to the list of organizations eligible to receive these funds. For FY 1997, about 2.2 million tons of commodities, valued at approximately $542 million, are planned for donations under Title II, including Title II donations through the World Food Program.

The Act also reauthorized the Title III Food for Development program. This program provides government-to-government grant food assistance to least-developed countries. Local sales proceeds can be used to support a variety of economic development and related activities in recipient countries. For FY 1997, about 117,000 metric tons of commodities valued at $22.5 million are planned under Title III.

Another program, Food for Progress, is carried out using commodities available for distribution under Section 416(b), or funds available to the Commodity Credit Corporation (CCC) or appropriated under Title I, P.L. 480. The program provides commodities to needy countries as a reward for having undertaken economic or agricultural reform. The 1996 Farm Bill extended the authority for the Food for Progress program to provide assistance in the administration, sale, and monitoring of food assistance programs to strengthen private sector agriculture in recipient countries through the year 2002. The authority is also expanded to include intergovernmental organizations in Food for Progress programming, to make sales on credit terms to all eligible countries in addition to the newly independent states of the former Soviet Union, and to include the provision of technical assistance for monetization programs. In FY 1997, Food for Progress bilateral agreements using the Title I authority are planned with Mongolia, Kyrgyzstan, and Tajikistan, totaling about 97,021 metric tons, valued at $18.8 million (excluding transportation). Food for Progress programs using CCC funds are planned with U.S. private voluntary organizations for projects in Armenia, Azerbaijan, Benin, Bosnia-Hercegovina, El Salvador, Equatorial Guinea,

Georgia, Kyrgyzstan, Moldova, Russia, Tajikistan, and Ukraine, totaling about 147,700 tons of commodities, valued at about $57.4 million. The Food for Progress program is limited by a global 500,000-metric-ton legislative ceiling, and by a cap on noncommodity costs paid directly by CCC (primarily transportation) of $30 million.

The 1996 Farm Bill reauthorized the Farmer-to-Farmer Program, which can include middle-income countries and emerging markets. This Act also increased the minimum percentage of P.L. 480 funding for the Farmer-to-Farmer Program from 0.2 to 0.4 percent.

The Section 416(b) Program (of the Agricultural Act of 1949) provides for the donation to needy countries of eligible commodities held by CCC. There are no Section 416(b) commodities available for programming in FY 1997.

Commercial Export Credit Guarantee Programs

The 1996 Farm Bill mandates annual program levels for the Export Credit Guarantee Program (GSM-102) and the Intermediate Credit Guarantee Program (GSM-103), but allows flexibility in how much is made available for each program. The GSM-102 program guarantees repayment of short-term loans (90 days to 3 years) made by U.S. financial institutions to eligible banks in countries that purchase U.S. farm products. As of May 2, 1997, under the GSM-102 program some $3 billion worth of guarantees were made available for approximately 88 countries including seven regional programs—for the Andean region, Central America, East Africa, East Caribbean, Southern Africa, West Africa, and West Caribbean—for FY 1997. As of May 2, 1997, registrations under the GSM-102 credit guarantee program for FY 1997 totaled $1.7 billion for 14 countries and those same seven regions.

Guarantees issued under the GSM-103 program can cover financing periods of more than 3 and up to 10 years. This program is designed to help developing nations make the transition from concessional financing to cash purchases. As of May 2, 1997, $373 million worth of intermediate guarantees were made available for FY 1997. As of May 2, 1997, registrations under the GSM-103 credit guarantee program for FY 1997 totaled $7.3 million for two countries.

The new Suppliers Credit Guarantee Program (SCGP) became operational in FY 1996. As of May 2, 1997, $100 million worth of guarantees were made available under this program for FY 1997. As of May 2, 1997, registrations under SCGP for FY 1997 totaled $2.95 million for two countries and the Southeast Asia region.

Export Assistance Programs

The Export Enhancement Program (EEP) was extended by the 1996 Farm Bill to permit USDA to provide bonuses to make U.S. commodities more competitive in the world marketplace and to offset the adverse effects of unfair trade practices or subsidies. The 1996 Act provides minimum funding levels for CCC to make available for the EEP each fiscal year through 2002. Since Nov. 6, 1991, USDA has paid EEP bonuses in cash. In the General Agreement on Tariffs and Trade implementing legislation, the focus of the EEP was changed to allow the EEP to be used as a market promotion and expansion tool.

The Market Access Program (MAP), formerly the Market Promotion Program, is authorized by Section 203 of the Agricultural Trade Act of 1978, as amended. The MAP is funded at $90 million annually for Fiscal Year 1996 through 2002 and is designed to encourage the development, maintenance, and expansion of foreign markets for U.S. agricultural commodities. Since its inception, the MAP has provided cost-share funds to nearly 800 U.S. companies, cooperatives, and trade organizations to promote their products overseas. For 1996, $90 million was allocated to 66 U.S. trade organizations. For 1997, $90 million was allocated to 64 U.S. trade organizations.

The Foreign Market Development Program, also known as the cooperator program, fosters a trade promotion partnership between USDA and U.S. agricultural producers and processors, represented by approximately 40 nonprofit commodity or trade associations called cooperators. Projects generally fall into one of four categories: market research, trade servicing, technical assistance, and consumer promotions for the retail market. The cooperator program has helped support growth in U.S. agricultural exports by enlisting private sector involvement and resources in coordinated efforts to promote U.S. products to foreign importers and consumers around the world.

Dairy Export Programs

As amended by Section 148 of the 1996 Farm Bill, the Dairy Export Incentive Program (DEIP) is mandated through the year 2002. The DEIP operates on a bid bonus system similar to EEP, with cash bonus payments.

The current DEIP was announced on July 18, 1996. Bonuses under the program are available to 112 countries totaling 100,222 metric tons of nonfat dry milk; to 111 countries totaling 38,611 metric tons of butterfat; and to 109 countries totaling 3,669 metric tons of cheddar, feta, Gouda, mozzarella, processed American cheeses, and cream. The allocations were valid until June 30, 1997, as provided in the invitation for offers.

International Links

The International Cooperation and Development (ICD) area of USDA's Foreign Agricultural Service is responsible for coordinating, supporting, and delivering a diversified program of international cooperation and development. It aims to enhance the competitiveness of U.S. agriculture, preserve natural resource ecosystems, and pursue sustainable economic development worldwide by mobilizing the resources of USDA and its affiliates.

ICD programs provide links to world resources and build a spirit of cooperation and goodwill that serves U.S. agriculture. These links help U.S. agriculture gain access to emerging technologies and to a wide array of genetic material, which can be crucial in creating new or improved agricultural products, practices, and markets. These international partnerships are the germinating seeds that can produce a rich and diverse harvest of scientific advances and business ventures.

ICD helps increase income and food availability in developing nations by linking the technical expertise of the U.S. agricultural community with those nations. This cooperative effort helps developing nations surmount the barriers of hunger and poverty and build more stable economies. As industrialized nations have become sat-

urated with goods and services, investors have begun to explore developing nations as markets for fresh and expanded business ventures. Nations moving from low- to middle-income status now offer the brightest prospects for U.S. agricultural products, a trend that is likely to continue, so USDA helps foster economic growth, strong diplomatic ties, and durable trade relationships with these nations.

Risk Management Agency

The Federal Agriculture Improvement and Reform Act of 1996 created a new independent Risk Management Agency (RMA). The 1996 Act also removed a requirement that producers obtain at least the catastrophic level of crop insurance to be eligible for most USDA farm programs and assigned responsibility for the non-insured assistance program to the Farm Service Agency.

RMA improves the economic stability of agriculture by offering producers a sound system of crop insurance. Federal crop insurance covers losses due to unavoidable causes such as drought, excessive moisture, hail, wind, frost, insects, and disease. Currently 62 major crops are insurable. Crop insurance is available from crop insurance agents. Insurance protection must be purchased prior to sales closing dates that vary by crop and region.

In addition to administering the multiple peril crop insurance program, RMA is responsible for coordinating an educational outreach program to help producers manage the financial risks inherent in the production and marketing of agricultural commodities. This cooperative effort involves the resources of the Cooperative State Research, Education and Extension Service, the Commodity Futures Trading Commission, and numerous private sector organizations.

Further, new risk management products will continue to be developed by RMA, in conjunction with the private sector and other Government agencies. For example, two popular revenue insurance programs, Income Protection and Crop Revenue Coverage (CRC), were fashioned in this manner. Income Protection pays producers when gross income is less than the level of income protection selected by the producer. CRC also pays for production losses below the yield guarantee at the higher of two prices determined at different times of the year. The programs are currently available on corn, wheat, soybeans, cotton, and grain sorghum in selected States.

For More Information

Farm Service Agency

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What Is the Farm Service Agency?

Stabilizing farm income, helping farmers conserve land and water resources, providing credit to new or disadvantaged farmers and ranchers, and helping farm operations recover from the effects of disaster: These are the missions of USDA's Farm Service Agency (FSA).

FSA was set up when the Department was reorganized in 1994, incorporating programs from several agencies, including the Agricultural Stabilization and Conservation Service, the Federal Crop Insurance Corporation (now a separate Risk Management Agency), and the Farmers Home Administration. Though its name has changed over the years, the Agency's relationship with farmers goes back to the 1930's.

At that time, Congress set up a unique system under which Federal farm programs are administered locally. Farmers who are eligible to participate in these programs elect a three- to five-person county committee, which reviews county office operations and makes many of the decisions on how to apply the programs. This grassroots approach gives farmers a much-needed say in how Federal actions affect their communities and their individual operations. After more than 60 years, it remains a cornerstone of FSA's efforts to preserve and promote American agriculture.

1996 Farm Bill

The 1996 Farm Bill, which became law on April 4, 1996, significantly changed U.S. agricultural policy by removing the link between income support payments and farm prices. Farmers who participated in the wheat, feed grains, cotton, and rice programs in any one of the previous 5 years could enter into 7-year production flexibility contracts and receive a series of fixed annual "transition payments." These payments are independent of farm prices and specific crop production, in contrast to the past, when deficiency payments were based on farm prices and the production of specific crops.

The Federal Government no longer requires land to be idled or denies payments if farmers switch from their historical crop. The contract, however, requires participating producers to comply with existing conservation plans for the farm, wetland provisions, and planting flexibility provisions, as well as to keep the land in agricultural uses.

The law provided for a one-time signup which ended August 1, 1996, for producers to enter into production flexibility contracts. There will be no additional signups except for land coming out of the Conservation Reserve Program. Farmers who entered into a contract also are eligible for market transition loans at FSA county offices.

Commodity Loan Programs

FSA administers commodity loan programs for wheat, rice, corn, grain sorghum, barley, oats, oilseeds, tobacco, peanuts, upland and extra-long-staple cotton, and sugar.

The Agency provides the operating personnel for the Commodity Credit Corporation (CCC), which supports the prices of some agricultural commodities through loans and purchases. This provides farmers with interim financing, and helps maintain balanced and adequate supplies of farm commodities, and their orderly distribution, throughout the year and during times of surplus and scarcity.

Instead of immediately selling the crop after harvest, a farmer who grows one or more of most field crops can store the produce and take out a "nonrecourse" loan for its value, pledging the crop itself as collateral. Nonrecourse means that the producer can discharge debts in full by forfeiting, or delivering, the commodity to the Government.

The nonrecourse loan allows farmers to pay their bills and other loan payments when they come due, without having to sell crops at a time of year when prices tend to be at their lowest. Later, when market conditions are more favorable, farmers can sell crops and repay the loan with the proceeds. Or, if the prevailing price of the crop remains below the loan level set by USDA, farmers can keep loan proceeds, and give the crop to the CCC instead.

CCC loan rates are designed to keep crops competitive in the marketplace. A producer must have entered into a production flexibility contract to be eligible for nonrecourse marketing assistance loans for wheat, feed grains, rice, and upland cotton. Any production of a contract commodity by a producer who has entered into a production flexibility contract is eligible for loans.

Nonrecourse loans are also available for oilseeds, tobacco, peanuts, extra-long-staple cotton, raw cane sugar, and refined beet sugar, regardless of whether the producer has entered into a production flexibility contract. Price support for the marketing quota crops—tobacco and peanuts—is made available through producer loan associations. By law, these programs must operate at no-net-cost to the U.S. Treasury, and no-net-cost and marketing assessments are applied to both producers and purchasers.

If the tariff rate quota (TRQ) on imported sugar exceeds 1.5 million tons, sugar loans are nonrecourse. If the TRQ is less than that amount, sugar loans are recourse, which means borrowers cannot necessarily discharge their debts in full by simply forfeiting the commodity to the Government.

Commodity Purchase Programs

Forfeitures under nonrecourse commodity loan programs are not the only means by which CCC acquires inventory. Under the dairy price support program, CCC buys surplus butter, cheese, and nonfat dry milk from processors at announced prices to support the price of milk. These purchases help maintain market prices at the legislated support level. The 1996 Farm Bill eliminates dairy price support after December 31, 1999.

CCC can store purchased food in over 10,000 commercial warehouses across the Nation approved for this purpose. However, commodity inventories are not simply kept in storage. FSA employees work to return stored commodities to private trade channels. At the Agency's Kansas City Commodity Office in Kansas City, Missouri, FSA merchandisers regularly sell and swap CCC inventories, using commercial telecommunications trading networks.

Beyond the marketplace, CCC commodities fill the need for hunger relief both in the United States and in foreign countries. FSA employees work closely with USDA's Food and Consumer Service to purchase and deliver foods for the National School Lunch and many other domestic feeding programs. And, donated to "Food for Peace" and programs administered by voluntary organizations, these U.S. farm products and foods help USDA fight hunger worldwide.

Crop Insurance

Federal crop insurance protects farmers and ranchers from unexpected production losses from natural causes, including drought, excessive moisture, hail, wind, flooding, hurricanes, tornadoes, and lightning. It does not cover losses resulting from neglect, poor farming practices, theft, or low prices. At this time, insurance is available for 64 different crops.

Recent legislation replaced traditional crop disaster assistance with new, enhanced crop insurance programs. These are the Catastrophic (CAT) Program and the Noninsured Crop Disaster Assistance Program (NAP).

Catastrophic coverage compensates a farmer for crop losses greater than 50 percent of the operation's average yield, at 60 percent of the expected market price. CAT can be obtained at local FSA offices in most States or from private crop insurance agents for a nominal processing fee. This fee may be waived for limited-resource farmers.

Higher levels of insurance protection are available through private crop insurance agents. USDA subsidizes the premiums for these policies to encourage farmers to take advantage of them. Buying this additional coverage is the only way farmers can benefit from attractive policy features permitting smaller operational units, replanting payments, and coverage for certain quality losses.

Producers who decide not to buy crop insurance when it is available still may participate in USDA's commodity, conservation, and credit programs. However, they must sign a waiver agreeing to give up eligibility for emergency crop disaster assistance. This waiver does not disqualify an eligible producer from getting an FSA emergency loan or a payment under NAP. Any producer who signs a waiver, and subsequently decides to buy crop insurance, becomes eligible for disaster assistance for the insured crop.

The **Noninsured Crop Disaster Assistance Program** protects growers of many crops for which Federal crop insurance is not available. In addition, any losses resulting from natural disasters not covered by the crop insurance policy may also be eligible. NAP assistance is available for crops grown commercially for food and fiber. Floriculture, ornamental nursery products, Christmas tree crops, turfgrass sod, seed crops, aquaculture, and industrial crops are also included.

FSA makes NAP payments to eligible producers when both the expected "area" yield is less than 65 percent of normal, and individual crop losses are in excess of 50 percent of the average yield. If these conditions are met, the Agency pays 60 percent of the expected market price for each unit of production lost above 50 percent.

Unlike previous disaster assistance programs, to be eligible for NAP, producers must annually file an acreage and production report with the local FSA office. If a farmer does not report acres and yields by the yearly deadline, NAP assistance may be withheld following a major crop loss.

Other Emergency Assistance

In the aftermath of a natural disaster, FSA makes available a variety of emergency assistance programs to farmers in counties that have been designated or declared disaster areas. The Agency can offer cost-share assistance to producers who do not have enough feed to maintain their eligible livestock because of a loss of a substantial amount of their normal feed production. Emergency loans are available to eligible farmers who suffer qualifying losses as a result of a natural disaster. And, to help rehabilitate farmland damaged by a natural disaster, FSA can often share the cost of some emergency conservation practices.

In the event of a national emergency, FSA is responsible for assuring adequate food production and distribution, as well as the continued availability of feed, seed, fertilizer, and farm machinery.

Farm Loans

FSA offers direct and guaranteed farm ownership and operating loan programs to farmers who are temporarily unable to obtain private, commercial credit. Often, these are beginning farmers who can't qualify for conventional loans because they have insufficient net worth. The Agency also helps established farmers who have suffered financial setbacks from natural disasters, or whose resources are too limited to maintain profitable farming operations.

Under the guaranteed loan program, the Agency guarantees loans made by conventional agricultural lenders for up to 95 percent of principal. The lender may sell the loan to a third party; however, the lender is always responsible for servicing the loan. All loans must meet certain qualifying criteria to be eligible for guarantees, and FSA has the right to monitor the lender's servicing activities. Farmers interested in guaranteed loans must apply to a conventional lender, who then arranges for the guarantee.

For those unable to qualify for a guaranteed loan, FSA also lends directly. Direct loans are made and serviced by FSA officials, who also provide borrowers with supervision and credit counseling. Funding authorities for direct loans are limited,

and applicants may have to wait until funds become available. To qualify for a direct farm ownership or operating loan, the applicant must be able to show sufficient repayment ability and pledge enough collateral to fully secure the loan.

Conservation Programs

The Conservation Reserve Program protects our most fragile farmland by encouraging farmers to stop growing crops on highly erodible and other environmentally sensitive acreage. In return for planting a protective cover of grass or trees on vulnerable property, the owner receives a rental payment each year of a multiyear contract. Cost-share payments are also available to help establish permanent areas of grass, legumes, trees, windbreaks, or plants that improve water quality and give shelter and food to wildlife.

FSA works with USDA's Natural Resources Conservation Service and other agencies to deliver other conservation programs, including the Environmental Quality Incentives Program (EQIP). EQIP helps farmers and ranchers improve their property to protect the environment and conserve soil and water resources. Participants can take advantage of education in new conservation management practices, technical support, cost-share assistance, and incentive payments.

Congress has authorized $1.3 billion for EQIP over 7 years, and the program is expected to maximize environmental benefits per dollar expended. At least half of the funding is earmarked for addressing environmental concerns associated with livestock production. The program awards 5- to 10-year cost-share or incentive payment contracts for certain land management and structural practices, based on a competitive application and evaluation process.

Where to Go for More Information

Further information and applications for the programs described in above are available at local FSA county offices. These are usually listed in telephone directories in the section set aside for governmental/public organizations under "U.S. Department of Agriculture, Farm Service Agency."

FSA State offices supervise the Agency's county offices, and are usually located in the State capital, or near the State land-grant university.

For information on commodity sales and purchases, contact:
USDA FSA Kansas City Commodity Office
P.O. Box 419205
Kansas City, MO 64141-6205
Telephone: (816) 926-6364

For general information about the Agency and its programs, contact:
USDA FSA Public Affairs Staff
1400 Independence Ave., S.W. STOP 0506
Washington, DC 20250-0506
Telephone: (202) 720-5237

Information on FSA can also be found on the FSA home page at *www.fsa.usda.gov*

Aerial Photographs

FSA's aerial photographs of U.S. farmlands are used extensively by government and private organizations and the public. Order forms and an index are available from FSA county offices. For more information on photographic services, including high-altitude photography, contact:

USDA FSA Aerial Photography Field Office
P.O. Box 30010
Salt Lake City, UT 84130-0010
Telephone: (801) 975-3503

The Agency and Its Mission

The Foreign Agricultural Service (FAS) is a USDA Agency that represents the diverse interests of U.S. farmers and the food and agricultural sector abroad. It also collects, analyzes, and disseminates information about global supply and demand, trade trends, and emerging market opportunities. FAS seeks improved market access for U.S. products and implements programs designed to build new markets and to maintain the competitive position of U.S. products in the global marketplace.

FAS also carries out food aid and market-related technical assistance programs, and operates a variety of Congressionally mandated import and export programs. FAS helps USDA and other Federal agencies, U.S. universities, and others enhance the global competitiveness of U.S. agriculture and helps increase income and food availability in developing nations by mobilizing expertise for agriculturally led economic growth.

Formed in 1953 by executive reorganization, FAS is one of the smaller USDA agencies, with a personnel strength of about 900. FAS operates worldwide with personnel located in more than 75 posts covering more than 130 countries. Its overseas staff is backed up by a team of analysts, negotiators, and marketing specialists located in Washington, DC.

Roughly 70 percent of the annual FAS budget is devoted to building markets overseas for U.S. farm products. This includes the funding for all of FAS' trade and attache offices overseas, as well as its work with U.S. commodity associations on cooperative promotion projects. The remaining funds cover other trade functions, including the gathering and dissemination of market information and trade policy efforts.

To get a complete picture of the services offered and information available for exporters, the Foreign Agricultural Service (FAS) invites you to visit its homepage address at: *http://www.fas.usda.gov*

Exports of U.S. Agricultural, Fish, and Wood Products

The United States is the world's top exporter of agricultural, fish, and wood products—with sales of $69.7 billion in FY 1996. Many factors affect trade in these products, including economic growth, currency exchange rates, national support programs, changing food preferences and consumer lifestyles, public and private sector market promotion efforts, and tariff and nontariff barriers.

Agricultural, fish, and wood product exports are vitally important to the Nation's economy as a whole; they represent 11 percent of total U.S. exports. Exports provide agricultural producers, harvesters of fish and wood products, food processing companies, and associated manufacturing firms and transport companies an expanded market for their products and a better income. Exports also enhance our ability to use land, labor, and capital more efficiently. This, in turn, allows our producers and industries to produce at a lower cost and transport efficiently, giving the United States a comparative advantage in the production of these goods.

U.S. exports of agricultural products (excluding wood and fish products) rose to $59.8 billion and created an estimated 958,000 full-time domestic jobs in 1996, or 16,000 jobs for every $1 billion in products shipped. With respect to agricultural products, many of these jobs are created off the farm, and many of those employed live in urban areas. About 330,000 workers, or 9 percent of the U.S. farm labor force, are employed to produce agricultural products for the overseas market. However, beyond the farm gate, another 628,000 people work to finance, store, package, process, and ship agricultural exports. USDA economists calculate that, at the very least, each dollar received from agricultural exports stimulates another $1.38 in business activity for the economy. In 1996, U.S. agricultural exports generated $83 billion in additional economic activity. Of the 11 major U.S. industrial sectors, agriculture generated the largest trade surplus of $27.5 billion in 1996.

Agricultural products moving into the world market can be classified as bulk, intermediate, or consumer-oriented products. Bulk products include those commodities free from processing, such as wheat, corn, barley, and soybeans. Intermediate products (such as wheat flour, vegetable oils, and hides and skins) receive some processing, but are generally not yet ready for final consumption. Consumer-oriented foods and beverages include products that have undergone various degrees of processing or unprocessed commodities that have relatively high per unit costs due to transportation or storage, like fresh fruit.

In FY 1996, U.S. exports of bulk commodities surged to $28.8 billion, up $4.3 billion from the previous year. Strong wheat, corn, and soybean prices and larger wheat shipments accounted for much of the growth. Coarse grain exports rose to $9.3 billion, up $1.9 billion, while wheat exports jumped 39 percent to $6.9 billion. The value of soybean exports rose 20 percent, reaching $6.3 billion.

U.S. exports of intermediate products reached nearly $11 billion in FY 1996, down $500 million from 1995. Declines for soybean oil, animal fats, and wheat flour (down $537 million, $173 million, and $100 million, respectively) more than offset the record export levels of feeds and fodder and planting seeds (up $59 million and $47 million, respectively).

U.S. exports of consumer-oriented products continued their strong growth in FY 1996, reaching a new record of $20 billion and represented one-third of total

Table 7-1.

Top 15 U.S. agricultural, fish, and wood product exports, FY 1996

Product	*Category*	*$Billion*
Coarse grains	B	9.3
Wheat	B	6.9
Soybeans	B	6.3
Red meats	C	4.6
Cotton	B	3.0
Poultry meat	C	2.4
Lumber	W	2.3
Logs	W	2.1
Fruit, fresh	C	2.0
Feeds & fodders	I	1.9
Fruit & vegetables, processed	C	1.9
Hides & skins	I	1.6
Tobacco	B	1.4
Tree nuts	C	1.4
Soybean meal	I	1.3
Subtotal		**48.5**
Total U.S. exports		**69.7**

Note: (B) bulk, (I) intermediate, (C) consumer-oriented, (W) wood

agricultural exports. Increases in FY 1996 were broad-based with 13 of the 16 product categories setting new record highs.

U.S. exports of fish and seafood products climbed 10 percent to $2.9 billion in FY 1996. U.S. exports of wood products declined from the previous year's record level to $7 billion in FY 1996.

Major Markets

Although U.S. exports of agricultural, fish, and wood products are shipped to virtually every country in the world, the top 10 markets account for over three-quarters of all sales. U.S. exports rose to new records in eight of 1996's top 10 markets: Japan, Canada, Mexico, South Korea, Taiwan, Hong Kong, Egypt, and Russia. Sales to Canada increased slightly (up $48 million) while those to Mexico increased nearly 31 percent (up $1.2 billion). Sales to China fell $586 million from the previous year's record level, due mostly to lower corn exports.

Table 7-2.

Top 10 markets for U.S. agricultural, fish, and wood products, FY 1996

Market	*Exports (Billion dollars)*	*Share of Total U.S. Exports (Percent)*
Japan*	16.6	23.9
European Union-15	10.5	15
Canada*	7.7	11
Mexico*	5.3	7.5
South Korea*	4.1	6
Taiwan*	3.1	4.5
China	1.9	2.8
Hong Kong*	1.6	2.4
Egypt*	1.4	2
Russian Federation*	1.3	1.8
Subtotal	**53.5**	
Total U.S. exports	**69.7**	

* Record exports in FY 1996

Imports of U.S. Agricultural, Fish, and Wood Products

Along with the European Union and Japan, the United States ranks among the world's largest importers of agricultural, fish, and wood products. However, unlike these other major importers, these products make up only a small portion of total U.S. merchandise imports. In FY 1996, the $49.8 billion in U.S. purchases of agricultural, fish, and wood products accounted for only 6 percent of total U.S. merchandise imports.

Imports provide consumers with products that are either not produced or not available in sufficient quantities in the United States. Major agricultural imports generally not domestically produced include spices, teas, cocoa, coffee, bananas, natural rubber, and silk. Domestic production of other products, such as certain cheeses, olives, olive oil, wools, lumber, shrimp, tuna, and tobacco, is insufficient to meet domestic demand. Some seasonal items, such as fresh fruits and vegetables, are imported during periods when U.S. production cannot meet domestic demand. Finally, certain products such as some spices and sugar are purchased in their raw form for processing and packaging in the United States because foreign producers have a cost advantage over U.S. producers.

Agricultural, fish, and wood product imports provide U.S. consumers with a wider variety of lower priced goods than would be available by relying solely on the domestic market. Many of these products are used as ingredients in high-value foods, beverages, and industrial products that are purchased at home and abroad. Imports also support domestic jobs in the storage, processing, distribution, and retail industries. U.S. imports also provide foreign countries with needed foreign exchange that, in turn, can be used to purchase U.S. products.

Leading Products

Imports of agricultural products rose 9 percent to a record $32.3 billion in FY 1996. Fish and seafood imports fell 2 percent from the previous year's record level to $65 billion, while wood product imports increased 13 percent to a record high $11 billion.

Agricultural imports can be divided into three main categories based on level of processing and end market use: bulk commodities, high-value intermediate products, and high-value consumer-oriented foods and beverages. In FY 1996, bulk commodity imports remained stable at $6.6 billion, with higher tobacco and cocoa beans (up $198 and $227 million, respectively) offsetting declines in coffee and sugar (down $449 and $77 million, respectively).

Intermediate products rose 14 percent in 1996 to a record $7.4 billion as a result of rising purchases of sugar/sweeteners and vegetable oils (up $522 million and $200 million, respectively). Consumer food and beverage imports rose 10 percent to a record $18.3 billion based on gains across most major product groups.

Table 7-3.

Top 15 U.S. agricultural, fish, and wood product imports, FY 1996

Product	*Category*	*$Billion*
Lumber*	W	6.4
Raw coffee	B	2.3
Shrimp	FS	2.5
Red meats	C	2.3
Wine & beer*	C	2.6
Panel products*	W	2.3
Fruit & vegs., processed*	C	1.8
Vegetables, fresh*	C	1.7
Live animals	I	1.6
Rubber & allied products	B	1.5
Snack foods*	C	1.4
Sugars & sweeteners*	I	1.3
Bananas*	C	1.2
Fruit, fresh (excl. bananas)*	C	1.2
Nursery products*	C	0.9
Subtotal		**30.7**
Total U.S. imports		**49.8**

Note: (B) bulk agriculture, (I) intermediate agriculture, (C) consumer-oriented agriculture, (W) wood, (FS) fish & seafood. *Record import value in 1996.

Major suppliers

Although the United States imported products from virtually every country in the world, the top 15 countries supplied more than 85 percent of U.S. agricultural, fish, and forest imports in FY 1996. Canada was the top supplier, with record sales of $15.8 billion. The major products imported from Canada were lumber, wood panel products, live cattle, red meats, and snack foods. At $6.8 billion, the European Union ranked second, mainly supplying high-value consumer foods. The major products were wine and malt beverages, snack foods (including confectioneries and biscuits), processed fruits and vegetables, and cheeses. Other major suppliers include: Mexico (fresh fruits and vegetables, raw coffee beans, and shrimp); Thailand (shrimp, tuna, rubber, and processed fruit and vegetables); Indonesia (rubber, wood panel products, raw coffee beans, and tropical spices); and Brazil (raw coffee beans, tobacco, fruit juices, tree nuts, and wood panel products).

Many important suppliers of agricultural, fish, and wood products to the United States are developing countries. These countries depend heavily on the export of these products to generate foreign exchange that, in turn, is used to purchase imports. In FY 1996 imports from developing countries accounted for nearly 40 percent of all U.S. purchases of agricultural, fish, and wood products.

Table 7-4.

Top 15 suppliers of agricultural, fish, and wood products, FY 1996

Supplier	*Imports (Billion dollars)*	*Share of Total U.S. Imports (Percent)*
Canada	15.8	31.6
European Union-15	6.8	13.6
Mexico	4.5	9.0
Thailand	2.1	4.2
Indonesia	2.1	4.3
Brazil	1.7	3.4
Colombia	1.2	2.4
Chile	1.1	2.3
Ecuador	1.0	2.1
China	1.0	2.1
New Zealand	1.0	1.9
Australia	0.9	1.8
Argentina	0.8	1.6
Costa Rica	0.7	1.5
Philippines	0.7	1.4
Top 15	**42.6**	**85.5**
World Total	**49.8**	

Food Aid Programs

The Federal Agriculture Improvement and Reform Act of 1996 (the 1996 Farm Bill) reauthorized and added activities to one of the oldest U.S. export assistance programs—Public Law (P.L.) 480, also known as Food for Peace.

Current estimates of FY 1997 commodity funding available for food aid under P.L. 480 total $769 million, including $204.4 for Title I (including Title I/Food for Progress), $542 million for Title II (including Title II/World Food Program), and $22.5 million for Title III.

The 1996 Farm Bill reauthorized Title I government-to-government concessional sales, and included authority to sign agreements with private entities. The Act also modified the repayment terms for Title I credit, including elimination of the minimum repayment period of 10 years and reduction of the maximum grace period from 7 to 5 years. Agricultural trade organizations will be allowed to carry out projects or programs in developing countries using funds from the sales of Title I commodities if the organization has a market development plan approved by the Secretary. FY 1997 planned programming for P.L. 480, Title I, as of April 18, 1997, provides $185.6 million for 18 countries. Under these planned programs, approximately 774,350 metric tons of commodities are expected to be exported. These totals do not reflect ocean freight costs for Title I. Thus far in FY 1997, $18.8 million of Title I funds for commodities have been set aside to fund a number of Food for Progress country programs.

The 1996 Farm Bill reauthorized the Title II emergency and private assistance donations program. It increased the maximum level of funding that can be provided as overseas administrative support from $13.5 million to $28 million and added intergovernmental organizations such as the World Food Program to the list of organizations eligible to receive these funds. For FY 1997, about 2.2 million tons of commodities, valued at approximately $542 million, are planned for donations under Title II, including Title II donations through the World Food Program.

The Act also reauthorized the Title III Food for Development program. This program provides government-to-government grant food assistance to least-developed countries. Local sales proceeds can be used to support a variety of economic development and related activities in recipient countries. For FY 1997, about 117,000 metric tons of commodities valued at $22.5 million are planned under Title III.

Another program, Food for Progress, is carried out using commodities available for distribution under Section 416(b), or funds available to the Commodity Credit Corporation (CCC) or appropriated under Title I, P.L. 480. The program provides commodities to needy countries as a reward for having undertaken economic or agricultural reform. The 1996 Farm Bill extended the authority for the Food for Progress program to provide assistance in the administration, sale, and monitoring of food assistance programs to strengthen private sector agriculture in recipient countries through the year 2002. The authority is also expanded to include intergovernmental organizations in Food for Progress programming, to make sales on credit terms to all eligible countries in addition to the newly independent states of the former Soviet Union, and to include the provision of technical assistance for monetization programs. In FY 1997, Food for Progress bilateral agreements using the Title I authority are planned with Mongolia, Kyrgyzstan, and Tajikistan, totaling about 97,021 metric tons, valued at $18.8 million (excluding transportation). Food for Progress programs using CCC funds are planned with U.S. private voluntary organizations for projects in Armenia, Azerbaijan, Benin, Bosnia-Hercegovina, El Salvador, Equatorial Guinea,

Georgia, Kyrgyzstan, Moldova, Russia, Tajikistan, and Ukraine, totaling about 147,700 tons of commodities, valued at about $57.4 million. The Food for Progress program is limited by a global 500,000-metric-ton legislative ceiling, and by a cap on noncommodity costs paid directly by CCC (primarily transportation) of $30 million.

The 1996 Farm Bill reauthorized the Farmer-to-Farmer Program, which can include middle-income countries and emerging markets. This Act also increased the minimum percentage of P.L. 480 funding for the Farmer-to-Farmer Program from 0.2 to 0.4 percent.

The Section 416(b) Program (of the Agricultural Act of 1949) provides for the donation to needy countries of eligible commodities held by CCC. There are no Section 416(b) commodities available for programming in FY 1997.

Commercial Export Credit Guarantee Programs

The 1996 Farm Bill mandates annual program levels for the Export Credit Guarantee Program (GSM-102) and the Intermediate Credit Guarantee Program (GSM-103), but allows flexibility in how much is made available for each program. The GSM-102 program guarantees repayment of short-term loans (90 days to 3 years) made by U.S. financial institutions to eligible banks in countries that purchase U.S. farm products. As of May 2, 1997, under the GSM-102 program some $3 billion worth of guarantees were made available for approximately 88 countries including seven regional programs—for the Andean region, Central America, East Africa, East Caribbean, Southern Africa, West Africa, and West Caribbean—for FY 1997. As of May 2, 1997, registrations under the GSM-102 credit guarantee program for FY 1997 totaled $1.7 billion for 14 countries and those same seven regions.

Guarantees issued under the GSM-103 program can cover financing periods of more than 3 and up to 10 years. This program is designed to help developing nations make the transition from concessional financing to cash purchases. As of May 2, 1997, $373 million worth of intermediate guarantees were made available for FY 1997. As of May 2, 1997, registrations under the GSM-103 credit guarantee program for FY 1997 totaled $7.3 million for two countries.

The new Suppliers Credit Guarantee Program (SCGP) became operational in FY 1996. As of May 2, 1997, $100 million worth of guarantees were made available under this program for FY 1997. As of May 2, 1997, registrations under SCGP for FY 1997 totaled $2.95 million for two countries and the Southeast Asia region.

Export Assistance Programs

The Export Enhancement Program (EEP) was extended by the 1996 Farm Bill to permit USDA to provide bonuses to make U.S. commodities more competitive in the world marketplace and to offset the adverse effects of unfair trade practices or subsidies. The 1996 Act provides minimum funding levels for CCC to make available for the EEP each fiscal year through 2002. Since Nov. 6, 1991, USDA has paid EEP bonuses in cash. In the General Agreement on Tariffs and Trade implementing legislation, the focus of the EEP was changed to allow the EEP to be used as a market promotion and expansion tool.

The Market Access Program (MAP), formerly the Market Promotion Program, is authorized by Section 203 of the Agricultural Trade Act of 1978, as amended. The MAP is funded at $90 million annually for Fiscal Year 1996 through 2002 and is designed to encourage the development, maintenance, and expansion of foreign markets for U.S. agricultural commodities. Since its inception, the MAP has provided cost-share funds to nearly 800 U.S. companies, cooperatives, and trade organizations to promote their products overseas. For 1996, $90 million was allocated to 66 U.S. trade organizations. For 1997, $90 million was allocated to 64 U.S. trade organizations.

The Foreign Market Development Program, also known as the cooperator program, fosters a trade promotion partnership between USDA and U.S. agricultural producers and processors, represented by approximately 40 nonprofit commodity or trade associations called cooperators. Projects generally fall into one of four categories: market research, trade servicing, technical assistance, and consumer promotions for the retail market. The cooperator program has helped support growth in U.S. agricultural exports by enlisting private sector involvement and resources in coordinated efforts to promote U.S. products to foreign importers and consumers around the world.

Dairy Export Programs

As amended by Section 148 of the 1996 Farm Bill, the Dairy Export Incentive Program (DEIP) is mandated through the year 2002. The DEIP operates on a bid bonus system similar to EEP, with cash bonus payments.

The current DEIP was announced on July 18, 1996. Bonuses under the program are available to 112 countries totaling 100,222 metric tons of nonfat dry milk; to 111 countries totaling 38,611 metric tons of butterfat; and to 109 countries totaling 3,669 metric tons of cheddar, feta, Gouda, mozzarella, processed American cheeses, and cream. The allocations were valid until June 30, 1997, as provided in the invitation for offers.

International Links

The International Cooperation and Development (ICD) area of USDA's Foreign Agricultural Service is responsible for coordinating, supporting, and delivering a diversified program of international cooperation and development. It aims to enhance the competitiveness of U.S. agriculture, preserve natural resource ecosystems, and pursue sustainable economic development worldwide by mobilizing the resources of USDA and its affiliates.

ICD programs provide links to world resources and build a spirit of cooperation and goodwill that serves U.S. agriculture. These links help U.S. agriculture gain access to emerging technologies and to a wide array of genetic material, which can be crucial in creating new or improved agricultural products, practices, and markets. These international partnerships are the germinating seeds that can produce a rich and diverse harvest of scientific advances and business ventures.

ICD helps increase income and food availability in developing nations by linking the technical expertise of the U.S. agricultural community with those nations. This cooperative effort helps developing nations surmount the barriers of hunger and poverty and build more stable economies. As industrialized nations have become sat-

urated with goods and services, investors have begun to explore developing nations as markets for fresh and expanded business ventures. Nations moving from low- to middle-income status now offer the brightest prospects for U.S. agricultural products, a trend that is likely to continue, so USDA helps foster economic growth, strong diplomatic ties, and durable trade relationships with these nations.

Risk Management Agency

The Federal Agriculture Improvement and Reform Act of 1996 created a new independent Risk Management Agency (RMA). The 1996 Act also removed a requirement that producers obtain at least the catastrophic level of crop insurance to be eligible for most USDA farm programs and assigned responsibility for the non-insured assistance program to the Farm Service Agency.

RMA improves the economic stability of agriculture by offering producers a sound system of crop insurance. Federal crop insurance covers losses due to unavoidable causes such as drought, excessive moisture, hail, wind, frost, insects, and disease. Currently 62 major crops are insurable. Crop insurance is available from crop insurance agents. Insurance protection must be purchased prior to sales closing dates that vary by crop and region.

In addition to administering the multiple peril crop insurance program, RMA is responsible for coordinating an educational outreach program to help producers manage the financial risks inherent in the production and marketing of agricultural commodities. This cooperative effort involves the resources of the Cooperative State Research, Education and Extension Service, the Commodity Futures Trading Commission, and numerous private sector organizations.

Further, new risk management products will continue to be developed by RMA, in conjunction with the private sector and other Government agencies. For example, two popular revenue insurance programs, Income Protection and Crop Revenue Coverage (CRC), were fashioned in this manner. Income Protection pays producers when gross income is less than the level of income protection selected by the producer. CRC also pays for production losses below the yield guarantee at the higher of two prices determined at different times of the year. The programs are currently available on corn, wheat, soybeans, cotton, and grain sorghum in selected States.

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8. Food, Nutrition, and Consumer Services

Food and Consumer Service

Nutrition is one of USDA's central missions, and it is the bridge between the farmer and consumer. The Food and Consumer Service (FCS) administers USDA's nutrition assistance programs, with the dual mission of improving the Nation's health by getting food to people who need it, and strengthening the agricultural economy.

USDA has made nutrition and nutrition education integral components of all its domestic nutrition programs. These programs provide access to healthy diets for many needy Americans, and important markets for agricultural commodities. Overall, the nutrition programs reach one out of every five Americans.

At the same time, USDA is committed to ensuring that the programs operate accurately and efficiently. FCS works closely with the States to ensure that benefits are received only by those who are eligible, and to catch and punish people who seek to abuse the programs for their own gain.

For FY 1996, the total appropriation for the nutrition assistance programs was $39.9 billion—or nearly 65 percent of the entire USDA budget of $61.9 billion. The 1997 FCS appropriation is $40.4 billion.

Most of the programs are directed at low-income Americans or school children. They include:

- The Food Stamp Program
- The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)
- The National School Lunch Program
- The School Breakfast Program
- The Nutrition Education and Training Program
- The Emergency Food Assistance Program
- The Child and Adult Care Food Program
- The Homeless Children Nutrition Program
- The Commodity Supplemental Food Program
- The Summer Food Service Program
- The Special Milk Program
- The Nutrition Program for the Elderly
- The Food Distribution Program on Indian Reservations
- The WIC Farmers Market Nutrition Program
- The Commodity Distribution Program for Charitable Institutions
- The Nutrition Assistance Program in Puerto Rico and the Northern Mariana Islands

FCS is also the primary Federal Agency that delivers food assistance in response to disasters. The Agency includes an Office of Consumer Affairs.

> ■ ***Nutrition Program Fact:***
> *Determining eligibility: Many of USDA's nutrition programs use household income as a guideline for program eligibility. Depending on the program rules, household income of 100 percent, 130 percent, or 185 percent of the Federal poverty level may be used to determine levels of eligibility. For FY 1996, 100 percent of the poverty guideline was $15,600 a year for a family of four; 130 percent was $20,280 a year; and 185 percent was $28,860 a year. Federal poverty guidelines are established by the Office of Management and Budget, and are updated annually by the Department of Health and Human Services.*

The Food Stamp Program

The Food Stamp Program is the cornerstone of USDA's nutrition assistance programs. The program helps low-income households increase their food purchasing power and obtain a better diet. It is the primary source of nutrition assistance for low-income Americans. Initiated as a pilot program in 1961 and made permanent in 1964, the program issues monthly allotments of coupons that are redeemable at retail food stores, or provides benefits through Electronic Benefit Transfer (EBT).

The Food Stamp Program serves the most needy among the Nation's population. More than half of all food stamp participants are children. Almost 90 percent of all food stamp households have incomes below the Federal poverty level, and 41 percent have incomes that are half or less of the poverty level. Ten percent have no income at all.

Increasingly, paper food stamp coupons are being replaced by EBT, a computerized system in which participants use magnetic strip cards to access their food stamp account at the point of sale. As of August 1996, 5 States were operating EBT systems statewide, and a total of 14 States had operational EBT systems for all or part of their caseload. Almost all other States were in some stage of EBT development. By eliminating paper coupons and creating an electronic record of every food stamp transaction, EBT will be a useful tool in improving program delivery and in reducing certain types of food stamp fraud and trafficking.

EBT is only one component of FCS's commitment to Food Stamp Program integrity. The Agency works closely with the States to ensure that they issue benefits in the correct amounts, and only to people who are eligible. EBT has enhanced FCS's ability to catch those who abuse the program, and penalties have been increased for people who are caught. In addition, the Agency now has broader authority to review the performance of food retailers who participate in the program, and to quickly remove those who fail to follow program rules.

USDA also provides educational materials to integrate nutrition into the Food Stamp Program and to help food stamp recipients make better use of their benefits. More than 30 States have approved nutrition education plans, and receive Federal reimbursement for half of the cost of nutrition education and promotion activities. FCS provided seed money to 12 States in 1995 and to 10 States in 1996 for the development and evaluation of State nutrition support networks to foster public and private partnerships to extend nutrition promotion to more program participants.

Eligibility: Food stamp eligibility and allotments are based on household size and income, assets, and other factors. A household's gross monthly income cannot exceed 130 percent of the Federal poverty guidelines, and its net income cannot exceed 100 percent of the guidelines. Illegal aliens are not eligible to receive food stamp benefits, and the Welfare Reform Act of 1996 excluded many legal aliens from eligibility as well. In addition, the Act limited many able-bodied adults without dependents to 3 months of benefits in a 36-month period.

Benefits: The level of benefits a household receives is based on its household income. Average monthly benefits were more than $73 per person in 1996. Households with no income receive the maximum monthly allotment of food stamps—$400 for a family of four in FY 1997. The allotment is based on the cost of the Thrifty Food Plan, a low-cost model diet plan. The Food Stamp Program served an average of more than 25 million people each month in FY 1996.

Funding: The total Food Stamp Program appropriation was $26.5 billion in FY 1996. For FY 1997, the appropriation is $26.3 billion.

■ ***Nutrition Program Fact:***
How EBT works: Electronic Benefit Transfer (EBT) is a computerized system that allows food stamp customers to use a plastic card similar to a bank card to access their food stamp benefits. Eligible recipients have an account established for their monthly benefits. At the grocery checkout, they present the card, which is used to debit their food stamp account for the amount of eligible purchases. The funds are automatically transferred to the retailer's account, and an electronic record is made of the transaction. No money and no food stamps change hands.

The National School Lunch Program

The National School Lunch Program (NSLP) is a federally assisted meal program operating in more than 94,000 public and nonprofit private schools and residential child care institutions. It provides nutritionally balanced, low-cost or free lunches to almost 26 million children each school day.

The NSLP is usually administered by State education agencies, which operate the program through agreements with local school districts. FCS administers the program at the Federal level. School districts and independent schools that choose to take part in the lunch program receive cash reimbursement and donated commodity assistance from USDA for each meal they serve. In return, they must serve lunches

that meet Federal nutrition requirements, and they must offer free and reduced-price lunches to eligible children.

In 1994, in an effort to improve the nutritional quality of school meals, FCS launched the School Meals Initiative for Healthy Children, the first full-scale reform of the school lunch program since it was established in 1946. The centerpiece of the initiative was new regulations to update nutrition standards so that all school meals will meet the recommendations of the Dietary Guidelines for Americans. The new regulations became final in June 1995, and took effect at the beginning of school year 1996-97.

In support of USDA's School Meals Initiative, on October 6, 1994, Congress passed the Healthy Meals for Healthy Americans Act, requiring that all school meals conform to the Dietary Guidelines by school year 1996-97. The Healthy Meals for Children Act, passed in May 1996, expanded the range of menu planning options for schools, and reinforced the requirement that all school meals must meet the Dietary Guidelines.

Other elements of the initiative will teach and motivate children to make healthy food choices, cut administrative red tape, and continue to improve the quality of the commodities USDA provides to schools.

Recognizing that improved nutrition education empowers students to make healthy food choices, USDA established Team Nutrition as a part of the School Meals Initiative. Team Nutrition brings together public/private partnerships to implement a nutrition education program for children, as well as a training and technical assistance program to help school foodservice professionals deliver healthy school meals.

The campaign has produced significant results. USDA formed a groundbreaking partnership with the Walt Disney Company to develop healthy eating messages to be used on television. USDA also entered into a partnership with Scholastic, Inc., to deliver age-appropriate nutrition information to children in school and to their parents at home.

The second component of Team Nutrition, the Training and Technical Assistance Program, was designed to ensure that school nutrition and food service personnel have the education, motivation, training, and skills necessary to serve meals that meet USDA's nutrition standards and appeal to children.

The Department has also placed special emphasis on improving the quality of commodities donated to the National School Lunch Program. The Commodities Improvement Council was established in 1995 to promote the health of school children by improving the nutritional profile of USDA commodities while maintaining USDA's support for domestic agricultural markets. Based on the council's recommendations, USDA reduced the fat, sodium, and sugar content of commodities, and is now offering a wider variety of new low-fat and reduced-fat products.

USDA has made enormous progress in increasing the amount of fresh produce given to schools, and is now offering unprecedented amounts and varieties of fresh fruit and vegetables. A cooperative project with the Department of Defense (DOD) has allowed USDA to increase the variety of produce available to schools by utilizing DOD's buying and distribution system.

Eligibility: Any child, regardless of family income level, can purchase a meal through the NSLP. Children from families with incomes at or below 130 percent of

poverty are eligible to receive free meals. Children from families with incomes between 130 and 185 percent of poverty are eligible for reduced-price meals. Children from families with incomes over 185 percent of poverty pay the full, locally established price.

Benefits: Most of the support USDA provides to schools comes in the form of cash reimbursements for meals served. The reimbursement is highest for meals served to students who qualify to receive their meals free, and the lowest reimbursement is for students who pay full price. The cash reimbursement rates for school year 1996-97 were: Free, $1.84; reduced price, $1.44; and full price, $.18. Schools may charge no more than 40 cents for a reduced-price meal.

In addition to cash reimbursements, schools are entitled to receive commodity foods, called "entitlement" foods, at an annually adjusted per-meal rate (currently 15 cents) for each meal they serve. Schools can receive additional commodities, known as "bonus" commodities, when these are available from surplus stocks purchased by USDA under price support programs. USDA commodities make up approximately 17 percent of the cost of the food served by the average school food authority. The remaining 83 percent is purchased locally by the school food authority.

Funding: For FY 1996, Congress appropriated $4.4 billion for the National School Lunch Program. Additional funding, totaling more than $673 million, is included for the purchase of entitlement commodity foods. The 1997 appropriation is $5.02 billion, plus an additional amount totaling more than $700 million for entitlement commodity purchases.

■ ***Nutrition Program Fact:***
USDA commodity foods make up only about 17 percent of the cost of foods that are served to children in the National School Lunch Program. Nonetheless, more than 1 billion pounds of food, valued at more than $670 million, was provided to schools by USDA in FY 1995.

The School Breakfast Program

The School Breakfast Program (SBP) provides cash assistance to States to operate nonprofit breakfast programs in eligible schools and residential child care institutions. The program operates in more than 65,000 schools and institutions, serving a daily average of more than 6.3 million children. The program is administered at the Federal level by FCS. State education agencies administer the program at the State level, and local school food authorities operate it in schools.

Eligibility: Any child at a participating school may purchase a meal through SBP. Children from families with incomes at or below 130 percent of the poverty level are eligible for free breakfasts. Children from families with incomes between 130 and 185 percent of the poverty level are eligible for reduced-price breakfasts. Children from families with incomes over 185 percent of poverty pay the full locally established price for their breakfasts.

Benefits: USDA supports the School Breakfast Program with cash reimbursements for meals served. For school year 1996-97, schools received reimbursements of $1.02 for a free meal, $.72 for a reduced-price meal, and $.20 for a paid meal. Schools may charge no more than 30 cents for a reduced-price breakfast. There is no Federal limit placed on how much a school may charge for breakfast served to paying students—those from families with incomes above 185 percent of poverty.

Funding: For FY 1996, Congress appropriated $1.2 billion for the SBP. The FY 1997 appropriation is also $1.2 billion.

■ ***Nutrition Program Fact:***
The vast majority of children who participate in the School Breakfast Program—about 90 percent—receive their meals free or at a reduced price. That compares to 54 percent of children who receive free or reduced-price meals in the National School Lunch Program.

The Nutrition Education and Training Program

The Nutrition Education and Training (NET) Program is the nutrition education component of the food assistance programs for children: the National School Lunch Program, School Breakfast, Summer Food Service, and Child and Adult Care Food Programs.

The goal of NET is to provide leadership in promoting healthy eating habits for our Nation's children by offering effective educational experiences to help children make informed food choices as part of a healthy lifestyle.

The Secretary of Agriculture allocates funds to States each year in the form of grants, usually to the State education agency. The States use their grant funds to administer their NET programs. Each State employs a NET coordinator who assesses the needs for nutrition education in the State and develops a plan to address the identified needs, establishing priorities for use of the funds available in a given year.

Eligibility: All children participating in or eligible to participate in the USDA Child Nutrition Programs may receive nutrition education through NET.

Funding: In FY 1996, Congress appropriated $10 million for the NET Program. For FY 1997, Congress made NET funding "discretionary," and the actual funding level has not been determined.

The WIC Program

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) is a grant program whose goal is to improve the health of pregnant, postpartum, and breastfeeding women, and infants and children up to 5 years old, by providing supplemental foods, nutrition education, and access to health care. A few State agencies provide food directly to participants, but most States provide WIC vouchers that can be used at authorized food stores for approved foods.

WIC provides each State with a set amount of money to serve its most needy WIC population. Because of documented successes of the WIC Program in improving the nutritional well-being of participants, it has received continuing political support, enabling it to expand to serve more eligible people. In FY 1996, preliminary figures showed that WIC served an average of more than 7.1 million people each month.

Eligibility: To be eligible for WIC, an applicant must meet State residency requirements, meet an income standard, and have been determined by a health professional to be at nutritional risk.

Benefits: In most States, WIC participants receive vouchers that allow them to purchase a monthly food package specially designed to supplement their diets. The foods provided are high in protein, calcium, iron, and vitamins A and C. WIC foods include iron-fortified infant formula and infant cereal; iron-fortified adult cereal; vitamin C-rich fruit or vegetable juice; eggs, milk, and cheese; and peanut butter, dried beans, or peas. Special therapeutic formulas and foods are provided when prescribed by a physician for a specified medical condition.

The Food and Consumer Service also encourages WIC mothers to breastfeed their babies whenever possible. WIC women who exclusively breastfeed their babies receive an enhanced food package that includes tuna and carrots.

Funding: The total appropriation for the WIC program in FY 1996 was $3.7 billion. For FY 1997, Congress also appropriated $3.7 billion.

■ ***Nutrition Program Fact:***
A 1990 USDA study showed WIC to be effective in improving the health of newborns and infants as well as mothers. Every $1 spent on WIC, the study reported, saved up to $3 in Medicaid costs.

■ ***Nutrition Program Fact:***
FCS requires all States to take bids from or negotiate with manufacturers for the best rebate on each can of WIC infant formula purchased. In 1995, infant formula rebates amounted to over $1 billion nationwide and funded services for nearly 1.6 million persons each month.

■ ***Nutrition Program Fact:***
USDA estimates that WIC serves 45 percent of babies born in the United States.

The WIC Farmers' Market Nutrition Program

The WIC Farmers' Market Nutrition Program (FMNP), established in 1992, is funded through a Congressionally mandated set-aside in the WIC appropriation. The program has two goals: To provide fresh, nutritious, unprepared food, such as fruits and vegetables, from farmers' markets to WIC participants who are at nutritional risk; and to expand consumers' awareness and use of farmers' markets. This program, operated in conjunction with the regular WIC Program, is offered in 31 States and other jurisdictions.

Eligibility: Women, infants over 4 months old, and children who receive WIC program benefits, or who are WIC-eligible, may participate.

Benefits: Fresh produce can be purchased with FMNP coupons. State agencies may limit FMNP sales to specific foods that are locally grown to encourage participants to support the farmers in their own State.

Funding: The amount set aside in the WIC appropriation for FMNP for FY 1996 was $6.75 million. The same amount was provided for FY 1997.

■ ***Nutrition Program Fact:***
Studies have shown that where the WIC Farmers' Market Nutrition Program has been available, WIC participants have consumed more fresh fruits and vegetables.

The Commodity Supplemental Food Program

The Commodity Supplemental Food Program (CSFP) is a program of grants to States, administered by FCS at the Federal level. CSFP provides commodity foods to supplement the diets of low-income infants; children up to the age of 6; pregnant, postpartum, and breastfeeding women; and persons 60 years of age and older.

CSFP operates at more than 70 sites in 17 States, the District of Columbia, and two Indian Tribal Organizations. USDA donates commodity foods to the State agencies for distribution, and provides funds to State and local agencies to cover certain administrative costs. The program served an average of more than 352,000 people each month in FY 1996.

Eligibility: State agencies that administer CSFP may establish a residency requirement and/or require applicants to be determined to be at nutritional risk in order to be eligible for program participation. To be income eligible, women, infants, and children must be eligible for benefits under existing Federal, State, or local food,

health, or welfare programs, and must not currently be receiving WIC benefits. Elderly persons must meet a low-income standard.

Benefits: There are six food packages for different categories of participants. The food packages are not intended to provide a complete and balanced diet, but rather are supplements that are good sources of the nutrients often lacking in participants' diets.

Funding: The 1996 appropriation for CSFP was $86 million. For FY 1997, Congress appropriated $166 million to be divided as the Secretary of Agriculture sees fit between CSFP and the Emergency Food Assistance Program (TEFAP).

The Child and Adult Care Food Program

The Child and Adult Care Food Program provides healthy meals and snacks in child and adult day care facilities.

CACFP ensures that children and adults in day care receive healthy meals by reimbursing participating day care operators for their meal costs and providing them with USDA commodity food. Family day care homes must be overseen by sponsoring organizations, which also receive reimbursements from USDA for their administrative expenses.

The program generally operates in child care centers, outside-school-hours care centers, family and group day care homes, and some adult day care centers. In return for Federal support, day care providers in the CACFP must serve meals that meet Federal guidelines, and must offer free or reduced-price meals to eligible people.

First authorized as a pilot project in 1975, the program was formerly known as the Child Care Food Program. It was made a permanent program in 1978, and the name was changed in 1989 to reflect the addition of an adult component. CACFP is administered at the Federal level by FCS. State agencies or FCS regional offices oversee the program at the local level.

In June 1996, CACFP provided meals to more than 2 million children and nearly 45,000 adults.

Eligibility: At child and adult day care centers, participants from families with income at or below 130 percent of the poverty level may qualify for free meals; those from families with income between 130 percent and 185 percent of the poverty level may qualify for reduced-price meals; and those from families with income above 185 percent of the poverty level pay full price.

Under the Welfare Reform Act of 1996, Congress instituted a two-tier system of reimbursements for family day care homes. Under the new system, day care providers located in low-income areas, or whose own households are low income, will be reimbursed at a single rate (tier 1 reimbursement). Other providers will be reimbursed at a lower rate (tier 2 reimbursement) unless they choose to have their sponsoring organizations identify children who are income-eligible to receive free or reduced-price meals. Meals served to such income-eligible children will be reimbursed at the higher tier I level.

Benefits: Children and adults who attend day care facilities receive nutritious meals and snacks. Care providers receive reimbursement for eligible meals. Family

day care sponsoring organizations receive reimbursement for their administrative costs.

Funding: Congress appropriated $1.6 billion for the CACFP in FY 1996. The 1997 appropriation is $1.7 billion.

> ■ ***Nutrition Program Fact:***
> *More than 185,000 family day care homes and 30,000 day care centers participate in the Child and Adult Care Food Program.*

The Homeless Children Nutrition Program

The Homeless Children Nutrition Program is designed to provide free food service throughout the year to homeless children under the age of 6 in emergency shelters. Sponsoring organizations are reimbursed for the meals that they serve. First established as a demonstration project by the Child Nutrition and WIC Reauthorization Act of 1989, the Homeless Children Nutrition Program was made permanent by the Healthy Meals for Healthy Americans Act of 1994. A total of 79 sponsoring organizations operate the program in 104 shelters, providing meals to more than 2,000 preschool-age children every month.

Eligibility: Public and private nonprofit organizations that operate emergency shelters may participate, but they may operate no more than five food service sites and may feed no more than 300 children per day at each site.

Benefits: Children may receive up to three meals and a snack, and sponsors are reimbursed for the meals and snacks they serve. Meals are provided free to the children.

Funding: For FY 1996, Congress appropriated $2.6 million for the Homeless Children Nutrition Program. For FY 1997, the appropriation is $3.1 million.

The Summer Food Service Program

The Summer Food Service Program provides free meals to low-income children during school vacations.

SFSP was first created as part of a larger pilot program in 1968, and became a separate program in 1975. The SFSP served more than 2 million children a day during the summer of 1995.

The program is administered at the Federal level by FCS. Locally, it is operated by approved sponsors, which receive reimbursement from USDA for the meals they serve.

Sponsors provide meals at a central site such as a school or community center. Any child, or any adult with a disability, within the program's operating area can participate. All meals are served free.

The Summer Food Service Program operates in low-income areas where half or more of the children are from households with income at or below 185 percent of the Federal poverty guideline. Feeding sites that primarily serve homeless children may

participate regardless of location. Residential camps also may get reimbursement for eligible children through the SFSP.

Eligibility: Children 18 and under, and people over 18 who are handicapped and who participate in a program established for the mentally or physically handicapped, may receive meals through the Summer Food Service Program.

Benefits: At most sites, participants receive either one or two meals a day. Residential camps and sites that primarily serve children from migrant households may be approved to serve up to four meals per day. Sponsors are reimbursed for documented operating and administrative costs.

Funding: Congress appropriated $280.3 million for the Summer Food Service Program in FY 1996. For FY 1997, the appropriation is $288.4 million.

> ■ ***Nutrition Program Fact:***
> *Some 25 million children eat school lunch every day when school is in session, and about half of them receive their meals free or at a reduced price. The Summer Food Service Program offers those children nutritious food when school is not in session. However, only about 2 million children currently are able to participate, because many communities do not sponsor the program.*

The Special Milk Program

The Special Milk Program provides milk to children in schools and child care institutions that do not participate in other Federal meal service programs. The program reimburses schools for the milk they serve.

Schools in the National School Lunch or School Breakfast Programs may also participate in the SMP to provide milk to children in half-day prekindergarten and kindergarten programs where children do not have access to the school meal programs.

Expansion of the National School Lunch and School Breakfast Programs, which include milk, has led to a substantial reduction in the SMP since its peak in the late 1960's.

Eligibility: Any child at a participating school or kindergarten program can get milk through the SMP. Children may buy milk or receive it free, depending on the school's choice of program options. When local officials offer free milk under the program, any child from a family that meets income guidelines for free meals and milk is eligible.

Benefits: Participating schools and institutions receive reimbursement from the Federal government for each half-pint of milk served. They must operate their milk programs on a nonprofit basis. They agree to use the Federal reimbursement to reduce the selling price of milk to all children.

Funding: Congress appropriated $18.6 million for the program in FY 1996. The 1997 appropriation is $19.2 million.

■ ***Nutrition Program Fact:***
In 1995, more than 151 million half-pints of milk were served through the Special Milk Program.

Nutrition Program for the Elderly

The Nutrition Program for the Elderly helps provide elderly persons with nutritionally sound meals through meals-on-wheels programs or in senior citizen centers and similar settings.

The NPE is administered by the U.S. Department of Health and Human Services, but receives commodity foods and financial support from USDA under provisions of the Older Americans Act of 1965. USDA provided reimbursement for more than 250 million meals in FY 1995.

Eligibility: Age is the only factor used in determining eligibility. People age 60 or older and their spouses, regardless of age, are eligible for NPE benefits. There is no income requirement to receive meals under NPE.

Benefits: Each recipient can contribute as much as he or she wishes toward the cost of the meal, but meals are free to those who cannot make any contribution.

Under NPE, USDA provides cash reimbursements and/or commodity foods to organizations that provide meals through DHHS programs. Meals served must meet a specified percentage of the Recommended Dietary Allowances (RDA's) in order to qualify for cash or commodity assistance.

Funding: Congress appropriated $150 million for NPE for 1996. The 1997 appropriation is $140 million.

■ ***Nutrition Program Fact:***
Indian tribal organizations may select an age below 60 for defining an "older" person for their tribes for purposes of eligibility for the Nutrition Program for the Elderly.

The Food Distribution Program on Indian Reservations

This program provides monthly food packages to Indians living on or near reservations and in the Marshall Islands of the Pacific. Many Native Americans participate in the FDPIR as an alternative to the Food Stamp Program if they do not have easy access to food stores. An average of nearly 114,000 Native Americans and 2,800 Marshall Islanders received food through FDPIR each month in 1995.

The program is administered at the Federal level by FCS in cooperation with State agencies. USDA provides food to the State agencies, which are responsible for program operations such as storage and distribution, eligibility certification, and nutrition education.

The foods in the current food packages were recommended in 1986 by a USDA task force to meet the health needs and preferences of Native Americans. USDA also provides nutrition information in the monthly food package, with suggestions for making the most nutritious use of the commodity foods.

Eligibility: To participate in FDPIR, the household must be low-income, have assets within specified limits, and be located on or near an Indian reservation. The income limits used to determine FDPIR eligibility are based on Food Stamp Program monthly income limits, but are slightly higher.

Benefits: USDA donates a variety of foods to help participants maintain a balanced diet. These commodities include canned meats and fish products; vegetables, fruits, and juices; dried beans; peanuts or peanut butter; milk, butter, and cheese; pasta, flour, or grains; adult cereals; corn syrup or honey; and vegetable oil and shortening.

Each program recipient receives a monthly food package that weighs 50 to 75 pounds and contains a variety of foods.

Funding: Congress appropriated $65 million for FDPIR in FY 1996. For FY 1997, Congress provided $73.8 million under Food Stamp Program funding for FDPIR.

■ ***Nutrition Program Fact:***
A recipe book, Quick & Easy Commodity Recipes for the Food Distribution Program on Indian Reservations, *was released for use by FDPIR participants in 1990. The book was developed as part of a 5-year nutrition education plan. USDA also distributes a series of 12 nutrition and health fact sheets for FDPIR participants.*

The Emergency Food Assistance Program

Originally named the Temporary Emergency Food Assistance Program, TEFAP provides food assistance to needy Americans through the distribution of USDA commodities. Under TEFAP, commodities are made available to States for distribution to households for use in preparing meals for home consumption, or to organizations that prepare and provide meals for needy people. Foods distributed for home use are free, but recipients must meet program eligibility criteria set by the States. Local agencies, usually food banks, shelters, and soup kitchens, are designated by the States to distribute the food.

TEFAP was first authorized in 1981 to distribute surplus commodities to households. Its aim was to help reduce Federal food inventories and storage costs while assisting the needy. The 1988 Hunger Prevention Act required the Secretary of Agriculture not only to distribute surplus foods, but also to purchase additional food for further distribution to needy households.

Available foods vary depending on market conditions. Typically, canned and dried fruits, canned vegetables, canned meats, peanut butter, butter, and cornmeal are available. Quantities of any particular commodity food vary, and States may rotate distribution of some foods from area to area so that each county receives its fair share at some time during the year.

Eligibility: Each State sets criteria for determining what households are eligible to receive food for home use. Income standards may include participation in any other existing Federal, State, or local food, health, or welfare program for which income is considered as a basis for eligibility.

Each State can adjust the income criteria based on the level of need in order to ensure that assistance is provided only to those most in need.

Benefits: An estimated 1.8 million households were served by TEFAP each month in FY 1995. TEFAP has provided billions of pounds of food since its beginning. More than 1 billion pounds, valued at $846 million, was distributed at the program's height in 1987. In 1995, nearly 96 million pounds of food, worth more than $52 million, was distributed.

Funding: Congress appropriated $40 million for TEFAP in 1996. Under the Welfare Reform Act of 1996, $100 million of the Food Stamp Program appropriation is earmarked specifically for the purchase of TEFAP commodities for fiscal years 1997 through 2002. For FY 1997, Congress appropriated $100 million under Food Stamp Program funding to purchase commodity foods for TEFAP. Another $166 million was also appropriated, to be divided between TEFAP and the Commodity Supplemental Food Program as the Secretary sees fit. The additional TEFAP funding could be used for additional food purchases, or to provide administrative support for the local agencies that handle TEFAP distribution.

Food Donations to Charitable Institutions, Soup Kitchens, and Food Banks

Thousands of charitable institutions throughout the country rely on foods donated by USDA to help provide meals to needy people. These charitable groups range from churches operating community kitchens for the homeless and destitute, to orphanages and homes for the elderly. Other eligible groups include meals-on-wheels programs, soup kitchens, temporary shelters, correctional institutions offering rehabilitative activities, group homes for the mentally retarded, and hospitals that offer general and long-term health care.

Foods donated to charitable institutions come from agricultural surpluses acquired by USDA as part of its price stabilization and surplus removal activities. In addition, States generally make commodities from TEFAP available to food banks, food pantries, shelters, and soup kitchens for use in providing food assistance to the needy.

Eligibility: To participate, charitable institutions must be nonprofit and must serve meals on a regular basis. They may be either public or nonprofit private institutions that have Federal tax-exempt status. Interested groups apply for participation to their State's distributing agency, which determines eligibility based on standards set by USDA.

Benefits: Throughout the year, USDA acquires a variety of foods through its programs designed to stabilize farm prices. USDA has this food processed, packaged, and transported to designated locations within each State. State distributing agencies supply the food to eligible institutions and other users of donated foods.

The kinds and quantities of food donated to charitable institutions vary, depending on crop and market conditions. Generally, the foods donated include such products as canned fruits, juices, and vegetables, frozen and canned meats, raisins, honey, and butter. Other foods may become available when there is a surplus, but such surpluses are usually limited in quantity. Many of the same foods are available for soup kitchens and food banks.

Funding: Congress appropriated $40 million for FY 1996 specifically to provide food to soup kitchens and food banks. The cost of foods donated to other charitable institutions varies depending on market conditions. For FY 1997, soup kitchens and food banks will receive food through TEFAP.

> ■ ***Nutrition Program Fact:***
> *In 1995, USDA provided more than 185 million pounds of food to charitable institutions, soup kitchens, and food banks.*

The Nutrition Assistance Programs in Puerto Rico and the Commonwealth of the Northern Mariana Islands

The Food Stamp Program in Puerto Rico and the Northern Marianas was replaced in 1982 by a block grant program. The two territories now provide cash and coupons to participants rather than food stamps or food distribution. The Nutrition Assistance Program (NAP) grant can also be used to fund up to 50 percent of Puerto Rico's administrative expenses for the program, or to fund special projects related to food production and distribution.

The NAP for the Commonwealth of the Northern Marianas provides annual block grant funds for food assistance to the needy. The Northern Marianas NAP uses food coupons, similar to food stamps used in the 50 States.

Eligibility: Puerto Rico and the Northern Marianas determine eligibility and allotments for their programs based on household size, income, assets, and other factors.

Benefits: The NAP in Puerto Rico served an average of 1.37 million persons in FY 1995. Average monthly benefits were $66.30 per person.

In the Northern Marianas, the NAP served an average of 3,842 people each month in 1994, with average monthly benefits of $77.06 per person.

Funding: The total appropriation for the NAP in Puerto Rico for FY 1996 was $1.143 billion. For 1997, the appropriation is $1.174 billion. The appropriation for the Northern Marianas was $5.1 million in FY 1996.

USDA Disaster Assistance

FCS is the primary Agency responsible for providing Federal food assistance in response to disasters. FCS provides assistance through the Food Distribution Program and the Disaster Food Stamp Program.

Food Distribution Program: FCS can provide USDA-donated food assistance through State distributing agencies. All States have some stocks of USDA food on hand for use in their commodity programs for schools or needy people. These stocks can be released immediately for use in a disaster situation.

Upon request from a State, FCS will procure additional food to meet the needs of people affected by a disaster. Nearby States also may be asked to release their stocks of USDA food to help feed disaster victims. State distributing agencies then distribute the food to preparation or distribution sites. Disaster relief agencies such as the American Red Cross prepare the food at shelters and other mass care facilities.

The State may also request that food be made available for household distribution, if commercial channels of food supply are not available because of the disaster.

Disaster Food Stamp Program: When commercial channels of food supply are still operable, or have been restored following a disaster, a State may request approval from the Secretary of Agriculture to operate the Disaster Food Stamp Program.

If approval is granted, FCS provides on-site guidance for establishing and operating the disaster program. FCS ensures that an adequate supply of food stamp coupons is available. State and local officials are responsible for determining the eligibility of households to receive disaster food stamps, and for issuing the benefits.

■ ***Nutrition Program Fact:***
In FY 1995, FCS provided nearly $1 million in commodities to areas struck by natural disasters:

State	***Commodities***
Texas (floods)	*$610,200*
California (floods)	*$303,950*
Total	*$914,150*

FY 1996 was a much harder year for natural disasters. According to early estimates, FCS provided more than $18 million during FY 1996 in commodities and disaster-related food stamp benefits to victims of floods and hurricanes.

- ***Nutrition Program Fact:***
  How to apply: People who want to apply for any of the nutrition assistance programs that FCS operates must do so through the appropriate State agency, since the programs are administered at the State and local levels by various public and private organizations. In general, applicants for the largest programs should contact the following State or local agencies:
  - *Food Stamp Program: State welfare agency*
  - *School Lunch or School Breakfast (free and reduced-price meals): Neighborhood school or local school authority*
  - *WIC program: State or local public health office*

  For programs not listed above, State and local welfare agencies, health departments, or education agencies can provide information about what programs are available and how and where to apply.

The Office of Consumer Affairs

The Office of Consumer Affairs (OCA) links FCS, consumer groups, and FCS program stakeholders. OCA advises the Under Secretary for Food, Nutrition, and Consumer Services on consumer and constituent issues and concerns.

OCA arranges periodic meetings, briefings, and roundtables on USDA and FCS policy for the public, consumer representatives, and program stakeholders. It provides public access to a wide range of USDA and FCS documents such as speeches, regulatory proposals, and studies, through the Internet and other electronic media, and it responds to consumer requests for assistance and information on USDA policy and procedures.

The OCA director reports to the Under Secretary for Food, Nutrition, and Consumer Services, and receives managerial and administrative support from FCS.

Center for Nutrition Policy and Promotion

The mission of the Center for Nutrition Policy and Promotion is to improve the nutritional status of Americans by serving as USDA's focal point for linking scientific research to the consumer.

The center was established in December 1994 at the direction of the Secretary of Agriculture. It is an independent resource in USDA working cooperatively with other departments and agencies to assist in providing strategic planning and coordination for nutrition policy and promotion. Through CNPP's nutrition promotion initiatives, nutrition research is translated into information and materials for health professionals, corporations, and consumers to increase public knowledge and understanding of the importance of good nutrition.

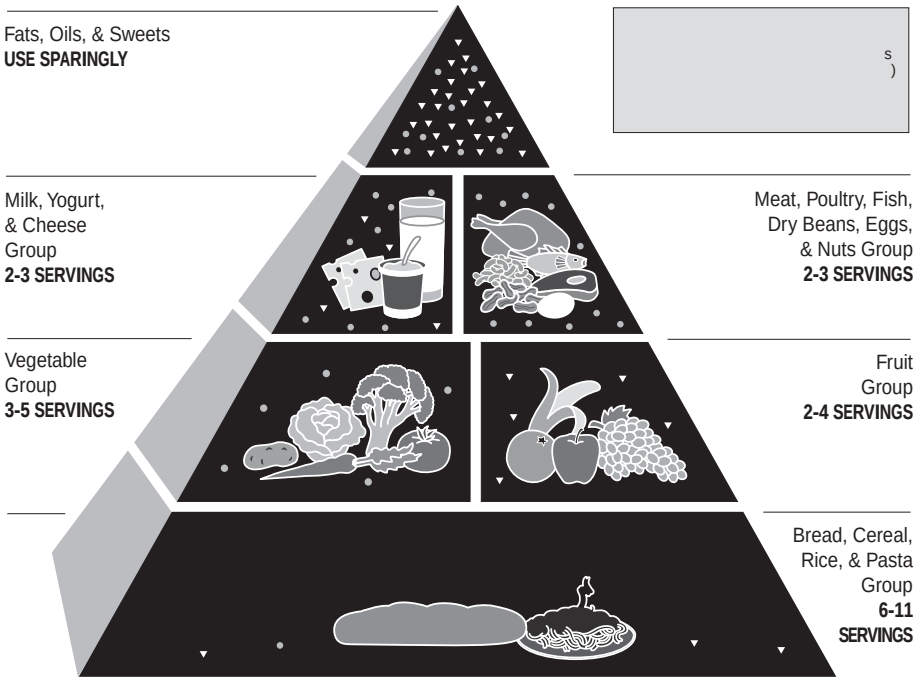
The Center, which receives administrative support from the Food and Consumer Service, was funded at $2.53 million for FY 1996.

Publications

CNPP produces several consumer and technical publications, including the following:

- **Family Economics and Nutrition Review**. The Center continues a long tradition of publishing the *Family Economics and Nutrition Review* (formerly the *Family Economics Review*). The quarterly journal, now in its 53rd year of publication, has expanded its scope to include nutrition-related issues and has added an editorial board of distinguished scientists. Each journal is typically in excess of 70 pages. The annual subscription rate is $8.00.
- **Dietary Guidelines for Americans (HG-232) and The Food Guide Pyramid (HG-252)**. The *1995 Dietary Guidelines for Americans* (HG-232) and *The Food Guide Pyramid* (HG-252) may be ordered in bulk from the Government Printing Office and in single copies from the Consumer Information Center in Pueblo, Colorado. The Guidelines and Pyramid are in the public domain, so they are not restricted by copyright provisions, and they may be downloaded from the CNPP Home Page. Contact the Center for guidance on using the Pyramid graphic.
- **The Healthy Eating Index**. *The Healthy Eating Index*, a measure of how Americans are eating in relation to the Dietary Guidelines, is available in single copies from the Center and is also available on the CNPP Home Page.

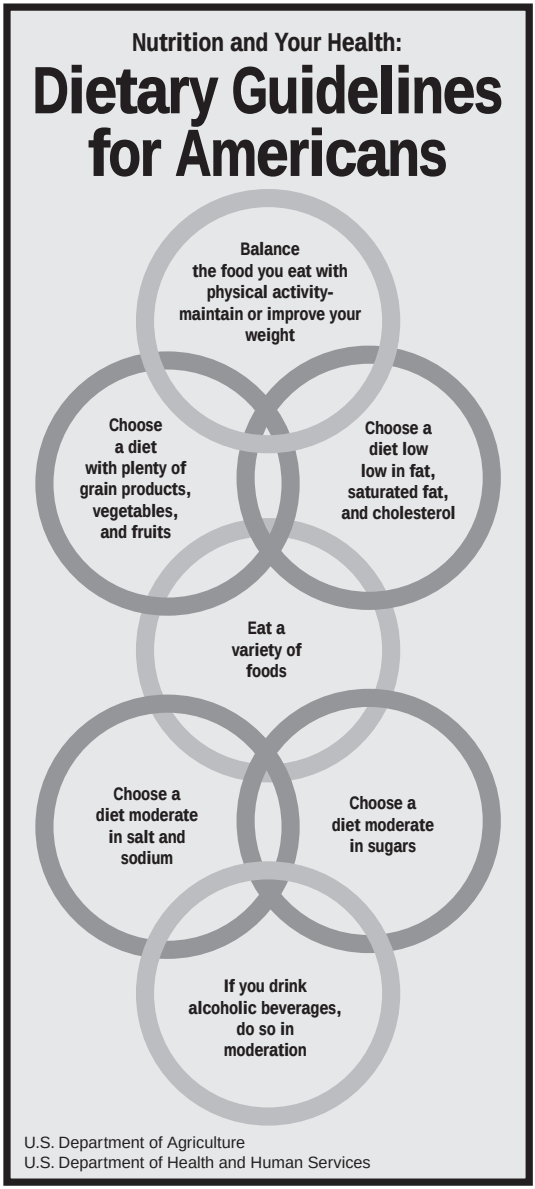
The Food Guide Pyramid



Source: U.S. Department of Agriculture/U.S. Department of Health and Human Services

- **Expenditures on Children by Families and The Cost of Food at Home**. The 1995 *Expenditures on Children by Families* and *The Cost of Food at Home Estimated for Food Plans at Four Cost Levels* are currently available in print from CNPP and electronically from the CNPP Home Page. *The Cost of Food at Home* is updated monthly.

A number of CNPP publications are available electronically via the Internet on the CNPP Home Page at: *http://www.usda.gov/fcs/cnpp.htm* For ordering information contact the center at 1120 20th Street, NW, Suite 200 North Lobby, Washington, DC 20036-3475. Telephone (202) 418-2312, Fax (202) 208-2321.



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Food and Consumer Service

Nutrition is one of USDA's central missions, and it is the bridge between the farmer and consumer. The Food and Consumer Service (FCS) administers USDA's nutrition assistance programs, with the dual mission of improving the Nation's health by getting food to people who need it, and strengthening the agricultural economy.

USDA has made nutrition and nutrition education integral components of all its domestic nutrition programs. These programs provide access to healthy diets for many needy Americans, and important markets for agricultural commodities. Overall, the nutrition programs reach one out of every five Americans.

At the same time, USDA is committed to ensuring that the programs operate accurately and efficiently. FCS works closely with the States to ensure that benefits are received only by those who are eligible, and to catch and punish people who seek to abuse the programs for their own gain.

For FY 1996, the total appropriation for the nutrition assistance programs was $39.9 billion—or nearly 65 percent of the entire USDA budget of $61.9 billion. The 1997 FCS appropriation is $40.4 billion.

Most of the programs are directed at low-income Americans or school children. They include:

- The Food Stamp Program
- The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)
- The National School Lunch Program
- The School Breakfast Program
- The Nutrition Education and Training Program
- The Emergency Food Assistance Program
- The Child and Adult Care Food Program
- The Homeless Children Nutrition Program
- The Commodity Supplemental Food Program
- The Summer Food Service Program
- The Special Milk Program
- The Nutrition Program for the Elderly
- The Food Distribution Program on Indian Reservations
- The WIC Farmers Market Nutrition Program
- The Commodity Distribution Program for Charitable Institutions
- The Nutrition Assistance Program in Puerto Rico and the Northern Mariana Islands

FCS is also the primary Federal Agency that delivers food assistance in response to disasters. The Agency includes an Office of Consumer Affairs.

> ■ ***Nutrition Program Fact:***
> *Determining eligibility: Many of USDA's nutrition programs use household income as a guideline for program eligibility. Depending on the program rules, household income of 100 percent, 130 percent, or 185 percent of the Federal poverty level may be used to determine levels of eligibility. For FY 1996, 100 percent of the poverty guideline was $15,600 a year for a family of four; 130 percent was $20,280 a year; and 185 percent was $28,860 a year. Federal poverty guidelines are established by the Office of Management and Budget, and are updated annually by the Department of Health and Human Services.*

The Food Stamp Program

The Food Stamp Program is the cornerstone of USDA's nutrition assistance programs. The program helps low-income households increase their food purchasing power and obtain a better diet. It is the primary source of nutrition assistance for low-income Americans. Initiated as a pilot program in 1961 and made permanent in 1964, the program issues monthly allotments of coupons that are redeemable at retail food stores, or provides benefits through Electronic Benefit Transfer (EBT).

The Food Stamp Program serves the most needy among the Nation's population. More than half of all food stamp participants are children. Almost 90 percent of all food stamp households have incomes below the Federal poverty level, and 41 percent have incomes that are half or less of the poverty level. Ten percent have no income at all.

Increasingly, paper food stamp coupons are being replaced by EBT, a computerized system in which participants use magnetic strip cards to access their food stamp account at the point of sale. As of August 1996, 5 States were operating EBT systems statewide, and a total of 14 States had operational EBT systems for all or part of their caseload. Almost all other States were in some stage of EBT development. By eliminating paper coupons and creating an electronic record of every food stamp transaction, EBT will be a useful tool in improving program delivery and in reducing certain types of food stamp fraud and trafficking.

EBT is only one component of FCS's commitment to Food Stamp Program integrity. The Agency works closely with the States to ensure that they issue benefits in the correct amounts, and only to people who are eligible. EBT has enhanced FCS's ability to catch those who abuse the program, and penalties have been increased for people who are caught. In addition, the Agency now has broader authority to review the performance of food retailers who participate in the program, and to quickly remove those who fail to follow program rules.

USDA also provides educational materials to integrate nutrition into the Food Stamp Program and to help food stamp recipients make better use of their benefits. More than 30 States have approved nutrition education plans, and receive Federal reimbursement for half of the cost of nutrition education and promotion activities. FCS provided seed money to 12 States in 1995 and to 10 States in 1996 for the development and evaluation of State nutrition support networks to foster public and private partnerships to extend nutrition promotion to more program participants.

Eligibility: Food stamp eligibility and allotments are based on household size and income, assets, and other factors. A household's gross monthly income cannot exceed 130 percent of the Federal poverty guidelines, and its net income cannot exceed 100 percent of the guidelines. Illegal aliens are not eligible to receive food stamp benefits, and the Welfare Reform Act of 1996 excluded many legal aliens from eligibility as well. In addition, the Act limited many able-bodied adults without dependents to 3 months of benefits in a 36-month period.

Benefits: The level of benefits a household receives is based on its household income. Average monthly benefits were more than $73 per person in 1996. Households with no income receive the maximum monthly allotment of food stamps—$400 for a family of four in FY 1997. The allotment is based on the cost of the Thrifty Food Plan, a low-cost model diet plan. The Food Stamp Program served an average of more than 25 million people each month in FY 1996.

Funding: The total Food Stamp Program appropriation was $26.5 billion in FY 1996. For FY 1997, the appropriation is $26.3 billion.

■ ***Nutrition Program Fact:***
How EBT works: Electronic Benefit Transfer (EBT) is a computerized system that allows food stamp customers to use a plastic card similar to a bank card to access their food stamp benefits. Eligible recipients have an account established for their monthly benefits. At the grocery checkout, they present the card, which is used to debit their food stamp account for the amount of eligible purchases. The funds are automatically transferred to the retailer's account, and an electronic record is made of the transaction. No money and no food stamps change hands.

The National School Lunch Program

The National School Lunch Program (NSLP) is a federally assisted meal program operating in more than 94,000 public and nonprofit private schools and residential child care institutions. It provides nutritionally balanced, low-cost or free lunches to almost 26 million children each school day.

The NSLP is usually administered by State education agencies, which operate the program through agreements with local school districts. FCS administers the program at the Federal level. School districts and independent schools that choose to take part in the lunch program receive cash reimbursement and donated commodity assistance from USDA for each meal they serve. In return, they must serve lunches

that meet Federal nutrition requirements, and they must offer free and reduced-price lunches to eligible children.

In 1994, in an effort to improve the nutritional quality of school meals, FCS launched the School Meals Initiative for Healthy Children, the first full-scale reform of the school lunch program since it was established in 1946. The centerpiece of the initiative was new regulations to update nutrition standards so that all school meals will meet the recommendations of the Dietary Guidelines for Americans. The new regulations became final in June 1995, and took effect at the beginning of school year 1996-97.

In support of USDA's School Meals Initiative, on October 6, 1994, Congress passed the Healthy Meals for Healthy Americans Act, requiring that all school meals conform to the Dietary Guidelines by school year 1996-97. The Healthy Meals for Children Act, passed in May 1996, expanded the range of menu planning options for schools, and reinforced the requirement that all school meals must meet the Dietary Guidelines.

Other elements of the initiative will teach and motivate children to make healthy food choices, cut administrative red tape, and continue to improve the quality of the commodities USDA provides to schools.

Recognizing that improved nutrition education empowers students to make healthy food choices, USDA established Team Nutrition as a part of the School Meals Initiative. Team Nutrition brings together public/private partnerships to implement a nutrition education program for children, as well as a training and technical assistance program to help school foodservice professionals deliver healthy school meals.

The campaign has produced significant results. USDA formed a groundbreaking partnership with the Walt Disney Company to develop healthy eating messages to be used on television. USDA also entered into a partnership with Scholastic, Inc., to deliver age-appropriate nutrition information to children in school and to their parents at home.

The second component of Team Nutrition, the Training and Technical Assistance Program, was designed to ensure that school nutrition and food service personnel have the education, motivation, training, and skills necessary to serve meals that meet USDA's nutrition standards and appeal to children.

The Department has also placed special emphasis on improving the quality of commodities donated to the National School Lunch Program. The Commodities Improvement Council was established in 1995 to promote the health of school children by improving the nutritional profile of USDA commodities while maintaining USDA's support for domestic agricultural markets. Based on the council's recommendations, USDA reduced the fat, sodium, and sugar content of commodities, and is now offering a wider variety of new low-fat and reduced-fat products.

USDA has made enormous progress in increasing the amount of fresh produce given to schools, and is now offering unprecedented amounts and varieties of fresh fruit and vegetables. A cooperative project with the Department of Defense (DOD) has allowed USDA to increase the variety of produce available to schools by utilizing DOD's buying and distribution system.

Eligibility: Any child, regardless of family income level, can purchase a meal through the NSLP. Children from families with incomes at or below 130 percent of

poverty are eligible to receive free meals. Children from families with incomes between 130 and 185 percent of poverty are eligible for reduced-price meals. Children from families with incomes over 185 percent of poverty pay the full, locally established price.

Benefits: Most of the support USDA provides to schools comes in the form of cash reimbursements for meals served. The reimbursement is highest for meals served to students who qualify to receive their meals free, and the lowest reimbursement is for students who pay full price. The cash reimbursement rates for school year 1996-97 were: Free, $1.84; reduced price, $1.44; and full price, $.18. Schools may charge no more than 40 cents for a reduced-price meal.

In addition to cash reimbursements, schools are entitled to receive commodity foods, called "entitlement" foods, at an annually adjusted per-meal rate (currently 15 cents) for each meal they serve. Schools can receive additional commodities, known as "bonus" commodities, when these are available from surplus stocks purchased by USDA under price support programs. USDA commodities make up approximately 17 percent of the cost of the food served by the average school food authority. The remaining 83 percent is purchased locally by the school food authority.

Funding: For FY 1996, Congress appropriated $4.4 billion for the National School Lunch Program. Additional funding, totaling more than $673 million, is included for the purchase of entitlement commodity foods. The 1997 appropriation is $5.02 billion, plus an additional amount totaling more than $700 million for entitlement commodity purchases.

■ ***Nutrition Program Fact:***
USDA commodity foods make up only about 17 percent of the cost of foods that are served to children in the National School Lunch Program. Nonetheless, more than 1 billion pounds of food, valued at more than $670 million, was provided to schools by USDA in FY 1995.

The School Breakfast Program

The School Breakfast Program (SBP) provides cash assistance to States to operate nonprofit breakfast programs in eligible schools and residential child care institutions. The program operates in more than 65,000 schools and institutions, serving a daily average of more than 6.3 million children. The program is administered at the Federal level by FCS. State education agencies administer the program at the State level, and local school food authorities operate it in schools.

Eligibility: Any child at a participating school may purchase a meal through SBP. Children from families with incomes at or below 130 percent of the poverty level are eligible for free breakfasts. Children from families with incomes between 130 and 185 percent of the poverty level are eligible for reduced-price breakfasts. Children from families with incomes over 185 percent of poverty pay the full locally established price for their breakfasts.

Benefits: USDA supports the School Breakfast Program with cash reimbursements for meals served. For school year 1996-97, schools received reimbursements of $1.02 for a free meal, $.72 for a reduced-price meal, and $.20 for a paid meal. Schools may charge no more than 30 cents for a reduced-price breakfast. There is no Federal limit placed on how much a school may charge for breakfast served to paying students—those from families with incomes above 185 percent of poverty.

Funding: For FY 1996, Congress appropriated $1.2 billion for the SBP. The FY 1997 appropriation is also $1.2 billion.

■ ***Nutrition Program Fact:***
The vast majority of children who participate in the School Breakfast Program—about 90 percent—receive their meals free or at a reduced price. That compares to 54 percent of children who receive free or reduced-price meals in the National School Lunch Program.

The Nutrition Education and Training Program

The Nutrition Education and Training (NET) Program is the nutrition education component of the food assistance programs for children: the National School Lunch Program, School Breakfast, Summer Food Service, and Child and Adult Care Food Programs.

The goal of NET is to provide leadership in promoting healthy eating habits for our Nation's children by offering effective educational experiences to help children make informed food choices as part of a healthy lifestyle.

The Secretary of Agriculture allocates funds to States each year in the form of grants, usually to the State education agency. The States use their grant funds to administer their NET programs. Each State employs a NET coordinator who assesses the needs for nutrition education in the State and develops a plan to address the identified needs, establishing priorities for use of the funds available in a given year.

Eligibility: All children participating in or eligible to participate in the USDA Child Nutrition Programs may receive nutrition education through NET.

Funding: In FY 1996, Congress appropriated $10 million for the NET Program. For FY 1997, Congress made NET funding "discretionary," and the actual funding level has not been determined.

The WIC Program

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) is a grant program whose goal is to improve the health of pregnant, postpartum, and breastfeeding women, and infants and children up to 5 years old, by providing supplemental foods, nutrition education, and access to health care. A few State agencies provide food directly to participants, but most States provide WIC vouchers that can be used at authorized food stores for approved foods.

WIC provides each State with a set amount of money to serve its most needy WIC population. Because of documented successes of the WIC Program in improving the nutritional well-being of participants, it has received continuing political support, enabling it to expand to serve more eligible people. In FY 1996, preliminary figures showed that WIC served an average of more than 7.1 million people each month.

Eligibility: To be eligible for WIC, an applicant must meet State residency requirements, meet an income standard, and have been determined by a health professional to be at nutritional risk.

Benefits: In most States, WIC participants receive vouchers that allow them to purchase a monthly food package specially designed to supplement their diets. The foods provided are high in protein, calcium, iron, and vitamins A and C. WIC foods include iron-fortified infant formula and infant cereal; iron-fortified adult cereal; vitamin C-rich fruit or vegetable juice; eggs, milk, and cheese; and peanut butter, dried beans, or peas. Special therapeutic formulas and foods are provided when prescribed by a physician for a specified medical condition.

The Food and Consumer Service also encourages WIC mothers to breastfeed their babies whenever possible. WIC women who exclusively breastfeed their babies receive an enhanced food package that includes tuna and carrots.

Funding: The total appropriation for the WIC program in FY 1996 was $3.7 billion. For FY 1997, Congress also appropriated $3.7 billion.

■ ***Nutrition Program Fact:***
A 1990 USDA study showed WIC to be effective in improving the health of newborns and infants as well as mothers. Every $1 spent on WIC, the study reported, saved up to $3 in Medicaid costs.

■ ***Nutrition Program Fact:***
FCS requires all States to take bids from or negotiate with manufacturers for the best rebate on each can of WIC infant formula purchased. In 1995, infant formula rebates amounted to over $1 billion nationwide and funded services for nearly 1.6 million persons each month.

■ ***Nutrition Program Fact:***
USDA estimates that WIC serves 45 percent of babies born in the United States.

The WIC Farmers' Market Nutrition Program

The WIC Farmers' Market Nutrition Program (FMNP), established in 1992, is funded through a Congressionally mandated set-aside in the WIC appropriation. The program has two goals: To provide fresh, nutritious, unprepared food, such as fruits and vegetables, from farmers' markets to WIC participants who are at nutritional risk; and to expand consumers' awareness and use of farmers' markets. This program, operated in conjunction with the regular WIC Program, is offered in 31 States and other jurisdictions.

Eligibility: Women, infants over 4 months old, and children who receive WIC program benefits, or who are WIC-eligible, may participate.

Benefits: Fresh produce can be purchased with FMNP coupons. State agencies may limit FMNP sales to specific foods that are locally grown to encourage participants to support the farmers in their own State.

Funding: The amount set aside in the WIC appropriation for FMNP for FY 1996 was $6.75 million. The same amount was provided for FY 1997.

■ ***Nutrition Program Fact:***
Studies have shown that where the WIC Farmers' Market Nutrition Program has been available, WIC participants have consumed more fresh fruits and vegetables.

The Commodity Supplemental Food Program

The Commodity Supplemental Food Program (CSFP) is a program of grants to States, administered by FCS at the Federal level. CSFP provides commodity foods to supplement the diets of low-income infants; children up to the age of 6; pregnant, postpartum, and breastfeeding women; and persons 60 years of age and older.

CSFP operates at more than 70 sites in 17 States, the District of Columbia, and two Indian Tribal Organizations. USDA donates commodity foods to the State agencies for distribution, and provides funds to State and local agencies to cover certain administrative costs. The program served an average of more than 352,000 people each month in FY 1996.

Eligibility: State agencies that administer CSFP may establish a residency requirement and/or require applicants to be determined to be at nutritional risk in order to be eligible for program participation. To be income eligible, women, infants, and children must be eligible for benefits under existing Federal, State, or local food,

health, or welfare programs, and must not currently be receiving WIC benefits. Elderly persons must meet a low-income standard.

Benefits: There are six food packages for different categories of participants. The food packages are not intended to provide a complete and balanced diet, but rather are supplements that are good sources of the nutrients often lacking in participants' diets.

Funding: The 1996 appropriation for CSFP was $86 million. For FY 1997, Congress appropriated $166 million to be divided as the Secretary of Agriculture sees fit between CSFP and the Emergency Food Assistance Program (TEFAP).

The Child and Adult Care Food Program

The Child and Adult Care Food Program provides healthy meals and snacks in child and adult day care facilities.

CACFP ensures that children and adults in day care receive healthy meals by reimbursing participating day care operators for their meal costs and providing them with USDA commodity food. Family day care homes must be overseen by sponsoring organizations, which also receive reimbursements from USDA for their administrative expenses.

The program generally operates in child care centers, outside-school-hours care centers, family and group day care homes, and some adult day care centers. In return for Federal support, day care providers in the CACFP must serve meals that meet Federal guidelines, and must offer free or reduced-price meals to eligible people.

First authorized as a pilot project in 1975, the program was formerly known as the Child Care Food Program. It was made a permanent program in 1978, and the name was changed in 1989 to reflect the addition of an adult component. CACFP is administered at the Federal level by FCS. State agencies or FCS regional offices oversee the program at the local level.

In June 1996, CACFP provided meals to more than 2 million children and nearly 45,000 adults.

Eligibility: At child and adult day care centers, participants from families with income at or below 130 percent of the poverty level may qualify for free meals; those from families with income between 130 percent and 185 percent of the poverty level may qualify for reduced-price meals; and those from families with income above 185 percent of the poverty level pay full price.

Under the Welfare Reform Act of 1996, Congress instituted a two-tier system of reimbursements for family day care homes. Under the new system, day care providers located in low-income areas, or whose own households are low income, will be reimbursed at a single rate (tier 1 reimbursement). Other providers will be reimbursed at a lower rate (tier 2 reimbursement) unless they choose to have their sponsoring organizations identify children who are income-eligible to receive free or reduced-price meals. Meals served to such income-eligible children will be reimbursed at the higher tier I level.

Benefits: Children and adults who attend day care facilities receive nutritious meals and snacks. Care providers receive reimbursement for eligible meals. Family

day care sponsoring organizations receive reimbursement for their administrative costs.

Funding: Congress appropriated $1.6 billion for the CACFP in FY 1996. The 1997 appropriation is $1.7 billion.

> ■ ***Nutrition Program Fact:***
> *More than 185,000 family day care homes and 30,000 day care centers participate in the Child and Adult Care Food Program.*

The Homeless Children Nutrition Program

The Homeless Children Nutrition Program is designed to provide free food service throughout the year to homeless children under the age of 6 in emergency shelters. Sponsoring organizations are reimbursed for the meals that they serve. First established as a demonstration project by the Child Nutrition and WIC Reauthorization Act of 1989, the Homeless Children Nutrition Program was made permanent by the Healthy Meals for Healthy Americans Act of 1994. A total of 79 sponsoring organizations operate the program in 104 shelters, providing meals to more than 2,000 preschool-age children every month.

Eligibility: Public and private nonprofit organizations that operate emergency shelters may participate, but they may operate no more than five food service sites and may feed no more than 300 children per day at each site.

Benefits: Children may receive up to three meals and a snack, and sponsors are reimbursed for the meals and snacks they serve. Meals are provided free to the children.

Funding: For FY 1996, Congress appropriated $2.6 million for the Homeless Children Nutrition Program. For FY 1997, the appropriation is $3.1 million.

The Summer Food Service Program

The Summer Food Service Program provides free meals to low-income children during school vacations.

SFSP was first created as part of a larger pilot program in 1968, and became a separate program in 1975. The SFSP served more than 2 million children a day during the summer of 1995.

The program is administered at the Federal level by FCS. Locally, it is operated by approved sponsors, which receive reimbursement from USDA for the meals they serve.

Sponsors provide meals at a central site such as a school or community center. Any child, or any adult with a disability, within the program's operating area can participate. All meals are served free.

The Summer Food Service Program operates in low-income areas where half or more of the children are from households with income at or below 185 percent of the Federal poverty guideline. Feeding sites that primarily serve homeless children may

participate regardless of location. Residential camps also may get reimbursement for eligible children through the SFSP.

Eligibility: Children 18 and under, and people over 18 who are handicapped and who participate in a program established for the mentally or physically handicapped, may receive meals through the Summer Food Service Program.

Benefits: At most sites, participants receive either one or two meals a day. Residential camps and sites that primarily serve children from migrant households may be approved to serve up to four meals per day. Sponsors are reimbursed for documented operating and administrative costs.

Funding: Congress appropriated $280.3 million for the Summer Food Service Program in FY 1996. For FY 1997, the appropriation is $288.4 million.

> ■ ***Nutrition Program Fact:***
> *Some 25 million children eat school lunch every day when school is in session, and about half of them receive their meals free or at a reduced price. The Summer Food Service Program offers those children nutritious food when school is not in session. However, only about 2 million children currently are able to participate, because many communities do not sponsor the program.*

The Special Milk Program

The Special Milk Program provides milk to children in schools and child care institutions that do not participate in other Federal meal service programs. The program reimburses schools for the milk they serve.

Schools in the National School Lunch or School Breakfast Programs may also participate in the SMP to provide milk to children in half-day prekindergarten and kindergarten programs where children do not have access to the school meal programs.

Expansion of the National School Lunch and School Breakfast Programs, which include milk, has led to a substantial reduction in the SMP since its peak in the late 1960's.

Eligibility: Any child at a participating school or kindergarten program can get milk through the SMP. Children may buy milk or receive it free, depending on the school's choice of program options. When local officials offer free milk under the program, any child from a family that meets income guidelines for free meals and milk is eligible.

Benefits: Participating schools and institutions receive reimbursement from the Federal government for each half-pint of milk served. They must operate their milk programs on a nonprofit basis. They agree to use the Federal reimbursement to reduce the selling price of milk to all children.

Funding: Congress appropriated $18.6 million for the program in FY 1996. The 1997 appropriation is $19.2 million.

■ ***Nutrition Program Fact:***
In 1995, more than 151 million half-pints of milk were served through the Special Milk Program.

Nutrition Program for the Elderly

The Nutrition Program for the Elderly helps provide elderly persons with nutritionally sound meals through meals-on-wheels programs or in senior citizen centers and similar settings.

The NPE is administered by the U.S. Department of Health and Human Services, but receives commodity foods and financial support from USDA under provisions of the Older Americans Act of 1965. USDA provided reimbursement for more than 250 million meals in FY 1995.

Eligibility: Age is the only factor used in determining eligibility. People age 60 or older and their spouses, regardless of age, are eligible for NPE benefits. There is no income requirement to receive meals under NPE.

Benefits: Each recipient can contribute as much as he or she wishes toward the cost of the meal, but meals are free to those who cannot make any contribution.

Under NPE, USDA provides cash reimbursements and/or commodity foods to organizations that provide meals through DHHS programs. Meals served must meet a specified percentage of the Recommended Dietary Allowances (RDA's) in order to qualify for cash or commodity assistance.

Funding: Congress appropriated $150 million for NPE for 1996. The 1997 appropriation is $140 million.

■ ***Nutrition Program Fact:***
Indian tribal organizations may select an age below 60 for defining an "older" person for their tribes for purposes of eligibility for the Nutrition Program for the Elderly.

The Food Distribution Program on Indian Reservations

This program provides monthly food packages to Indians living on or near reservations and in the Marshall Islands of the Pacific. Many Native Americans participate in the FDPIR as an alternative to the Food Stamp Program if they do not have easy access to food stores. An average of nearly 114,000 Native Americans and 2,800 Marshall Islanders received food through FDPIR each month in 1995.

The program is administered at the Federal level by FCS in cooperation with State agencies. USDA provides food to the State agencies, which are responsible for program operations such as storage and distribution, eligibility certification, and nutrition education.

The foods in the current food packages were recommended in 1986 by a USDA task force to meet the health needs and preferences of Native Americans. USDA also provides nutrition information in the monthly food package, with suggestions for making the most nutritious use of the commodity foods.

Eligibility: To participate in FDPIR, the household must be low-income, have assets within specified limits, and be located on or near an Indian reservation. The income limits used to determine FDPIR eligibility are based on Food Stamp Program monthly income limits, but are slightly higher.

Benefits: USDA donates a variety of foods to help participants maintain a balanced diet. These commodities include canned meats and fish products; vegetables, fruits, and juices; dried beans; peanuts or peanut butter; milk, butter, and cheese; pasta, flour, or grains; adult cereals; corn syrup or honey; and vegetable oil and shortening.

Each program recipient receives a monthly food package that weighs 50 to 75 pounds and contains a variety of foods.

Funding: Congress appropriated $65 million for FDPIR in FY 1996. For FY 1997, Congress provided $73.8 million under Food Stamp Program funding for FDPIR.

■ ***Nutrition Program Fact:***
A recipe book, Quick & Easy Commodity Recipes for the Food Distribution Program on Indian Reservations, *was released for use by FDPIR participants in 1990. The book was developed as part of a 5-year nutrition education plan. USDA also distributes a series of 12 nutrition and health fact sheets for FDPIR participants.*

The Emergency Food Assistance Program

Originally named the Temporary Emergency Food Assistance Program, TEFAP provides food assistance to needy Americans through the distribution of USDA commodities. Under TEFAP, commodities are made available to States for distribution to households for use in preparing meals for home consumption, or to organizations that prepare and provide meals for needy people. Foods distributed for home use are free, but recipients must meet program eligibility criteria set by the States. Local agencies, usually food banks, shelters, and soup kitchens, are designated by the States to distribute the food.

TEFAP was first authorized in 1981 to distribute surplus commodities to households. Its aim was to help reduce Federal food inventories and storage costs while assisting the needy. The 1988 Hunger Prevention Act required the Secretary of Agriculture not only to distribute surplus foods, but also to purchase additional food for further distribution to needy households.

Available foods vary depending on market conditions. Typically, canned and dried fruits, canned vegetables, canned meats, peanut butter, butter, and cornmeal are available. Quantities of any particular commodity food vary, and States may rotate distribution of some foods from area to area so that each county receives its fair share at some time during the year.

Eligibility: Each State sets criteria for determining what households are eligible to receive food for home use. Income standards may include participation in any other existing Federal, State, or local food, health, or welfare program for which income is considered as a basis for eligibility.

Each State can adjust the income criteria based on the level of need in order to ensure that assistance is provided only to those most in need.

Benefits: An estimated 1.8 million households were served by TEFAP each month in FY 1995. TEFAP has provided billions of pounds of food since its beginning. More than 1 billion pounds, valued at $846 million, was distributed at the program's height in 1987. In 1995, nearly 96 million pounds of food, worth more than $52 million, was distributed.

Funding: Congress appropriated $40 million for TEFAP in 1996. Under the Welfare Reform Act of 1996, $100 million of the Food Stamp Program appropriation is earmarked specifically for the purchase of TEFAP commodities for fiscal years 1997 through 2002. For FY 1997, Congress appropriated $100 million under Food Stamp Program funding to purchase commodity foods for TEFAP. Another $166 million was also appropriated, to be divided between TEFAP and the Commodity Supplemental Food Program as the Secretary sees fit. The additional TEFAP funding could be used for additional food purchases, or to provide administrative support for the local agencies that handle TEFAP distribution.

Food Donations to Charitable Institutions, Soup Kitchens, and Food Banks

Thousands of charitable institutions throughout the country rely on foods donated by USDA to help provide meals to needy people. These charitable groups range from churches operating community kitchens for the homeless and destitute, to orphanages and homes for the elderly. Other eligible groups include meals-on-wheels programs, soup kitchens, temporary shelters, correctional institutions offering rehabilitative activities, group homes for the mentally retarded, and hospitals that offer general and long-term health care.

Foods donated to charitable institutions come from agricultural surpluses acquired by USDA as part of its price stabilization and surplus removal activities. In addition, States generally make commodities from TEFAP available to food banks, food pantries, shelters, and soup kitchens for use in providing food assistance to the needy.

Eligibility: To participate, charitable institutions must be nonprofit and must serve meals on a regular basis. They may be either public or nonprofit private institutions that have Federal tax-exempt status. Interested groups apply for participation to their State's distributing agency, which determines eligibility based on standards set by USDA.

Benefits: Throughout the year, USDA acquires a variety of foods through its programs designed to stabilize farm prices. USDA has this food processed, packaged, and transported to designated locations within each State. State distributing agencies supply the food to eligible institutions and other users of donated foods.

The kinds and quantities of food donated to charitable institutions vary, depending on crop and market conditions. Generally, the foods donated include such products as canned fruits, juices, and vegetables, frozen and canned meats, raisins, honey, and butter. Other foods may become available when there is a surplus, but such surpluses are usually limited in quantity. Many of the same foods are available for soup kitchens and food banks.

Funding: Congress appropriated $40 million for FY 1996 specifically to provide food to soup kitchens and food banks. The cost of foods donated to other charitable institutions varies depending on market conditions. For FY 1997, soup kitchens and food banks will receive food through TEFAP.

> ■ ***Nutrition Program Fact:***
> *In 1995, USDA provided more than 185 million pounds of food to charitable institutions, soup kitchens, and food banks.*

The Nutrition Assistance Programs in Puerto Rico and the Commonwealth of the Northern Mariana Islands

The Food Stamp Program in Puerto Rico and the Northern Marianas was replaced in 1982 by a block grant program. The two territories now provide cash and coupons to participants rather than food stamps or food distribution. The Nutrition Assistance Program (NAP) grant can also be used to fund up to 50 percent of Puerto Rico's administrative expenses for the program, or to fund special projects related to food production and distribution.

The NAP for the Commonwealth of the Northern Marianas provides annual block grant funds for food assistance to the needy. The Northern Marianas NAP uses food coupons, similar to food stamps used in the 50 States.

Eligibility: Puerto Rico and the Northern Marianas determine eligibility and allotments for their programs based on household size, income, assets, and other factors.

Benefits: The NAP in Puerto Rico served an average of 1.37 million persons in FY 1995. Average monthly benefits were $66.30 per person.

In the Northern Marianas, the NAP served an average of 3,842 people each month in 1994, with average monthly benefits of $77.06 per person.

Funding: The total appropriation for the NAP in Puerto Rico for FY 1996 was $1.143 billion. For 1997, the appropriation is $1.174 billion. The appropriation for the Northern Marianas was $5.1 million in FY 1996.

USDA Disaster Assistance

FCS is the primary Agency responsible for providing Federal food assistance in response to disasters. FCS provides assistance through the Food Distribution Program and the Disaster Food Stamp Program.

Food Distribution Program: FCS can provide USDA-donated food assistance through State distributing agencies. All States have some stocks of USDA food on hand for use in their commodity programs for schools or needy people. These stocks can be released immediately for use in a disaster situation.

Upon request from a State, FCS will procure additional food to meet the needs of people affected by a disaster. Nearby States also may be asked to release their stocks of USDA food to help feed disaster victims. State distributing agencies then distribute the food to preparation or distribution sites. Disaster relief agencies such as the American Red Cross prepare the food at shelters and other mass care facilities.

The State may also request that food be made available for household distribution, if commercial channels of food supply are not available because of the disaster.

Disaster Food Stamp Program: When commercial channels of food supply are still operable, or have been restored following a disaster, a State may request approval from the Secretary of Agriculture to operate the Disaster Food Stamp Program.

If approval is granted, FCS provides on-site guidance for establishing and operating the disaster program. FCS ensures that an adequate supply of food stamp coupons is available. State and local officials are responsible for determining the eligibility of households to receive disaster food stamps, and for issuing the benefits.

■ ***Nutrition Program Fact:***
In FY 1995, FCS provided nearly $1 million in commodities to areas struck by natural disasters:

State	***Commodities***
Texas (floods)	*$610,200*
California (floods)	*$303,950*
Total	*$914,150*

FY 1996 was a much harder year for natural disasters. According to early estimates, FCS provided more than $18 million during FY 1996 in commodities and disaster-related food stamp benefits to victims of floods and hurricanes.

- ***Nutrition Program Fact:***
  How to apply: People who want to apply for any of the nutrition assistance programs that FCS operates must do so through the appropriate State agency, since the programs are administered at the State and local levels by various public and private organizations. In general, applicants for the largest programs should contact the following State or local agencies:
  - *Food Stamp Program: State welfare agency*
  - *School Lunch or School Breakfast (free and reduced-price meals): Neighborhood school or local school authority*
  - *WIC program: State or local public health office*

  For programs not listed above, State and local welfare agencies, health departments, or education agencies can provide information about what programs are available and how and where to apply.

The Office of Consumer Affairs

The Office of Consumer Affairs (OCA) links FCS, consumer groups, and FCS program stakeholders. OCA advises the Under Secretary for Food, Nutrition, and Consumer Services on consumer and constituent issues and concerns.

OCA arranges periodic meetings, briefings, and roundtables on USDA and FCS policy for the public, consumer representatives, and program stakeholders. It provides public access to a wide range of USDA and FCS documents such as speeches, regulatory proposals, and studies, through the Internet and other electronic media, and it responds to consumer requests for assistance and information on USDA policy and procedures.

The OCA director reports to the Under Secretary for Food, Nutrition, and Consumer Services, and receives managerial and administrative support from FCS.

Center for Nutrition Policy and Promotion

The mission of the Center for Nutrition Policy and Promotion is to improve the nutritional status of Americans by serving as USDA's focal point for linking scientific research to the consumer.

The center was established in December 1994 at the direction of the Secretary of Agriculture. It is an independent resource in USDA working cooperatively with other departments and agencies to assist in providing strategic planning and coordination for nutrition policy and promotion. Through CNPP's nutrition promotion initiatives, nutrition research is translated into information and materials for health professionals, corporations, and consumers to increase public knowledge and understanding of the importance of good nutrition.

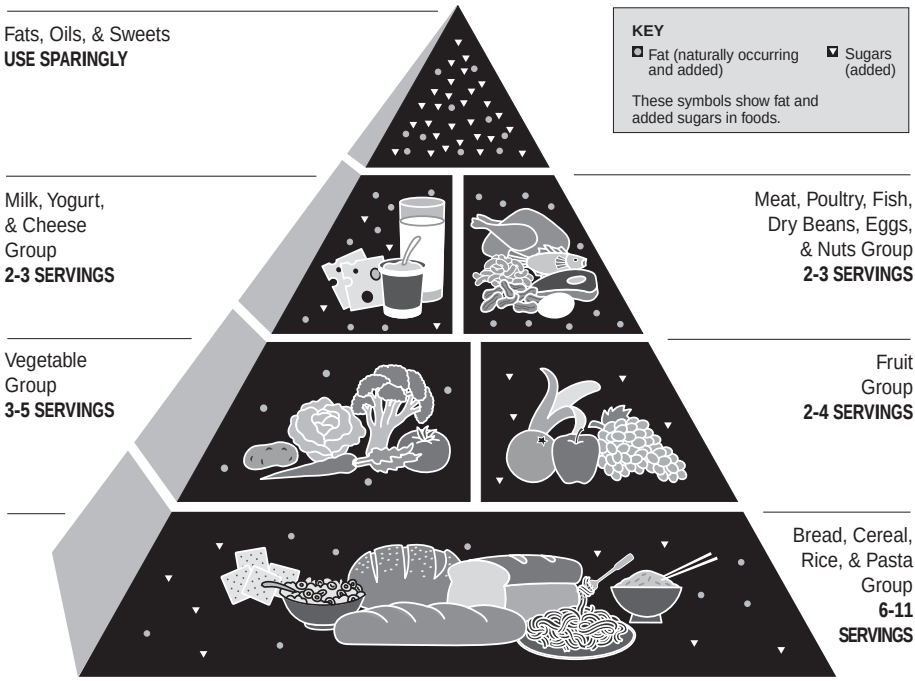
The Center, which receives administrative support from the Food and Consumer Service, was funded at $2.53 million for FY 1996.

Publications

CNPP produces several consumer and technical publications, including the following:

- **Family Economics and Nutrition Review**. The Center continues a long tradition of publishing the *Family Economics and Nutrition Review* (formerly the *Family Economics Review*). The quarterly journal, now in its 53rd year of publication, has expanded its scope to include nutrition-related issues and has added an editorial board of distinguished scientists. Each journal is typically in excess of 70 pages. The annual subscription rate is $8.00.
- **Dietary Guidelines for Americans (HG-232) and The Food Guide Pyramid (HG-252)**. The *1995 Dietary Guidelines for Americans* (HG-232) and *The Food Guide Pyramid* (HG-252) may be ordered in bulk from the Government Printing Office and in single copies from the Consumer Information Center in Pueblo, Colorado. The Guidelines and Pyramid are in the public domain, so they are not restricted by copyright provisions, and they may be downloaded from the CNPP Home Page. Contact the Center for guidance on using the Pyramid graphic.
- **The Healthy Eating Index**. *The Healthy Eating Index*, a measure of how Americans are eating in relation to the Dietary Guidelines, is available in single copies from the Center and is also available on the CNPP Home Page.

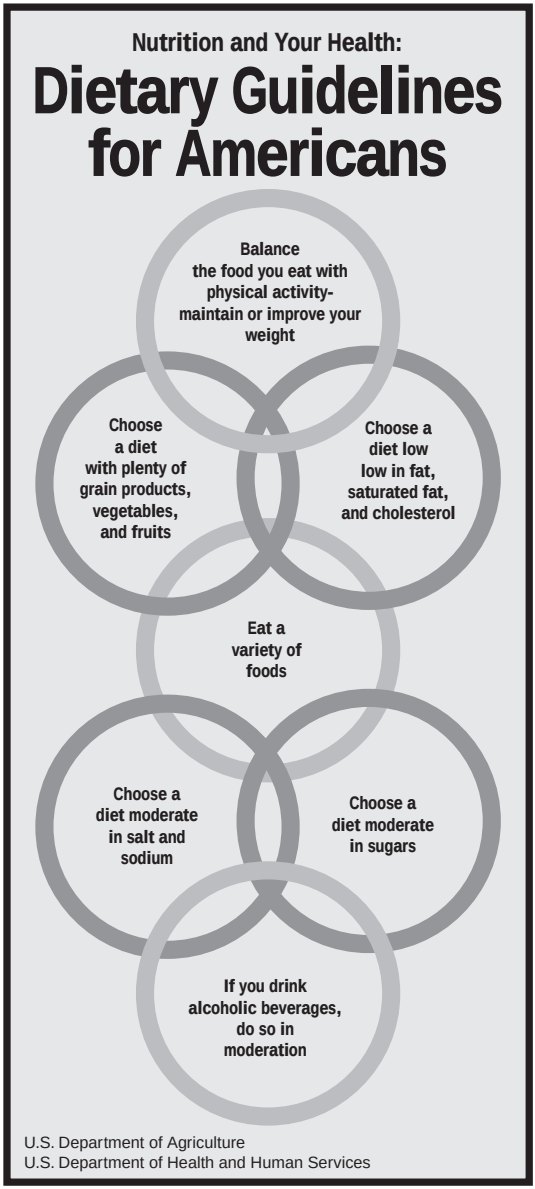
The Food Guide Pyramid



Source: U.S. Department of Agriculture/U.S. Department of Health and Human Services

- **Expenditures on Children by Families and The Cost of Food at Home**. The 1995 *Expenditures on Children by Families* and *The Cost of Food at Home Estimated for Food Plans at Four Cost Levels* are currently available in print from CNPP and electronically from the CNPP Home Page. *The Cost of Food at Home* is updated monthly.

A number of CNPP publications are available electronically via the Internet on the CNPP Home Page at: *http://www.usda.gov/fcs/cnpp.htm* For ordering information contact the center at 1120 20th Street, NW, Suite 200 North Lobby, Washington, DC 20036-3475. Telephone (202) 418-2312, Fax (202) 208-2321.



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9. Food Safety

Food Safety and Inspection Service

The Food Safety and Inspection Service (FSIS) protects consumers by ensuring that meat, poultry, and egg products are safe, wholesome, and accurately labeled. The Agency has a 90-year history of protecting the public from unwholesome and unsafe products.

FSIS is pursuing a broad and long-term science-based strategy to improve the safety of meat, poultry, and egg products to better protect public health. The Agency is changing the Federal meat and poultry inspection system from a system based primarily on sight, touch, and smell to one incorporating scientific testing and systematic prevention of contamination. In addition, the Agency is broadening its scope by focusing on the entire food safety chain, from farm to table, rather than only on what happens within inspected establishments.

On July 25, 1996, the Agency finalized the most significant changes in meat and poultry inspection rules since Congress enacted the Meat Inspection Act of 1906. The final rule on Pathogen Reduction and Hazard Analysis and Critical Control Point (HACCP) Systems targets pathogens that cause foodborne illness, strengthens industry responsibility to produce safe food, and focuses inspection and plant activities on prevention objectives.

FSIS is also making fundamental internal changes required to successfully carry out its HACCP-based, farm-to-table food safety strategy. First, FSIS is undergoing a reorganization designed to streamline its management structure and better focus Agency activities on public health and policy and program development. Second, FSIS is reforming its existing regulations to be consistent with HACCP principles and greater reliance on performance standards.

FSIS Activities

The activities of FSIS include:

- Inspecting birds and livestock, as well as processed products made from them,
- Continuous inspection of all liquid, frozen, and dried egg products,
- Setting standards for plant facilities, product contents, processing procedures, packaging, and labeling,
- Analyzing products for microbiological and chemical adulterants, and
- Educating consumers about foodborne illness by way of publications, educational campaigns, and a toll-free Meat and Poultry Hotline.

- *Final Rule on Pathogen Reduction and HACCP*
  The final rule on Pathogen Reduction and HACCP has four key provisions.
  - *First, all plants that slaughter animals and process meat and poultry products will be required to adopt HACCP, a system of process control designed to prevent food safety hazards. Under HACCP, companies must identify critical control points where contamination can occur and develop strategies to prevent and control it.*
  - *Second, to verify that HACCP systems are effective in reducing contamination with harmful bacteria, FSIS is setting pathogen reduction performance standards for* Salmonella *that slaughter plants and plants that produce raw, ground meat and poultry and fresh pork sausage will have to meet. Plants must ensure that their* Salmonella *contamination rate is below the current national baseline incidence.*
  - *Third, slaughter plants will be required to conduct microbial testing for generic* E. coli *to verify that their process control systems are working as intended to prevent fecal contamination, the primary avenue of contamination for harmful bacteria.*
  - *Fourth, FSIS is requiring all plants to adopt and follow written Standard Operating Procedures for sanitation to reduce the likelihood that harmful bacteria will contaminate the finished product. Inspectors will shift their roles from inspecting for sanitation defects to enforcement of the sanitation standards.*
  - *In addition, FSIS is taking steps at other points on the farm-to-table chain. FSIS is working with the Food and Drug Administration (FDA) to adopt standards to control the growth of harmful bacteria during transportation and storage and is working with FDA and State and local authorities to improve food safety practices at the retail level.*

FSIS inspects and regulates all raw beef, pork, lamb, chicken, and turkey sold in interstate and foreign commerce, including imported products. In FY 1995, FSIS inspected more than 7 billion poultry and more than 136.5 million head of livestock. The task of inspecting meat and poultry is imposing because consumers spend $120 billion, or one-third of their annual food dollars, on meat and poultry products

Inspectors check animals before and after slaughter, preventing diseased animals from entering the food supply and examining carcasses for visible defects that can affect safety and quality. Inspectors also test for the presence of drug and chemical residues that violate Federal law. Over the last 20 years, the violation rate for drug and chemical residues detected in FSIS testing programs has dropped dramatically, moving close to zero. Only about 3 of every 1,000 samples routinely tested for residues exceed the legal limit.

■ *More than 8,000 Inspection Operations employees, including more than 1,100 veterinarians, carry out the inspection laws in over 6,400 privately owned meat, poultry, and other slaughtering or processing plants in the United States and U.S. Territories.*

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Livestock, poultry and egg products federally inspected in 1995

Cattle	37,075,934
Swine	94,490,329
Other livestock	4,963,497
Poultry	7,770,175,068
Liquid egg products (pounds)	1,931,000,000

In addition, about 250,000 different processed meat and poultry products fall under FSIS inspection. These include hams, sausage, soups, stews, pizzas, frozen dinners, and any product containing 2 percent or more cooked poultry or at least 3 percent raw meat. In addition to inspecting these products during processing, FSIS evaluates and sets standards for food ingredients, additives, and compounds used to prepare and package meat and poultry products. As part of the inspection process, inspectors test for the presence of *Salmonella* and *Listeria* in ready-to-eat products. No pathogens are permitted in such products. The Agency also sets labeling standards and approves labels for meat, poultry, and egg products.

In FY 1995, USDA inspected 1,931 million pounds of liquid egg products, which were sold in liquid form, frozen, or as dried egg products. Continuous inspection of 82 U.S. plants was provided by 143 inspectors, supervisors, and support staff of the Egg Products Inspection Division.

Imported meat and poultry arriving by ship or air are also subject to FSIS scrutiny. The Agency reviews and monitors the foreign inspection systems in the products' countries of origin to ensure they are equivalent to the U.S. system. When the products reach the United States, selected products are reinspected at 160 official import facilities by import inspection personnel.

■ *More than 1,400 foreign plants are authorized to export products to the United States. In 1995 over 2.6 billion pounds of meat and poultry passed inspection for entry into the United States from 34 countries.*

The Agency's new food safety strategy will change the way FSIS carries out its food safety responsibilities. For instance, HACCP implementation will clarify that it is the responsibility of industry to produce safe meat and poultry products. Under HACCP, FSIS's role will change from one of pointing out problems to setting appropriate food safety standards and maintaining vigorous inspection oversight to ensure that those standards are met. FSIS is reforming its existing regulations to reflect this emphasis on performance standards.

For the future, FSIS will be further examining the work that its inspectors do to determine what changes would improve food safety and make better use of existing resources.

■ ***Testing For Pathogens***

Between 1906 and 1993, the inspection system was based largely on what inspectors could ***see:*** *diseases, defects, and contamination on meat and poultry carcasses. FSIS has strict standards for the bacterial pathogens* Salmonella *and* Listeria monocytogenes *on ready-to-eat products, but it has up to now had no standards for bacterial pathogens on raw products.*

In 1994, for the first time, the Agency declared a bacterium in raw meat to be a contaminant. The bacteria E. coli O157:H7 *were responsible for four deaths and hundreds of illnesses in several Northwestern States in 1993. Zero tolerance for* E. coli O157:H7 *in ground beef was established, and FSIS began testing for its presence in samples of raw product collected from plants under Federal inspection and retail stores.*

Under the final rule on Pathogen Reduction and HACCP, slaughter plants will be required to routinely test for the generic form of E. coli *to verify the effectiveness of their procedures to prevent and remove fecal contamination.*

And slaughter plants and plants producing raw ground product or fresh pork sausage will be required to meet pathogen reduction performance standards for Salmonella *to determine whether targets are being met or remedial measures are necessary. FSIS, rather than the plants, will test for* Salmonella*, a pathogenic bacteria that is the most common cause of foodborne illness in the United States.*

Nutrition Labeling of Meat and Poultry Products

The final rule on the nutrition labeling of meat and poultry products, which was issued January 6, 1993, requires mandatory nutrition labeling for most meat and poultry products except raw, single-ingredient products such as raw poultry. Since implementation of the rule in August 1994, FSIS has provided consumers with a useful educational tool to help them choose a healthful diet.

The Nutrition Facts panel was developed through a joint effort by FSIS and the Food and Drug Administration (FDA) of the U.S. Department of Health and Human Services (DHHS). The two agencies issued parallel regulations intended to create the most uniform nutrition labels possible for virtually all foods.

The labels help consumers follow the Dietary Guidelines developed by the USDA and HHS. The guidelines emphasize the importance of a well-balanced diet. Most packaged foods carry an up-to-date, easy-to-use nutrition panel. See the following example.

Nutrition Facts

Serving Size 0 cup (000g)
Servings Per Container 0

Amount Per Serving

Calories 000 Calories from Fat 000

	% Daily Value*
Total Fat 00g	**00%**
Saturated Fat 0g	**00%**
Cholesterol 00mg	**00%**
Sodium 000mg	**00%**
Total Carbohydrate 00g	**00%**
Dietary Fiber 0g	**0%**
Sugars 00g	
Protein 00g	

Vitamin A 0% • Vitamin C 0%
Calcium 00% • Iron 0%

Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
* Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

In addition to the Nutrition Facts panel, FSIS also defined the product claims that can be made on the front label of meat and poultry products. The Agency has set specific requirements for using the following terms:

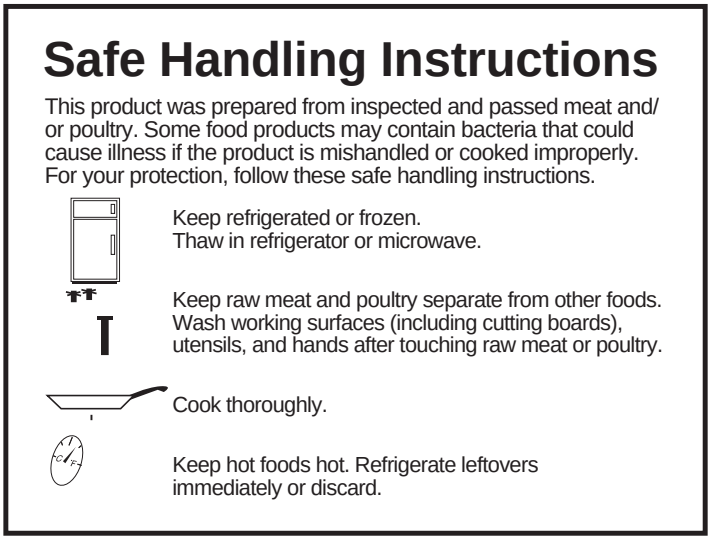
- free
- less
- low
- good source of
- extra lean
- light (lite)
- high
- reduced
- lean
- more

Safe Food Handling Label

In 1994, FSIS issued a rule requiring safe handling instructions on packages of all raw or partially cooked meat and poultry products as part of a comprehensive effort to protect consumers from foodborne illness. Some food products may contain bacteria that could cause illness if the product is mishandled or cooked improperly.

To prevent bacterial growth and to reduce the risk of foodborne illness, the label directs consumers to follow safe food handling practices from the time perishable products are purchased until they have been cooked and stored.

A Safe Food Handling Label:



Food Safety Initiatives from Farm to Table

To accomplish its mission, FSIS is taking steps to improve the safety of meat and poultry from production through use. Food safety depends on:

- Properly growing the animals at the farm or feedlot,
- Processing at the plant incorporating pathogen reduction and HACCP measures,
- Handling the food safely during transportation and distribution,
- Storing the food safely in the store, and
- Safe food handling at home by consumers.

At the Farm

Quality control programs are being used to control pathogens on the farm. FSIS works closely with the producers of food animals as well as other government agencies to explore, develop, and implement food safety measures that can be taken on the farm and before animals enter the slaughter facility to reduce the risk of harmful contamination of meat and poultry products.

Inside the Plant

Changing a live animal into food that is conveniently packaged for consumers occurs inside a federally inspected meat or poultry plant. To improve the safety of meat and poultry products, the Pathogen Reduction and HACCP Final Rule of July 25, 1996, is intended to reduce levels of bacteria which can be on meat and poultry products as a result of contamination from the live animal.

The purpose of HACCP systems is to identify potential food safety hazards arising in slaughter and processing plants. HACCP is a system of steps used to identify and prevent problems from occurring during food processing and to correct them as soon as they are detected. With HACCP in place, FSIS can verify that the plant is controlling its processes and consistently producing products that comply with food safety requirements.

The HACCP system consists of seven principles that plants must incorporate into their operation plans. They include (1) hazard analysis, (2) critical control point identification, (3) establishment of critical limits, (4) monitoring procedures, (5) corrective actions, (6) record keeping, and (7) verification procedures.

From the Plants to Retail Establishments

FSIS is working closely with the Food and Drug Administration to ensure food safety at the retail level. This includes establishing Federal standards for the safe handling of food during transportation, distribution, and storage. Particular emphasis is being placed on the importance of temperature control in minimizing the growth of harmful microorganisms.

At the Table

Helping ensure that consumers handle food safely at home is an ongoing priority for the Agency carried out by the Food Safety and Consumer Education Office and the USDA Meat and Poultry Hotline. Consumers, school children, the media, and

other information multipliers are the audiences of a comprehensive, nationwide FSIS food safety education program to prevent foodborne illness.

Food Safety, Consumer Education, and the USDA Meat and Poultry Hotline

FSIS has an extensive program of consumer education to meet information needs for basic safe food handling advice to avoid foodborne illnesses. Information is disbursed through printed materials and personal contact via the USDA's Meat and Poultry Hotline.

The Agency's consumer education programs focus on providing key food safety materials to the general public and also special groups who face increased risks from foodborne illness—the very young, the elderly, and people who have chronic diseases. These materials are based on the latest scientific advice concerning foodborne illness as well as the latest in education and market research.

This office writes and distributes packets of food safety educational materials through outreach campaigns targeted at reducing foodborne illness. Packets have encompassed information on *E. coli* O157:H7, the safety of hamburgers, and food safety for seniors and children. *The Food Safety Educator*, a quarterly newsletter, is a publication of this office.

News features, public service announcements, and joint food safety projects with other government agencies and food associations comprise some of the other work done by the Food Safety and Consumer Education office. It reaches out to the media, information multipliers, and consumers through print and video. Staff members attend and conduct presentations at various association conferences related to food safety issues and the prevention of foodborne illness. They also participate in various food safety task forces, working with members drawn from industry, government, and academe.

FSIS reaches people directly through its toll-free **USDA Meat and Poultry Hotline**, a service that directly answers specific consumer questions. The Hotline's staff of home economists, dietitians, and food technologists inform the public on how to properly handle, prepare, and store meat and poultry products to minimize the growth of foodborne pathogens.

More than 114,000 people called the Hotline in 1995. Some of their specific concerns included *E. coli* O157:H7, *Salmonella enteritidis*, cutting boards, and the safe handling of already cooked foods.

The Hotline staff can be reached at **800-535-4555** Monday through Friday year-round from 10:00 a.m. to 4:00 p.m. Eastern Time; in the Washington DC, area (202) 720-3333. Callers can hear their choices of recorded food safety messages 24 hours a day by calling the same toll-free number. Using a touch-tone phone, they can select from about 50 food safety messages under eight "menu" headings which are updated periodically to include seasonal topics and the latest recalls of meat and poultry products.

Food safety information and publications of your choice can be:
1. Viewed or downloaded from the Agency's Home Page at *http://www.usda.gov/fsis* or
2. Received by fax from **FSIS' Fast FAX** machine at 800-238-9281, or in Washington, DC, at 202-690-3754.

- ***What To Do If You Have a Problem With Food Products***
  - *FOR HELP WITH MEAT, POULTRY, AND EGG PRODUCTS:Call the toll-free USDA Meat and Poultry Hotline at 1 (800) 535-4555.*
  - *FOR HELP WITH RESTAURANT FOOD PROBLEMS: Call the Health Department in your city, county, or State.*
  - *FOR HELP WITH NONMEAT FOOD PRODUCTS: Call or write the Food and Drug Administration (FDA). Check your local phone book under U.S. Government, Health and Human Services, to find an FDA office in your area. The FDA's Seafood Hotline is 1 (800) 332-4010.*

In order for USDA to investigate a problem with meat, poultry, or egg products, you must have:

1. The original container or packaging,
2. The foreign object (the plastic strip or metal washer, for example), and
3. Any uneaten portion of the food (refrigerate or freeze it).

Information you should be ready to tell the Hotline on the phone includes:

1. Your name, address, and phone number,
2. The brand name, product name, and manufacturer of the product,
3. The size and package type,
4. Can or package codes (not UPC codes) and dates,
5. Establishment number (EST) usually found in the circle or shield near the "USDA passed and inspected" phrase,
6. Name and location of store and date you purchased the product.

If an injury or illness allegedly resulted from use of the product, you will also need to tell about the type, symptoms, time of occurrence, and name of attending health professional (if applicable).

For More Information

Food Safety and Inspection Service

Director, Food Safety Education & Communications
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Rm 1175-S Washington, DC 20250
202-720-7943
FAX 202-720-1843
susan.conley@usda.gov

Media Communication
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FAX 202-690-0460
jacque.knight@usda.gov

Food Safety Education
Marjorie Davidson
Rm 1180-S Washington, DC 20250
202-690-0351
FAX 202-720-9063
marjorie.davidson.@usda.gov

Public Outreach
Sandy Facinoli
Rm 1180-S Washington, DC 20250
202-720-9352
FAX 202-720-1843
sandy.facinoli@usda.gov

Meat & Poultry Hotline
Bessie Berry
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1-800-535-4555
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bessie.berry@usda.gov

FOIA Officer
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202-720-8169
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cheryle.hicks@usda.gov

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404-562-5927
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mgroutt@usda.gov

Southwestern Reg. Inf. Officer
Yves Gerem
1100 Commerce St., Rm 5F41
Dallas, TX 75242
214-767-1054
FAX 214-767-5267
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FAX 515-284-6307
jporter@usda.gov

Northeastern Reg.Inf.Officer
Anne McGuigan
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amcguigan@usda.gov

Food Safety and Inspection Service

The Food Safety and Inspection Service (FSIS) protects consumers by ensuring that meat, poultry, and egg products are safe, wholesome, and accurately labeled. The Agency has a 90-year history of protecting the public from unwholesome and unsafe products.

FSIS is pursuing a broad and long-term science-based strategy to improve the safety of meat, poultry, and egg products to better protect public health. The Agency is changing the Federal meat and poultry inspection system from a system based primarily on sight, touch, and smell to one incorporating scientific testing and systematic prevention of contamination. In addition, the Agency is broadening its scope by focusing on the entire food safety chain, from farm to table, rather than only on what happens within inspected establishments.

On July 25, 1996, the Agency finalized the most significant changes in meat and poultry inspection rules since Congress enacted the Meat Inspection Act of 1906. The final rule on Pathogen Reduction and Hazard Analysis and Critical Control Point (HACCP) Systems targets pathogens that cause foodborne illness, strengthens industry responsibility to produce safe food, and focuses inspection and plant activities on prevention objectives.

FSIS is also making fundamental internal changes required to successfully carry out its HACCP-based, farm-to-table food safety strategy. First, FSIS is undergoing a reorganization designed to streamline its management structure and better focus Agency activities on public health and policy and program development. Second, FSIS is reforming its existing regulations to be consistent with HACCP principles and greater reliance on performance standards.

FSIS Activities

The activities of FSIS include:

- Inspecting birds and livestock, as well as processed products made from them,
- Continuous inspection of all liquid, frozen, and dried egg products,
- Setting standards for plant facilities, product contents, processing procedures, packaging, and labeling,
- Analyzing products for microbiological and chemical adulterants, and
- Educating consumers about foodborne illness by way of publications, educational campaigns, and a toll-free Meat and Poultry Hotline.

- *Final Rule on Pathogen Reduction and HACCP*
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Sugars 00g	
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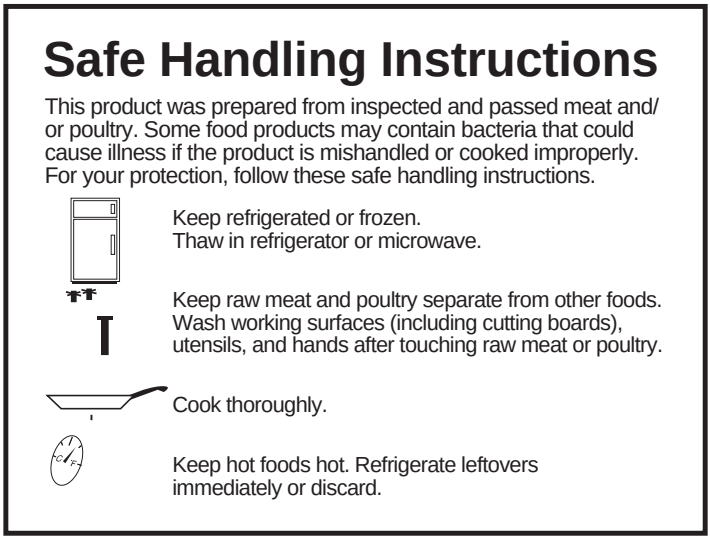

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From the Plants to Retail Establishments

FSIS is working closely with the Food and Drug Administration to ensure food safety at the retail level. This includes establishing Federal standards for the safe handling of food during transportation, distribution, and storage. Particular emphasis is being placed on the importance of temperature control in minimizing the growth of harmful microorganisms.

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The Agency's consumer education programs focus on providing key food safety materials to the general public and also special groups who face increased risks from foodborne illness—the very young, the elderly, and people who have chronic diseases. These materials are based on the latest scientific advice concerning foodborne illness as well as the latest in education and market research.

This office writes and distributes packets of food safety educational materials through outreach campaigns targeted at reducing foodborne illness. Packets have encompassed information on *E. coli* O157:H7, the safety of hamburgers, and food safety for seniors and children. *The Food Safety Educator*, a quarterly newsletter, is a publication of this office.

News features, public service announcements, and joint food safety projects with other government agencies and food associations comprise some of the other work done by the Food Safety and Consumer Education office. It reaches out to the media, information multipliers, and consumers through print and video. Staff members attend and conduct presentations at various association conferences related to food safety issues and the prevention of foodborne illness. They also participate in various food safety task forces, working with members drawn from industry, government, and academe.

FSIS reaches people directly through its toll-free **USDA Meat and Poultry Hotline**, a service that directly answers specific consumer questions. The Hotline's staff of home economists, dietitians, and food technologists inform the public on how to properly handle, prepare, and store meat and poultry products to minimize the growth of foodborne pathogens.

More than 114,000 people called the Hotline in 1995. Some of their specific concerns included *E. coli* O157:H7, *Salmonella enteritidis*, cutting boards, and the safe handling of already cooked foods.

The Hotline staff can be reached at **800-535-4555** Monday through Friday year-round from 10:00 a.m. to 4:00 p.m. Eastern Time; in the Washington DC, area (202) 720-3333. Callers can hear their choices of recorded food safety messages 24 hours a day by calling the same toll-free number. Using a touch-tone phone, they can select from about 50 food safety messages under eight "menu" headings which are updated periodically to include seasonal topics and the latest recalls of meat and poultry products.

Food safety information and publications of your choice can be:
1. Viewed or downloaded from the Agency's Home Page at *http://www.usda.gov/fsis* or
2. Received by fax from **FSIS' Fast FAX** machine at 800-238-9281, or in Washington, DC, at 202-690-3754.

- ***What To Do If You Have a Problem With Food Products***
  - *FOR HELP WITH MEAT, POULTRY, AND EGG PRODUCTS:Call the toll-free USDA Meat and Poultry Hotline at 1 (800) 535-4555.*
  - *FOR HELP WITH RESTAURANT FOOD PROBLEMS: Call the Health Department in your city, county, or State.*
  - *FOR HELP WITH NONMEAT FOOD PRODUCTS: Call or write the Food and Drug Administration (FDA). Check your local phone book under U.S. Government, Health and Human Services, to find an FDA office in your area. The FDA's Seafood Hotline is 1 (800) 332-4010.*

In order for USDA to investigate a problem with meat, poultry, or egg products, you must have:

1. The original container or packaging,
2. The foreign object (the plastic strip or metal washer, for example), and
3. Any uneaten portion of the food (refrigerate or freeze it).

Information you should be ready to tell the Hotline on the phone includes:

1. Your name, address, and phone number,
2. The brand name, product name, and manufacturer of the product,
3. The size and package type,
4. Can or package codes (not UPC codes) and dates,
5. Establishment number (EST) usually found in the circle or shield near the "USDA passed and inspected" phrase,
6. Name and location of store and date you purchased the product.

If an injury or illness allegedly resulted from use of the product, you will also need to tell about the type, symptoms, time of occurrence, and name of attending health professional (if applicable).

For More Information

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10. Natural Resources and Environment

Forest Service: Caring for the Land and Serving People

The Forest Service considers the American people its owners, customers, and partners in caring for the Nation's natural resources. The Forest Service administers statutes that guide:

- Construction and maintenance of roads and trails where needed to allow for timber harvesting and public access to outdoor recreation areas;
- Construction and maintenance of facilities at outdoor recreation areas;
- Timber harvesting methods that protect other natural resources;
- Removal of oil, gas, uranium, and other minerals of strategic importance, as well as coal and geothermal steam;
- Use of national forest and range land as a refuge for threatened and endangered species of birds, animals, fish, and plants; and
- Use of national forests and grasslands for livestock grazing.

Mission

The Forest Service mission is "Caring for the Land and Serving People." The Forest Service's mission is further expressed in its land ethic: "Promote the sustainability of ecosystems by ensuring their health, diversity, and productivity." This is coupled with the service ethic: "Tell the truth, obey the law, work collaboratively, and use appropriate scientific information in caring for the land and serving people."

These land and service ethics are applied by the Forest Service through ecosystem management. Ecosystem management is the integration of ecological, economic, and social factors in order to maintain and enhance the quality of the environment to meet current and future needs.

The four strategic goals of the Forest Service are to: (1) protect ecosystems, (2) restore deteriorated ecosystems, (3) provide multiple benefits for people within the capabilities of ecosystems, and (4) ensure organizational effectiveness.

The Forest Service's Draft 1995 Resources Planning Act Program, its long-term strategic plan, sets forth the programs and management actions that will be carried out under each of the four strategic goals. The Forest Service works toward three primary outcomes: healthy ecosystems; vital communities; and an effective, multidisciplinary, multicultural organization.

Principal Laws

The Forest Service administers the lands and resources of the National Forest System under the Organic Act of 1897, the Multiple Use-Sustained Yield Act of 1960, and the National Forest Management Act of 1976.

The Agency also conducts research, provides assistance to State and private landowners, assesses the Nation's natural resources, and provides international assistance and scientific exchanges. These activities are carried out under the Forest and Rangeland Renewable Resources Planning Act of 1974, The Renewable Resources Extension Act of 1978, the Forest and Rangeland Renewable Resources Research Act of 1978, the Cooperative Forestry Assistance Act of 1978, and the International Forestry Cooperation Act of 1990.

Organizational Structure

The top administrative official of the Forest Service is the Chief who, through the Under Secretary for Natural Resources and Environment, reports to the Secretary of Agriculture. The Forest Service is responsible for administering programs that provide services to the general public and other users in five areas: (1) National Forest System, (2) State and Private Forestry, (3) Research, (4) International Forestry, and (5) Administration.

The **National Forest System** (NFS) operates under the concept of multiple use, providing sustained yields of renewable resources such as water, livestock forage, wildlife habitat, wood, and recreation, and ensuring the integration of mineral resource programs and activities. The Forest Service is also committed to preserving wilderness, biodiversity, and visual quality. Scientific management of wildfire, epidemics of disease and insect pests, erosion, floods, and water and air pollution is also a major activity.

State and Private Forestry programs advance the Forest Service's mission of contributing to sound management of State and private nonindustrial forest land. The programs serve as a link among many public and private organizations and bridge ownership boundaries to promote the best use of America's natural resources.

Forest Service **Research** covers a wide range of forest-related subjects, develops new scientific knowledge regarding ecosystem restoration and management, and helps to protect and enhance productivity on all of America's forests and rangelands, with special attention to long-term natural resource issues of national and international scope.

International Forestry activities promote sustainable development and global environmental stability, particularly in countries important in global climate change. This mandate includes setting a national goal for sustainable management of all forests by the year 2000, researching topics with implications for global forest management, and facilitating the exchange of resource management experience around the world.

Forest Service **Administration** provides direction, quality assurance, and customer service in carrying out the Forest Service business and human resource programs.

Reinvention

In 1993 the National Performance Review selected the Forest Service to serve as a case study highlighting Federal agencies "doing it right." Significant progress has been made in three categories: (1) determining what Forest Service employees think about their work and how they think it can be improved, (2) streamlining Agency processes, and (3) restructuring and downsizing Agency organization. Specific actions include these:

- The Agency has received 15,000 customer response cards and used them to improve customer service.
- The Forest Service and other Federal and State agencies have partnered to reduce costs and improve efficiency. In Oregon, the Bureau of Land Management and the Forest Service share offices, equipment, and people to provide a common-sense, "one-stop shopping" approach to land management and customer service.
- The Agency has redesigned the campground reservation system based on customer feedback from 1996. A record number of customers used the new system in 1997.
- The Forest Service has planned for a reduction in overall work force from about 43,000 full-time employees in 1993 to about 37,500 in 1999.

National Forest Foundation

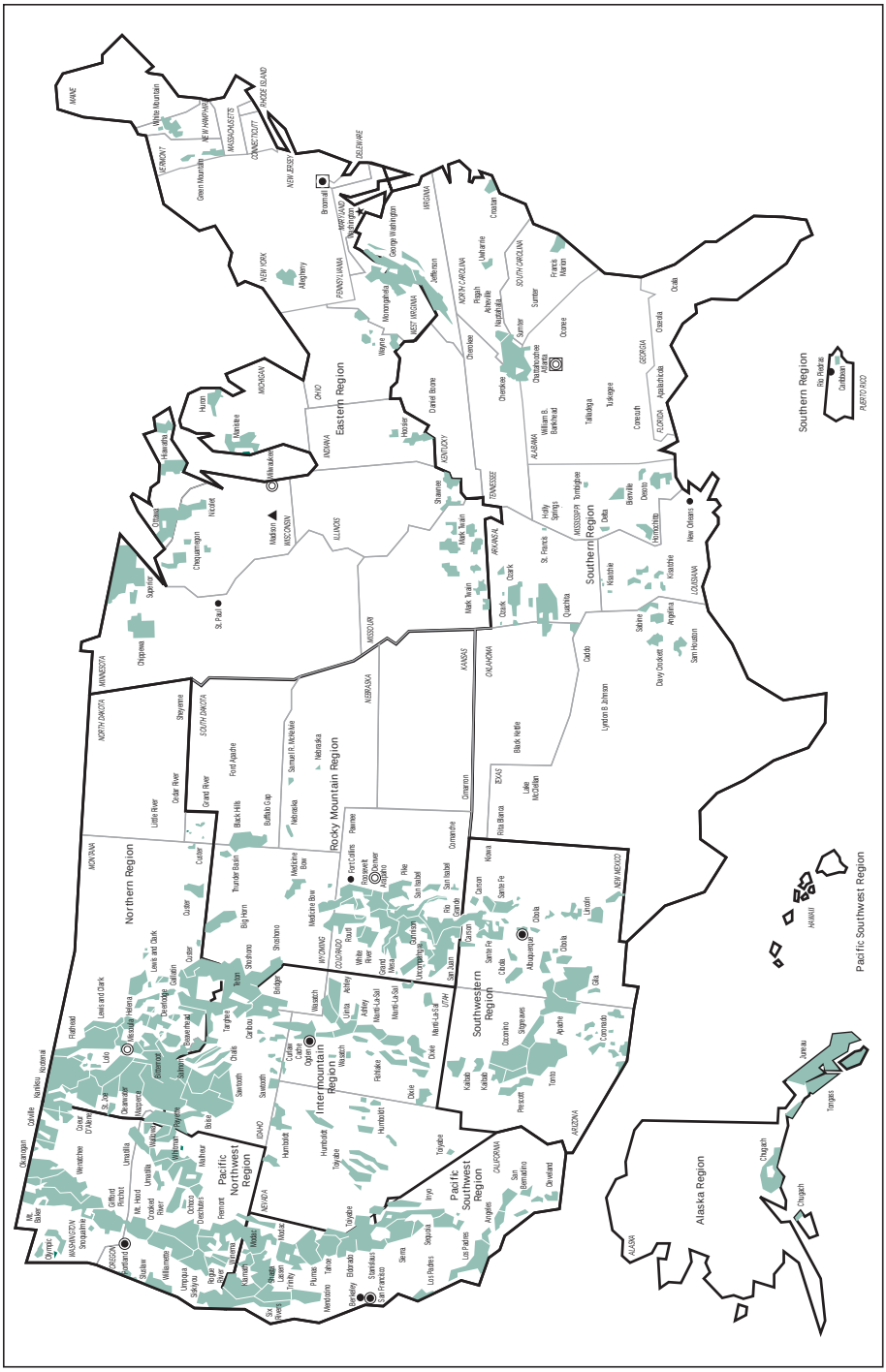
The National Forest Foundation was authorized by Congress in 1990 as a non-profit corporation to:

- Encourage and accept donations and gifts for the benefit of the Forest Service,
- Conduct activities that further the purposes of national forest and national grassland management,
- Encourage educational and other assistance that supports multiple use, research, cooperative forestry, and other programs administered by the Forest Service, and
- Promote cooperation among the Forest Service, the private sector, and other governmental and educational institutions.

During FY 1996, the Foundation helped the Forest Service expand its Challenge Cost-Share program by identifying and working with private sector partners. A "Firefighter Fund" has been established to provide financial assistance to firefighters who were severely injured in the 1994 fires and to the families of those men and women who were killed in the line of duty. A pilot program is underway to develop interactive kiosk technology and update interpretive exhibits at visitor information centers through corporate sponsorships and fund raising efforts. The foundation supported tree planting, watershed restoration, universal accessibility to national forests, and trail repair and maintenance, including $50,000 for the Continental Divide Trail in the Rocky Mountains.

Figure 10-1.

Location of National Forests



Key Facts about the Forest Service

- *The entire Nation has about 1.6 billion acres of forest and range land, under all ownerships.*
- *The entire Nation has 736.7 million acres of forest land area, not including rangeland, under all ownerships; the owners/managers of this forest land are as follows:*

Federal Government: 249.1 million acres

- *Forest Service: 139.9 million acres*
- *Bureau of Land Management: 36.6 million acres*
- *National Park Service, Department of Defense, Department of Energy, & other Federal: 72.6 million acres*

Non-Federal total: 487.5 million acres

- *State: 54.7 million acres*
- *9.9 million private landowners: 422.3 million acres*
- *County and Municipal: 10.5 million acres*

- *There are 191.6 million acres of national forest land. This is 8.3 percent of the United States' land area, or about the size of Texas plus 10 percent. The Forest Service manages:*
- *National Grasslands: 3.9 million acres*
- *National Primitive Areas: 173,762 acres*
- *National Scenic-Research Areas: 6,630 acres*
- *National Wild & Scenic Rivers: 4,385 miles—95 rivers*
- *National Recreation Areas: 2.7 million acres*
- *National Game Refuges and Wildlife Preserves: 1.2 million acres*
- *National Monument Areas: 3.3 million acres*
- *National Historic Areas: 6,540 acres*
- *Congressionally Designated Wilderness: 34.6 million acres*
- *The Forest Service manages 155 national forests for multiple uses.*
- *The national forest trail system is the largest in the Nation, with more than 125,000 miles of trails for hiking, riding, and cross-country skiing.*
- *The Forest Service provides more recreational opportunities than any other Federal Agency. Visitors to national forests are attracted by:*
- *5,885 campgrounds and picnic areas*
- *328 swimming developments*
- *1,222 boating sites*
- *250 winter sports sites, including 120 downhill ski areas*
- *If all these sites were fully occupied at the same time, they would accommodate 1.8 million people.*
- *Minerals found on Forest Service lands provide more than $3.3 billion in private sector revenue each year.*

Key Forest Service figures for 1995:

- *Recreation use: 330.3 million visitor days (1 visitor day equals 12 hours of recreation use)*
- *Lands burned by wildfire: 530,000 acres*
- *Insect and disease suppression: 1.7 million acres*
- *Watershed improvements: 35,500 acres*
- *Wildlife and fish habitat improvements: 242,761 acres*
- *Reforestation: 492,000 acres*
- *Livestock grazing: 9.3 million animal unit months*
- *Grazing allotments administered: 9,940*
- *Mineral operations processed: 9,157*
- *Timber sold: 3.1 billion board feet*
- *Timber harvested: 4.8 billion board feet (some had been sold in previous years)*
- *Road system: 377,800 miles*

National Forest System—Conservation and Multiple Use

Lands

Lands-related activities include land exchanges to protect and enhance the National Forest System, protecting boundaries and records, granting appropriate rights to others, and administering rights granted to or retained by other agencies, governments, and landowners.

Wildlife, Fish, and Rare Plants

In 1995, people made more than 86 million visits to national forests to fish, hunt, and view wildlife, fish and plants, with a total net value of nearly $4.3 billion. More than $1.7 billion in annual economic benefits result from recreational and commercial harvest of fish resources on National Forest System lands.

The Agency's threatened, endangered, and sensitive species program aims to conserve and restore habitat and thus avoid the need to list additional rare species. In partnership with other Federal agencies, State fish and wildlife agencies, and national conservation groups, habitat management efforts are currently underway for salmon, steelhead and cutthroat trout, spotted owl, marbled murrelet, and grizzly bear. Efforts to reintroduce species or increase their numbers are planned in collaboration with the U.S. Fish and Wildlife Service and State agencies for gray wolf, black-footed ferret, California condor, Mexican wolf, thick-billed parrot, and red-cockaded woodpecker.

Key Facts about Wildlife, Fish, and Rare Plants

- *The National Forest System includes 2.3 million acres of fishable lakes, ponds, and reservoirs and more than 197,000 miles of perennial streams.*
- *National forests and grasslands support habitats for more than 3,000 species of birds, mammals, reptiles, amphibians, and fish, as well as some 10,000 plant species.*
- *The national forests and grasslands also provide:*
- *80 per cent of the elk, mountain goat, and bighorn sheep habitat in the lower 48 States,*
- *28 million acres of wild turkey habitat,*
- *5.4 million acres of wetland habitat,*
- *Habitat for 250 species of neotropical migratory birds, and*
- *Habitat for more than 280 species of threatened or endangered plants, fish, or wildlife.*

Partnerships

In 1995, more than 3,150 partners joined the Forest Service through the Challenge Cost-Share Program to complete more than 3,000 wildlife and fish habitat improvement projects on national forests and grasslands. Through these partnership efforts, many species have returned to habitats once abandoned. Fragile plant habitats have been identified and protected. Wetlands for waterfowl and other species have been improved by the construction of nesting islands and platforms. Fisheries have benefited from improved cover, construction of fish ladders and barriers, and restoration of watersheds.

Since 1986, wildlife and fish conservation partner contributions of labor, materials, expertise, and funds have approached $106 million, more than matching Forest Service monetary contributions of over $77 million.

Water, Soil, and Air

About 20 percent of the surface water supply in the United States flows from National Forest System watersheds. Three major goals of the Forest Service's watershed management programs are to (1) assure adequate yields of high-quality water, (2) sustain soil productivity, and (3) manage air quality within standards. The task of mapping all soils within the National Forest System, with the cooperation of the Natural Resources Conservation Service, is about 70 percent complete. The Forest Service improved 35,500 acres of watershed in FY 1995 with appropriated funds and an additional 14,000 acres from other funding sources.

Other significant activities include watershed analyses and watershed restoration work, especially in the Pacific Northwest; participating in water right adjudications in eight Western States; assessing water quality problems from abandoned mines located on national forests with assistance from States and other Federal agencies; and monitoring lichens, lakes, snow, vegetation, and the atmosphere to determine air pollution impacts to wilderness areas.

Key Facts about Water

- *There are approximately 3,200 watersheds on National Forest System lands.*
- *There are 902 municipal watersheds on National Forest System land, serving 25 million people.*
- *173 trillion gallons of water is supplied by the National Forest System to municipal watersheds annually.*
- *500 remote weather data collection platforms are used in agricultural, fire, weather, and streamflow forecasting.*
- *Emergency restoration of burned areas in FY 1995 covered more than 198,385 acres.*
- *88 wilderness areas, covering almost 15 million acres, are classified as Class I (special visibility protection) under the Federal Clean Air Act.*

Rangeland

National Forest System rangeland is managed to conserve the land and its vegetation while providing food for both livestock and wildlife. Forage production is a primary use of these lands. Under multiple-use concepts, grazing areas also serve as watersheds, wildlife habitat, and recreation sites. Grazing privileges are granted on national forests and grasslands through paid permits; permittees cooperate with the Forest Service in range improvement projects.

Key Facts about Rangeland

- *In FY 1995, the Forest Service administered almost 9,500 grazing allotments and provided 9.3 million animal unit months of livestock grazing. (An animal unit month is the amount of forage it takes to sustain a 1,000-pound animal or its equivalent for one month.)*

Energy and Minerals

Facilitating energy and mineral development on National Forest System lands, including development of private minerals underlying these lands, fosters economic development. Ecosystems are protected by requiring appropriate design, mitigation, and reclamation measures, and by monitoring/inspecting operations to ensure compliance. Reclaiming abandoned mines restores deteriorated ecosystems.

Exploration, development, and production of energy and minerals from National Forest System lands contribute to economic growth, provide employment in rural communities, and raise revenues that are shared with the States. The program is directed at obtaining these benefits while ensuring operations are conducted in an environmentally sound manner. In terms of the magnitude of the program, there are approximately 8 million acres leased for oil and gas, over 150,000 mining claims, about 7,000 mineral material pits and quarries, over 4,000 new operations proposed each year, and more than 25,000 operations to monitor and inspect. The largest coal mine in the United States is on National Forest System lands, and much of the

Nation's phosphate and lead production comes from National Forest System lands. The value of all energy and mineral production exceeds $3.3 billion per year. Annual revenues are about $200 million, 25-50 percent of which is returned to the States where production occurs.

Key Facts about the Forest Service Energy and Minerals Program

- 7 million acres where there is possibility for coal leasing (95 billion tons)
- 45 million acres where there is possibility for oil and gas leasing; 9 million acres leased
- Substantial geothermal energy potential
- World-class deposits of coal, copper, silver, lead, molybdenum
- Nation's largest carbon dioxide project (Bridger-Teton National Forest, WY)
- Nation's largest coal mine (Thunder Basin National Grasslands, WY)
- Western Hemisphere's only platinum mine (Custer National Forest, MT)
- Most lead production in the United States (Mark Twain National Forest, MO)
- World-class quartz crystals (Ouachita National Forest, AR)
- About 7,000 sand, gravel, and stone pits and quarries
- Approximately 4,000 new operations requiring review each year
- Over 25,000 existing operations requiring monitoring
- Nation's largest phosphate mines
- 55 percent of the Nation's production of lead
- Total value of energy and minerals produced exceeds $3.3 billion per year
- Annual royalties to government exceed $200 million
- Thousands of jobs created in rural communities
- Substantial effect on local tax bases
- One of the world's largest molybdenum deposits (Tongass National Forest, AK)
- The following resources are produced annually on National Forest System lands:
- 12 million barrels of oil
- 325 billion cubic feet of gas
- 114 million tons of coal
- 500 million pounds of lead
- 200 million pounds of copper
- 1 million ounces of gold
- 20 million tons of sand and gravel

Timber

Only 26 percent of the national forests' 192 million acres can be classified as commercial forest land. Commercial forest land is available for and capable of producing crops of industrial wood. Commercial forests help furnish the Nation with the lumber and plywood needed for housing and industrial uses and pulp for paper products. Timber management involves preparing sales by selecting the means of harvest most appropriate for protecting the environment.

Passport in Time

Through Passport In Time, the Forest Service offers unique, nontraditional recreation experiences such as archaeological excavation, historic structure restoration, and wilderness surveys. These experiences foster environmental stewardship while providing the public with unusual experiences.

Passport In Time volunteers have contributed more than $2.5 million worth of time and effort to help preserve our Nation's history by:

- Restoring 45 historic structures,
- Stabilizing 11 National Register eligible sites,
- Evaluating 143 sites for inclusion in National Register of Historic Places,
- Working at 28 projects in wilderness, and
- Developing 12 heritage interpretive sites.

State and Private Forestry—Providing Assistance to Nonindustrial Private Landowners

The **Forest Stewardship Program** provides technical assistance to nonindustrial private forest landowners interested in managing their forests for multiple resources. Since 1990, over 100,000 landowners have enrolled in the program and stewardship plans have been prepared for more than 13.2 million acres of nonindustrial private forests.

The **Stewardship Incentives Program** provides cost-share assistance, in cooperation with State Foresters and the USDA's Farm Service Agency, to landowners implementing Forest Stewardship Landowner Plans on over 378,000 acres annually. This includes approximately 50,000 acres of tree planting annually. Since 1990, stewardship incentives practices have been implemented on more than 1.3 million acres, including over 140,000 acres of tree planting.

Forest Health Protection

The Forest Service offers technical and financial assistance to Federal agencies, American Indian tribes, and (through the State Foresters) to private landowners. It conducts insect and disease detection surveys on 175 million acres of Federal lands and 482 million acres of State and private lands in cooperation with State Foresters, and participates in a forest health monitoring program with the State Foresters. The Forest Service works with USDA's Animal and Plant Health Inspection Service to protect the Nation's forests from exotic insects and diseases. It also provides technical assistance in the safe and effective use of pesticides, shares the cost of insect and disease prevention and suppression projects with States, funds prevention and

Table 10-1

Number and Acres of Wildfires on lands protected by the National Forest System, 1995

State	Lightning		Caused by People: Equipment		Caused by People: Smoking		Caused by People: Campfire		Caused by People: Debris Burning	
	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.
Alabama	283	23		0	1	2	138	6	5	4
Alaska		3		0		3	8	25		6
Arizona	39,614	824	377	55	1,456	67	1,853	374	103	17
Arkansas	167	12	1	2	20	10	13	5	211	18
California	271	365	2,793	152	2,504	79	3,689	207	328	71
Colorado	782	128		0	56	13	8	54		3
Florida	1,106	27		4		0	10	8	7	8
Georgia	2	3		0	5	2		3	77	17
Idaho	2,169	674	4	6	13	15	36	64	11	15
Illinois		0		0		0	1	3	85	11
Indiana		0		0		0		2	6	1
Kansas	140	11		2		0		0		0
Kentucky	104	2	2	2	18	4	101	8	92	10
Louisiana		0		0		0	13	8	14	3
Maine		1		0		0		0		0
Michigan	212	5	1	5	7	4	25	11	10	33
Minnesota	2,388	40	4	9	2	5	3,387	53	7	24
Mississippi		0	2	3	27	3	19	3	160	16
Missouri	5	3	91	7	21	5	15	2	308	41
Montana	318	216	5	8	1	11	60	84	98	46
Nebraska	1,665	12		0		0		0		0
Nevada	7,805	47	4	16		1	461	26		1
New Hampshire		3		0		0	1	8		0
New Mexico	22,752	368	1	5	58	17	14,342	116	18	4
New York		0		0	1	2		0		0
North Carolina	12	5		1	23	6	86	5	13	20
North Dakota	40	1	2	1		0		0		0
Ohio		0		4	2	2		0	35	17
Oklahoma	5	2		2		0		1	14	6
Oregon	1,845	565	874	14	112	55	412	148	24	14
Pennsylvania		0		2		0		4		1
South Carolina	20	12		10	8	3	3	2	318	15
South Dakota	128	72		0	6	3	5	38	9	5
Tennessee	332	6	166	3		1	35	2	24	9
Texas	204	3		1	4	3	44	11	22	8
Utah	1,681	235	845	4	31	8	698	47		3
Vermont		0		0		0		1		0
Virginia	8	2		1	1,755	3	1	2		6
Washington	877	106	77	9	3	21	11	76	10	5
West Virginia	22	1		0		0		4		0
Wisconsin		5		3		3	21	4		5
Wyoming	422	65	188	3		3	3	23		0

[1] There were no fires reported on National Forest lands in Maine or New York

[2] National Forest acreage in Connecticut and Hawaii is research and/or experimental land only.

[3] There are no National Forest lands in Delaware, Iowa, Maryland, Massachusetts, New Jersey, or Rhode Island.

Table 10-1 continued.

Number and Acres of Wildfires on lands protected by the National Forest System, 1995

Railroad Acres	Railroad No.	Acres	Arson No.	Children Acres	Children No.	Acres	Misc. No.	Total acres caused by people	Total no. Caused by people	Total acres all causes	Total no. all causes
21	1	755	64		0	107	9	1,026	86	1,309	109
	0		1		0	1	2	10	37	10	40
13	2	995	37	50	32	14,027	258	18,874	842	58,488	16,66
1	1	1,448	131	20	1	76	18	1,788	186	1,955	198
	1	4,843	187	13	59	5,667	417	19,837	1,173	20,107	1,538
	2	2	2	12	2	419	20	497	96	1,278	224
	0	941	31	3	5	44	18	1,005	74	2,111	101
11	2	77	13		0	193	11	363	48	364	51
	3	3,041	4		2	71	29	3,176	138	5,345	812
	0	582	19		0		1	668	34	668	34
	0	4	2		0		0	10	5	10	5
	0		0		0	175	3	175	5	316	16
	0	1,961	137	4	1	77	7	2,255	169	2,359	171
16	2	1,600	77		0	178	13	1,820	103	1,820	103
	0		0		0		0		1		1
	1	89	11	4	8	36	6	172	84	384	84
6	5	54	29	1	5	2	12	3,463	182	5,851	182
1	1	1,186	104		0	1,939	46	3,333	176	3,333	176
50	1	6,620	233	66	2	235	9	7,405	303	7,410	303
	9		6		3	236	37	400	420	718	420
	0		0		0		0		12	1,665	12
3	2	228	7	2	8	26	8	724	69	8,529	116
	0		1		0	4	2	5	11	6	14
	0	239	14	70	3	3,060	39	17,787	198	40,540	566
	0		1		0		0	1	3	1	3
2	1	860	37		1	38	7	1,021	78	1,033	83
	0		0		0		0	2	1	42	2
	0	30	22		0	3	2	70	47	70	47
108	6	1,078	36		2	9	5	1,210	58	1,215	60
4	2	667	35	1	5	69	67	2,164	340	4,008	905
	0		0		0		4		11		11
	1	161	47		0	173	15	663	105	683	105
	0	1	3	1	`1	4	2	25	124	154	124
	0	835	54		0	46	82	1,106	82	1,439	82
	0	421	31		0	12	64	503	64	707	64
	0	1	17		7	211	336	1,786	336	3,467	336
	0		0		0	1	2	1 1	2		2
	0	3,045	26		2	22	51	4,822	51	4,830	51
	0		1		1	10	257	111	257	988	257
	0		0		0		6		6		6
	1		1		0	5	22	26	22	48	22
	0	66	3		0	2	102	259	102	681	102

[1] There were no fires reported on National Forest lands in Maine or New York

[2] National Forest acreage in Connecticut and Hawaii is research and/or experimental land only.

[3] There are no National Forest lands in Delaware, Iowa, Maryland, Massachusetts, New Jersey, or Rhode Island.

suppression projects on Federal lands, and evaluates and applies new, more efficient and environmentally sensitive technologies for forest health protection.

Fire Management

The Forest Service works in cooperation with States and their local wildland fire protection agencies to protect State and private lands nationwide. Fire protection and emergency firefighting programs protect 192 million acres of National Forest System lands and an additional 20 million acres of State and private lands under protection exchanges and agreements.

Federal Excess Personal Property

In 1995, the Forest Service loaned used Federal property to State Foresters for rural and wildland fire protection; this property had an original acquisition cost of $189 million. Former military cargo trucks that are built into tanker trucks represent a large portion of the property, along with aircraft, heavy equipment, and shop machinery.

Rural Community Fire Protection

This program to organize, train, and equip rural fire departments in communities with populations under 10,000 is funded at $3.5 million annually. In 1995, these funds were awarded in over 3,000 grants that attracted $6.4 million in matching fire department funds. More than 80 percent of the money funded purchases of equipment such as communications devices, nozzles, hoses, and protective clothing.

Fire Season

In 1995, over 9,000 fires burned approximately 200,000 acres of National Forest System lands. The annual average is 11,500 fires and 725,000 acres.

Fuels Treatment

In 1995, over 570,000 acres of National Forest System lands received treatment, such as thinning and prescribed burns, for forest fuels—vegetation such as brush, grass, and small trees. This compares to an average annual program of 358,000 acres. Fuels treatment benefits the health of the forest and can prevent catastrophic wildfire .

Rural Community Assistance

The Forest Service implements the national initiative on rural development in coordination with USDA's Rural Development area and State rural development councils. The goal is to strengthen rural communities by helping them diversify and expand their economies through the wise use of natural resources. Through economic action programs, the Forest Service provides technical and financial assistance to more than 850 rural communities that are adversely affected by changes in availability of natural resources or in natural resource policy.

Pacific Northwest rural community assistance provides economic adjustment assistance to almost 150 communities affected by the President's Forest Plan for the Pacific Northwest. This community assistance is part of a larger, multi-Agency effort to target resources for rural areas with acute economic problems.

Table 10-2

National Forest System lands administered by the Forest Service as of September 30, 1996

State, Commonwealth, or Territory	*National forests, purchase units, research areas, and other areas*	*National grasslands*	*Land utilization projects*	*Total*
		Acres		
Alabama	663,123	0	40	663,163
Alaska	21,971,245	0	0	21,971,245
Arizona	11,251,424	0	0	11,251,424
Arkansas	2,553,892	0	0	2,553,892
California	20,617,261	18,425	0	20,635,686
Colorado	13,876,192	628,419	0	14,504,611
Connecticut	24	0	0	24
Florida	1,146,668	0	0	1,146,668
Georgia	864,993	0	0	864,993
Hawai	1	0	0	1
Idaho	20,410,527	47,756	0	20,458,283
Illinois	276,676	0	0	276,676
Indiana	194,264	0	0	194,264
Kansas	0	108,175	0	108,175
Kentucky	691,963	0	0	691,963
Louisiana	603,786	0	0	603,786
Maine	53,040	0	0	53,040
Michigan	2,855,899	0	959	2,856,858
Minnesota	2,837,240	0	0	2,837,240
Mississippi	1,157,013	0	0	1,157,013
Missouri	1,493,198	0	0	1,493,198
Montana	16,879,677	0	0	16,879,677
Nebraska	257,653	94,480	0	352,133
Nevada	5,818,569	0	0	5,818,569
New Hampshire	724,049	0	0	724,049
New Mexico	9,190,265	36,417	240	9,326,922
New York	15,825	0	0	15,825
North Carolina	1,243,139	0	0	1,243,139
North Dakota	743	1,105,030	0	1,105,773
Ohio	227,239	0	0	227,239
Oklahoma	257,395	46,286	0	303,681
Oregon	15,552,932	111,348	856	15,665,136
Pennsylvania	513,264	0	0	513,264
Puerto Rico	27,831	0	0	27,831
South Carolina	612,023	0	0	612,023
South Dakota	1,145,010	868,156	0	2,013,166
Tennessee	633,481	0	0	633,481
Texas	637,280	117,620	0	754,900
Utah	8,112,564	0	0	8,112,564
Vermont	359,289	0	0	359,289
Virgin Islands	147	0	0	147
Virginia	1,656,282	0	0	1,656,282
Washington	9,175,831	0	738	9,176,569
West Virginia	1,032,573	0	0	1,032,573
Wisconsin	1,520,464	0	0	1,520,464
Wyoming	8,687,871	560,166	0	9,248,037
Total	**187,799,825**	**3,842,278**	**2,833**	**191,644,936**

Table 10-3.

Payment to States from national forest receipts—fiscal years 1994-96[1]

State, Commonwealth, or Territory	*FY 1996*	*FY 1995*	*FY 1994*
		Dollars	
Alabama	2,049,877.80	1,468,155.91	1,271,055.32
Alaska	5,905,519.94	7,600,541.26	8,782,012.16
Arizona	1,631,749.08	3,182,123.93	3,949,883.28
Arkansas	6,648,382.02	4,938,171.81	4,535,988.40
California	36,157,525.82	43,045,670.58	50,981,328.44
Colorado	5,955,613.62	5,584,256.33	6,318,890.15
Florida	1,066,315.90	1,334,477.12	1,068,081.49
Georgia	907,778.79	758,829.26	892,851.64
Idaho	17,457,711.74	15,031,321.37	25,227,816.58
Illinois	27,727.21	32,531.32	37,588.40
Indiana	7,410.94	13,755.32	18,228.06
Kentucky	494,031.96	311,288.83	446,667.89
Louisiana	2,735,547.25	2,174,763.33	2,577,223.55
Maine	34,773.87	33,068.56	32,800.47
Michigan	2,384,195.64	2,504,904.39	1,964,052.45
Minnesota	3,179,462.34	2,977,331.33	2,818,868.30
Mississippi	8,276,153.99	7,224,011.21	5,928,308.80
Missouri	1,231,668.46	1,170,273.33	1,235,858.48
Montana	9,383,236.30	10,555,715.38	14,482,280.68
Nebraska	30,563.25	36,887.86	67,973.60
Nevada	298,540.38	322,014.89	520,368.09
New Hampshire	510,233.26	485,115.81	480,777.36
New Mexico	652,646.23	1,102,857.41	1,458,715.36
New York	6,375.28	5,776.98	7,607.03
North Carolina	692,308.54	941,657.23	678,553.50
North Dakota	82.02	122.88	94.23
Ohio	11,399.70	15,554.61	30,109.51
Oklahoma	883,416.06	643,567.28	595,042.78
Oregon	95,238,952.66	109,647,413.38	119,791,067.39
Pennsylvania	6,207,364.12	5,362,116.42	5,301,759.86
Puerto Rico	20,837.85	14,555.48	25,571.76
South Carolina	960,281.44	1,359,265.06	1,586,032.17
South Dakota	2,349,598.42	2,839,734.94	2,631,316.84
Tennessee	319,484.79	441,952.31	385,048.53
Texas	4,337,308.72	2,893,393.24	3,599,206.19
Utah	1,831,244.84	1,553,366.88	2,373,290.67
Vermont	256,960.60	177,634.44	166,768.17
Virginia	822,089.27	996,568.42	820,206.58
Washington	29,429,025.66	30,089,073.00	31,913,563.22
West Virginia	1,860,935.47	1,403,962.13	761,339.86
Wisconsin	1,621,386.26	1,327,757.01	1,206,337.52
Wyoming	1,844,048.53	1,881,106.70	2,191,880.96
Total	**255,719,766.02**	**273,482,644.93**	**309,162,415.72**

[1]Data Source: All Service Receipts - ASR-09-3.

Fire Facts USDA Forest Service

■ ***Number of fires:***	*Average*	*1995*
Less than 10 acres	*10,352*	*8,205*
10 to 999 acres	*1,051*	*945*
1,000+ acres	*82*	*54*
Total	*11,485*	*9,204*

■ ***Major causes of fires:***	*Average % of starts*	*Average % of acres burned*
Lightning	51	57
Human caused	*49*	*43*

■ ***Acres burned:***	*Average*	*1995*
National Forest protected lands	*725,265*	*218,993*

■ ***Appropriations:***	*1994*	*1995*
Presuppression and fire use	*$276,407,000*	*$295,295,000*
Emergency suppression expenditures	*$686,000,000*	*$224,300,000*
Total	*$519,595,000*	*$962,407,000*
State and private appropriations	*$17,148,000*	*$13,689,000*

■ *Natural Fuels Treatment:*	*Average*	*1994*	*1995*
Acres treated	*357,974*	*384,707*	*90,266*
Program cost	*$10,704,000*	*$12,696,000*	*$16,406,000*

■ *USFS Personnel on Wildfires:*	*1994*	*1995*
Fire Management (full time)	*1,714*	*1,633*
Fire Management (part time)	*1,843*	*1,789*
Fire Management (temporary)	*5,446*	*5,526*
Other FS personnel	*27,897*	*4,195*
Emergency Hires (AD)	*38,858*	*13,973*
Hotshot Crews	*53*	*53*
Smokejumpers	*290*	*290*
Helitack	*200*	*200*
Rowpellers	*240*	*240*

Urban and Community Forestry

The Forest Service provides technical and financial assistance to more than 7,200 cities and communities in all States, the District of Columbia, and Puerto Rico for the purpose of building local capacity to manage natural resources.

Natural Resource Conservation Education (NRCE)

The Forest Service supports a lifelong learning process that promotes the understanding of ecosystems and natural resources—their relationships, conservation, use, management, and values to society. Our large partnership base assists the NRCE program in about 200 projects across the country each year, reaching over 200,000 young people and 10,000 teachers. When television is added, NRCE reaches 5 million people. The program includes support for Project Learning Tree, which reaches 400,000 teachers.

Smokey Bear. In 1994, Smokey Bear celebrated 50 years of forest fire prevention. The Forest Service began a forest fire prevention program during World War II, and in 1944, a bear was introduced as the program symbol. In 1950, a bear cub survived a forest fire in the Lincoln National Forest, New Mexico, and after being nursed back to health, came to live in the National Zoo in Washington, DC, as the living fire prevention symbol.

Woodsy Owl. Woodsy Owl is a colorful and fanciful character who was designed to be especially appealing to young children. Woodsy Owl is recognized by over 83 percent of all American households and is America's leading symbol for environmental improvement. Woodsy was created in response to increased public awareness of environmental problems during the late 1960's and early 1970's. The Woodsy Owl campaign was officially launched by the Forest Service on September 15, 1971. In June 1974, Congress enacted a law establishing "Woodsy Owl"—with his slogan "Give a hoot! Don't pollute!"—as a "symbol for a public service campaign to promote wise use of the environment and programs which foster maintenance and improvement of environmental quality." Woodsy's message and appearance have recently been revitalized. He now sports a backpack, hiking shoes, and field pants, and a new slogan builds on his previous message: "Lend a hand—care for the land!"

Smokey Bear

Woodsy Owl

Research

Forests are critical to the global environment and the global economy. They are the source of food, raw materials, shelter, and income for millions, and they provide sanctuary for people and habitat for wildlife. Forests filter and protect water supplies and absorb carbon dioxide from the atmosphere. Agency research is being conducted in areas requiring urgent policy and management action, including studies related to sustainable development, biodiversity, economic and social values, ecological management, and forest health.

Table 10-4.

State summary of total recreation use on National Forest System lands by activity—fiscal year 1996

State, Commonwealth or Territory[1]	Camping picknicking & swimming	Mechanized travel & viewing scenery	Hiking, Horse-back riding & water travel	Winter Sports	Resorts, cabins & organization camps	Hunting	Fishing	Nonconsumptive fish & wildlife use	Other recreation activities	Total	Total visits[2]
					1,000 RVD[3]						*1,000 visits*
Alabama	175.0	125.0	67.0	0.0	0.0	162.0	69.0	7.0	84.0	689.0	1,406.0
Alaska	368.0	4,777.0	368.0	89.0	181.0	145.0	510.0	45.0	479.0	6,962.0	17,181.0
Arizona	7,911.0	15,731.0	3,109.0	169.0	1,006.0	1,052.0	1,031.0	558.0	4,433.0	35,500.0	72,044.0
Arkansas	619.0	555.0	215.0	0.0	42.0	510.0	106.0	28.0	135.0	2,210.0	5,909.0
California	18,824.0	25,492.0	5,915.0	4,246.0	7,696.0	1,742.0	3,356.0	416.0	3,478.0	71,165.0	195,880.0
Colorado[4]	6,079.8	10,212.1	2,726.9	6,525.1	766.1	1,756.4	1,697.5	176.5	1,030.3	30,970.7	60,488.1
Florida	1,536.0	459.0	178.0	0.0	213.0	243.0	183.0	22.0	126.0	2,960.0	8,878.0
Georgia	832.0	1,004.0	386.0	2.0	21.0	345.0	199.0	37.0	99.0	2,925.0	8,332.0
Idaho	4,472.0	4,506.0	1,421.0	821.0	610.0	1,154.0	1,071.0	201.0	1,109.0	15,365.0	23,201.0
Illinois	262.0	443.0	190.0	0.0	9.0	140.0	44.0	19.0	81.0	1,188.0	1,034.0
Indiana	242.0	102.0	119.0	2.0	18.0	104.0	55.0	6.0	36.0	684.0	525.0
Kansas	17.0	27.0	3.0	0.0	1.0	9.0	14.0	3.0	12.0	86.0	184.0
Kentucky	685.0	755.0	283.0	4.0	8.0	217.0	230.0	14.0	130.0	2,326.0	5,670.0
Louisiana	198.0	161.0	29.0	0.0	24.0	114.0	29.0	5.0	39.0	599.0	1,748.0
Maine	31.0	65.0	19.0	4.0	6.0	9.0	16.0	2.0	6.0	158.0	1,000.0
Michigan	1,537.0	1,676.0	302.0	76.0	115.0	538.0	433.0	26.0	163.0	4,866.0	9,997.0
Minnesota	1,983.0	1,116.0	886.0	112.0	441.0	366.0	897.0	35.0	146.0	5,982.0	12,833.0
Mississippi	318.0	562.0	153.0	0.0	27.0	487.0	110.0	16.0	155.0	1,828.0	3,827.0
Missouri	983.0	616.0	356.0	0.0	11.0	278.0	145.0	20.0	109.0	2,518.0	7,299.0
Montana	2,515.0	4,862.0	1,411.0	776.0	444.0	1,221.0	838.0	174.0	1,254.0	13,495.0	31,836.0
Nebraska	183.0	59.0	25.0	1.0	8.0	12.0	5.0	4.0	23.0	320.0	528.0
Nevada	1,090.0	1,175.0	447.0	350.0	154.0	199.0	92.0	78.0	272.0	3,857.0	21,423.0
New Hampshire	656.0	1,310.0	473.0	548.0	233.0	43.0	30.0	16.0	45.0	3,354.0	5,500.0

Table 10-4 continued.

State summary of total recreation use on National Forest System lands by activity—fiscal year 1996

State, Commonwealth or Territory[1]	Camping picknicking & swimming	Mechanized travel & viewing scenery	Hiking, Horse-back riding & water travel	Winter Sports	Resorts, cabins & organization camps	Hunting	Fishing	Nonconsumptive fish & wildlife use	Other recreation activities	Total	Total visits[2]
					1,000 RVD[3]						*1,000 visits*
New Mexico	2,979.0	2,202.0	724.0	751.0	256.0	541.0	341.0	186.0	1,346.0	9,326.0	12,644.0
New York	16.0	8.0	4.0	2.0	0.0	4.0	2.0	1.0	2.0	39.0	19.0
North Carolina	1,710.0	2,460.0	1,210.0	15.0	100.0	793.0	342.0	42.0	307.0	6,979.0	20,935.0
North Dakota	16.0	30.0	18.0	1.0	0.0	56.0	3.0	4.0	5.0	133.0	387.0
Ohio	50.0	93.0	23.0	0.0	0.0	233.0	56.0	5.0	64.0	524.0	900.0
Oklahoma	56.0	179.0	56.0	0.0	0.0	66.0	15.0	10.0	11.0	393.0	1,868.0
Oregon [5]	11,289.5	11,719.1	3,889.7	1,583.9	2,027.7	2,024.1	1,976.4	594.2	1,924.7	37,029.3	97,465.7
Pennsylvania	866.0	1,521.0	348.0	10.0	42.0	178.0	164.0	32.0	107.0	3,268.0	13,837.0
Puerto Rico	92.0	17.0	7.0	0.0	0.0	0.0	0.0	44.0	11.0	171.0	630.0
South Carolina	272.0	241.0	143.0	0.0	1.0	211.0	60.0	15.0	68.0	1,011.0	2,532.0
South Dakota	282.0	2,580.0	206.0	18.0	118.0	91.0	147.0	13.0	116.0	3,571.0	6,173.0
Tennessee	1,251.0	1,023.0	336.0	6.0	102.0	265.0	206.0	31.0	89.0	3,309.0	9,911.0
Texas	640.0	414.0	111.0	0.0	30.0	223.0	742.0	27.0	115.0	2,302.0	3,712.0
Utah	6,334.0	6,611.0	1,294.0	1,329.0	932.0	863.0	1,102.0	69.0	844.0	19,378.0	4,105.0
Vermont	131.0	319.0	110.0	584.0	56.0	87.0	22.0	2.0	84.0	1,395.0	2,699.0
Virginia	1,175.0	1,642.0	480.0	33.0	20.0	878.0	370.0	76.0	253.0	4,927.0	18,755.0
Washington [5]	5,165.5	11,490.7	3,384.2	1,090.6	1,119.9	853.3	420.0	120.2	1,152.5	24,796.9	97,456.0
West Virginia	556.0	306.0	159.0	8.0	38.0	225.0	132.0	10.0	65.0	1,499.0	4,284.0
Wisconsin	615.0	807.0	125.0	29.0	20.0	258.0	503.0	9.0	161.0	2,527.0	9,981.0
Wyoming	2,069.0	2,688.0	1,389.0	522.0	805.0	688.0	396.0	100.0	457.0	9,114.0	14,266.0
Total	**87,081.8**	**122,140.9**	**33,098.8**	**19,707.6**	**17,701.7**	**19,383.8**	**18,159.9**	**3,298.9**	**20,626.5**	**341,199.9**	**859,282.8**

[1] Unlisted States have no Forest Service recreation programs. [2] One visit is an entry of one person upon a national forest for the purpose of participating in one or more recreation activity for an unspecified period of time. Only the "primary" activity of the recreation visitor is recorded. [3] One recreation visitor-day (RVD) is the recreation use of national forest land or water that aggregates 12 visitor-hours. This may entail 1 person for 12 hours, 12 persons for 1 hour, or any equivalent combination of individual or group use, either continuous or intermittent.[4] Numbers for Colorado are from 1995; 1996 data are not available. [5] Numbers for Oregon and Washington are from 1994; 1995 and 1996 data are not available.

Table 10-5.

Acres of State and private lands burned—calendar year 1995

State, Commonwealth, or Territory	*Lightning fires*	*Person-caused fires*	*Total fires*	*Acres burned*
		Number		
Alabama	45	4,436	4,481	39,887
Alaska	29	298	327	16,585
Arizona	105	691	796	63,075
Arkansas	58	3,400	3,458	52,715
California	163	6,282	6,445	118,106
Colorado	245	1,979	2,224	32,011
Connecticut	0	0	0	0
Delaware	3	30	33	418
Florida	468	2,875	3,343	48,591
Georgia	242	7,853	8,095	24,572
Guam	0	622	622	5,726
Hawaii	0	217	217	9,568
Idaho	151	125	276	533
Illinois	1	814	815	6,070
Indiana	17	3,242	3,259	25,934
Iowa	0	1,244	1,244	4,446
Kansas	139	3,200	3,339	71,071
Kentucky	6	2,091	2,097	67,828
Louisiana	6	3,567	3,573	37,538
Maine	154	900	1,054	1,165
Maryland	12	1,052	1,064	5,376
Massachusetts	15	6,364	6,379	8,623
Michigan	22	532	554	4,394
Minnesota	23	1,121	1,144	19,840
Mississippi	4	3,479	3,483	39,888
Missouri	24	3,156	3,180	55,173
Montana	155	214	369	5,724
Nebraska	191	1,072	1,263	103,925
Nevada	23	91	114	11,522
New Hampshire	13	466	479	458
New Jersey	9	1,999	2,008	22,597
New Mexico	164	483	647	53,531
New York	17	391	408	8,546
North Carolina	48	5,200	5,248	20,897
North Dakota	27	229	256	2,590
Ohio	1	1,026	1,027	6,594
Oklahoma	11	2,526	2,537	89,967
Oregon	252	715	967	4,870
Pennsylvania	3	1,031	1,034	3,459
Puerto Rico	0	19,485	19,485	13,662
Rhode Island	0	132	132	120
South Carolina	80	3,487	3,567	17,215
South Dakota	44	449	493	31,425
Tennessee	24	3,445	3,469	42,032
Texas	22	1,511	1,533	18,879
Utah	253	326	579	35,733
Vermont	7	232	239	439
Virginia	16	1,640	1,656	9,240
Washington	115	771	886	4,036
West Virginia	16	1,217	1,233	42,540
Wisconsin	38	1,699	1,737	2,461
Wyoming	165	432	597	12,679
Virgin Islands	0	53	53	107
Total	**3,626**	**109,892**	**113,518**	**1,324,381**

Since establishment in 1876, Forest Service Research has developed into the world's single largest source of natural resource information. It includes:

- More than 600 scientists whose work is aimed at the productivity, health, and diversity of the temperate, boreal, and tropical forests,
- Seven Regional Experiment Stations and one National Forest Products Laboratory comprising 77 research lab locations, many collocated with universities, and
- Gateways for collaborative research in the Tropics, through the International Institute of Tropical Forestry in Puerto Rico and the Institute of Pacific Islands Forestry in Hawaii.

The Forest Service Research program provides:

- More than 2,700 publications per year, and numerous presentations at symposia and workshops,
- Collaboration with university, industry, and other scientists; nongovernmental organizations; managers; and policy makers for work that transcends the abilities of any single organization,
- More than $20 million per year in domestic grants, cooperative agreements, and contracts for research partnerships, and
- Key databases for enhancing forest health, productivity, and conservation.

The Forest Service provides scientific and technological information to manage the Nation's forests and associated ecosystems. This includes studies in vegetation management, watersheds, fisheries, wildlife, forest products and recycling, insects and diseases, economics, forest and rangeland ecology, silviculture, fire ecology, fire prevention, ecosystem functioning, and recreation.

Priority items include:

- Forest inventory and analysis across the United States and forest health monitoring in 18 States,
- Global change research, to learn how climate change interacts with pollution, drought, and forest health,
- Recycling and wood use, to solve technical problems that hinder wastepaper recycling and to develop new products from agricultural and wood fibers and byproducts, and
- Large-scale ecosystem studies, for example on restoring mixed-oak forests in southern Ohio, evaluating impacts of silvicultural treatment on biological diversity in northern hardwood forests, and protecting watersheds, riparian zones, and biological diversity in the Rio Grande Basin.

International Forestry

International cooperation in forestry is crucial in sustaining the ecological and commercial viability of global forest resources. The Forest Service is a global conservation leader and the U.S. Government's main advocate for scientifically based sustainable forest management.

The United States is the world's largest importer of wood, and it exports more than $18 billion worth of wood products each year. The Forest Service, industry, and international counterparts are developing international policies and guidelines to reduce barriers to U.S. exports. The Forest Products Laboratory and its Canadian counterparts have addressed product standards which had previously inhibited trade. As a result, tariffs on U.S. plywood have been reduced 50 percent and exports to Canada have increased steadily.

The Forest Service has been instrumental in preventing the Asian gypsy moth from entering the United States and has cooperated with scientists from the People's Republic of China in finding natural predators for an imported pest, the woolly adelgid, which threatens eastern hemlock in 10 U.S. States and cannot be controlled by pesticides.

In cooperation with Latin American countries, the Forest Service protects the habitat of migratory birds—250 out of 750 bird species in the United States migrate to other countries.

International cooperation in forestry has human health implications. For example, vincristine, a compound derived from a tropical dry forest plant from Madagascar, has improved the survival odds for thousands who have Hodgkin's disease or childhood leukemia.

The Forest Service develops and shares new technology in utilizing forests, monitoring forest resources, and understanding the forests' role in global climate change with other countries.

The support that International Forestry's Disaster Assistance Support Program gives to international disaster prevention, preparedness, and response is critical to our country's ability to save lives and alleviate human suffering inflicted by natural and human-caused global disasters.

Human Resource Programs

Human Resource Programs provide job opportunities, training, and education for the unemployed, underemployed, elderly, young, and others with special needs—while benefiting high-priority conservation work. In FY 1995, these programs included more than 107,000 participants and accomplished over $127 million in conservation work on Forest Service lands.

Through an agreement with the U.S. Department of Labor, the Forest Service operates eighteen **Job Corps Civilian Conservation Centers** on Forest Service lands. The Job Corps program is the only Federal residential education/training program for the Nation's disadvantaged youth.

Key facts about Job Corps Civilian Conservation Centers

- *18 Job Corps Centers, 15 co-ed*
- *8,747 enrolled, ages 16-24*
- *$91.4 million budget*
- *$22.1 million work accomplishment*
- *93 percent placed*
- *Average starting salary, approximately $6.10 per hour*
- *44 percent minorities*

The **Senior Community Service Employment Program** is designed to provide useful part-time employment and training for persons age 55 and over.

Key facts about the Senior Community Service Employment Program:

- *5,554 older workers participated*
- *$26.8 million budget*
- *$40.8 million work accomplishment*
- *Only Federal Agency among 10 national sponsors*
- *41 percent females*
- *18.4 percent placed in unsubsidized employment*
- *$1.52 return on dollar invested*

In the **Youth Conservation Corps** summer employment program, persons aged 15-18 accomplish projects that further the development and conservation of the United States' natural resources.

Key facts about the Youth Conservation Corps:

- *712 enrollees, ages 15-18*
- *$1.3 million operating costs*
- *$2.1 million work accomplishment*
- *$1.62 return on dollar invested*
- *41 percent females*

The **Volunteers in the National Forests** program allows organizations and individuals to donate their talents and services to help manage the Nation's natural resources.

Key facts about Volunteers in the National Forests :

- *82,349 volunteers have participated, (including 86 international volunteers and 169 Touch America Project volunteers, age 14-17)*
- *$38.4 million work accomplishment*
- *34 percent females*
- *Over 1 million volunteers served since the 1972 legislation*

Hosted programs provide conservation training and work opportunities on national forests or in conjunction with Federal programs. Programs are administered through agreements with State and county agencies, colleges, universities, Indian tribes, and private and nonprofit organizations.

- ***Key Facts About Hosted Programs***
  - *9,636 participants*
  - *$23.7 million work accomplishment*
  - *20 percent females*
  - *31 percent minorities*
  - *11 agreements on national forests with the Federal Bureau of Prisons*

Through a partnership with the National Forest Foundation, the Forest Service operated three **Youth Forest Camps** during the summer of 1995. These camps provided jobs, work training, and environmental education for persons age 14-20.

- ***Key Facts About Youth Forest Camps***
  - *83 participants*
  - *Greater than $200,000 work accomplishment*
  - *3 camps operated (Oregon, Virginia, and Colorado)*
  - *36 percent females*
  - *55 percent minorities*

Law Enforcement and Investigations

The objective of the Forest Service law enforcement program is to serve people and protect natural resources and property within the authority and jurisdiction of the Forest Service. The program focuses on activities such as vandalism, archaeological resource violations, timber theft, wildland arson, and the cultivation and manufacture of illegal drugs.

Forest Service drug control efforts continue to focus on the detection, apprehension, and prosecution of persons responsible for illegal drug activities on the forests. Drug enforcement efforts resulted in the seizure of several million dollars' worth of assets and the destruction of several billion dollars' worth of drugs.

In FY 1995, 520 cooperative law enforcement agreements allowed the Forest Service to cooperate with State and local law enforcement agencies and with other Federal agencies to increase the protection and service to forest visitors. About 190 drug control agreements were set up between the Forest Service, State and local law enforcement agencies, and other Federal agencies or task forces to cooperate in eliminating illegal drug activities on the National Forest System.

Key facts about law enforcement and investigations:

- *Over 138,000 incidents or violations of Federal laws and regulations were reported. These violations resulted in many millions of dollars in damages and losses to National Forest System property and resources.*
- *Nearly 264,299 cannabis plants were eradicated from 5,742 sites on the national forests.*
- *2,095 individuals were arrested for illicit controlled-substance production and distribution on National Forest System land.*
- *About 162 special agents and 485 full-time uniformed law enforcement officers performed investigation and enforcement activities that are unique to the National Forest System and its resources.*

Natural Resources Conservation Service—A Productive Nation in Harmony with a Quality Environment

Introduction

As USDA's lead Agency for conservation technical assistance, the Natural Resources Conservation Service (NRCS) works closely with other USDA agencies involved in conservation, including the Farm Service Agency (FSA); Agricultural Research Service; Forest Service; and the Cooperative State Research, Education, and Extension Service. Through these agencies, USDA administers a wide range of programs to solve this country's natural resource problems as they affect private lands in agricultural and other uses.

Our well-being depends on healthy, productive, and diverse ecosystems and their sustainable use. Just as soil, water, and habitat are interrelated, the programs that address these resources are interrelated, and programs that help one resource also benefit others. If you stop erosion, for example, you also enhance soil productivity and protect water and air quality. Improving the environment can enhance the economic future of communities throughout the United States.

The mission of NRCS is to provide leadership and administer programs to help landowners and land users to conserve, improve, and sustain our natural resources and the environment, while enabling the United States to continue as the world's preeminent producer of food and fiber.

A Partnership Approach to Resource Conservation

For six decades NRCS employees have worked side-by-side with landowners, conservation districts, State and local governments, and urban and rural partners to restore and enhance the American landscape. The Agency helps landowners and communities take a comprehensive approach in conservation planning, going beyond soil to an understanding of how all natural resources—soil, water, air, plants, animals—relate to each other and to humans. The Agency works to solve the natural resource challenges on the Nation's private lands—reducing soil erosion, improving soil health and rangeland health, protecting water quality and supply, conserving wetlands, and providing fish and wildlife habitat.

Most NRCS employees serve in USDA's network of local, county-based offices, including those in Puerto Rico and the Pacific Basin. The rest are at State, regional, and national offices, providing technology, policy, and administrative support. They serve all people who live and work on the land. Nearly three-fourths of the Agency's technical assistance goes to helping farmers and ranchers develop conservation systems uniquely suited to their land and their ways of doing business.

The agency helps rural and urban communities curb erosion, conserve and protect water, and solve other resource problems. American Indian tribes, Alaska Natives, Pacific Islanders, and other native groups work with NRCS on a variety of initiatives that include resource inventories and the adaptation of conservation programs to fit the special needs of their people and their land. Also, countries around the globe seek NRCS advice on building their own conservation delivery systems and in coping with severe natural resource problems.

Conservation is the work of many—no one can do it alone. NRCS relies on many partners to help set conservation goals, work with people on the land, and provide services. In addition to local conservation districts, State conservation agencies, and other State and Federal agencies, the partners include NRCS Earth Team volunteers, AmeriCorps members, agricultural and environmental groups, and professional societies.

NRCS Programs

Through various programs, NRCS provides conservation technical assistance to land users, communities, units of State and local government, and other Federal agencies in planning and implementing natural resource solutions to reduce erosion, improve soil and water quantity and quality, improve and conserve wetlands, enhance fish and wildlife habitat, improve air quality, improve pasture and range conditions, reduce upstream flooding, and improve woodlands. The purpose is to sustain agricultural productivity and protect and enhance the natural resource base. This assistance is based on voluntary local landowner cooperation and recognizes the value of educational, technical, and financial assistance.

Conservation Provisions of the 1996 Farm Bill

The conservation provisions of the Federal Agriculture Improvement and Reform Act of 1996—also known as the 1996 Farm Bill—simplified existing conservation programs and improved their flexibility and efficiency. The bill also created new programs to address high-priority environmental protection goals.

The 1996 Farm Bill authorized more than $2.2 billion in additional funding for conservation programs, extended the Conservation Reserve Program and Wetland Reserve Program, and created new initiatives to improve natural resources on America's private lands.

Environmental Conservation Acreage Reserve Program

The Environmental Conservation Acreage Reserve Program (ECARP) encompasses the FSA's Conservation Reserve Program (CRP) and NRCS's Wetlands Reserve Program (WRP) and Environmental Quality Incentives Program (EQIP). Under ECARP, the Secretary of Agriculture may designate watersheds, multistate areas, or regions of special environmental sensitivity as conservation priority areas. These areas may be eligible for special assistance to get them into compliance with nonpoint source pollution requirements of the Clean Water Act and other Federal and State environmental laws and to meet other conservation needs.

Conservation Reserve Program

The Conservation Reserve Program (CRP), which is administered by FSA, with technical assistance given by NRCS, protects highly erodible and environmentally sensitive lands with grass, trees, and other long-term cover. Now under CRP:

- Up to 36.4 million acres can be enrolled at any one time;
- New enrollments must focus on the most environmentally sensitive land;
- Expired or terminated contracts may be replaced with new enrollments; and
- Landowners who entered into a contract before January 1, 1995, may terminate contracts after giving written notice. Contracts must have been in effect at least 5 years and meet other eligibility criteria.

Wetlands Reserve Program

The Wetlands Reserve Program (WRP) is a voluntary program to restore and protect wetlands on private property. It is an opportunity for landowners to retire marginal agricultural land in exchange for receiving financial incentives to enhance wetlands.

Congress authorized WRP with the Food Security Act of 1985 and amended it in the 1990 and 1996 Farm Bills. NRCS administers the program in consultation with other Federal agencies.

Landowners who choose to participate in WRP may sell a conservation easement or enter into a cost-share restoration agreement with USDA to restore and protect wetlands. The landowner voluntarily limits future use of the land, yet retains private ownership. The landowner and NRCS develop a plan for the restoration and maintenance of the wetland.

The program offers landowners three options: permanent easements, 30-year easements, and restoration cost-share agreements of a minimum 10-year duration.

Permanent Easement. This is a conservation easement in perpetuity. Easement payment will be the lesser of: the agricultural value of the land, an established payment cap, or an amount offered by the landowner. In addition to paying for the easement, USDA pays 100 percent of the costs of restoring the wetland.

30-Year Easement. This is a conservation easement lasting 30 years. Easement payments are 75 percent of what would be paid for a permanent easement. USDA also pays 75 percent of restoration costs.

Restoration Cost-Share Agreement. This is an agreement (generally for a minimum of 10 years in duration) to re-establish degraded or lost wetland habitat. USDA pays 75 percent of the cost of the restoration activity. This does not place an easement on the property. The landowner provides the restoration site without reimbursement.

Other agencies and private conservation organizations may provide additional assistance for easement payment and wetland restoration costs as a way to reduce the landowner's share of the costs. Such special partnership efforts are encouraged.

States were authorized to begin a continuous sign-up as of October 1, 1996. To offer a conservation easement, the landowner must have owned the land for at least 1 year prior to enrolling the land in the program unless the land was inherited or the landowner can prove the land was not obtained for the purpose of enrolling it in the program. To participate in a restoration cost-share agreement, the landowner must show evidence of ownership.

To be eligible for WRP, land must be restorable and be suitable for wildlife benefits. This includes:

- Wetlands farmed under natural conditions;
- Farmed wetlands;
- Prior converted cropland;
- Farmed wetland pasture;
- Farmland that has become a wetland as a result of flooding;
- Rangeland, pasture, or production forestland where the hydrology has been significantly degraded and can be restored;
- Riparian areas which link protected wetlands;
- Lands adjacent to protected wetlands that contribute significantly to wetland functions and values; and
- Previously restored wetlands (Conservation Reserve Program [CRP] land is eligible if it meets WRP requirements).

Ineligible land includes wetlands converted after December 23, 1985; lands with timber stands established under a CRP contract; Federal lands; and lands where conditions make restoration impossible.

New Programs Authorized

The 1996 Farm Bill created new initiatives to improve natural resources on America's private lands:

Environmental Quality Incentives Program

The Environmental Quality Incentives Program (EQIP) was established in the 1996 Farm Bill to provide a single, voluntary conservation program for farmers and ranchers who face serious threats to soil, water, and related natural resources. It provides technical, financial, and educational assistance.

EQIP also represents USDA's commitment to streamlining and improving its services. USDA combined four of its conservation programs into EQIP: the Agricultural Conservation Program, Water Quality Incentives Program, Great Plains Conservation Program, and the Colorado River Basin Salinity Control Program.

NRCS has leadership for EQIP. It works with FSA to set the program's policies, priorities, and guidelines. Conservation districts and FSA county committees have important roles in implementing the program at the local level. State Technical Committees offer advice on establishing EQIP activities at the State level.

EQIP will:

- Focus on conservation priority areas where there are significant natural resource problems;
- Provide technical assistance and up to 75 percent of the costs of applying conservation practices;
- Give high priority to assisting areas where State or local governments also offer assistance or where conservation practices will help meet water quality objectives; and
- Be administered through multiyear contracts based on conservation plans.

EQIP was funded at $130 million in fiscal year 1996 and $200 million thereafter until 2002. Fifty percent of funding is marked for livestock-related conservation practices. Total cost shares and incentive payments to any person may not exceed $10,000 for any fiscal year. There is a $50,000 limit for multiyear contracts.

Wildlife Habitat Incentives Program

The Wildlife Habitat Incentives Program (WHIP) helps participants develop and improve wildlife habitat on private lands. WHIP is authorized to provide cost sharing to participants to offset expenses incurred for developing habitat for fish and wildlife. NRCS administers the program. The Chief of NRCS may implement WHIP in any of the 50 States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, the U.S. Virgin Islands, American Samoa, the Commonwealth of the Northern Mariana Islands, and the Trust Territories of the Pacific.

WHIP will provide cost sharing to develop habitat for upland and wetland wildlife, threatened and endangered species, fish, and other types of wildlife. Funds for cost sharing total $50 million to the year 2002.

Under WHIP, participants or leasees who have a lease for the duration of the contract agree to implement a wildlife habitat development plan for lands that are made available, without cost, to NRCS. In turn, NRCS agrees to provide cost-share assistance for the initial implementation of wildlife habitat development practices. In some States, other wildlife agencies or nongovernment organizations may provide expertise or additional funding to carry out a project.

Farmland Protection Program

The Farmland Protection Program provides funds to help purchase development rights to keep productive farmland in use. Working through existing programs, USDA joins with State, tribal, or local governments to acquire conservation easements or other interests from landowners. USDA provides up to 50 percent of the costs of purchasing the easements. To qualify, farmland must: be part of a pending offer from a State, tribe, or local farmland protection program; be privately owned; have a conservation plan; be large enough to sustain agricultural production; be accessible to markets for what the land produces; have adequate infrastructure and

services; and have surrounding parcels of land that can support long-term agricultural production.

Conservation of Private Grazing Land

Conservation of Private Grazing Land, which is administered by NRCS, will ensure that technical, educational, and related assistance is provided to those who own private grazing lands. The Nation's more than 600 million acres of private grazing lands produce food and fiber, hold and carry important water resources, and offer wildlife habitat and recreational opportunities.

This assistance will offer opportunities for:

- Better grazing land management;
- Protecting soil from erosive wind and water;
- Using more energy-efficient ways to produce food and fiber;
- Conserving water;
- Providing habitat for wild animals;
- Sustaining forage and grazing plants;
- Using plants to clear carbon dioxide and other greenhouse gasses from the air; and
- Using grazing lands as a source of biomass energy and raw materials for industrial products.

In fiscal year 1996, $20 million was authorized from conservation technical assistance funds. The amount increases to $60 million by the third year.

Additional Conservation Provisions

Conservation Compliance

The 1996 Farm Bill has brought changes to how conservation compliance operates. These changes will encourage land users to slow soil erosion on highly erodible land (HEL), protect wetlands, and build on conservation compliance successes achieved under previous Farm Bills.

Conservation compliance policies are now more farmer friendly than those of previous Farm Bills while still achieving high levels of environmental protection. Farmers have greater flexibility in choosing the conservation methods that can protect their highly erodible land. More decisions regarding conservation compliance can be made at the local level and decisions can now be made faster and with fewer staff resources.

Swampbuster

Swampbuster prevents wetlands from being altered for agricultural purposes for those seeking USDA program benefits by preserving the environmental functions and values of wetlands. These values include wildlife habitat, flood control, esthetics, recreation, sediment control, groundwater recharge, and improving water quality.

The 1996 Farm Bill changed Swampbuster to give farmers greater flexibility in complying with wetland conservation requirements and in making wetlands more valuable and functional. The following Swampbuster provisions have changed:

- Wetland determinations will be made upon request. These determinations stay in effect as long as the land is used for agricultural purposes (unless a violation occurs) or until the owner or operator requests a review.
- There are more options for mitigation. These options include the kinds and locations of restoration, enhancement, or creation activities that maintain a wetland's functions and values.
- Landowners who desire to convert or alter wetlands may enhance existing wetlands, restore former wetlands, or create new wetlands to offset functions and values that are lost from conversions or alterations.
- Wetland conversions authorized by Section 404 of the Clean Water Act will be accepted if the conversion activities were properly mitigated.
- A pilot program for wetland mitigation banking may be established. This program would allow USDA to assess how well mitigation banking assists USDA participants comply with Swampbuster.
- Practices that alter wetlands can now be put on a "fast track" for completion if NRCS determines that a planned activity will have a minimal effect on the wetland functions and values in the area under the "categorical" minimal-effect exemption.

Agricultural Air Quality

The 1996 Farm Bill includes a provision requiring the establishment of a Task Force on Agricultural Air Quality to make recommendations to the Secretary of Agriculture with regard to the scientific basis for agriculture's impact on air quality. The Task Force is to be chaired by the NRCS Chief, and, unless renewed, the Task Force will be terminated 2 years from the date of establishment.

The Task Force is to strengthen and coordinate USDA air quality research efforts to determine the extent to which agricultural activities contribute to air pollution and to identify cost-effective ways in which the agricultural industry can improve air quality. The Task Force also is charged with ensuring that data quality and interpretation are sound. The Farm Bill states that policy recommendations made by any Federal Agency with respect to agricultural air quality issues are to be based on sound scientific findings, subject to peer review, and should consider economic feasibility.

The Task Force will work to ensure intergovernmental (Federal, State, and local) cooperation to establish policy for agricultural air quality and to avoid duplication.

The Task Force is to be convened and chaired by the Chief of NRCS and comprised of USDA employees, industry representatives, and outside experts in the fields of agriculture, air quality, and human health. The Task Force will be an advisory committee and will operate under the terms of the Federal Advisory Committee Act.

Soil Surveys

NRCS conducts soil surveys cooperatively with other Federal agencies, land-grant universities, State agencies, and local units of government. Soil surveys provide the public with local information on the uses and capabilities of their soil resource. Soil surveys are based on scientific analysis and classification of the soils, and are used to determine land capabilities and conservation treatment needs. The published soil survey for a county or designated area includes maps and interpretations with explanatory information that is the foundation of resource policy, planning, and decisionmaking for Federal, State, county, and local community programs.

- ***Major Accomplishments - FY 1995***
  - *Decisions receiving technical services annually - 814,000*
  - *Acres treated annually through conservation technical assistance - 28.2 million*
  - *Tons of soil erosion reduced annually through conservation technical assistance - 258 million*
  - *Acres mapped annually by NRCS - 21.9 million*
  - *Number of soil surveys ready for production - 59*

Snow Survey and Water Supply Forecasts

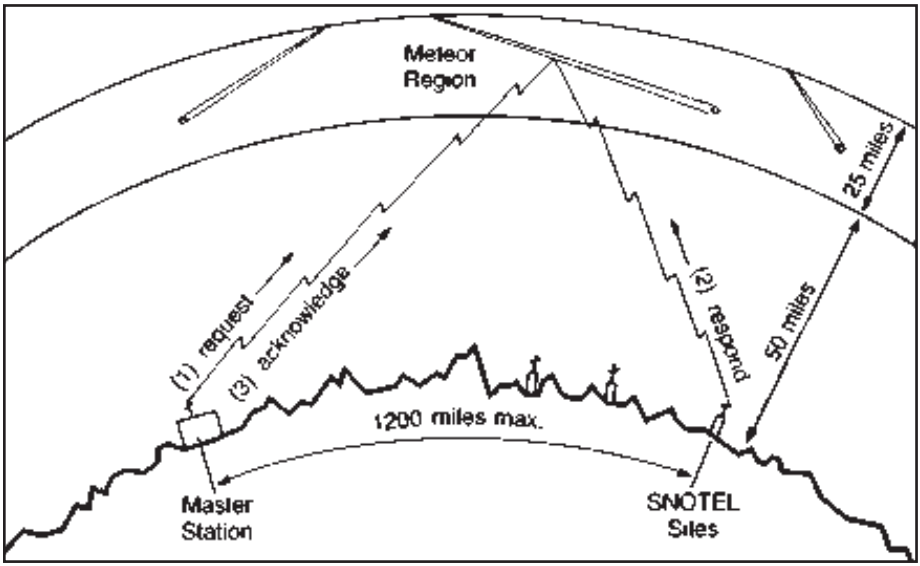
NRCS field staff collect snow information through a network of about 600 Snow Telemetry (SNOTEL) and 850 traditional snow courses to provide 11 Western States and Alaska with water supply forecasts. The data are collected, assembled, and analyzed to make about 4,000 annual water supply forecasts, which provide estimates of available annual yield, spring runoff, and summer stream flow. Water supply forecasts are used by individuals, organizations, and State and Federal agencies to make decisions relating to agricultural production, fish and wildlife management, flood control, recreation, power generation, and water quality management. The National Weather Service presently includes the snow information in its river forecasting.

Plant Materials Centers

NRCS employees at 26 Plant Materials Centers assemble, test, and encourage increased plant propagation and usefulness of plant species for biomass production, carbon sequestration, erosion reduction, wetland restoration, water quality improvement, streambank and riparian area protection, coastal dune stabilization, and to meet other special conservation treatment needs. The work is carried out cooperatively with State and Federal agencies, commercial businesses, and seed and nursery associations. After species are proven, they are released to the private sector for commercial production. In 1995, NRCS developed cultivars that were turned over to others to produce plant stock that generated more than $88 million in revenue for private sector nurseries and seed companies.

Figure 10-3.

Snow surveys and meteor burst technology



Water supply forecasting is enhanced by automated snow survey data collection through a snowpack telemetry (SNOTEL) network. This figure depicts the meteor burst technique used to transmit data from remote SNOTEL sites.

Billions of sand-sized meteorites enter the atmosphere daily. As each particle heats and burns in the region 50 to 75 miles above the Earth's surface, its disintegration creates a trail of ionized gases. The trails diffuse rapidly, usually disappearing within a second, but their short lifespan is adequate for SNOTEL communications to be completed.

The process has three major steps: (1) master stations request data from remote sites; (2) sites respond by transmitting their current data; and (3) finally a master station acknowledges receipt and signals the site transmitter to stop. This complex exchange, taking place in a fraction of a second, is possible thanks to microprocessors.

Watershed Surveys and Planning

NRCS provides assistance to local communities in watershed planning in response to requests by sponsoring local organizations. The Agency works with sponsors to develop watershed plans which meet sponsors' priorities and provide natural resource benefits.

Small Watersheds Projects.

NRCS provides technical and financial assistance, in cooperation with local sponsoring organizations, State, and other public agencies, to voluntarily plan and install watershed-based projects on private lands. The program empowers local people or decisionmakers, builds partnerships, and requires local and State funding con-

tributions. The purposes of watershed projects include watershed protection; flood prevention; water quality improvements; soil erosion reduction; rural, municipal, and industrial water supply; irrigation water management; sedimentation control; fish and wildlife habitat enhancement; and creation and restoration of wetlands and wetland functions.

Emergency Watershed Protection

Under the Emergency Watershed Protection (EWP) program, NRCS provides assistance to reduce hazards to life and property in watersheds damaged by severe natural events. An emergency exists when floods, fire, drought, or other natural causes result in life or property being endangered. During the past 8 years, the program has been needed and used in an average of 26 States per year. Emergency work includes establishing quick vegetative cover on denuded land, sloping steep land, and eroding banks; opening dangerously restricted channels; repairing diversions and levees; and other emergency work. The emergency area need not be declared a national disaster area to be eligible for technical and financial assistance. Emergency watershed protection is applicable to small-scale, localized disasters as well as disasters of national magnitude. NRCS provides technical and financial assistance for disaster cleanup and subsequent rebuilding; stream corridor, wetland, and riparian area restoration; and urban planning and site location assistance to the Federal Emergency Management Agency (FEMA) when relocating communities out of floodplains. Local people are generally employed on a short-term basis to assist with disaster recovery.

Watershed Operations

Under the Flood Control Act of 1944, NRCS is authorized to administer watershed works of improvement. Flood prevention operations include planning and installing works of improvement and land treatment measures for flood prevention; for the conservation, development, utilization, and disposal of water; and for the reduction of sedimentation and erosion damages. This may also include the development of recreational facilities and the improvement of fish and wildlife habitat. Activities are authorized in 11 specific flood prevention projects covering about 35 million acres in 11 States.

■ Watershed Surveys and Planning Major Accomplishments - FY 1995

Applications available for planning	*274*
Approved for planning	*17*
Planning completed	*17*
Planning in process	*91*
Cooperative studies initiated	*37*
Cooperative studies completed	*15*
Cooperative studies in progress at end of year	*136*
Floodplain management studies completed (cumulative total)	*668*
Floodplain management studies completed during fiscal year	*8*
Floodplain management studies in progress at end of year	*87*

River Basin Surveys and Investigations

NRCS cooperates with other Federal, State, and local agencies in conducting river basin surveys and investigations, flood hazard analysis, and flood plain management assistance to aid in the development of coordinated water resource programs, including the development of guiding principles and procedures. Cooperative river basin studies are made up of agricultural, rural, and upstream water and land resources to identify resource problems and determine corrective actions needed. These surveys address a variety of natural resource concerns including water quality improvement, opportunities for water conservation, wetland and water storage capacity, agricultural drought problems, rural development, municipal and industrial water needs, upstream flood damages, and water needs for fish, wildlife, and forest-based industries. Flood plain management assistance includes the identification of flood hazards and the location and use of wetlands. NRCS represents the Department on river basin regional entities and River Basin Interagency Committees for coordination among Federal departments and States.

Forestry Incentives Program

The objectives of this program are to increase the Nation's production of sawtimber and pulpwood on nonindustrial, private forest lands; to decrease expected shortages and rising prices of timber; and to help ensure effective use of available forest lands. Program objectives are met by providing cost-share and technical assistance to landowners to encourage voluntary installation of forestry practices. The program shares up to 65 percent of the cost incurred by the landowner for tree planting and timberstand improvement.

Resource Conservation and Development (RC&D) Program

The Resource Conservation and Development (RC&D) Program helps people care for and protect their natural resources in a way that will improve an area's economy, environment, and living standards. The RC&D Program is a unique blend of private enterprise and creative federalism. It is based on a number of concepts including the value of public/private partnerships in making the best use of limited resources; the value of grassroots involvement in making decisions about local areas; the need to bring USDA agencies together to focus on the same problems and opportunities; the need to leverage limited Federal dollars with private funds to accomplish goals; and the importance of achieving a balance between rural economic development and natural resource protection. RC&D involves more than a single project effort and builds upon long-range resource development plans. To implement RC&D, diverse groups of local people are brought together in an RC&D Council in an RC&D Area. An RC&D Area can include one or more adjacent counties that are big enough to have substantial natural resources to use for economic improvement and community betterment. The RC&D Councils, nationwide, are comprised of more than 20,000 volunteers. There are currently 289 authorized RC&D areas involving 2,092 counties across the country.

National Resources Inventory

Every 5 years, NRCS issues a report card on how well the Nation is sustaining natural resources on non-Federal land. Called the "National Resources Inventory," or NRI, this report card contains the most comprehensive and statistically reliable data of its kind in the world. It measures trends in soil erosion by water and wind, wetland losses, prime farmland acreage, irrigation, and conservation treatment needs at national, regional, State, and sub-State levels.

In 1994, NRCS released the NRI data comparing resource conditions and trends in 1982 and 1992. Key findings include:

- Between 1982 and 1992, the Nation's cropland acreage decreased by about 9 percent (from 421 million to 382 million acres), most of it going into the Conservation Reserve Program; rangeland acreage decreased by about 2 percent (from 409 million to 399 million acres); and developed land increased by 18 percent (from 78 million to 92 million acres).
- The average annual rate of soil erosion for the Nation dropped substantially between 1982 and 1992, largely attributable to the success of the Nation's farmers in meeting the conservation provisions of the 1985 farm bill.
- Prime farmland decreased by 6 million acres between 1982 and 1992, with most of the losses due to rural and urban development.
- Wetland loss due to agriculture has slowed significantly.

The NRI contributes to resource appraisals authorized by the Soil and Water Resources Conservation Act of 1977. These "RCA" appraisals, led by NRCS, are the basis for USDA's National Conservation Program as well as farm and environmental legislation.

In 1994, NRI data and analytical software were made available to the public on CD-ROM for the first time. To obtain the NRI database, Data Analysis Software, and spatial data sets, contact: NRCS National Cartography and Geospatial Center, Fort Worth Federal Center, Bldg. 23, Room 60, P.O. Box 6567, Fort Worth, TX 76115-0567; telephone (817) 334-5559, extension 3135.

Each NRI has built and improved upon the previous one. For example, the 1992 NRI added a data element to look specifically at Earth cover. Major improvements planned for the 1997 NRI include a broader resource assessment focus to address emerging Agency initiatives, such as soil quality and grazing lands health. The NRI and other data collection efforts are being coordinated to achieve a continuous assessment of natural resource conditions and trends.

NRI information can be used to formulate policy and evaluate programs at national, regional, and State levels. Because the NRI's 800,000 sample points are linked to geographic coordinates, natural resource estimates and maps can be produced for user-defined areas of interest. When combined with other Federal, State, and local government inventories, the NRI can provide a snapshot of the state of the land and identify natural resource trends. NRCS field offices and new information dissemination systems, such as the Internet, will become increasingly important in getting this information to the people who most need it: landowners and natural resource managers.

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Forest Service: Caring for the Land and Serving People

The Forest Service considers the American people its owners, customers, and partners in caring for the Nation's natural resources. The Forest Service administers statutes that guide:

- Construction and maintenance of roads and trails where needed to allow for timber harvesting and public access to outdoor recreation areas;
- Construction and maintenance of facilities at outdoor recreation areas;
- Timber harvesting methods that protect other natural resources;
- Removal of oil, gas, uranium, and other minerals of strategic importance, as well as coal and geothermal steam;
- Use of national forest and range land as a refuge for threatened and endangered species of birds, animals, fish, and plants; and
- Use of national forests and grasslands for livestock grazing.

Mission

The Forest Service mission is "Caring for the Land and Serving People." The Forest Service's mission is further expressed in its land ethic: "Promote the sustainability of ecosystems by ensuring their health, diversity, and productivity." This is coupled with the service ethic: "Tell the truth, obey the law, work collaboratively, and use appropriate scientific information in caring for the land and serving people."

These land and service ethics are applied by the Forest Service through ecosystem management. Ecosystem management is the integration of ecological, economic, and social factors in order to maintain and enhance the quality of the environment to meet current and future needs.

The four strategic goals of the Forest Service are to: (1) protect ecosystems, (2) restore deteriorated ecosystems, (3) provide multiple benefits for people within the capabilities of ecosystems, and (4) ensure organizational effectiveness.

The Forest Service's Draft 1995 Resources Planning Act Program, its long-term strategic plan, sets forth the programs and management actions that will be carried out under each of the four strategic goals. The Forest Service works toward three primary outcomes: healthy ecosystems; vital communities; and an effective, multidisciplinary, multicultural organization.

Principal Laws

The Forest Service administers the lands and resources of the National Forest System under the Organic Act of 1897, the Multiple Use-Sustained Yield Act of 1960, and the National Forest Management Act of 1976.

The Agency also conducts research, provides assistance to State and private landowners, assesses the Nation's natural resources, and provides international assistance and scientific exchanges. These activities are carried out under the Forest and Rangeland Renewable Resources Planning Act of 1974, The Renewable Resources Extension Act of 1978, the Forest and Rangeland Renewable Resources Research Act of 1978, the Cooperative Forestry Assistance Act of 1978, and the International Forestry Cooperation Act of 1990.

Organizational Structure

The top administrative official of the Forest Service is the Chief who, through the Under Secretary for Natural Resources and Environment, reports to the Secretary of Agriculture. The Forest Service is responsible for administering programs that provide services to the general public and other users in five areas: (1) National Forest System, (2) State and Private Forestry, (3) Research, (4) International Forestry, and (5) Administration.

The **National Forest System** (NFS) operates under the concept of multiple use, providing sustained yields of renewable resources such as water, livestock forage, wildlife habitat, wood, and recreation, and ensuring the integration of mineral resource programs and activities. The Forest Service is also committed to preserving wilderness, biodiversity, and visual quality. Scientific management of wildfire, epidemics of disease and insect pests, erosion, floods, and water and air pollution is also a major activity.

State and Private Forestry programs advance the Forest Service's mission of contributing to sound management of State and private nonindustrial forest land. The programs serve as a link among many public and private organizations and bridge ownership boundaries to promote the best use of America's natural resources.

Forest Service **Research** covers a wide range of forest-related subjects, develops new scientific knowledge regarding ecosystem restoration and management, and helps to protect and enhance productivity on all of America's forests and rangelands, with special attention to long-term natural resource issues of national and international scope.

International Forestry activities promote sustainable development and global environmental stability, particularly in countries important in global climate change. This mandate includes setting a national goal for sustainable management of all forests by the year 2000, researching topics with implications for global forest management, and facilitating the exchange of resource management experience around the world.

Forest Service **Administration** provides direction, quality assurance, and customer service in carrying out the Forest Service business and human resource programs.

Reinvention

In 1993 the National Performance Review selected the Forest Service to serve as a case study highlighting Federal agencies "doing it right." Significant progress has been made in three categories: (1) determining what Forest Service employees think about their work and how they think it can be improved, (2) streamlining Agency processes, and (3) restructuring and downsizing Agency organization. Specific actions include these:

- The Agency has received 15,000 customer response cards and used them to improve customer service.
- The Forest Service and other Federal and State agencies have partnered to reduce costs and improve efficiency. In Oregon, the Bureau of Land Management and the Forest Service share offices, equipment, and people to provide a common-sense, "one-stop shopping" approach to land management and customer service.
- The Agency has redesigned the campground reservation system based on customer feedback from 1996. A record number of customers used the new system in 1997.
- The Forest Service has planned for a reduction in overall work force from about 43,000 full-time employees in 1993 to about 37,500 in 1999.

National Forest Foundation

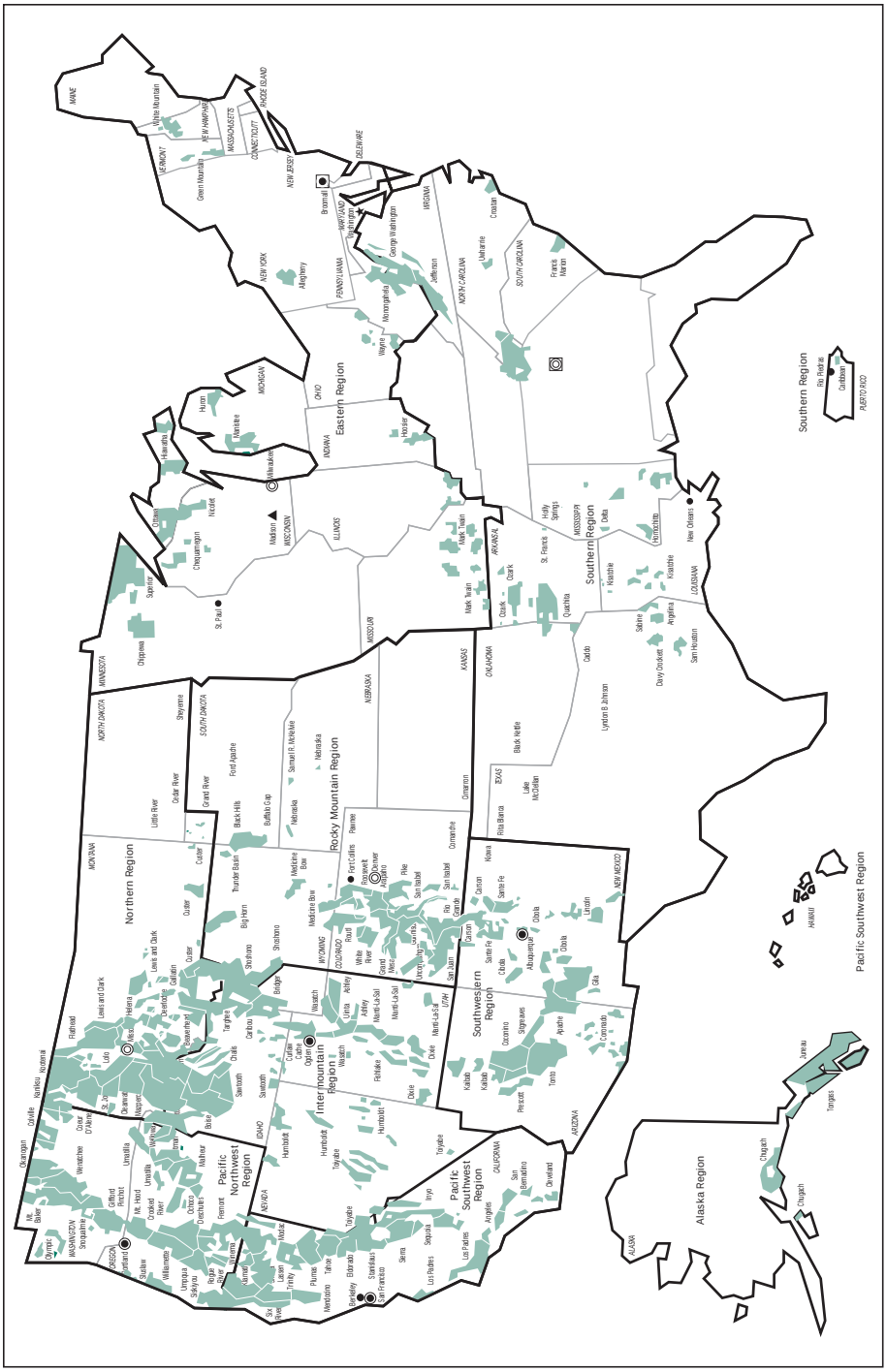
The National Forest Foundation was authorized by Congress in 1990 as a non-profit corporation to:

- Encourage and accept donations and gifts for the benefit of the Forest Service,
- Conduct activities that further the purposes of national forest and national grassland management,
- Encourage educational and other assistance that supports multiple use, research, cooperative forestry, and other programs administered by the Forest Service, and
- Promote cooperation among the Forest Service, the private sector, and other governmental and educational institutions.

During FY 1996, the Foundation helped the Forest Service expand its Challenge Cost-Share program by identifying and working with private sector partners. A "Firefighter Fund" has been established to provide financial assistance to firefighters who were severely injured in the 1994 fires and to the families of those men and women who were killed in the line of duty. A pilot program is underway to develop interactive kiosk technology and update interpretive exhibits at visitor information centers through corporate sponsorships and fund raising efforts. The foundation supported tree planting, watershed restoration, universal accessibility to national forests, and trail repair and maintenance, including $50,000 for the Continental Divide Trail in the Rocky Mountains.

Figure 10-1.

Location of National Forests



Key Facts about the Forest Service

- *The entire Nation has about 1.6 billion acres of forest and range land, under all ownerships.*
- *The entire Nation has 736.7 million acres of forest land area, not including rangeland, under all ownerships; the owners/managers of this forest land are as follows:*

Federal Government: 249.1 million acres

- *Forest Service: 139.9 million acres*
- *Bureau of Land Management: 36.6 million acres*
- *National Park Service, Department of Defense, Department of Energy, & other Federal: 72.6 million acres*

Non-Federal total: 487.5 million acres

- *State: 54.7 million acres*
- *9.9 million private landowners: 422.3 million acres*
- *County and Municipal: 10.5 million acres*

- *There are 191.6 million acres of national forest land. This is 8.3 percent of the United States' land area, or about the size of Texas plus 10 percent. The Forest Service manages:*
- *National Grasslands: 3.9 million acres*
- *National Primitive Areas: 173,762 acres*
- *National Scenic-Research Areas: 6,630 acres*
- *National Wild & Scenic Rivers: 4,385 miles—95 rivers*
- *National Recreation Areas: 2.7 million acres*
- *National Game Refuges and Wildlife Preserves: 1.2 million acres*
- *National Monument Areas: 3.3 million acres*
- *National Historic Areas: 6,540 acres*
- *Congressionally Designated Wilderness: 34.6 million acres*
- *The Forest Service manages 155 national forests for multiple uses.*
- *The national forest trail system is the largest in the Nation, with more than 125,000 miles of trails for hiking, riding, and cross-country skiing.*
- *The Forest Service provides more recreational opportunities than any other Federal Agency. Visitors to national forests are attracted by:*
- *5,885 campgrounds and picnic areas*
- *328 swimming developments*
- *1,222 boating sites*
- *250 winter sports sites, including 120 downhill ski areas*
- *If all these sites were fully occupied at the same time, they would accommodate 1.8 million people.*
- *Minerals found on Forest Service lands provide more than $3.3 billion in private sector revenue each year.*

Key Forest Service figures for 1995:

- *Recreation use: 330.3 million visitor days (1 visitor day equals 12 hours of recreation use)*
- *Lands burned by wildfire: 530,000 acres*
- *Insect and disease suppression: 1.7 million acres*
- *Watershed improvements: 35,500 acres*
- *Wildlife and fish habitat improvements: 242,761 acres*
- *Reforestation: 492,000 acres*
- *Livestock grazing: 9.3 million animal unit months*
- *Grazing allotments administered: 9,940*
- *Mineral operations processed: 9,157*
- *Timber sold: 3.1 billion board feet*
- *Timber harvested: 4.8 billion board feet (some had been sold in previous years)*
- *Road system: 377,800 miles*

National Forest System—Conservation and Multiple Use

Lands

Lands-related activities include land exchanges to protect and enhance the National Forest System, protecting boundaries and records, granting appropriate rights to others, and administering rights granted to or retained by other agencies, governments, and landowners.

Wildlife, Fish, and Rare Plants

In 1995, people made more than 86 million visits to national forests to fish, hunt, and view wildlife, fish and plants, with a total net value of nearly $4.3 billion. More than $1.7 billion in annual economic benefits result from recreational and commercial harvest of fish resources on National Forest System lands.

The Agency's threatened, endangered, and sensitive species program aims to conserve and restore habitat and thus avoid the need to list additional rare species. In partnership with other Federal agencies, State fish and wildlife agencies, and national conservation groups, habitat management efforts are currently underway for salmon, steelhead and cutthroat trout, spotted owl, marbled murrelet, and grizzly bear. Efforts to reintroduce species or increase their numbers are planned in collaboration with the U.S. Fish and Wildlife Service and State agencies for gray wolf, black-footed ferret, California condor, Mexican wolf, thick-billed parrot, and red-cockaded woodpecker.

Key Facts about Wildlife, Fish, and Rare Plants

- *The National Forest System includes 2.3 million acres of fishable lakes, ponds, and reservoirs and more than 197,000 miles of perennial streams.*
- *National forests and grasslands support habitats for more than 3,000 species of birds, mammals, reptiles, amphibians, and fish, as well as some 10,000 plant species.*
- *The national forests and grasslands also provide:*
- *80 per cent of the elk, mountain goat, and bighorn sheep habitat in the lower 48 States,*
- *28 million acres of wild turkey habitat,*
- *5.4 million acres of wetland habitat,*
- *Habitat for 250 species of neotropical migratory birds, and*
- *Habitat for more than 280 species of threatened or endangered plants, fish, or wildlife.*

Partnerships

In 1995, more than 3,150 partners joined the Forest Service through the Challenge Cost-Share Program to complete more than 3,000 wildlife and fish habitat improvement projects on national forests and grasslands. Through these partnership efforts, many species have returned to habitats once abandoned. Fragile plant habitats have been identified and protected. Wetlands for waterfowl and other species have been improved by the construction of nesting islands and platforms. Fisheries have benefited from improved cover, construction of fish ladders and barriers, and restoration of watersheds.

Since 1986, wildlife and fish conservation partner contributions of labor, materials, expertise, and funds have approached $106 million, more than matching Forest Service monetary contributions of over $77 million.

Water, Soil, and Air

About 20 percent of the surface water supply in the United States flows from National Forest System watersheds. Three major goals of the Forest Service's watershed management programs are to (1) assure adequate yields of high-quality water, (2) sustain soil productivity, and (3) manage air quality within standards. The task of mapping all soils within the National Forest System, with the cooperation of the Natural Resources Conservation Service, is about 70 percent complete. The Forest Service improved 35,500 acres of watershed in FY 1995 with appropriated funds and an additional 14,000 acres from other funding sources.

Other significant activities include watershed analyses and watershed restoration work, especially in the Pacific Northwest; participating in water right adjudications in eight Western States; assessing water quality problems from abandoned mines located on national forests with assistance from States and other Federal agencies; and monitoring lichens, lakes, snow, vegetation, and the atmosphere to determine air pollution impacts to wilderness areas.

Key Facts about Water

- *There are approximately 3,200 watersheds on National Forest System lands.*
- *There are 902 municipal watersheds on National Forest System land, serving 25 million people.*
- *173 trillion gallons of water is supplied by the National Forest System to municipal watersheds annually.*
- *500 remote weather data collection platforms are used in agricultural, fire, weather, and streamflow forecasting.*
- *Emergency restoration of burned areas in FY 1995 covered more than 198,385 acres.*
- *88 wilderness areas, covering almost 15 million acres, are classified as Class I (special visibility protection) under the Federal Clean Air Act.*

Rangeland

National Forest System rangeland is managed to conserve the land and its vegetation while providing food for both livestock and wildlife. Forage production is a primary use of these lands. Under multiple-use concepts, grazing areas also serve as watersheds, wildlife habitat, and recreation sites. Grazing privileges are granted on national forests and grasslands through paid permits; permittees cooperate with the Forest Service in range improvement projects.

Key Facts about Rangeland

- *In FY 1995, the Forest Service administered almost 9,500 grazing allotments and provided 9.3 million animal unit months of livestock grazing. (An animal unit month is the amount of forage it takes to sustain a 1,000-pound animal or its equivalent for one month.)*

Energy and Minerals

Facilitating energy and mineral development on National Forest System lands, including development of private minerals underlying these lands, fosters economic development. Ecosystems are protected by requiring appropriate design, mitigation, and reclamation measures, and by monitoring/inspecting operations to ensure compliance. Reclaiming abandoned mines restores deteriorated ecosystems.

Exploration, development, and production of energy and minerals from National Forest System lands contribute to economic growth, provide employment in rural communities, and raise revenues that are shared with the States. The program is directed at obtaining these benefits while ensuring operations are conducted in an environmentally sound manner. In terms of the magnitude of the program, there are approximately 8 million acres leased for oil and gas, over 150,000 mining claims, about 7,000 mineral material pits and quarries, over 4,000 new operations proposed each year, and more than 25,000 operations to monitor and inspect. The largest coal mine in the United States is on National Forest System lands, and much of the

Nation's phosphate and lead production comes from National Forest System lands. The value of all energy and mineral production exceeds $3.3 billion per year. Annual revenues are about $200 million, 25-50 percent of which is returned to the States where production occurs.

Key Facts about the Forest Service Energy and Minerals Program

- 7 million acres where there is possibility for coal leasing (95 billion tons)
- 45 million acres where there is possibility for oil and gas leasing; 9 million acres leased
- Substantial geothermal energy potential
- World-class deposits of coal, copper, silver, lead, molybdenum
- Nation's largest carbon dioxide project (Bridger-Teton National Forest, WY)
- Nation's largest coal mine (Thunder Basin National Grasslands, WY)
- Western Hemisphere's only platinum mine (Custer National Forest, MT)
- Most lead production in the United States (Mark Twain National Forest, MO)
- World-class quartz crystals (Ouachita National Forest, AR)
- About 7,000 sand, gravel, and stone pits and quarries
- Approximately 4,000 new operations requiring review each year
- Over 25,000 existing operations requiring monitoring
- Nation's largest phosphate mines
- 55 percent of the Nation's production of lead
- Total value of energy and minerals produced exceeds $3.3 billion per year
- Annual royalties to government exceed $200 million
- Thousands of jobs created in rural communities
- Substantial effect on local tax bases
- One of the world's largest molybdenum deposits (Tongass National Forest, AK)
- The following resources are produced annually on National Forest System lands:
- 12 million barrels of oil
- 325 billion cubic feet of gas
- 114 million tons of coal
- 500 million pounds of lead
- 200 million pounds of copper
- 1 million ounces of gold
- 20 million tons of sand and gravel

Timber

Only 26 percent of the national forests' 192 million acres can be classified as commercial forest land. Commercial forest land is available for and capable of producing crops of industrial wood. Commercial forests help furnish the Nation with the lumber and plywood needed for housing and industrial uses and pulp for paper products. Timber management involves preparing sales by selecting the means of harvest most appropriate for protecting the environment.

Passport in Time

Through Passport In Time, the Forest Service offers unique, nontraditional recreation experiences such as archaeological excavation, historic structure restoration, and wilderness surveys. These experiences foster environmental stewardship while providing the public with unusual experiences.

Passport In Time volunteers have contributed more than $2.5 million worth of time and effort to help preserve our Nation's history by:

- Restoring 45 historic structures,
- Stabilizing 11 National Register eligible sites,
- Evaluating 143 sites for inclusion in National Register of Historic Places,
- Working at 28 projects in wilderness, and
- Developing 12 heritage interpretive sites.

State and Private Forestry—Providing Assistance to Nonindustrial Private Landowners

The **Forest Stewardship Program** provides technical assistance to nonindustrial private forest landowners interested in managing their forests for multiple resources. Since 1990, over 100,000 landowners have enrolled in the program and stewardship plans have been prepared for more than 13.2 million acres of nonindustrial private forests.

The **Stewardship Incentives Program** provides cost-share assistance, in cooperation with State Foresters and the USDA's Farm Service Agency, to landowners implementing Forest Stewardship Landowner Plans on over 378,000 acres annually. This includes approximately 50,000 acres of tree planting annually. Since 1990, stewardship incentives practices have been implemented on more than 1.3 million acres, including over 140,000 acres of tree planting.

Forest Health Protection

The Forest Service offers technical and financial assistance to Federal agencies, American Indian tribes, and (through the State Foresters) to private landowners. It conducts insect and disease detection surveys on 175 million acres of Federal lands and 482 million acres of State and private lands in cooperation with State Foresters, and participates in a forest health monitoring program with the State Foresters. The Forest Service works with USDA's Animal and Plant Health Inspection Service to protect the Nation's forests from exotic insects and diseases. It also provides technical assistance in the safe and effective use of pesticides, shares the cost of insect and disease prevention and suppression projects with States, funds prevention and

Table 10-1

Number and Acres of Wildfires on lands protected by the National Forest System, 1995

State	Lightning		Caused by People: Equipment		Caused by People: Smoking		Caused by People: Campfire		Caused by People: Debris Burning	
	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.
Alabama	283	23		0	1	2	138	6	5	4
Alaska		3		0		3	8	25		6
Arizona	39,614	824	377	55	1,456	67	1,853	374	103	17
Arkansas	167	12	1	2	20	10	13	5	211	18
California	271	365	2,793	152	2,504	79	3,689	207	328	71
Colorado	782	128		0	56	13	8	54		3
Florida	1,106	27		4		0	10	8	7	8
Georgia	2	3		0	5	2		3	77	17
Idaho	2,169	674	4	6	13	15	36	64	11	15
Illinois		0		0		0	1	3	85	11
Indiana		0		0		0		2	6	1
Kansas	140	11		2		0		0		0
Kentucky	104	2	2	2	18	4	101	8	92	10
Louisiana		0		0		0	13	8	14	3
Maine		1		0		0		0		0
Michigan	212	5	1	5	7	4	25	11	10	33
Minnesota	2,388	40	4	9	2	5	3,387	53	7	24
Mississippi		0	2	3	27	3	19	3	160	16
Missouri	5	3	91	7	21	5	15	2	308	41
Montana	318	216	5	8	1	11	60	84	98	46
Nebraska	1,665	12		0		0		0		0
Nevada	7,805	47	4	16		1	461	26		1
New Hampshire		3		0		0	1	8		0
New Mexico	22,752	368	1	5	58	17	14,342	116	18	4
New York		0		0	1	2		0		0
North Carolina	12	5		1	23	6	86	5	13	20
North Dakota	40	1	2	1		0		0		0
Ohio		0		4	2	2		0	35	17
Oklahoma	5	2		2		0		1	14	6
Oregon	1,845	565	874	14	112	55	412	148	24	14
Pennsylvania		0		2		0		4		1
South Carolina	20	12		10	8	3	3	2	318	15
South Dakota	128	72		0	6	3	5	38	9	5
Tennessee	332	6	166	3		1	35	2	24	9
Texas	204	3		1	4	3	44	11	22	8
Utah	1,681	235	845	4	31	8	698	47		3
Vermont		0		0		0		1		0
Virginia	8	2		1	1,755	3	1	2		6
Washington	877	106	77	9	3	21	11	76	10	5
West Virginia	22	1		0		0		4		0
Wisconsin		5		3		3	21	4		5
Wyoming	422	65	188	3		3	3	23		0

[1] There were no fires reported on National Forest lands in Maine or New York

[2] National Forest acreage in Connecticut and Hawaii is research and/or experimental land only.

[3] There are no National Forest lands in Delaware, Iowa, Maryland, Massachusetts, New Jersey, or Rhode Island.

Table 10-1 continued.

Number and Acres of Wildfires on lands protected by the National Forest System, 1995

Railroad Acres	Railroad No.	Acres	Arson No.	Children Acres	Children No.	Acres	Misc. No.	Total acres caused by people	Total no. Caused by people	Total acres all causes	Total no. all causes
21	1	755	64		0	107	9	1,026	86	1,309	109
	0		1		0	1	2	10	37	10	40
13	2	995	37	50	32	14,027	258	18,874	842	58,488	16,66
1	1	1,448	131	20	1	76	18	1,788	186	1,955	198
	1	4,843	187	13	59	5,667	417	19,837	1,173	20,107	1,538
	2	2	2	12	2	419	20	497	96	1,278	224
	0	941	31	3	5	44	18	1,005	74	2,111	101
11	2	77	13		0	193	11	363	48	364	51
	3	3,041	4		2	71	29	3,176	138	5,345	812
	0	582	19		0		1	668	34	668	34
	0	4	2		0		0	10	5	10	5
	0		0		0	175	3	175	5	316	16
	0	1,961	137	4	1	77	7	2,255	169	2,359	171
16	2	1,600	77		0	178	13	1,820	103	1,820	103
	0		0		0		0		1		1
	1	89	11	4	8	36	6	172	84	384	84
6	5	54	29	1	5	2	12	3,463	182	5,851	182
1	1	1,186	104		0	1,939	46	3,333	176	3,333	176
50	1	6,620	233	66	2	235	9	7,405	303	7,410	303
	9		6		3	236	37	400	420	718	420
	0		0		0		0		12	1,665	12
3	2	228	7	2	8	26	8	724	69	8,529	116
	0		1		0	4	2	5	11	6	14
	0	239	14	70	3	3,060	39	17,787	198	40,540	566
	0		1		0		0	1	3	1	3
2	1	860	37		1	38	7	1,021	78	1,033	83
	0		0		0		0	2	1	42	2
	0	30	22		0	3	2	70	47	70	47
108	6	1,078	36		2	9	5	1,210	58	1,215	60
4	2	667	35	1	5	69	67	2,164	340	4,008	905
	0		0		0		4		11		11
	1	161	47		0	173	15	663	105	683	105
	0	1	3	1	`1	4	2	25	124	154	124
	0	835	54		0	46	82	1,106	82	1,439	82
	0	421	31		0	12	64	503	64	707	64
	0	1	17		7	211	336	1,786	336	3,467	336
	0		0		0	1	2	1 1	2		2
	0	3,045	26		2	22	51	4,822	51	4,830	51
	0		1		1	10	257	111	257	988	257
	0		0		0		6		6		6
	1		1		0	5	22	26	22	48	22
	0	66	3		0	2	102	259	102	681	102

[1] There were no fires reported on National Forest lands in Maine or New York

[2] National Forest acreage in Connecticut and Hawaii is research and/or experimental land only.

[3] There are no National Forest lands in Delaware, Iowa, Maryland, Massachusetts, New Jersey, or Rhode Island.

suppression projects on Federal lands, and evaluates and applies new, more efficient and environmentally sensitive technologies for forest health protection.

Fire Management

The Forest Service works in cooperation with States and their local wildland fire protection agencies to protect State and private lands nationwide. Fire protection and emergency firefighting programs protect 192 million acres of National Forest System lands and an additional 20 million acres of State and private lands under protection exchanges and agreements.

Federal Excess Personal Property

In 1995, the Forest Service loaned used Federal property to State Foresters for rural and wildland fire protection; this property had an original acquisition cost of $189 million. Former military cargo trucks that are built into tanker trucks represent a large portion of the property, along with aircraft, heavy equipment, and shop machinery.

Rural Community Fire Protection

This program to organize, train, and equip rural fire departments in communities with populations under 10,000 is funded at $3.5 million annually. In 1995, these funds were awarded in over 3,000 grants that attracted $6.4 million in matching fire department funds. More than 80 percent of the money funded purchases of equipment such as communications devices, nozzles, hoses, and protective clothing.

Fire Season

In 1995, over 9,000 fires burned approximately 200,000 acres of National Forest System lands. The annual average is 11,500 fires and 725,000 acres.

Fuels Treatment

In 1995, over 570,000 acres of National Forest System lands received treatment, such as thinning and prescribed burns, for forest fuels—vegetation such as brush, grass, and small trees. This compares to an average annual program of 358,000 acres. Fuels treatment benefits the health of the forest and can prevent catastrophic wildfire .

Rural Community Assistance

The Forest Service implements the national initiative on rural development in coordination with USDA's Rural Development area and State rural development councils. The goal is to strengthen rural communities by helping them diversify and expand their economies through the wise use of natural resources. Through economic action programs, the Forest Service provides technical and financial assistance to more than 850 rural communities that are adversely affected by changes in availability of natural resources or in natural resource policy.

Pacific Northwest rural community assistance provides economic adjustment assistance to almost 150 communities affected by the President's Forest Plan for the Pacific Northwest. This community assistance is part of a larger, multi-Agency effort to target resources for rural areas with acute economic problems.

Table 10-2

National Forest System lands administered by the Forest Service as of September 30, 1996

State, Commonwealth, or Territory	*National forests, purchase units, research areas, and other areas*	*National grasslands*	*Land utilization projects*	*Total*
		Acres		
Alabama	663,123	0	40	663,163
Alaska	21,971,245	0	0	21,971,245
Arizona	11,251,424	0	0	11,251,424
Arkansas	2,553,892	0	0	2,553,892
California	20,617,261	18,425	0	20,635,686
Colorado	13,876,192	628,419	0	14,504,611
Connecticut	24	0	0	24
Florida	1,146,668	0	0	1,146,668
Georgia	864,993	0	0	864,993
Hawai	1	0	0	1
Idaho	20,410,527	47,756	0	20,458,283
Illinois	276,676	0	0	276,676
Indiana	194,264	0	0	194,264
Kansas	0	108,175	0	108,175
Kentucky	691,963	0	0	691,963
Louisiana	603,786	0	0	603,786
Maine	53,040	0	0	53,040
Michigan	2,855,899	0	959	2,856,858
Minnesota	2,837,240	0	0	2,837,240
Mississippi	1,157,013	0	0	1,157,013
Missouri	1,493,198	0	0	1,493,198
Montana	16,879,677	0	0	16,879,677
Nebraska	257,653	94,480	0	352,133
Nevada	5,818,569	0	0	5,818,569
New Hampshire	724,049	0	0	724,049
New Mexico	9,190,265	36,417	240	9,326,922
New York	15,825	0	0	15,825
North Carolina	1,243,139	0	0	1,243,139
North Dakota	743	1,105,030	0	1,105,773
Ohio	227,239	0	0	227,239
Oklahoma	257,395	46,286	0	303,681
Oregon	15,552,932	111,348	856	15,665,136
Pennsylvania	513,264	0	0	513,264
Puerto Rico	27,831	0	0	27,831
South Carolina	612,023	0	0	612,023
South Dakota	1,145,010	868,156	0	2,013,166
Tennessee	633,481	0	0	633,481
Texas	637,280	117,620	0	754,900
Utah	8,112,564	0	0	8,112,564
Vermont	359,289	0	0	359,289
Virgin Islands	147	0	0	147
Virginia	1,656,282	0	0	1,656,282
Washington	9,175,831	0	738	9,176,569
West Virginia	1,032,573	0	0	1,032,573
Wisconsin	1,520,464	0	0	1,520,464
Wyoming	8,687,871	560,166	0	9,248,037
Total	**187,799,825**	**3,842,278**	**2,833**	**191,644,936**

Table 10-3.

Payment to States from national forest receipts—fiscal years 1994-96[1]

State, Commonwealth, or Territory	*FY 1996*	*FY 1995*	*FY 1994*
		Dollars	
Alabama	2,049,877.80	1,468,155.91	1,271,055.32
Alaska	5,905,519.94	7,600,541.26	8,782,012.16
Arizona	1,631,749.08	3,182,123.93	3,949,883.28
Arkansas	6,648,382.02	4,938,171.81	4,535,988.40
California	36,157,525.82	43,045,670.58	50,981,328.44
Colorado	5,955,613.62	5,584,256.33	6,318,890.15
Florida	1,066,315.90	1,334,477.12	1,068,081.49
Georgia	907,778.79	758,829.26	892,851.64
Idaho	17,457,711.74	15,031,321.37	25,227,816.58
Illinois	27,727.21	32,531.32	37,588.40
Indiana	7,410.94	13,755.32	18,228.06
Kentucky	494,031.96	311,288.83	446,667.89
Louisiana	2,735,547.25	2,174,763.33	2,577,223.55
Maine	34,773.87	33,068.56	32,800.47
Michigan	2,384,195.64	2,504,904.39	1,964,052.45
Minnesota	3,179,462.34	2,977,331.33	2,818,868.30
Mississippi	8,276,153.99	7,224,011.21	5,928,308.80
Missouri	1,231,668.46	1,170,273.33	1,235,858.48
Montana	9,383,236.30	10,555,715.38	14,482,280.68
Nebraska	30,563.25	36,887.86	67,973.60
Nevada	298,540.38	322,014.89	520,368.09
New Hampshire	510,233.26	485,115.81	480,777.36
New Mexico	652,646.23	1,102,857.41	1,458,715.36
New York	6,375.28	5,776.98	7,607.03
North Carolina	692,308.54	941,657.23	678,553.50
North Dakota	82.02	122.88	94.23
Ohio	11,399.70	15,554.61	30,109.51
Oklahoma	883,416.06	643,567.28	595,042.78
Oregon	95,238,952.66	109,647,413.38	119,791,067.39
Pennsylvania	6,207,364.12	5,362,116.42	5,301,759.86
Puerto Rico	20,837.85	14,555.48	25,571.76
South Carolina	960,281.44	1,359,265.06	1,586,032.17
South Dakota	2,349,598.42	2,839,734.94	2,631,316.84
Tennessee	319,484.79	441,952.31	385,048.53
Texas	4,337,308.72	2,893,393.24	3,599,206.19
Utah	1,831,244.84	1,553,366.88	2,373,290.67
Vermont	256,960.60	177,634.44	166,768.17
Virginia	822,089.27	996,568.42	820,206.58
Washington	29,429,025.66	30,089,073.00	31,913,563.22
West Virginia	1,860,935.47	1,403,962.13	761,339.86
Wisconsin	1,621,386.26	1,327,757.01	1,206,337.52
Wyoming	1,844,048.53	1,881,106.70	2,191,880.96
Total	**255,719,766.02**	**273,482,644.93**	**309,162,415.72**

[1]Data Source: All Service Receipts - ASR-09-3.

Fire Facts USDA Forest Service

■ ***Number of fires:***	*Average*	*1995*
Less than 10 acres	*10,352*	*8,205*
10 to 999 acres	*1,051*	*945*
1,000+ acres	*82*	*54*
Total	*11,485*	*9,204*

■ ***Major causes of fires:***	*Average % of starts*	*Average % of acres burned*
Lightning	51	57
Human caused	*49*	*43*

■ ***Acres burned:***	*Average*	*1995*
National Forest protected lands	*725,265*	*218,993*

■ ***Appropriations:***	*1994*	*1995*
Presuppression and fire use	*$276,407,000*	*$295,295,000*
Emergency suppression expenditures	*$686,000,000*	*$224,300,000*
Total	*$519,595,000*	*$962,407,000*
State and private appropriations	*$17,148,000*	*$13,689,000*

■ *Natural Fuels Treatment:*	*Average*	*1994*	*1995*
Acres treated	*357,974*	*384,707*	*90,266*
Program cost	*$10,704,000*	*$12,696,000*	*$16,406,000*

■ *USFS Personnel on Wildfires:*	*1994*	*1995*
Fire Management (full time)	*1,714*	*1,633*
Fire Management (part time)	*1,843*	*1,789*
Fire Management (temporary)	*5,446*	*5,526*
Other FS personnel	*27,897*	*4,195*
Emergency Hires (AD)	*38,858*	*13,973*
Hotshot Crews	*53*	*53*
Smokejumpers	*290*	*290*
Helitack	*200*	*200*
Rowpellers	*240*	*240*

Urban and Community Forestry

The Forest Service provides technical and financial assistance to more than 7,200 cities and communities in all States, the District of Columbia, and Puerto Rico for the purpose of building local capacity to manage natural resources.

Natural Resource Conservation Education (NRCE)

The Forest Service supports a lifelong learning process that promotes the understanding of ecosystems and natural resources—their relationships, conservation, use, management, and values to society. Our large partnership base assists the NRCE program in about 200 projects across the country each year, reaching over 200,000 young people and 10,000 teachers. When television is added, NRCE reaches 5 million people. The program includes support for Project Learning Tree, which reaches 400,000 teachers.

Smokey Bear. In 1994, Smokey Bear celebrated 50 years of forest fire prevention. The Forest Service began a forest fire prevention program during World War II, and in 1944, a bear was introduced as the program symbol. In 1950, a bear cub survived a forest fire in the Lincoln National Forest, New Mexico, and after being nursed back to health, came to live in the National Zoo in Washington, DC, as the living fire prevention symbol.

Woodsy Owl. Woodsy Owl is a colorful and fanciful character who was designed to be especially appealing to young children. Woodsy Owl is recognized by over 83 percent of all American households and is America's leading symbol for environmental improvement. Woodsy was created in response to increased public awareness of environmental problems during the late 1960's and early 1970's. The Woodsy Owl campaign was officially launched by the Forest Service on September 15, 1971. In June 1974, Congress enacted a law establishing "Woodsy Owl"—with his slogan "Give a hoot! Don't pollute!"—as a "symbol for a public service campaign to promote wise use of the environment and programs which foster maintenance and improvement of environmental quality." Woodsy's message and appearance have recently been revitalized. He now sports a backpack, hiking shoes, and field pants, and a new slogan builds on his previous message: "Lend a hand—care for the land!"

Smokey Bear

Woodsy Owl

Research

Forests are critical to the global environment and the global economy. They are the source of food, raw materials, shelter, and income for millions, and they provide sanctuary for people and habitat for wildlife. Forests filter and protect water supplies and absorb carbon dioxide from the atmosphere. Agency research is being conducted in areas requiring urgent policy and management action, including studies related to sustainable development, biodiversity, economic and social values, ecological management, and forest health.

Table 10-4.

State summary of total recreation use on National Forest System lands by activity—fiscal year 1996

State, Commonwealth or Territory[1]	Camping picknicking & swimming	Mechanized travel & viewing scenery	Hiking, Horse-back riding & water travel	Winter Sports	Resorts, cabins & organization camps	Hunting	Fishing	Nonconsumptive fish & wildlife use	Other recreation activities	Total	Total visits[2]
					1,000 RVD[3]						*1,000 visits*
Alabama	175.0	125.0	67.0	0.0	0.0	162.0	69.0	7.0	84.0	689.0	1,406.0
Alaska	368.0	4,777.0	368.0	89.0	181.0	145.0	510.0	45.0	479.0	6,962.0	17,181.0
Arizona	7,911.0	15,731.0	3,109.0	169.0	1,006.0	1,052.0	1,031.0	558.0	4,433.0	35,500.0	72,044.0
Arkansas	619.0	555.0	215.0	0.0	42.0	510.0	106.0	28.0	135.0	2,210.0	5,909.0
California	18,824.0	25,492.0	5,915.0	4,246.0	7,696.0	1,742.0	3,356.0	416.0	3,478.0	71,165.0	195,880.0
Colorado[4]	6,079.8	10,212.1	2,726.9	6,525.1	766.1	1,756.4	1,697.5	176.5	1,030.3	30,970.7	60,488.1
Florida	1,536.0	459.0	178.0	0.0	213.0	243.0	183.0	22.0	126.0	2,960.0	8,878.0
Georgia	832.0	1,004.0	386.0	2.0	21.0	345.0	199.0	37.0	99.0	2,925.0	8,332.0
Idaho	4,472.0	4,506.0	1,421.0	821.0	610.0	1,154.0	1,071.0	201.0	1,109.0	15,365.0	23,201.0
Illinois	262.0	443.0	190.0	0.0	9.0	140.0	44.0	19.0	81.0	1,188.0	1,034.0
Indiana	242.0	102.0	119.0	2.0	18.0	104.0	55.0	6.0	36.0	684.0	525.0
Kansas	17.0	27.0	3.0	0.0	1.0	9.0	14.0	3.0	12.0	86.0	184.0
Kentucky	685.0	755.0	283.0	4.0	8.0	217.0	230.0	14.0	130.0	2,326.0	5,670.0
Louisiana	198.0	161.0	29.0	0.0	24.0	114.0	29.0	5.0	39.0	599.0	1,748.0
Maine	31.0	65.0	19.0	4.0	6.0	9.0	16.0	2.0	6.0	158.0	1,000.0
Michigan	1,537.0	1,676.0	302.0	76.0	115.0	538.0	433.0	26.0	163.0	4,866.0	9,997.0
Minnesota	1,983.0	1,116.0	886.0	112.0	441.0	366.0	897.0	35.0	146.0	5,982.0	12,833.0
Mississippi	318.0	562.0	153.0	0.0	27.0	487.0	110.0	16.0	155.0	1,828.0	3,827.0
Missouri	983.0	616.0	356.0	0.0	11.0	278.0	145.0	20.0	109.0	2,518.0	7,299.0
Montana	2,515.0	4,862.0	1,411.0	776.0	444.0	1,221.0	838.0	174.0	1,254.0	13,495.0	31,836.0
Nebraska	183.0	59.0	25.0	1.0	8.0	12.0	5.0	4.0	23.0	320.0	528.0
Nevada	1,090.0	1,175.0	447.0	350.0	154.0	199.0	92.0	78.0	272.0	3,857.0	21,423.0
New Hampshire	656.0	1,310.0	473.0	548.0	233.0	43.0	30.0	16.0	45.0	3,354.0	5,500.0

Table 10-4 continued.

State summary of total recreation use on National Forest System lands by activity—fiscal year 1996

State, Commonwealth or Territory[1]	Camping picknicking & swimming	Mechanized travel & viewing scenery	Hiking, Horse-back riding & water travel	Winter Sports	Resorts, cabins & organization camps	Hunting	Fishing	Nonconsumptive fish & wildlife use	Other recreation activities	Total	Total visits[2]
					1,000 RVD[3]						*1,000 visits*
New Mexico	2,979.0	2,202.0	724.0	751.0	256.0	541.0	341.0	186.0	1,346.0	9,326.0	12,644.0
New York	16.0	8.0	4.0	2.0	0.0	4.0	2.0	1.0	2.0	39.0	19.0
North Carolina	1,710.0	2,460.0	1,210.0	15.0	100.0	793.0	342.0	42.0	307.0	6,979.0	20,935.0
North Dakota	16.0	30.0	18.0	1.0	0.0	56.0	3.0	4.0	5.0	133.0	387.0
Ohio	50.0	93.0	23.0	0.0	0.0	233.0	56.0	5.0	64.0	524.0	900.0
Oklahoma	56.0	179.0	56.0	0.0	0.0	66.0	15.0	10.0	11.0	393.0	1,868.0
Oregon [5]	11,289.5	11,719.1	3,889.7	1,583.9	2,027.7	2,024.1	1,976.4	594.2	1,924.7	37,029.3	97,465.7
Pennsylvania	866.0	1,521.0	348.0	10.0	42.0	178.0	164.0	32.0	107.0	3,268.0	13,837.0
Puerto Rico	92.0	17.0	7.0	0.0	0.0	0.0	0.0	44.0	11.0	171.0	630.0
South Carolina	272.0	241.0	143.0	0.0	1.0	211.0	60.0	15.0	68.0	1,011.0	2,532.0
South Dakota	282.0	2,580.0	206.0	18.0	118.0	91.0	147.0	13.0	116.0	3,571.0	6,173.0
Tennessee	1,251.0	1,023.0	336.0	6.0	102.0	265.0	206.0	31.0	89.0	3,309.0	9,911.0
Texas	640.0	414.0	111.0	0.0	30.0	223.0	742.0	27.0	115.0	2,302.0	3,712.0
Utah	6,334.0	6,611.0	1,294.0	1,329.0	932.0	863.0	1,102.0	69.0	844.0	19,378.0	4,105.0
Vermont	131.0	319.0	110.0	584.0	56.0	87.0	22.0	2.0	84.0	1,395.0	2,699.0
Virginia	1,175.0	1,642.0	480.0	33.0	20.0	878.0	370.0	76.0	253.0	4,927.0	18,755.0
Washington [5]	5,165.5	11,490.7	3,384.2	1,090.6	1,119.9	853.3	420.0	120.2	1,152.5	24,796.9	97,456.0
West Virginia	556.0	306.0	159.0	8.0	38.0	225.0	132.0	10.0	65.0	1,499.0	4,284.0
Wisconsin	615.0	807.0	125.0	29.0	20.0	258.0	503.0	9.0	161.0	2,527.0	9,981.0
Wyoming	2,069.0	2,688.0	1,389.0	522.0	805.0	688.0	396.0	100.0	457.0	9,114.0	14,266.0
Total	**87,081.8**	**122,140.9**	**33,098.8**	**19,707.6**	**17,701.7**	**19,383.8**	**18,159.9**	**3,298.9**	**20,626.5**	**341,199.9**	**859,282.8**

[1] Unlisted States have no Forest Service recreation programs. [2] One visit is an entry of one person upon a national forest for the purpose of participating in one or more recreation activity for an unspecified period of time. Only the "primary" activity of the recreation visitor is recorded. [3] One recreation visitor-day (RVD) is the recreation use of national forest land or water that aggregates 12 visitor-hours. This may entail 1 person for 12 hours, 12 persons for 1 hour, or any equivalent combination of individual or group use, either continuous or intermittent.[4] Numbers for Colorado are from 1995; 1996 data are not available. [5] Numbers for Oregon and Washington are from 1994; 1995 and 1996 data are not available.

Table 10-5.

Acres of State and private lands burned—calendar year 1995

State, Commonwealth, or Territory	*Lightning fires*	*Person-caused fires*	*Total fires*	*Acres burned*
		Number		
Alabama	45	4,436	4,481	39,887
Alaska	29	298	327	16,585
Arizona	105	691	796	63,075
Arkansas	58	3,400	3,458	52,715
California	163	6,282	6,445	118,106
Colorado	245	1,979	2,224	32,011
Connecticut	0	0	0	0
Delaware	3	30	33	418
Florida	468	2,875	3,343	48,591
Georgia	242	7,853	8,095	24,572
Guam	0	622	622	5,726
Hawaii	0	217	217	9,568
Idaho	151	125	276	533
Illinois	1	814	815	6,070
Indiana	17	3,242	3,259	25,934
Iowa	0	1,244	1,244	4,446
Kansas	139	3,200	3,339	71,071
Kentucky	6	2,091	2,097	67,828
Louisiana	6	3,567	3,573	37,538
Maine	154	900	1,054	1,165
Maryland	12	1,052	1,064	5,376
Massachusetts	15	6,364	6,379	8,623
Michigan	22	532	554	4,394
Minnesota	23	1,121	1,144	19,840
Mississippi	4	3,479	3,483	39,888
Missouri	24	3,156	3,180	55,173
Montana	155	214	369	5,724
Nebraska	191	1,072	1,263	103,925
Nevada	23	91	114	11,522
New Hampshire	13	466	479	458
New Jersey	9	1,999	2,008	22,597
New Mexico	164	483	647	53,531
New York	17	391	408	8,546
North Carolina	48	5,200	5,248	20,897
North Dakota	27	229	256	2,590
Ohio	1	1,026	1,027	6,594
Oklahoma	11	2,526	2,537	89,967
Oregon	252	715	967	4,870
Pennsylvania	3	1,031	1,034	3,459
Puerto Rico	0	19,485	19,485	13,662
Rhode Island	0	132	132	120
South Carolina	80	3,487	3,567	17,215
South Dakota	44	449	493	31,425
Tennessee	24	3,445	3,469	42,032
Texas	22	1,511	1,533	18,879
Utah	253	326	579	35,733
Vermont	7	232	239	439
Virginia	16	1,640	1,656	9,240
Washington	115	771	886	4,036
West Virginia	16	1,217	1,233	42,540
Wisconsin	38	1,699	1,737	2,461
Wyoming	165	432	597	12,679
Virgin Islands	0	53	53	107
Total	**3,626**	**109,892**	**113,518**	**1,324,381**

Since establishment in 1876, Forest Service Research has developed into the world's single largest source of natural resource information. It includes:

- More than 600 scientists whose work is aimed at the productivity, health, and diversity of the temperate, boreal, and tropical forests,
- Seven Regional Experiment Stations and one National Forest Products Laboratory comprising 77 research lab locations, many collocated with universities, and
- Gateways for collaborative research in the Tropics, through the International Institute of Tropical Forestry in Puerto Rico and the Institute of Pacific Islands Forestry in Hawaii.

The Forest Service Research program provides:

- More than 2,700 publications per year, and numerous presentations at symposia and workshops,
- Collaboration with university, industry, and other scientists; nongovernmental organizations; managers; and policy makers for work that transcends the abilities of any single organization,
- More than $20 million per year in domestic grants, cooperative agreements, and contracts for research partnerships, and
- Key databases for enhancing forest health, productivity, and conservation.

The Forest Service provides scientific and technological information to manage the Nation's forests and associated ecosystems. This includes studies in vegetation management, watersheds, fisheries, wildlife, forest products and recycling, insects and diseases, economics, forest and rangeland ecology, silviculture, fire ecology, fire prevention, ecosystem functioning, and recreation.

Priority items include:

- Forest inventory and analysis across the United States and forest health monitoring in 18 States,
- Global change research, to learn how climate change interacts with pollution, drought, and forest health,
- Recycling and wood use, to solve technical problems that hinder wastepaper recycling and to develop new products from agricultural and wood fibers and byproducts, and
- Large-scale ecosystem studies, for example on restoring mixed-oak forests in southern Ohio, evaluating impacts of silvicultural treatment on biological diversity in northern hardwood forests, and protecting watersheds, riparian zones, and biological diversity in the Rio Grande Basin.

International Forestry

International cooperation in forestry is crucial in sustaining the ecological and commercial viability of global forest resources. The Forest Service is a global conservation leader and the U.S. Government's main advocate for scientifically based sustainable forest management.

The United States is the world's largest importer of wood, and it exports more than $18 billion worth of wood products each year. The Forest Service, industry, and international counterparts are developing international policies and guidelines to reduce barriers to U.S. exports. The Forest Products Laboratory and its Canadian counterparts have addressed product standards which had previously inhibited trade. As a result, tariffs on U.S. plywood have been reduced 50 percent and exports to Canada have increased steadily.

The Forest Service has been instrumental in preventing the Asian gypsy moth from entering the United States and has cooperated with scientists from the People's Republic of China in finding natural predators for an imported pest, the woolly adelgid, which threatens eastern hemlock in 10 U.S. States and cannot be controlled by pesticides.

In cooperation with Latin American countries, the Forest Service protects the habitat of migratory birds—250 out of 750 bird species in the United States migrate to other countries.

International cooperation in forestry has human health implications. For example, vincristine, a compound derived from a tropical dry forest plant from Madagascar, has improved the survival odds for thousands who have Hodgkin's disease or childhood leukemia.

The Forest Service develops and shares new technology in utilizing forests, monitoring forest resources, and understanding the forests' role in global climate change with other countries.

The support that International Forestry's Disaster Assistance Support Program gives to international disaster prevention, preparedness, and response is critical to our country's ability to save lives and alleviate human suffering inflicted by natural and human-caused global disasters.

Human Resource Programs

Human Resource Programs provide job opportunities, training, and education for the unemployed, underemployed, elderly, young, and others with special needs—while benefiting high-priority conservation work. In FY 1995, these programs included more than 107,000 participants and accomplished over $127 million in conservation work on Forest Service lands.

Through an agreement with the U.S. Department of Labor, the Forest Service operates eighteen **Job Corps Civilian Conservation Centers** on Forest Service lands. The Job Corps program is the only Federal residential education/training program for the Nation's disadvantaged youth.

Key facts about Job Corps Civilian Conservation Centers

- *18 Job Corps Centers, 15 co-ed*
- *8,747 enrolled, ages 16-24*
- *$91.4 million budget*
- *$22.1 million work accomplishment*
- *93 percent placed*
- *Average starting salary, approximately $6.10 per hour*
- *44 percent minorities*

The **Senior Community Service Employment Program** is designed to provide useful part-time employment and training for persons age 55 and over.

Key facts about the Senior Community Service Employment Program:

- *5,554 older workers participated*
- *$26.8 million budget*
- *$40.8 million work accomplishment*
- *Only Federal Agency among 10 national sponsors*
- *41 percent females*
- *18.4 percent placed in unsubsidized employment*
- *$1.52 return on dollar invested*

In the **Youth Conservation Corps** summer employment program, persons aged 15-18 accomplish projects that further the development and conservation of the United States' natural resources.

Key facts about the Youth Conservation Corps:

- *712 enrollees, ages 15-18*
- *$1.3 million operating costs*
- *$2.1 million work accomplishment*
- *$1.62 return on dollar invested*
- *41 percent females*

The **Volunteers in the National Forests** program allows organizations and individuals to donate their talents and services to help manage the Nation's natural resources.

Key facts about Volunteers in the National Forests :

- *82,349 volunteers have participated, (including 86 international volunteers and 169 Touch America Project volunteers, age 14-17)*
- *$38.4 million work accomplishment*
- *34 percent females*
- *Over 1 million volunteers served since the 1972 legislation*

Hosted programs provide conservation training and work opportunities on national forests or in conjunction with Federal programs. Programs are administered through agreements with State and county agencies, colleges, universities, Indian tribes, and private and nonprofit organizations.

- ***Key Facts About Hosted Programs***
  - *9,636 participants*
  - *$23.7 million work accomplishment*
  - *20 percent females*
  - *31 percent minorities*
  - *11 agreements on national forests with the Federal Bureau of Prisons*

Through a partnership with the National Forest Foundation, the Forest Service operated three **Youth Forest Camps** during the summer of 1995. These camps provided jobs, work training, and environmental education for persons age 14-20.

- ***Key Facts About Youth Forest Camps***
  - *83 participants*
  - *Greater than $200,000 work accomplishment*
  - *3 camps operated (Oregon, Virginia, and Colorado)*
  - *36 percent females*
  - *55 percent minorities*

Law Enforcement and Investigations

The objective of the Forest Service law enforcement program is to serve people and protect natural resources and property within the authority and jurisdiction of the Forest Service. The program focuses on activities such as vandalism, archaeological resource violations, timber theft, wildland arson, and the cultivation and manufacture of illegal drugs.

Forest Service drug control efforts continue to focus on the detection, apprehension, and prosecution of persons responsible for illegal drug activities on the forests. Drug enforcement efforts resulted in the seizure of several million dollars' worth of assets and the destruction of several billion dollars' worth of drugs.

In FY 1995, 520 cooperative law enforcement agreements allowed the Forest Service to cooperate with State and local law enforcement agencies and with other Federal agencies to increase the protection and service to forest visitors. About 190 drug control agreements were set up between the Forest Service, State and local law enforcement agencies, and other Federal agencies or task forces to cooperate in eliminating illegal drug activities on the National Forest System.

Key facts about law enforcement and investigations:

- *Over 138,000 incidents or violations of Federal laws and regulations were reported. These violations resulted in many millions of dollars in damages and losses to National Forest System property and resources.*
- *Nearly 264,299 cannabis plants were eradicated from 5,742 sites on the national forests.*
- *2,095 individuals were arrested for illicit controlled-substance production and distribution on National Forest System land.*
- *About 162 special agents and 485 full-time uniformed law enforcement officers performed investigation and enforcement activities that are unique to the National Forest System and its resources.*

Natural Resources Conservation Service—A Productive Nation in Harmony with a Quality Environment

Introduction

As USDA's lead Agency for conservation technical assistance, the Natural Resources Conservation Service (NRCS) works closely with other USDA agencies involved in conservation, including the Farm Service Agency (FSA); Agricultural Research Service; Forest Service; and the Cooperative State Research, Education, and Extension Service. Through these agencies, USDA administers a wide range of programs to solve this country's natural resource problems as they affect private lands in agricultural and other uses.

Our well-being depends on healthy, productive, and diverse ecosystems and their sustainable use. Just as soil, water, and habitat are interrelated, the programs that address these resources are interrelated, and programs that help one resource also benefit others. If you stop erosion, for example, you also enhance soil productivity and protect water and air quality. Improving the environment can enhance the economic future of communities throughout the United States.

The mission of NRCS is to provide leadership and administer programs to help landowners and land users to conserve, improve, and sustain our natural resources and the environment, while enabling the United States to continue as the world's preeminent producer of food and fiber.

A Partnership Approach to Resource Conservation

For six decades NRCS employees have worked side-by-side with landowners, conservation districts, State and local governments, and urban and rural partners to restore and enhance the American landscape. The Agency helps landowners and communities take a comprehensive approach in conservation planning, going beyond soil to an understanding of how all natural resources—soil, water, air, plants, animals—relate to each other and to humans. The Agency works to solve the natural resource challenges on the Nation's private lands—reducing soil erosion, improving soil health and rangeland health, protecting water quality and supply, conserving wetlands, and providing fish and wildlife habitat.

Most NRCS employees serve in USDA's network of local, county-based offices, including those in Puerto Rico and the Pacific Basin. The rest are at State, regional, and national offices, providing technology, policy, and administrative support. They serve all people who live and work on the land. Nearly three-fourths of the Agency's technical assistance goes to helping farmers and ranchers develop conservation systems uniquely suited to their land and their ways of doing business.

The agency helps rural and urban communities curb erosion, conserve and protect water, and solve other resource problems. American Indian tribes, Alaska Natives, Pacific Islanders, and other native groups work with NRCS on a variety of initiatives that include resource inventories and the adaptation of conservation programs to fit the special needs of their people and their land. Also, countries around the globe seek NRCS advice on building their own conservation delivery systems and in coping with severe natural resource problems.

Conservation is the work of many—no one can do it alone. NRCS relies on many partners to help set conservation goals, work with people on the land, and provide services. In addition to local conservation districts, State conservation agencies, and other State and Federal agencies, the partners include NRCS Earth Team volunteers, AmeriCorps members, agricultural and environmental groups, and professional societies.

NRCS Programs

Through various programs, NRCS provides conservation technical assistance to land users, communities, units of State and local government, and other Federal agencies in planning and implementing natural resource solutions to reduce erosion, improve soil and water quantity and quality, improve and conserve wetlands, enhance fish and wildlife habitat, improve air quality, improve pasture and range conditions, reduce upstream flooding, and improve woodlands. The purpose is to sustain agricultural productivity and protect and enhance the natural resource base. This assistance is based on voluntary local landowner cooperation and recognizes the value of educational, technical, and financial assistance.

Conservation Provisions of the 1996 Farm Bill

The conservation provisions of the Federal Agriculture Improvement and Reform Act of 1996—also known as the 1996 Farm Bill—simplified existing conservation programs and improved their flexibility and efficiency. The bill also created new programs to address high-priority environmental protection goals.

The 1996 Farm Bill authorized more than $2.2 billion in additional funding for conservation programs, extended the Conservation Reserve Program and Wetland Reserve Program, and created new initiatives to improve natural resources on America's private lands.

Environmental Conservation Acreage Reserve Program

The Environmental Conservation Acreage Reserve Program (ECARP) encompasses the FSA's Conservation Reserve Program (CRP) and NRCS's Wetlands Reserve Program (WRP) and Environmental Quality Incentives Program (EQIP). Under ECARP, the Secretary of Agriculture may designate watersheds, multistate areas, or regions of special environmental sensitivity as conservation priority areas. These areas may be eligible for special assistance to get them into compliance with nonpoint source pollution requirements of the Clean Water Act and other Federal and State environmental laws and to meet other conservation needs.

Conservation Reserve Program

The Conservation Reserve Program (CRP), which is administered by FSA, with technical assistance given by NRCS, protects highly erodible and environmentally sensitive lands with grass, trees, and other long-term cover. Now under CRP:

- Up to 36.4 million acres can be enrolled at any one time;
- New enrollments must focus on the most environmentally sensitive land;
- Expired or terminated contracts may be replaced with new enrollments; and
- Landowners who entered into a contract before January 1, 1995, may terminate contracts after giving written notice. Contracts must have been in effect at least 5 years and meet other eligibility criteria.

Wetlands Reserve Program

The Wetlands Reserve Program (WRP) is a voluntary program to restore and protect wetlands on private property. It is an opportunity for landowners to retire marginal agricultural land in exchange for receiving financial incentives to enhance wetlands.

Congress authorized WRP with the Food Security Act of 1985 and amended it in the 1990 and 1996 Farm Bills. NRCS administers the program in consultation with other Federal agencies.

Landowners who choose to participate in WRP may sell a conservation easement or enter into a cost-share restoration agreement with USDA to restore and protect wetlands. The landowner voluntarily limits future use of the land, yet retains private ownership. The landowner and NRCS develop a plan for the restoration and maintenance of the wetland.

The program offers landowners three options: permanent easements, 30-year easements, and restoration cost-share agreements of a minimum 10-year duration.

Permanent Easement. This is a conservation easement in perpetuity. Easement payment will be the lesser of: the agricultural value of the land, an established payment cap, or an amount offered by the landowner. In addition to paying for the easement, USDA pays 100 percent of the costs of restoring the wetland.

30-Year Easement. This is a conservation easement lasting 30 years. Easement payments are 75 percent of what would be paid for a permanent easement. USDA also pays 75 percent of restoration costs.

Restoration Cost-Share Agreement. This is an agreement (generally for a minimum of 10 years in duration) to re-establish degraded or lost wetland habitat. USDA pays 75 percent of the cost of the restoration activity. This does not place an easement on the property. The landowner provides the restoration site without reimbursement.

Other agencies and private conservation organizations may provide additional assistance for easement payment and wetland restoration costs as a way to reduce the landowner's share of the costs. Such special partnership efforts are encouraged.

States were authorized to begin a continuous sign-up as of October 1, 1996. To offer a conservation easement, the landowner must have owned the land for at least 1 year prior to enrolling the land in the program unless the land was inherited or the landowner can prove the land was not obtained for the purpose of enrolling it in the program. To participate in a restoration cost-share agreement, the landowner must show evidence of ownership.

To be eligible for WRP, land must be restorable and be suitable for wildlife benefits. This includes:

- Wetlands farmed under natural conditions;
- Farmed wetlands;
- Prior converted cropland;
- Farmed wetland pasture;
- Farmland that has become a wetland as a result of flooding;
- Rangeland, pasture, or production forestland where the hydrology has been significantly degraded and can be restored;
- Riparian areas which link protected wetlands;
- Lands adjacent to protected wetlands that contribute significantly to wetland functions and values; and
- Previously restored wetlands (Conservation Reserve Program [CRP] land is eligible if it meets WRP requirements).

Ineligible land includes wetlands converted after December 23, 1985; lands with timber stands established under a CRP contract; Federal lands; and lands where conditions make restoration impossible.

New Programs Authorized

The 1996 Farm Bill created new initiatives to improve natural resources on America's private lands:

Environmental Quality Incentives Program

The Environmental Quality Incentives Program (EQIP) was established in the 1996 Farm Bill to provide a single, voluntary conservation program for farmers and ranchers who face serious threats to soil, water, and related natural resources. It provides technical, financial, and educational assistance.

EQIP also represents USDA's commitment to streamlining and improving its services. USDA combined four of its conservation programs into EQIP: the Agricultural Conservation Program, Water Quality Incentives Program, Great Plains Conservation Program, and the Colorado River Basin Salinity Control Program.

NRCS has leadership for EQIP. It works with FSA to set the program's policies, priorities, and guidelines. Conservation districts and FSA county committees have important roles in implementing the program at the local level. State Technical Committees offer advice on establishing EQIP activities at the State level.

EQIP will:

- Focus on conservation priority areas where there are significant natural resource problems;
- Provide technical assistance and up to 75 percent of the costs of applying conservation practices;
- Give high priority to assisting areas where State or local governments also offer assistance or where conservation practices will help meet water quality objectives; and
- Be administered through multiyear contracts based on conservation plans.

EQIP was funded at $130 million in fiscal year 1996 and $200 million thereafter until 2002. Fifty percent of funding is marked for livestock-related conservation practices. Total cost shares and incentive payments to any person may not exceed $10,000 for any fiscal year. There is a $50,000 limit for multiyear contracts.

Wildlife Habitat Incentives Program

The Wildlife Habitat Incentives Program (WHIP) helps participants develop and improve wildlife habitat on private lands. WHIP is authorized to provide cost sharing to participants to offset expenses incurred for developing habitat for fish and wildlife. NRCS administers the program. The Chief of NRCS may implement WHIP in any of the 50 States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, the U.S. Virgin Islands, American Samoa, the Commonwealth of the Northern Mariana Islands, and the Trust Territories of the Pacific.

WHIP will provide cost sharing to develop habitat for upland and wetland wildlife, threatened and endangered species, fish, and other types of wildlife. Funds for cost sharing total $50 million to the year 2002.

Under WHIP, participants or leasees who have a lease for the duration of the contract agree to implement a wildlife habitat development plan for lands that are made available, without cost, to NRCS. In turn, NRCS agrees to provide cost-share assistance for the initial implementation of wildlife habitat development practices. In some States, other wildlife agencies or nongovernment organizations may provide expertise or additional funding to carry out a project.

Farmland Protection Program

The Farmland Protection Program provides funds to help purchase development rights to keep productive farmland in use. Working through existing programs, USDA joins with State, tribal, or local governments to acquire conservation easements or other interests from landowners. USDA provides up to 50 percent of the costs of purchasing the easements. To qualify, farmland must: be part of a pending offer from a State, tribe, or local farmland protection program; be privately owned; have a conservation plan; be large enough to sustain agricultural production; be accessible to markets for what the land produces; have adequate infrastructure and

services; and have surrounding parcels of land that can support long-term agricultural production.

Conservation of Private Grazing Land

Conservation of Private Grazing Land, which is administered by NRCS, will ensure that technical, educational, and related assistance is provided to those who own private grazing lands. The Nation's more than 600 million acres of private grazing lands produce food and fiber, hold and carry important water resources, and offer wildlife habitat and recreational opportunities.

This assistance will offer opportunities for:

- Better grazing land management;
- Protecting soil from erosive wind and water;
- Using more energy-efficient ways to produce food and fiber;
- Conserving water;
- Providing habitat for wild animals;
- Sustaining forage and grazing plants;
- Using plants to clear carbon dioxide and other greenhouse gasses from the air; and
- Using grazing lands as a source of biomass energy and raw materials for industrial products.

In fiscal year 1996, $20 million was authorized from conservation technical assistance funds. The amount increases to $60 million by the third year.

Additional Conservation Provisions

Conservation Compliance

The 1996 Farm Bill has brought changes to how conservation compliance operates. These changes will encourage land users to slow soil erosion on highly erodible land (HEL), protect wetlands, and build on conservation compliance successes achieved under previous Farm Bills.

Conservation compliance policies are now more farmer friendly than those of previous Farm Bills while still achieving high levels of environmental protection. Farmers have greater flexibility in choosing the conservation methods that can protect their highly erodible land. More decisions regarding conservation compliance can be made at the local level and decisions can now be made faster and with fewer staff resources.

Swampbuster

Swampbuster prevents wetlands from being altered for agricultural purposes for those seeking USDA program benefits by preserving the environmental functions and values of wetlands. These values include wildlife habitat, flood control, esthetics, recreation, sediment control, groundwater recharge, and improving water quality.

The 1996 Farm Bill changed Swampbuster to give farmers greater flexibility in complying with wetland conservation requirements and in making wetlands more valuable and functional. The following Swampbuster provisions have changed:

- Wetland determinations will be made upon request. These determinations stay in effect as long as the land is used for agricultural purposes (unless a violation occurs) or until the owner or operator requests a review.
- There are more options for mitigation. These options include the kinds and locations of restoration, enhancement, or creation activities that maintain a wetland's functions and values.
- Landowners who desire to convert or alter wetlands may enhance existing wetlands, restore former wetlands, or create new wetlands to offset functions and values that are lost from conversions or alterations.
- Wetland conversions authorized by Section 404 of the Clean Water Act will be accepted if the conversion activities were properly mitigated.
- A pilot program for wetland mitigation banking may be established. This program would allow USDA to assess how well mitigation banking assists USDA participants comply with Swampbuster.
- Practices that alter wetlands can now be put on a "fast track" for completion if NRCS determines that a planned activity will have a minimal effect on the wetland functions and values in the area under the "categorical" minimal-effect exemption.

Agricultural Air Quality

The 1996 Farm Bill includes a provision requiring the establishment of a Task Force on Agricultural Air Quality to make recommendations to the Secretary of Agriculture with regard to the scientific basis for agriculture's impact on air quality. The Task Force is to be chaired by the NRCS Chief, and, unless renewed, the Task Force will be terminated 2 years from the date of establishment.

The Task Force is to strengthen and coordinate USDA air quality research efforts to determine the extent to which agricultural activities contribute to air pollution and to identify cost-effective ways in which the agricultural industry can improve air quality. The Task Force also is charged with ensuring that data quality and interpretation are sound. The Farm Bill states that policy recommendations made by any Federal Agency with respect to agricultural air quality issues are to be based on sound scientific findings, subject to peer review, and should consider economic feasibility.

The Task Force will work to ensure intergovernmental (Federal, State, and local) cooperation to establish policy for agricultural air quality and to avoid duplication.

The Task Force is to be convened and chaired by the Chief of NRCS and comprised of USDA employees, industry representatives, and outside experts in the fields of agriculture, air quality, and human health. The Task Force will be an advisory committee and will operate under the terms of the Federal Advisory Committee Act.

Soil Surveys

NRCS conducts soil surveys cooperatively with other Federal agencies, land-grant universities, State agencies, and local units of government. Soil surveys provide the public with local information on the uses and capabilities of their soil resource. Soil surveys are based on scientific analysis and classification of the soils, and are used to determine land capabilities and conservation treatment needs. The published soil survey for a county or designated area includes maps and interpretations with explanatory information that is the foundation of resource policy, planning, and decisionmaking for Federal, State, county, and local community programs.

- ***Major Accomplishments - FY 1995***
  - *Decisions receiving technical services annually - 814,000*
  - *Acres treated annually through conservation technical assistance - 28.2 million*
  - *Tons of soil erosion reduced annually through conservation technical assistance - 258 million*
  - *Acres mapped annually by NRCS - 21.9 million*
  - *Number of soil surveys ready for production - 59*

Snow Survey and Water Supply Forecasts

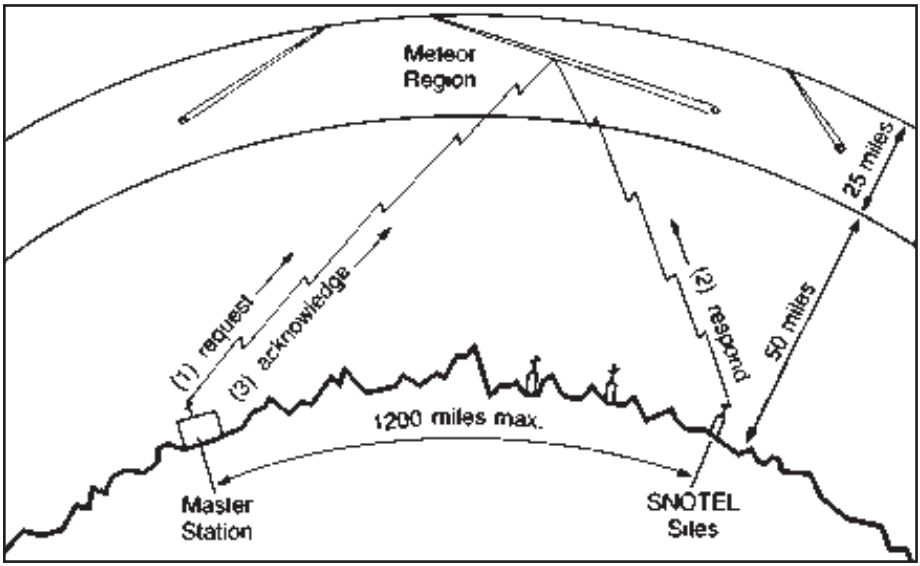
NRCS field staff collect snow information through a network of about 600 Snow Telemetry (SNOTEL) and 850 traditional snow courses to provide 11 Western States and Alaska with water supply forecasts. The data are collected, assembled, and analyzed to make about 4,000 annual water supply forecasts, which provide estimates of available annual yield, spring runoff, and summer stream flow. Water supply forecasts are used by individuals, organizations, and State and Federal agencies to make decisions relating to agricultural production, fish and wildlife management, flood control, recreation, power generation, and water quality management. The National Weather Service presently includes the snow information in its river forecasting.

Plant Materials Centers

NRCS employees at 26 Plant Materials Centers assemble, test, and encourage increased plant propagation and usefulness of plant species for biomass production, carbon sequestration, erosion reduction, wetland restoration, water quality improvement, streambank and riparian area protection, coastal dune stabilization, and to meet other special conservation treatment needs. The work is carried out cooperatively with State and Federal agencies, commercial businesses, and seed and nursery associations. After species are proven, they are released to the private sector for commercial production. In 1995, NRCS developed cultivars that were turned over to others to produce plant stock that generated more than $88 million in revenue for private sector nurseries and seed companies.

Figure 10-3.

Snow surveys and meteor burst technology



Water supply forecasting is enhanced by automated snow survey data collection through a snowpack telemetry (SNOTEL) network. This figure depicts the meteor burst technique used to transmit data from remote SNOTEL sites.

Billions of sand-sized meteorites enter the atmosphere daily. As each particle heats and burns in the region 50 to 75 miles above the Earth's surface, its disintegration creates a trail of ionized gases. The trails diffuse rapidly, usually disappearing within a second, but their short lifespan is adequate for SNOTEL communications to be completed.

The process has three major steps: (1) master stations request data from remote sites; (2) sites respond by transmitting their current data; and (3) finally a master station acknowledges receipt and signals the site transmitter to stop. This complex exchange, taking place in a fraction of a second, is possible thanks to microprocessors.

Watershed Surveys and Planning

NRCS provides assistance to local communities in watershed planning in response to requests by sponsoring local organizations. The Agency works with sponsors to develop watershed plans which meet sponsors' priorities and provide natural resource benefits.

Small Watersheds Projects.

NRCS provides technical and financial assistance, in cooperation with local sponsoring organizations, State, and other public agencies, to voluntarily plan and install watershed-based projects on private lands. The program empowers local people or decisionmakers, builds partnerships, and requires local and State funding con-

tributions. The purposes of watershed projects include watershed protection; flood prevention; water quality improvements; soil erosion reduction; rural, municipal, and industrial water supply; irrigation water management; sedimentation control; fish and wildlife habitat enhancement; and creation and restoration of wetlands and wetland functions.

Emergency Watershed Protection

Under the Emergency Watershed Protection (EWP) program, NRCS provides assistance to reduce hazards to life and property in watersheds damaged by severe natural events. An emergency exists when floods, fire, drought, or other natural causes result in life or property being endangered. During the past 8 years, the program has been needed and used in an average of 26 States per year. Emergency work includes establishing quick vegetative cover on denuded land, sloping steep land, and eroding banks; opening dangerously restricted channels; repairing diversions and levees; and other emergency work. The emergency area need not be declared a national disaster area to be eligible for technical and financial assistance. Emergency watershed protection is applicable to small-scale, localized disasters as well as disasters of national magnitude. NRCS provides technical and financial assistance for disaster cleanup and subsequent rebuilding; stream corridor, wetland, and riparian area restoration; and urban planning and site location assistance to the Federal Emergency Management Agency (FEMA) when relocating communities out of floodplains. Local people are generally employed on a short-term basis to assist with disaster recovery.

Watershed Operations

Under the Flood Control Act of 1944, NRCS is authorized to administer watershed works of improvement. Flood prevention operations include planning and installing works of improvement and land treatment measures for flood prevention; for the conservation, development, utilization, and disposal of water; and for the reduction of sedimentation and erosion damages. This may also include the development of recreational facilities and the improvement of fish and wildlife habitat. Activities are authorized in 11 specific flood prevention projects covering about 35 million acres in 11 States.

■ Watershed Surveys and Planning Major Accomplishments - FY 1995

Applications available for planning	*274*
Approved for planning	*17*
Planning completed	*17*
Planning in process	*91*
Cooperative studies initiated	*37*
Cooperative studies completed	*15*
Cooperative studies in progress at end of year	*136*
Floodplain management studies completed (cumulative total)	*668*
Floodplain management studies completed during fiscal year	*8*
Floodplain management studies in progress at end of year	*87*

River Basin Surveys and Investigations

NRCS cooperates with other Federal, State, and local agencies in conducting river basin surveys and investigations, flood hazard analysis, and flood plain management assistance to aid in the development of coordinated water resource programs, including the development of guiding principles and procedures. Cooperative river basin studies are made up of agricultural, rural, and upstream water and land resources to identify resource problems and determine corrective actions needed. These surveys address a variety of natural resource concerns including water quality improvement, opportunities for water conservation, wetland and water storage capacity, agricultural drought problems, rural development, municipal and industrial water needs, upstream flood damages, and water needs for fish, wildlife, and forest-based industries. Flood plain management assistance includes the identification of flood hazards and the location and use of wetlands. NRCS represents the Department on river basin regional entities and River Basin Interagency Committees for coordination among Federal departments and States.

Forestry Incentives Program

The objectives of this program are to increase the Nation's production of sawtimber and pulpwood on nonindustrial, private forest lands; to decrease expected shortages and rising prices of timber; and to help ensure effective use of available forest lands. Program objectives are met by providing cost-share and technical assistance to landowners to encourage voluntary installation of forestry practices. The program shares up to 65 percent of the cost incurred by the landowner for tree planting and timberstand improvement.

Resource Conservation and Development (RC&D) Program

The Resource Conservation and Development (RC&D) Program helps people care for and protect their natural resources in a way that will improve an area's economy, environment, and living standards. The RC&D Program is a unique blend of private enterprise and creative federalism. It is based on a number of concepts including the value of public/private partnerships in making the best use of limited resources; the value of grassroots involvement in making decisions about local areas; the need to bring USDA agencies together to focus on the same problems and opportunities; the need to leverage limited Federal dollars with private funds to accomplish goals; and the importance of achieving a balance between rural economic development and natural resource protection. RC&D involves more than a single project effort and builds upon long-range resource development plans. To implement RC&D, diverse groups of local people are brought together in an RC&D Council in an RC&D Area. An RC&D Area can include one or more adjacent counties that are big enough to have substantial natural resources to use for economic improvement and community betterment. The RC&D Councils, nationwide, are comprised of more than 20,000 volunteers. There are currently 289 authorized RC&D areas involving 2,092 counties across the country.

National Resources Inventory

Every 5 years, NRCS issues a report card on how well the Nation is sustaining natural resources on non-Federal land. Called the "National Resources Inventory," or NRI, this report card contains the most comprehensive and statistically reliable data of its kind in the world. It measures trends in soil erosion by water and wind, wetland losses, prime farmland acreage, irrigation, and conservation treatment needs at national, regional, State, and sub-State levels.

In 1994, NRCS released the NRI data comparing resource conditions and trends in 1982 and 1992. Key findings include:

- Between 1982 and 1992, the Nation's cropland acreage decreased by about 9 percent (from 421 million to 382 million acres), most of it going into the Conservation Reserve Program; rangeland acreage decreased by about 2 percent (from 409 million to 399 million acres); and developed land increased by 18 percent (from 78 million to 92 million acres).
- The average annual rate of soil erosion for the Nation dropped substantially between 1982 and 1992, largely attributable to the success of the Nation's farmers in meeting the conservation provisions of the 1985 farm bill.
- Prime farmland decreased by 6 million acres between 1982 and 1992, with most of the losses due to rural and urban development.
- Wetland loss due to agriculture has slowed significantly.

The NRI contributes to resource appraisals authorized by the Soil and Water Resources Conservation Act of 1977. These "RCA" appraisals, led by NRCS, are the basis for USDA's National Conservation Program as well as farm and environmental legislation.

In 1994, NRI data and analytical software were made available to the public on CD-ROM for the first time. To obtain the NRI database, Data Analysis Software, and spatial data sets, contact: NRCS National Cartography and Geospatial Center, Fort Worth Federal Center, Bldg. 23, Room 60, P.O. Box 6567, Fort Worth, TX 76115-0567; telephone (817) 334-5559, extension 3135.

Each NRI has built and improved upon the previous one. For example, the 1992 NRI added a data element to look specifically at Earth cover. Major improvements planned for the 1997 NRI include a broader resource assessment focus to address emerging Agency initiatives, such as soil quality and grazing lands health. The NRI and other data collection efforts are being coordinated to achieve a continuous assessment of natural resource conditions and trends.

NRI information can be used to formulate policy and evaluate programs at national, regional, and State levels. Because the NRI's 800,000 sample points are linked to geographic coordinates, natural resource estimates and maps can be produced for user-defined areas of interest. When combined with other Federal, State, and local government inventories, the NRI can provide a snapshot of the state of the land and identify natural resource trends. NRCS field offices and new information dissemination systems, such as the Internet, will become increasingly important in getting this information to the people who most need it: landowners and natural resource managers.

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11. Investing in the Future Through Agricultural Research, Education, and Economics

USDA leads the world in basic and applied research, as it looks for ways to solve problems challenging America's food and fiber production system, and for ways to improve food supply, safety and quality. Five major challenges face U.S. agriculture in the next decade: (1) maintaining an agricultural system that's highly competitive in the global economy, (2) balancing agricultural production and the environment, (3) providing a safe and secure food supply for all citizens, (4) maintaining a healthy, well-nourished population,and (5) increasing economic opportunities and improving the quality of life of all Americans. USDA's Research, Education, and Economics (REE) mission helps meet these challenges.

Four USDA agencies make up the mission: the Agricultural Research Service (ARS), the Cooperative State Research, Education, and Extension Service (CSREES), the Economic Research Service (ERS), and the National Agricultural Statistics Service (NASS). Together, these agencies have the Federal responsibility to discover and disseminate knowledge that spans the biological, physical, and social sciences related to agricultural research, economic analysis, statistics, extension, and higher education.

Getting Your Money's Worth

How does the responsibility translate into results that benefit Americans? In the international trade arena, USDA research is an important tool for stimulating the Nation's economy. For example, the protocol developed for detecting corn seed bacterial disease early and accurately eliminates foreign quarantine barriers and rejected shipments—keeping markets open for U.S. farm products. Another example: U.S. rice establishes the quality standard for the most important small grain in the world. USDA research advances in agricultural biotechnology can help improve crop quality and yields of rice, as well as reduce losses from pest damage. This helps the United States build an agricultural system that is highly competitive in the global economy.

REE is also rising to the challenge of balancing agricultural production and the environment. For example, USDA agricultural research is behind Integrated Pest Management, a system that relies on a variety of natural techniques as alternatives to chemical pesticides in order to reduce health risks, sustain natural resources, and create new economic opportunities. USDA's goal is to have IPM in practice on 75 percent of U.S. agricultural acres by the year 2000. Another example closer to home for many consumers is the research behind the development of biodegradable 100-percent-cornstarch cutlery, which is stronger and better for the environment than petroleum-based plastic utensils.

In an effort to meet the challenge of providing a safe and secure food supply for all citizens, USDA researchers developed the first rapid test for identifying generic bacteria on meat. It has cut the old 3-day meat quality test to detect *E. coli* contamination down to 8 hours—a benefit for both industry and consumers. In another area, USDA is continuing research to understand the possible transfer of infectious diseases from animals to humans—mad cow disease, for example.

REE is delivering on its commitment to a healthy, well-nourished population with the production of a substance called Z-trim which can be used in many food products as a fat replacement that tastes good. Another example: soybeans with a reduced fat content that could eventually lead to a grocery shopping cart full of "smart heart" products.

Delivering the Goods

How does USDA take these technologies and products from the labs to the marketplace? REE works with land-grant institutions and industry to move research results into the marketplace to boost economic opportunities and improve the quality of life for all Americans. REE works in partnership with the State agricultural experiment station system, based at land-grant universities to carry out a balanced program of fundamental and applied research. This critical connection—with extension educators identifying and communicating agricultural, environmental, and community problems to researchers at campuses and experiment stations—helps provide cutting-edge technologies and new products.

USDA uses Cooperative Research and Development Agreements (CRADAs) to get many of its research accomplishments to farmers, business people, and consumers. Under these agreements, USDA and its private sector partners agree to develop certain technologies jointly so they can be commercialized. With more than 650 such partnerships, USDA leads all Federal research organizations in CRADA activity. CRADAs combine government expertise with entrepreneurial ability, allowing government and small business to do more together than they could alone. CRADAs maximize resources and deliver results, giving farmers and consumers products they need, and giving small business and rural America Federal partnerships that enhance products and stimulate the economy.

USDA also collaborates with other Federal Departments. Several joint projects have been initiated between USDA agencies and the National Laboratories operated by the Department of Energy for research and development, technology transfer, technology utilization, and technology commercialization activities. USDA has collaborated with the Department of Defense in investigating new methods to control pests and reduce pesticide use, as well as finding ways to replace critical materials that are not available from domestic producers. Cooperation with the Department of Health and Human Services (DHSS) includes close coordination of human nutrition research done by the two Departments. The CRADAs and the Federal partnerships are examples of how REE can stimulate economic opportunity and improve the quality of life of Americans.

Putting It All Together

To build an informed citizenry, and to provide the information base for market decisions, REE coordinates economic and social research. This research supports programs and policies across USDA, providing data, information, and economic and statistical analyses on a variety of topics: rural development, the environment and natural resources, food safety, food prices, farm labor, farm income, financial conditions, commodity markets, and international trade. REE serves American agriculture and rural communities by providing meaningful, accurate, and objective statistical information—such as the information in Chapters 1-4 of this ***1997 Agriculture Fact Book***. Forecasts and estimates for over 165 different crop and livestock commodities are provided annually to farmers, ranchers, and other agribusinesses. This information helps policymakers, Congress, and the public make informed decisions about issues related to food and fiber production.

REE also focuses on practical education that Americans can use in dealing with critical issues that affect their lives and the Nation's future by linking research, science, and technology to the needs of people where they live and work. REE offers information on issues ranging from community economic development and health care concerns to food safety; water quality; children, youth, and families; and sustainable agriculture. For example, REE programs reach over 5.4 million youth in the United States and the Territories. CSREES' Families, 4-H, and Nutrition programs empower youth to become responsible contributing members of their communities with programs that focus on health learning experiences, increased self-esteem, enhanced problem-solving skills, and agriculture and science literacy. Ag in the Classroom helps K-12 students gain a greater awareness of the role of agriculture in the economy and society, so they may become citizens who promote wiser agricultural policies.

In a society in which information access is crucial, REE is working with local communities to connect them to the information superhighway. From there, citizens have access to much of the information the four REE agencies generate and to the vast resources available at the National Agricultural Library—the largest agricultural library in the world and one of three national libraries of the United States. As the Nation's chief resource providing agricultural information, NAL offers researchers, educators, policymakers, farmers, consumers, and the general public about 48 miles of bookshelves to peruse in a 14-story building. NAL's computer network and electronic bulletin board also provide information that improves access to its 2.2 million volumes.

Research—A Sound Investment

REE serves people along the entire food and fiber chain—-from the farm gate to the consumer's kitchen table. Sound science provides new technology and information useful to Americans as well as people all over the world in their daily lives. The REE agencies develop new products and new uses, improve farming and processing efficiency, explore profitable marketing strategies, increase food safety,

improve human nutrition, and find resource-saving technologies. Studies demonstrate that consumers reap the benefits of investing in agricultural research; every tax dollar invested in the U.S. agricultural system has paid back at least $1.35. These returns have been broadly shared through lower prices for American consumers, increased international competitiveness for farmers, jobs for working families, and increased profitability in agricultural industries.

What's New?

The newly created Fund for Rural America provides a competitive research grant program for a variety of projects such as developing new crops and new crop uses, conserving and enhancing natural resources, and expanding locally owned value-added processing. The research will help agricultural producers manage the risk associated with market-driven provisions of new U.S. farm legislation.

REE's newly created National Agricultural Research, Extension, Education, and Economics Advisory Board advises the Secretary and land-grant colleges and universities on agricultural research, extension, education, and economics policy and priorities. In addition, a task force has been created to develop a 10-year strategic plan for federally funded agricultural research facilities. REE's strategic plan, mandated by the Government Performance and Results Act, will measure the effectiveness of Federal Government activities and will use the annual budget process to link all Agency activities with Agency missions.

Information about the REE mission and its respective agencies—Agricultural Research Service; Cooperative State Research, Education, and Extension Service; Economic Research Service; and National Agricultural Statistics Service—is available on the REE World Wide Web home page at *www.reeusda.gov/ree/*

Agricultural Research Service

The Agricultural Research Service (ARS) is the principal in-house research Agency of the U.S. Department of Agriculture.

ARS research has long been associated with higher yields and more environmentally sensitive farming techniques. But the impact of ARS research extends far beyond the farm gate and the dinner table. Agricultural research is as much about human health as it is about growing corn.

For example, ARS recently developed a fat substitute called Oatrim. Not only does this technology benefit farmers by providing a new use for oats, it also enables processors to produce tastier low-fat foods. Consumers may reap the biggest benefits: Oatrim-rich diets lower the bad (LDL) type of cholesterol without decreasing the good (HDL) type, and they improve glucose tolerance.

ARS research is also as much about development of industrial products such as printing ink from soybeans and other crops as it is about development of high-yielding wheat varieties. And like Oatrim, printing inks made from 100-percent soybean

oil instead of petroleum solve more than one problem. Unlike petroleum, soybeans are a renewable resource, and this technology diversifies markets for soybean farmers and choices for ink manufacturers and printers.

ARS research provides solutions to a wide range of problems related to agriculture—problems that require long-term commitment of resources or that are unlikely to have solutions with a quick commercial payoff that would tempt private industry to do the research.

These problems range from fighting the ongoing battle to protect crops and livestock from costly pests and diseases, to improving quality and safety of agricultural commodities and products for humans, to making the best use of natural resources. All the while, the research results must help ensure profitability for producers and processors while keeping costs down for consumers.

To develop solutions to these problems, ARS scientists carry out basic, applied, and developmental research. These are inextricably linked. Scientists cannot do applied and developmental research without the foundation provided by basic research; and ARS basic research must point toward specific uses for new knowledge resulting from the research. Also, basic research is necessary because it helps in anticipating new problems and providing information needed for rational nationwide policies.

For more information about ARS, see its Home Page at *www.ars.usda.gov*

- ***A Year in Research: Selected Highlights***
  - ***Stopping Lyme Disease at Its Source***

    Ticks that transmit Lyme disease to humans may find it deadly to hop on a white-tailed deer. That's because of a new deer feeder dubbed "the four poster" and patented by ARS. The feeder gets its name from four pesticide-loaded rollers that rub tick-killing chemicals on a deer's head and neck as it sticks its head inside to feast on corn.

    Eliminating adult ticks prevents egg laying, thus preventing another generation. Treated deer help eliminate ticks from wooded areas rather than leaving the pests behind to find another host.
  - ***What We Eat in America***

    American diets are changing in content and variety, and in the location where the foods are bought and eaten, according to data from the first year of the ongoing 3-year survey, "What We Eat in America."

    This statistical snapshot of the American diet reveals that consumption of dietary fat has continued a downward trend. Vegetable consumption is low, especially consumption of dark green and deep-yellow vegetables. And fruit consumption has risen 20 percent since the late 1970's, mostly because of an increase in fruit juices.

    The biggest change is an increase in grain products. Consumption of grain mixtures such as lasagna and pizza has

increased 115 percent in the last 17 years. Snack foods have soared 200 percent. Ready-to-eat cereals are up 60 percent.

- ***Bringing Forth a Better Tomato***
  Tomato plants grown from tissue culture promise fruit that's consumer-friendly. ARS scientists developed a special tissue culture medium that's unfriendly to plants with a low sugar/solids content. Survivors in the medium bear fruit with enhanced sweetness, increased meatiness, and extended shelf life. Testing is being conducted by an Oakland, CA, firm under a Cooperative Research and Development Agreement.
- ***Parasite-Free Pork***
  A genetically engineered protein provides a rapid and sensitive test for diagnosing pigs carrying Trichinella spiralis*, the organism that causes trichinosis in humans. ARS scientists isolated a naturally derived parasite protein, called an antigen, that triggers the body's immune system to send out antibodies to fight off the parasite. In studies, the natural antigen detected 98 percent of cases in experimentally infected swine. To improve the test, scientists have copied and reproduced the parasite's gene that makes the antigen. The improved antigen will aid the pork industry in making parasite-free pork available to consumers.*
- ***Online Window to ARS Research***
  TEKTRAN, an online database of information from ARS research labs, contains about 13,000 summaries of research findings. Available on the World Wide Web, TEKTRAN also offers links for investigating new ARS technologies available for licensing. Browsers can conduct a full-text search of the summaries, including titles, keywords, and author information. They can also search by categories such as nutrition, germplasm, pests, and soil management. The address is: http://www.nal.usda.gov/ttic/tektran/tektran.html
- ***Remote-Sensing System***
  A remote-sensing system developed by ARS is the scientific launch pad for a four-satellite commercial network planned for Earth orbit in 1999. It is expected to reveal such details as too much or too little soil moisture; nutrient deficiency in a crop; and emerging weed, insect, and disease outbreaks. The system would be the first commercial system to deliver data, up to twice daily, to farmers within 24 hours of being obtained from satellites.
- ***New Test for Rice***
  A new test will help breeders find rice plants that have genes for greater resistance to zinc deficiency, a condition that costs farmers millions of dollars in lost yields annually. ARS scientists developed the test in which rice seedlings grow in a special

nutrient solution that lowers zinc availability, while providing all other nutrients needed for normal growth. By supplying all the needed nutrients except the one being tested for, the solution avoids the risk of creating a deficiency of another nutrient that could cause confusing results. Field tests have borne out the lab results.

- ***Befriending a Foe of the Gypsy Moth***
  Two decades of persistence by ARS scientists have renewed attempts to establish a small Asian wasp in the United States. Gypsy moth caterpillars are the worst insect pests of forest and shade trees in the East. But after an egg of a Rogas indiscretus *wasp hatches inside the caterpillar, the young wasp eats the pest's insides. From 1968 to 1977, scientists released about 30,000* Rogas *wasps, which promptly vanished. But in 1994, the last year of a 20-year monitoring study, scientists spotted several Rogas cocoons. The discovery led to the first new* Rogas *shipment in decades—about 200 cocoons collected in India and shipped to an ARS lab in Delaware. Several thousand wasps are planned for release in Maryland, Michigan, and Pennsylvania in 1997.*
- ***Tracing Leptospirosis to Its Source***
  An outbreak of human leptospirosis in Nicaragua was traced to its source—dogs—using a diagnostic test developed by ARS veterinarians. Before ARS diagnostic work, other researchers and health officials suspected rats as the source of the bacteria. The disease produced pulmonary hemorrhaging leading to illness and death in thousands of Nicaraguans. Humans can get leptospirosis from exposure to animal urine through contaminated soil or water.
- ***Cotton With Built-in Odor Resistance***
  A new antibacterial agent for cotton products uses peroxide and magnesium to kill microbes and retain the antibacterial properties for over 50 washes. Normally, industries such as diaper services use a chemical wash every time they clean diapers to impart these qualities. But now, the odor resistance can be built in. Other potential markets for the treatment, which is available for commercial licensing, could include athletic wear such as socks or shoe insoles.
- ***Good Reasons To Encapsulate Herbicides***
  When ARS scientists measured vapor losses after application of alachlor and atrazine to unplowed cornfields, the results verified the advantages of encapsulating herbicides in cornstarch. Herbicides that are sprayed on crop fields are exposed to wind, rain, and warm temperatures that facilitate herbicide loss into the air as a vapor. Scientists found that these airborne herbicides can land in waterways as far as 150 miles away. Encapsulating herbicides in cornstarch packaging delivers them to the right spot in the soil, reducing the chance that they'll be lost in the air. Encapsulating also decreases the risk of ground water contamination.

- ***Saline-Tolerant Sunflowers***
  Cultivated sunflowers may become a common sight on land that's now unproductive or produces poor crops because it's overloaded with mineral salts. ARS geneticists have identified genes in a species of wild sunflower called Helianthus paradoxus *that enable seedlings to withstand the salts. That salinity tolerance trait has been bred into some experimental sunflower lines. This trait could also provide drought tolerance that would boost acreages capable of producing sunflowers. Salts usually build up in soils of dry areas that have been irrigated excessively.*

Cooperative State Research, Education, and Extension Service

The Cooperative State Research, Education, and Extension Service (CSREES) unites the research, higher education, and extension education and outreach resources of USDA, resulting in better customer service and an enhanced ability to respond to emerging issues and current national priorities.

Mission

The mission of CSREES is to achieve significant and equitable improvements in domestic and global economic, environmental, and social conditions by advancing creative and integrated research, education, and extension programs in food, agricultural, and related sciences in partnership with both the public and private sectors.

CSREES leadership increases innovative scientific knowledge and provides key access to this knowledge; strengthens the research, higher education, and extension capabilities of land-grant and other partnering institutions; increases access to and use of improved communication and network systems; and enhances science-based decisionmaking by producers, families, communities, and other customers.

CSREES is committed to creating relevant, excellent, and useful research, education, and extension programs that improve economic, environmental, and social conditions in the United States and globally. Critical quality of life issues addressed include: improved agricultural productivity and new product development; safer, cleaner food, water, and air; enhanced stewardship and management of our land and other natural resources; healthier, more responsible individuals, families, and communities; and a secure, diverse, and affordable national food supply.

Partnerships

CSREES contributions are strengthened by a broad spectrum of public and private partnerships that maximize resources and program impact. Partners include other USDA agencies, Federal and State government departments, nonprofit organizations, and private sector entities. Working closely with the land-grant universities and their representatives enables more effective shared planning, delivery, and

accountability for research, higher education, and extension programs. CSREES partners include:

- Over 130 colleges of agriculture, including land-grant institutions in each State and Territory,
- 59 agricultural experiment stations with over 9,500 scientists conducting research,
- 57 cooperative extension services with over 9,600 local extension agents working in 3,150 counties,

- ***CSREES Is***
  - *5.4 million youth involved in 4-H programs that increase self-esteem, promote science literacy, and enhance problem-solving skills in a positive, supportive environment,*
  - *Managing Change in Agriculture, a national initiative to help U.S. agricultural producers respond to profound changes in how food is produced, processed, distributed, and marketed in the United States and globally,*
  - *The National Research Initiative supporting research in the biological, physical, and social sciences to solve key agricultural and environmental problems,*
  - *World Wide Web access to seven national science-based decisionmaking support databases (beef, dairy, pig, sheep, catfish, goat, and poultry) that help farmers, ranchers and producers make sound decisions in the face of increasing economic, environmental, and social demands and the increasing complexity of technologies and information management,*
  - *State-of-the-art competitive research programs on value-added product development, plant and animal genomes, integrated pest management, water quality, human nutrition, food safety, and plant and animal systems,*
  - *Higher education programs based on identified national needs that develop the scientific and professional expertise required to advance the food, agricultural, and natural resources systems and maintain excellence in college and university teaching programs,*
  - *Immediate electronic access to vital disaster safety and recovery information in time-critical disasters, such as hurricanes, wildfires, and floods,*
  - *3 million trained volunteers working with national outreach education programs,*
  - *Research-based, hands-on education programs in sustainable agriculture; natural resource management and environmental stewardship; water quality; food safety; children, youth, and families; health; community economic development; and distance education.*

- 63 schools of forestry,
- 16 1890 historically black land-grant institutions and Tuskegee University,
- 27 colleges of veterinary medicine,
- 42 schools and colleges of family and consumer sciences,
- 29 1994 Native American land-grant institutions,
- 190 Hispanic-Serving Institutions

Programs

CSREES research, higher education, and extension leadership is provided through programs in Plant and Animal Production, Protection, and Processing; Natural Resources and Environment; Rural, Economic, and Social Development; Families, 4-H, and Nutrition; Partnerships; Competitive Research Grants and Awards Management; Science and Education Resources Development; and Communications, Technology, and Distance Education.

Telecommunications Leadership

CSREES advances cutting-edge technologies, applications, and interactive distance education capabilities to provide key community access to the research, education, and extension knowledge that empowers citizens to be active participants in reshaping society and solving complex problems at the local level. With all State extension system and county offices interconnected through an interactive communication network, CSREES can respond in a timely and credible manner to critical issues and public needs.

For Further Information

Contact your local county extension office (offices are listed under local government in the telephone directory), a land-grant university, or the Cooperative State Research, Education, and Extension Service, U.S. Department of Agriculture, Washington, DC 20250-0900. Telephone: 202-720-3029; Fax: 202-690-0289; Internet: *csrees@reeusda.gov* or World Wide Web: *http://www.reeusda.gov*

Other CSREES URLs: *http://www.reeusda.gov/statepartners/usa.htm*
http://www.reeusda.gov/success/sum97.htm

Economic Research Service

The bottom-line benefits of biotech cotton and soybeans. Rising sales of nutritionally improved foods. Hedge-to-arrive contracts, clause by clause. Prospects for U.S. grain sales in Asia. What happens when we change the Food Stamp program, or the welfare system. The outlook for wheat prices, and milk prices, and lettuce prices, and pork belly prices, and sugar prices. The legacy of polluted creeks and rivers. The effects of tomato imports on U.S. producers. The formulas for Farm Act payments. The ebb and flow of rural population trends. Society's burden from *E. coli* and *salmonella*.

It's all economics. And USDA's Economic Research Service (ERS) stays right on top of it, dissects it, parses it, and tells the Nation and the world all about it.

- ***Did you know?***
  - *Agriculture is one of the three most hazardous U.S. occupations. CSREES-supported farm safety education programs in all 50 States and Puerto Rico teach volunteer firefighters and rescue crews how to respond to farm accidents, certify training for the safe operation of tractors and other machinery, and instill in children a general awareness of farm hazards, including poisons, all-terrain vehicles, and other equipment.*
  - *The CSREES AgrAbility project provides on-farm assistance to over 2,000 farmers with disabilities and educates agricultural, rehabilitation, and health professionals on safely accommodating disability in agriculture.*
  - *The CSREES Integrated Pest Management (IPM) program uses a sustainable approach that manages crop pests through biological, cultural, physical, and chemical procedures to minimize economic, health, and environmental risks.*
  - *CSREES is a leader in developing training programs for public and private pesticide applicators that combine education with new technology to minimize pesticide drift. Current pesticide applicator programs train over half a million people each year on the safe and environmentally sound use of pesticides.*
  - *CSREES water quality programs include Farm*A*Syst, an award-winning water pollution prevention program which conducts surface and groundwater audits, and the Blue Thumb Project, which brings water education into the community and empowers local residents to address their own water problems.*
  - *CSREES environmental management flagship programs are nationally recognized forexcellence in education for individuals and businesses seeking to improve management of air, water, soil, forests, rangelands, and fish and wildlife resources.*
  - *CSREES rural manufacturing modernization programs provide technical assistance, business education, and training to small manufacturers in food processing, wood products, and other rural enterprises.*
  - *The CSREES Agricultural Telecommunications Program, established in the 1990 Farm Bill, helps universities develop agricultural telecommunications capacity by funding projects in support of formal and nonformal courses, faculty and staff education, program delivery, community-based access to education, student training in food and agricultural careers, facilitation of scientific interaction, and expansion of agricultural markets for farmers.*
  - *CSREES small farm programs include on-farm research to adapt and incorporate new practices and technologies into smaller-scale agriculture.*

- *CSREES international programs are building democracy through agriculture in Poland, Armenia, Bulgaria, Russia, and Ukraine by providing the education and technical assistance needed to help these countries make the transition to a market economy.*
- *The CSREES Expanded Food and Nutrition Education Program (EFNEP) helps limited-resource youth, pregnant teens, and families with young children in all 50 States and 6 Territories improve their nutritional well-being, make better use of their food dollars, and decrease the number of families on Food Stamps and WIC.*
- *CSREES collaborates with the ARS Children's Nutrition Research Center, located at the College of Medicine at Baylor University, to improve the nutrition education provided from kindergarten through grade 12 and to link the medical, research, extension, and education communities.*

ERS is USDA's economic research Agency, providing information and analysis on agriculture, food, natural resources, and rural America. The information produced by ERS is used by farmers and consumers in the decisions they make and by public officials in developing, administering, and evaluating agricultural and rural policies and programs.

The topics that ERS researches, analyzes, and monitors include:

- Domestic and international agriculture,
- Nutrition education and food assistance, food safety regulation, determinants of consumer demand for quality and safety, and food marketing trends and developments,
- Agricultural resource and environmental issues, and
- National rural and agricultural conditions affecting the rural economy, the financial performance of the farm sector, and the implications of changing farm credit and financial market structures

ERS-produced information is available to the public through research reports, commodity and trade reports, electronic media, newspapers, magazines, radio, and frequent participation of ERS staff at public forums. In addition, ERS publishes several periodicals, including *Agricultural Outlook, FoodReview, Rural Conditions and Trends*, and *Rural Development Perspectives.*

ERS has four principal functions: research, development of economic and data indicators, commodity and trade forecasting, and analysis of policy and program alternatives.

Research, together with economic and data indicators, provides the knowledge and the data base for the commodity and trade forecasting and policy and program analysis. The products are periodic reports for major agricultural commodities, agricultural exports, agricultural finance, agricultural resources, and world agriculture, and analyses assessing issues requiring policy decisions by the Administration and Congress.

ERS reports are available in a variety of formats. Printed reports can be ordered through the ERS Information Center by calling (202) 219-0515. Many reports, data

bases, and other types of information are available on the ERS World Wide Web site at *http://www/econ.ag.gov* and on the ERS AutoFAX system at (202) 219-1107.

National Agricultural Statistics Service

The National Agricultural Statistics Service (NASS) administers USDA's program for collecting and publishing timely national and State agricultural statistics. In 1862, the first Commissioner of the newly formed Department of Agriculture, Isaac Newton, established a goal "to collect, arrange, and publish statistical and other useful agricultural information." A year later, in July 1863, the Department's Division of Statistics issued the Nation's first official *Crop Production* report.

The structure of farming, ranching, and the agricultural industry has changed dramatically during the succeeding 135 years. The need for accurate, timely, and objective statistical information about the Nation's agriculture has become even more important as the country has moved from subsistence agriculture to a highly industrialized business that produces food and fiber for the world market.

NASS is a world leader in the use of statistical methodology to produce statistics about agriculture. NASS statisticians provide consulting services to a large number of developing countries around the world, helping them develop statistical information about their agriculture. NASS has also been a leader in making information available through electronic media. Globalization of markets is expanding as buyers and sellers have nearly instant access to market information from around the world.

The 1997 U.S. Census of Agriculture will be conducted by NASS and will begin in January 1998. The Census of Agriculture functions have been transferred from the Census Bureau in the Department of Commerce to NASS in the Department of Agriculture. This move will link all major statistical services for agriculture. All county, State, and U.S.-level data provided in previous Census periods will be made available from the 1997 Census of Agriculture.

NASS headquarters is located in Washington, DC, and 45 State Statistical Offices (SSO's) cover 120 crops and 45 livestock items annually in the 50 States. Current and historical information is published in approximately 400 reports, which feature:

- Crop acreage, yield, production, and grain stocks,
- Livestock, dairy, and poultry production and prospects,
- Chemical use in agriculture,
- Labor use and wage rates,
- Farms and land in farms, and
- Prices, costs, and returns.

An abundance of agricultural information is available to data users through our programs. In addition to the information above, estimates on more specialized commodities, including hop stocks, mink, cherries, cranberries, lentils, and peppermint oil are also available. The information is geared toward producers and can help them plan planting, feeding, breeding, and marketing programs. The data are also used by agricultural organizations, services, and businesses; trade groups; and financial insti-

tutions to determine demand for inputs, resources, transportation, and storage-related crop and livestock products. In addition, the data are used to make and carry out agricultural policy concerning farm program legislation, commodity programs, agricultural research, and rural development.

Most estimates are based on information gathered from producers, who are surveyed through personal and telephone interviews or through mailed questionnaires. In addition, for major crops such as corn, wheat, soybeans, and cotton, in-the-field counts and measurement of plant development are made in the top producing States. Other estimates are based on surveys of grain elevators, hatcheries, and other agribusinesses, as well as on administrative data such as slaughter records.

Data collected from these varied sources are summarized by the NASS SSO serving that State and sent to the Agency's Agricultural Statistics Board in Washington, DC, whose members determine and issue State and national official estimates.

All NASS reports are released at scheduled times, and the information is offered to the public in a variety of formats.

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National Agricultural Statistics Service

There are a variety of ways to obtain NASS reports, data products, and services:

Reports/Publications Sales Order Desk
1-800-999-6779
FAX:703-834 0110
(Free catalog available upon request)

Internet World Wide Web:
http://www.usda.gov/nass/
Gopher Site/Telenet/FTP:
HOST=usda.mannlib.cornell.edu

NASSFax (Autofax)
202-720-2000
(To obtain current U. S. summary pages and-highlights of selected reports, pick up the receiver on your facsimile machine, dial the number, listen and follow the voice prompts.Ask for Document Number 0411 for a completelisting of NASS reports/highlights available from the autofax.)

Information Hotline
1-800-727-9540
FAX:202-690-2060
For general agricultural statistics or further information about NASS or its products or services
Hours: 7:30 a.m. - 4:00 p.m. M-F
nass@nass.usda.gov

Census of Agriculture Information
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202-720-6146

U.S. and State farm and labor statistics
202-720-3570

Statistical Consulting and Surveys
202-720-4557

Reimbursable Public Agricultural Surveys
202-720-2248

Statistical Research
703-235-7511

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State-Specific Agricultural Statistics
nass-*@nass.usda.gov
(Replace asterisks with State code, such as AL for Alabama)

State Statistical Offices

State Statistical Offices can offer some additional data breakouts not found in national publications. For information about a particular State, Call the State Statistician at any of the following offices:

Alabama (Montgomery, AL)
334-279-3555

Alaska (Palmer, AK)
907-745-4272

Arizona (Phoenix, AZ)
602-280-8850

Arkansas (Little Rock, AR)
501-296-9926

California (Sacramento, CA)
916-498-5161

Colorado (Lakewood, CO)
303-236-2300

Delaware (Dover, DE)
302-739-4811

Florida (Orlando, FL)
407-648-6013

Georgia (Athens, GA)
706-546-2236

Hawaii (Honolulu, HI)
808-973-2907

Idaho (Boise, ID)
208-334-1507

Illinois (Springfield, IL)
217-492-4295

Indiana (West Lafayette, IN)
765-494-8371

Iowa (Des Moines, IA)
515-284-4340

Kansas (Topeka, KS)
913-233-2230

Kentucky (Louisville, KY)
502-582-5293

Louisiana (Baton Rouge, LA)
504-922-1362

Maryland (Annapolis, MD)
410-841-5740

Michigan (Lansing, MI)
517-377-1831

Minnesota (St. Paul, MN)
612-296-2230

Mississippi (Jackson, MS)
601-965-4575

Missouri (Columbia, MO)
573-876-0950

Montana (Helena, MT)
406-441-1240

Nebraska (Lincoln, NE)
402-437-5541

Nevada (Reno, NV)
702-784-5584

New England (Concord, NH)
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New Jersey (Trenton, NJ)
609-292-6385

New Mexico (Las Cruces, NM)
505-522-6023

New York (Albany, NY)
518-457-5570

North Carolina (Raleigh, NC)
919-856-4394

North Dakota (Fargo, ND)
701-239-5306

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614-728-2100

Oklahoma (Oklahoma City, OK)
405-525-9226

Oregon (Portland, OR)
503-326-2131

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Tennessee (Nashville, TN)
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Texas (Austin, TX)
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West Virginia (Charleston, WV)
304-345-5958

Wisconsin (Madison, WI)
608-224-4848

Wyoming (Cheyenne, WY)
307-772-2181

Getting Your Money's Worth

How does the responsibility translate into results that benefit Americans? In the international trade arena, USDA research is an important tool for stimulating the Nation's economy. For example, the protocol developed for detecting corn seed bacterial disease early and accurately eliminates foreign quarantine barriers and rejected shipments—keeping markets open for U.S. farm products. Another example: U.S. rice establishes the quality standard for the most important small grain in the world. USDA research advances in agricultural biotechnology can help improve crop quality and yields of rice, as well as reduce losses from pest damage. This helps the United States build an agricultural system that is highly competitive in the global economy.

REE is also rising to the challenge of balancing agricultural production and the environment. For example, USDA agricultural research is behind Integrated Pest Management, a system that relies on a variety of natural techniques as alternatives to chemical pesticides in order to reduce health risks, sustain natural resources, and create new economic opportunities. USDA's goal is to have IPM in practice on 75 percent of U.S. agricultural acres by the year 2000. Another example closer to home for many consumers is the research behind the development of biodegradable 100-percent-cornstarch cutlery, which is stronger and better for the environment than petroleum-based plastic utensils.

In an effort to meet the challenge of providing a safe and secure food supply for all citizens, USDA researchers developed the first rapid test for identifying generic bacteria on meat. It has cut the old 3-day meat quality test to detect *E. coli* contamination down to 8 hours—a benefit for both industry and consumers. In another area, USDA is continuing research to understand the possible transfer of infectious diseases from animals to humans—mad cow disease, for example.

REE is delivering on its commitment to a healthy, well-nourished population with the production of a substance called Z-trim which can be used in many food products as a fat replacement that tastes good. Another example: soybeans with a reduced fat content that could eventually lead to a grocery shopping cart full of "smart heart" products.

Delivering the Goods

How does USDA take these technologies and products from the labs to the marketplace? REE works with land-grant institutions and industry to move research results into the marketplace to boost economic opportunities and improve the quality of life for all Americans. REE works in partnership with the State agricultural experiment station system, based at land-grant universities to carry out a balanced program of fundamental and applied research. This critical connection—with extension educators identifying and communicating agricultural, environmental, and community problems to researchers at campuses and experiment stations—helps provide cutting-edge technologies and new products.

USDA uses Cooperative Research and Development Agreements (CRADAs) to get many of its research accomplishments to farmers, business people, and consumers. Under these agreements, USDA and its private sector partners agree to develop certain technologies jointly so they can be commercialized. With more than 650 such partnerships, USDA leads all Federal research organizations in CRADA activity. CRADAs combine government expertise with entrepreneurial ability, allowing government and small business to do more together than they could alone. CRADAs maximize resources and deliver results, giving farmers and consumers products they need, and giving small business and rural America Federal partnerships that enhance products and stimulate the economy.

USDA also collaborates with other Federal Departments. Several joint projects have been initiated between USDA agencies and the National Laboratories operated by the Department of Energy for research and development, technology transfer, technology utilization, and technology commercialization activities. USDA has collaborated with the Department of Defense in investigating new methods to control pests and reduce pesticide use, as well as finding ways to replace critical materials that are not available from domestic producers. Cooperation with the Department of Health and Human Services (DHSS) includes close coordination of human nutrition research done by the two Departments. The CRADAs and the Federal partnerships are examples of how REE can stimulate economic opportunity and improve the quality of life of Americans.

Putting It All Together

To build an informed citizenry, and to provide the information base for market decisions, REE coordinates economic and social research. This research supports programs and policies across USDA, providing data, information, and economic and statistical analyses on a variety of topics: rural development, the environment and natural resources, food safety, food prices, farm labor, farm income, financial conditions, commodity markets, and international trade. REE serves American agriculture and rural communities by providing meaningful, accurate, and objective statistical information—such as the information in Chapters 1-4 of this ***1997 Agriculture Fact Book***. Forecasts and estimates for over 165 different crop and livestock commodities are provided annually to farmers, ranchers, and other agribusinesses. This information helps policymakers, Congress, and the public make informed decisions about issues related to food and fiber production.

REE also focuses on practical education that Americans can use in dealing with critical issues that affect their lives and the Nation's future by linking research, science, and technology to the needs of people where they live and work. REE offers information on issues ranging from community economic development and health care concerns to food safety; water quality; children, youth, and families; and sustainable agriculture. For example, REE programs reach over 5.4 million youth in the United States and the Territories. CSREES' Families, 4-H, and Nutrition programs empower youth to become responsible contributing members of their communities with programs that focus on health learning experiences, increased self-esteem, enhanced problem-solving skills, and agriculture and science literacy. Ag in the Classroom helps K-12 students gain a greater awareness of the role of agriculture in the economy and society, so they may become citizens who promote wiser agricultural policies.

In a society in which information access is crucial, REE is working with local communities to connect them to the information superhighway. From there, citizens have access to much of the information the four REE agencies generate and to the vast resources available at the National Agricultural Library—the largest agricultural library in the world and one of three national libraries of the United States. As the Nation's chief resource providing agricultural information, NAL offers researchers, educators, policymakers, farmers, consumers, and the general public about 48 miles of bookshelves to peruse in a 14-story building. NAL's computer network and electronic bulletin board also provide information that improves access to its 2.2 million volumes.

Research—A Sound Investment

REE serves people along the entire food and fiber chain—-from the farm gate to the consumer's kitchen table. Sound science provides new technology and information useful to Americans as well as people all over the world in their daily lives. The REE agencies develop new products and new uses, improve farming and processing efficiency, explore profitable marketing strategies, increase food safety,

improve human nutrition, and find resource-saving technologies. Studies demonstrate that consumers reap the benefits of investing in agricultural research; every tax dollar invested in the U.S. agricultural system has paid back at least $1.35. These returns have been broadly shared through lower prices for American consumers, increased international competitiveness for farmers, jobs for working families, and increased profitability in agricultural industries.

What's New?

The newly created Fund for Rural America provides a competitive research grant program for a variety of projects such as developing new crops and new crop uses, conserving and enhancing natural resources, and expanding locally owned value-added processing. The research will help agricultural producers manage the risk associated with market-driven provisions of new U.S. farm legislation.

REE's newly created National Agricultural Research, Extension, Education, and Economics Advisory Board advises the Secretary and land-grant colleges and universities on agricultural research, extension, education, and economics policy and priorities. In addition, a task force has been created to develop a 10-year strategic plan for federally funded agricultural research facilities. REE's strategic plan, mandated by the Government Performance and Results Act, will measure the effectiveness of Federal Government activities and will use the annual budget process to link all Agency activities with Agency missions.

Information about the REE mission and its respective agencies—Agricultural Research Service; Cooperative State Research, Education, and Extension Service; Economic Research Service; and National Agricultural Statistics Service—is available on the REE World Wide Web home page at *www.reeusda.gov/ree/*

Agricultural Research Service

The Agricultural Research Service (ARS) is the principal in-house research Agency of the U.S. Department of Agriculture.

ARS research has long been associated with higher yields and more environmentally sensitive farming techniques. But the impact of ARS research extends far beyond the farm gate and the dinner table. Agricultural research is as much about human health as it is about growing corn.

For example, ARS recently developed a fat substitute called Oatrim. Not only does this technology benefit farmers by providing a new use for oats, it also enables processors to produce tastier low-fat foods. Consumers may reap the biggest benefits: Oatrim-rich diets lower the bad (LDL) type of cholesterol without decreasing the good (HDL) type, and they improve glucose tolerance.

ARS research is also as much about development of industrial products such as printing ink from soybeans and other crops as it is about development of high-yielding wheat varieties. And like Oatrim, printing inks made from 100-percent soybean

oil instead of petroleum solve more than one problem. Unlike petroleum, soybeans are a renewable resource, and this technology diversifies markets for soybean farmers and choices for ink manufacturers and printers.

ARS research provides solutions to a wide range of problems related to agriculture—problems that require long-term commitment of resources or that are unlikely to have solutions with a quick commercial payoff that would tempt private industry to do the research.

These problems range from fighting the ongoing battle to protect crops and livestock from costly pests and diseases, to improving quality and safety of agricultural commodities and products for humans, to making the best use of natural resources. All the while, the research results must help ensure profitability for producers and processors while keeping costs down for consumers.

To develop solutions to these problems, ARS scientists carry out basic, applied, and developmental research. These are inextricably linked. Scientists cannot do applied and developmental research without the foundation provided by basic research; and ARS basic research must point toward specific uses for new knowledge resulting from the research. Also, basic research is necessary because it helps in anticipating new problems and providing information needed for rational nationwide policies.

For more information about ARS, see its Home Page at *www.ars.usda.gov*

- ***A Year in Research: Selected Highlights***
  - ***Stopping Lyme Disease at Its Source***

    Ticks that transmit Lyme disease to humans may find it deadly to hop on a white-tailed deer. That's because of a new deer feeder dubbed "the four poster" and patented by ARS. The feeder gets its name from four pesticide-loaded rollers that rub tick-killing chemicals on a deer's head and neck as it sticks its head inside to feast on corn.

    Eliminating adult ticks prevents egg laying, thus preventing another generation. Treated deer help eliminate ticks from wooded areas rather than leaving the pests behind to find another host.
  - ***What We Eat in America***

    American diets are changing in content and variety, and in the location where the foods are bought and eaten, according to data from the first year of the ongoing 3-year survey, "What We Eat in America."

    This statistical snapshot of the American diet reveals that consumption of dietary fat has continued a downward trend. Vegetable consumption is low, especially consumption of dark green and deep-yellow vegetables. And fruit consumption has risen 20 percent since the late 1970's, mostly because of an increase in fruit juices.

    The biggest change is an increase in grain products. Consumption of grain mixtures such as lasagna and pizza has

increased 115 percent in the last 17 years. Snack foods have soared 200 percent. Ready-to-eat cereals are up 60 percent.

- ***Bringing Forth a Better Tomato***
  Tomato plants grown from tissue culture promise fruit that's consumer-friendly. ARS scientists developed a special tissue culture medium that's unfriendly to plants with a low sugar/solids content. Survivors in the medium bear fruit with enhanced sweetness, increased meatiness, and extended shelf life. Testing is being conducted by an Oakland, CA, firm under a Cooperative Research and Development Agreement.
- ***Parasite-Free Pork***
  A genetically engineered protein provides a rapid and sensitive test for diagnosing pigs carrying Trichinella spiralis*, the organism that causes trichinosis in humans. ARS scientists isolated a naturally derived parasite protein, called an antigen, that triggers the body's immune system to send out antibodies to fight off the parasite. In studies, the natural antigen detected 98 percent of cases in experimentally infected swine. To improve the test, scientists have copied and reproduced the parasite's gene that makes the antigen. The improved antigen will aid the pork industry in making parasite-free pork available to consumers.*
- ***Online Window to ARS Research***
  TEKTRAN, an online database of information from ARS research labs, contains about 13,000 summaries of research findings. Available on the World Wide Web, TEKTRAN also offers links for investigating new ARS technologies available for licensing. Browsers can conduct a full-text search of the summaries, including titles, keywords, and author information. They can also search by categories such as nutrition, germplasm, pests, and soil management. The address is: http://www.nal.usda.gov/ttic/tektran/tektran.html
- ***Remote-Sensing System***
  A remote-sensing system developed by ARS is the scientific launch pad for a four-satellite commercial network planned for Earth orbit in 1999. It is expected to reveal such details as too much or too little soil moisture; nutrient deficiency in a crop; and emerging weed, insect, and disease outbreaks. The system would be the first commercial system to deliver data, up to twice daily, to farmers within 24 hours of being obtained from satellites.
- ***New Test for Rice***
  A new test will help breeders find rice plants that have genes for greater resistance to zinc deficiency, a condition that costs farmers millions of dollars in lost yields annually. ARS scientists developed the test in which rice seedlings grow in a special

nutrient solution that lowers zinc availability, while providing all other nutrients needed for normal growth. By supplying all the needed nutrients except the one being tested for, the solution avoids the risk of creating a deficiency of another nutrient that could cause confusing results. Field tests have borne out the lab results.

- ***Befriending a Foe of the Gypsy Moth***
  Two decades of persistence by ARS scientists have renewed attempts to establish a small Asian wasp in the United States. Gypsy moth caterpillars are the worst insect pests of forest and shade trees in the East. But after an egg of a Rogas indiscretus *wasp hatches inside the caterpillar, the young wasp eats the pest's insides. From 1968 to 1977, scientists released about 30,000* Rogas *wasps, which promptly vanished. But in 1994, the last year of a 20-year monitoring study, scientists spotted several Rogas cocoons. The discovery led to the first new* Rogas *shipment in decades—about 200 cocoons collected in India and shipped to an ARS lab in Delaware. Several thousand wasps are planned for release in Maryland, Michigan, and Pennsylvania in 1997.*
- ***Tracing Leptospirosis to Its Source***
  An outbreak of human leptospirosis in Nicaragua was traced to its source—dogs—using a diagnostic test developed by ARS veterinarians. Before ARS diagnostic work, other researchers and health officials suspected rats as the source of the bacteria. The disease produced pulmonary hemorrhaging leading to illness and death in thousands of Nicaraguans. Humans can get leptospirosis from exposure to animal urine through contaminated soil or water.
- ***Cotton With Built-in Odor Resistance***
  A new antibacterial agent for cotton products uses peroxide and magnesium to kill microbes and retain the antibacterial properties for over 50 washes. Normally, industries such as diaper services use a chemical wash every time they clean diapers to impart these qualities. But now, the odor resistance can be built in. Other potential markets for the treatment, which is available for commercial licensing, could include athletic wear such as socks or shoe insoles.
- ***Good Reasons To Encapsulate Herbicides***
  When ARS scientists measured vapor losses after application of alachlor and atrazine to unplowed cornfields, the results verified the advantages of encapsulating herbicides in cornstarch. Herbicides that are sprayed on crop fields are exposed to wind, rain, and warm temperatures that facilitate herbicide loss into the air as a vapor. Scientists found that these airborne herbicides can land in waterways as far as 150 miles away. Encapsulating herbicides in cornstarch packaging delivers them to the right spot in the soil, reducing the chance that they'll be lost in the air. Encapsulating also decreases the risk of ground water contamination.

- ***Saline-Tolerant Sunflowers***
  Cultivated sunflowers may become a common sight on land that's now unproductive or produces poor crops because it's overloaded with mineral salts. ARS geneticists have identified genes in a species of wild sunflower called Helianthus paradoxus *that enable seedlings to withstand the salts. That salinity tolerance trait has been bred into some experimental sunflower lines. This trait could also provide drought tolerance that would boost acreages capable of producing sunflowers. Salts usually build up in soils of dry areas that have been irrigated excessively.*

Cooperative State Research, Education, and Extension Service

The Cooperative State Research, Education, and Extension Service (CSREES) unites the research, higher education, and extension education and outreach resources of USDA, resulting in better customer service and an enhanced ability to respond to emerging issues and current national priorities.

Mission

The mission of CSREES is to achieve significant and equitable improvements in domestic and global economic, environmental, and social conditions by advancing creative and integrated research, education, and extension programs in food, agricultural, and related sciences in partnership with both the public and private sectors.

CSREES leadership increases innovative scientific knowledge and provides key access to this knowledge; strengthens the research, higher education, and extension capabilities of land-grant and other partnering institutions; increases access to and use of improved communication and network systems; and enhances science-based decisionmaking by producers, families, communities, and other customers.

CSREES is committed to creating relevant, excellent, and useful research, education, and extension programs that improve economic, environmental, and social conditions in the United States and globally. Critical quality of life issues addressed include: improved agricultural productivity and new product development; safer, cleaner food, water, and air; enhanced stewardship and management of our land and other natural resources; healthier, more responsible individuals, families, and communities; and a secure, diverse, and affordable national food supply.

Partnerships

CSREES contributions are strengthened by a broad spectrum of public and private partnerships that maximize resources and program impact. Partners include other USDA agencies, Federal and State government departments, nonprofit organizations, and private sector entities. Working closely with the land-grant universities and their representatives enables more effective shared planning, delivery, and

accountability for research, higher education, and extension programs. CSREES partners include:

- Over 130 colleges of agriculture, including land-grant institutions in each State and Territory,
- 59 agricultural experiment stations with over 9,500 scientists conducting research,
- 57 cooperative extension services with over 9,600 local extension agents working in 3,150 counties,

- ***CSREES Is***
  - *5.4 million youth involved in 4-H programs that increase self-esteem, promote science literacy, and enhance problem-solving skills in a positive, supportive environment,*
  - *Managing Change in Agriculture, a national initiative to help U.S. agricultural producers respond to profound changes in how food is produced, processed, distributed, and marketed in the United States and globally,*
  - *The National Research Initiative supporting research in the biological, physical, and social sciences to solve key agricultural and environmental problems,*
  - *World Wide Web access to seven national science-based decisionmaking support databases (beef, dairy, pig, sheep, catfish, goat, and poultry) that help farmers, ranchers and producers make sound decisions in the face of increasing economic, environmental, and social demands and the increasing complexity of technologies and information management,*
  - *State-of-the-art competitive research programs on value-added product development, plant and animal genomes, integrated pest management, water quality, human nutrition, food safety, and plant and animal systems,*
  - *Higher education programs based on identified national needs that develop the scientific and professional expertise required to advance the food, agricultural, and natural resources systems and maintain excellence in college and university teaching programs,*
  - *Immediate electronic access to vital disaster safety and recovery information in time-critical disasters, such as hurricanes, wildfires, and floods,*
  - *3 million trained volunteers working with national outreach education programs,*
  - *Research-based, hands-on education programs in sustainable agriculture; natural resource management and environmental stewardship; water quality; food safety; children, youth, and families; health; community economic development; and distance education.*

- 63 schools of forestry,
- 16 1890 historically black land-grant institutions and Tuskegee University,
- 27 colleges of veterinary medicine,
- 42 schools and colleges of family and consumer sciences,
- 29 1994 Native American land-grant institutions,
- 190 Hispanic-Serving Institutions

Programs

CSREES research, higher education, and extension leadership is provided through programs in Plant and Animal Production, Protection, and Processing; Natural Resources and Environment; Rural, Economic, and Social Development; Families, 4-H, and Nutrition; Partnerships; Competitive Research Grants and Awards Management; Science and Education Resources Development; and Communications, Technology, and Distance Education.

Telecommunications Leadership

CSREES advances cutting-edge technologies, applications, and interactive distance education capabilities to provide key community access to the research, education, and extension knowledge that empowers citizens to be active participants in reshaping society and solving complex problems at the local level. With all State extension system and county offices interconnected through an interactive communication network, CSREES can respond in a timely and credible manner to critical issues and public needs.

For Further Information

Contact your local county extension office (offices are listed under local government in the telephone directory), a land-grant university, or the Cooperative State Research, Education, and Extension Service, U.S. Department of Agriculture, Washington, DC 20250-0900. Telephone: 202-720-3029; Fax: 202-690-0289; Internet: *csrees@reeusda.gov* or World Wide Web: *http://www.reeusda.gov*

Other CSREES URLs: *http://www.reeusda.gov/statepartners/usa.htm*
http://www.reeusda.gov/success/sum97.htm

Economic Research Service

The bottom-line benefits of biotech cotton and soybeans. Rising sales of nutritionally improved foods. Hedge-to-arrive contracts, clause by clause. Prospects for U.S. grain sales in Asia. What happens when we change the Food Stamp program, or the welfare system. The outlook for wheat prices, and milk prices, and lettuce prices, and pork belly prices, and sugar prices. The legacy of polluted creeks and rivers. The effects of tomato imports on U.S. producers. The formulas for Farm Act payments. The ebb and flow of rural population trends. Society's burden from *E. coli* and *salmonella*.

It's all economics. And USDA's Economic Research Service (ERS) stays right on top of it, dissects it, parses it, and tells the Nation and the world all about it.

- ***Did you know?***
  - *Agriculture is one of the three most hazardous U.S. occupations. CSREES-supported farm safety education programs in all 50 States and Puerto Rico teach volunteer firefighters and rescue crews how to respond to farm accidents, certify training for the safe operation of tractors and other machinery, and instill in children a general awareness of farm hazards, including poisons, all-terrain vehicles, and other equipment.*
  - *The CSREES AgrAbility project provides on-farm assistance to over 2,000 farmers with disabilities and educates agricultural, rehabilitation, and health professionals on safely accommodating disability in agriculture.*
  - *The CSREES Integrated Pest Management (IPM) program uses a sustainable approach that manages crop pests through biological, cultural, physical, and chemical procedures to minimize economic, health, and environmental risks.*
  - *CSREES is a leader in developing training programs for public and private pesticide applicators that combine education with new technology to minimize pesticide drift. Current pesticide applicator programs train over half a million people each year on the safe and environmentally sound use of pesticides.*
  - *CSREES water quality programs include Farm*A*Syst, an award-winning water pollution prevention program which conducts surface and groundwater audits, and the Blue Thumb Project, which brings water education into the community and empowers local residents to address their own water problems.*
  - *CSREES environmental management flagship programs are nationally recognized forexcellence in education for individuals and businesses seeking to improve management of air, water, soil, forests, rangelands, and fish and wildlife resources.*
  - *CSREES rural manufacturing modernization programs provide technical assistance, business education, and training to small manufacturers in food processing, wood products, and other rural enterprises.*
  - *The CSREES Agricultural Telecommunications Program, established in the 1990 Farm Bill, helps universities develop agricultural telecommunications capacity by funding projects in support of formal and nonformal courses, faculty and staff education, program delivery, community-based access to education, student training in food and agricultural careers, facilitation of scientific interaction, and expansion of agricultural markets for farmers.*
  - *CSREES small farm programs include on-farm research to adapt and incorporate new practices and technologies into smaller-scale agriculture.*

- *CSREES international programs are building democracy through agriculture in Poland, Armenia, Bulgaria, Russia, and Ukraine by providing the education and technical assistance needed to help these countries make the transition to a market economy.*
- *The CSREES Expanded Food and Nutrition Education Program (EFNEP) helps limited-resource youth, pregnant teens, and families with young children in all 50 States and 6 Territories improve their nutritional well-being, make better use of their food dollars, and decrease the number of families on Food Stamps and WIC.*
- *CSREES collaborates with the ARS Children's Nutrition Research Center, located at the College of Medicine at Baylor University, to improve the nutrition education provided from kindergarten through grade 12 and to link the medical, research, extension, and education communities.*

ERS is USDA's economic research Agency, providing information and analysis on agriculture, food, natural resources, and rural America. The information produced by ERS is used by farmers and consumers in the decisions they make and by public officials in developing, administering, and evaluating agricultural and rural policies and programs.

The topics that ERS researches, analyzes, and monitors include:

- Domestic and international agriculture,
- Nutrition education and food assistance, food safety regulation, determinants of consumer demand for quality and safety, and food marketing trends and developments,
- Agricultural resource and environmental issues, and
- National rural and agricultural conditions affecting the rural economy, the financial performance of the farm sector, and the implications of changing farm credit and financial market structures

ERS-produced information is available to the public through research reports, commodity and trade reports, electronic media, newspapers, magazines, radio, and frequent participation of ERS staff at public forums. In addition, ERS publishes several periodicals, including *Agricultural Outlook, FoodReview, Rural Conditions and Trends*, and *Rural Development Perspectives.*

ERS has four principal functions: research, development of economic and data indicators, commodity and trade forecasting, and analysis of policy and program alternatives.

Research, together with economic and data indicators, provides the knowledge and the data base for the commodity and trade forecasting and policy and program analysis. The products are periodic reports for major agricultural commodities, agricultural exports, agricultural finance, agricultural resources, and world agriculture, and analyses assessing issues requiring policy decisions by the Administration and Congress.

ERS reports are available in a variety of formats. Printed reports can be ordered through the ERS Information Center by calling (202) 219-0515. Many reports, data

bases, and other types of information are available on the ERS World Wide Web site at *http://www/econ.ag.gov* and on the ERS AutoFAX system at (202) 219-1107.

National Agricultural Statistics Service

The National Agricultural Statistics Service (NASS) administers USDA's program for collecting and publishing timely national and State agricultural statistics. In 1862, the first Commissioner of the newly formed Department of Agriculture, Isaac Newton, established a goal "to collect, arrange, and publish statistical and other useful agricultural information." A year later, in July 1863, the Department's Division of Statistics issued the Nation's first official *Crop Production* report.

The structure of farming, ranching, and the agricultural industry has changed dramatically during the succeeding 135 years. The need for accurate, timely, and objective statistical information about the Nation's agriculture has become even more important as the country has moved from subsistence agriculture to a highly industrialized business that produces food and fiber for the world market.

NASS is a world leader in the use of statistical methodology to produce statistics about agriculture. NASS statisticians provide consulting services to a large number of developing countries around the world, helping them develop statistical information about their agriculture. NASS has also been a leader in making information available through electronic media. Globalization of markets is expanding as buyers and sellers have nearly instant access to market information from around the world.

The 1997 U.S. Census of Agriculture will be conducted by NASS and will begin in January 1998. The Census of Agriculture functions have been transferred from the Census Bureau in the Department of Commerce to NASS in the Department of Agriculture. This move will link all major statistical services for agriculture. All county, State, and U.S.-level data provided in previous Census periods will be made available from the 1997 Census of Agriculture.

NASS headquarters is located in Washington, DC, and 45 State Statistical Offices (SSO's) cover 120 crops and 45 livestock items annually in the 50 States. Current and historical information is published in approximately 400 reports, which feature:

- Crop acreage, yield, production, and grain stocks,
- Livestock, dairy, and poultry production and prospects,
- Chemical use in agriculture,
- Labor use and wage rates,
- Farms and land in farms, and
- Prices, costs, and returns.

An abundance of agricultural information is available to data users through our programs. In addition to the information above, estimates on more specialized commodities, including hop stocks, mink, cherries, cranberries, lentils, and peppermint oil are also available. The information is geared toward producers and can help them plan planting, feeding, breeding, and marketing programs. The data are also used by agricultural organizations, services, and businesses; trade groups; and financial insti-

tutions to determine demand for inputs, resources, transportation, and storage-related crop and livestock products. In addition, the data are used to make and carry out agricultural policy concerning farm program legislation, commodity programs, agricultural research, and rural development.

Most estimates are based on information gathered from producers, who are surveyed through personal and telephone interviews or through mailed questionnaires. In addition, for major crops such as corn, wheat, soybeans, and cotton, in-the-field counts and measurement of plant development are made in the top producing States. Other estimates are based on surveys of grain elevators, hatcheries, and other agribusinesses, as well as on administrative data such as slaughter records.

Data collected from these varied sources are summarized by the NASS SSO serving that State and sent to the Agency's Agricultural Statistics Board in Washington, DC, whose members determine and issue State and national official estimates.

All NASS reports are released at scheduled times, and the information is offered to the public in a variety of formats.

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National Agricultural Statistics Service

There are a variety of ways to obtain NASS reports, data products, and services:

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Internet World Wide Web:
http://www.usda.gov/nass/
Gopher Site/Telenet/FTP:
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For general agricultural statistics or further information about NASS or its products or services
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State-Specific Agricultural Statistics
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State Statistical Offices

State Statistical Offices can offer some additional data breakouts not found in national publications. For information about a particular State, Call the State Statistician at any of the following offices:

Alabama (Montgomery, AL)
334-279-3555

Alaska (Palmer, AK)
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Arizona (Phoenix, AZ)
602-280-8850

Arkansas (Little Rock, AR)
501-296-9926

California (Sacramento, CA)
916-498-5161

Colorado (Lakewood, CO)
303-236-2300

Delaware (Dover, DE)
302-739-4811

Florida (Orlando, FL)
407-648-6013

Georgia (Athens, GA)
706-546-2236

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808-973-2907

Idaho (Boise, ID)
208-334-1507

Illinois (Springfield, IL)
217-492-4295

Indiana (West Lafayette, IN)
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Iowa (Des Moines, IA)
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Kansas (Topeka, KS)
913-233-2230

Kentucky (Louisville, KY)
502-582-5293

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Maryland (Annapolis, MD)
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Michigan (Lansing, MI)
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Mississippi (Jackson, MS)
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New York (Albany, NY)
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North Dakota (Fargo, ND)
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Ohio (Reynoldsburg, OH)
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Oklahoma (Oklahoma City, OK)
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Oregon (Portland, OR)
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Pennsylvania (Harrisburg, PA)
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804-771-2493

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Wisconsin (Madison, WI)
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307-772-2181

12. Marketing and Regulatory Programs

Agricultural Marketing Service

When you visit the grocery store, you know you'll find an abundance and variety of top-quality produce, meats, and dairy products. If you're like most people, you probably don't give a second thought to the marketing system that brings that food from the farm to your table. Yet, this state-of-the-art marketing system makes it possible to pick and choose from a variety of products, available all year around, tailored to meet the demands of today's lifestyles. Millions of people—from grower to retailer—make this marketing system work. Buyers, traders, scientists, factory workers, transportation experts, wholesalers, distributors, retailers, advertising firms—in addition to the Nation's farmers—all help create a marketing system that is unsurpassed by any in the world. And USDA's Agricultural Marketing Service (AMS) helps make sure the U.S. marketing system remains world-class.

Services to Promote Quality: Grading, Quality Standards, and Certification

Wherever or whenever you shop, you expect good, uniform quality and reasonable prices for the food you purchase. AMS quality grade standards, grading, and laboratory services are voluntary tools that industry can use to help promote quality, and to communicate that quality to consumers. Industry pays for these services and they are voluntary, so their widespread use by industry indicates they are valuable tools in helping market their products.

USDA quality grade marks are usually seen on beef, lamb, chicken, turkey, butter, and eggs. For many other products, such as fresh and processed fruits and vegetables, the grade mark isn't always visible on the retail product. In these commodities, the grading service is used by wholesalers, and the final retail packaging may not include the grade mark. However, quality grades are widely used—even if they are not prominently displayed—as a "language" among traders. They make business transactions easier whether they are local or made over long distances. Consumers, as well as those involved in the marketing of agricultural products, benefit from the greater efficiency permitted by the availability and application of grade standards.

Grading is based on standards, and standards are based on measurable attributes that describe the value and utility of the product. Beef quality standards, for instance, are based on attributes such as marbling (the amount of fat interspersed with lean meat), color, firmness, texture, and age of the animal, for each grade. In turn, these factors are a good indication of tenderness, juiciness, and flavor of the meat—all characteristics important to consumers. Prime, Choice, and Select are all grades familiar to consumers of beef.

Standards for each product describe the entire range of quality for a product, and the number of grades varies by commodity. There are eight grades for beef, and three each for chickens, eggs, and turkeys. On the other hand, there are 45 grades for cotton, and more than 300 fruit, vegetable, and specialty product standards.

■ ***Facts about grading:***
From October 1995 through September 1996, USDA graded 35 percent of the shell eggs and 95 percent of the butter produced in the United States. Ninety-one billion pounds of fresh fruits and vegetables and more than 13 billion pounds of processed fruits and vegetables received a USDA grade mark. Nearly all of the meat industry requests AMS grading services: USDA grades were applied to 82 percent of all beef, 86 percent of all lambs, 18 percent of all veal and calves, 71 percent of all turkeys, and 49 percent of all chickens and other poultry marketed in this country. USDA also graded more than 98 percent of the cotton and 97 percent of the tobacco produced in the United States.

The food testing side of the AMS program has 11 "user fee" laboratories performing numerous microbiological, chemical, and physical analyses on a host of food and fiber commodities, including processed dairy products, meat, poultry, egg products, and fruits and vegetables. This testing supports AMS purchases for the National School Lunch Program and other domestic feeding programs, troop ration specifications for the Department of Defense, foreign government food contract purchases, laboratory quality control and assurance programs, and testing for aflatoxin in peanut products.

In addition to grading and laboratory services, USDA provides certification services, for a fee, that facilitate ordering and purchase of products used by large-volume buyers. Certification assures buyers that the products they purchase will meet the terms of their contracts—with respect to quality, processing, size, packaging, and delivery. If a large buyer—such as a school district, hospital, prison, or the military—orders huge volumes of a particular product such as catsup or processed turkey or chicken, it wants to be sure that the delivered product meets certain needs. Too much money is involved to risk getting tomato soup when you need catsup, and meals can't be postponed while the mistake gets corrected. Graders review and accept agricultural products to make sure they meet specifications set by private-sector purchasers. They also certify food items purchased for Federal feeding programs.

AMS has developed quality assurance (QA) services that include Hazard Analysis Critical Control Point (HACCP) and International Organization of Standardization (ISO)-based programs. These programs ensure and document that companies' operations are in compliance with provisions of contracts and/or their own standards and procedures. QA services are voluntary, hourly-fee-based, and value-added. HACCP concepts and procedures have been recommended by the National Academy of Sciences for application in the food industry, and ISO procedures are becoming an international norm for some processes.

Spreading the News

Farmers, shippers, wholesalers, and retailers across the country rely on AMS Market News for up-to-the-minute information on commodity prices and shipments. Market News helps industry make the daily critical decisions about where and when to sell, and what price to expect. Because this information is made so widely available, farmers and those who market agricultural products are better able to compete, ensuring consumers a stable and reasonably priced food supply.

AMS Market News reporters generate approximately 700 reports each day, collected from more than 100 U.S. locations. Reports cover local, regional, national, and international markets for dairy, livestock, meat, poultry, grain, fruit, vegetables, tobacco, cotton, and specialty products. Weekly, bi-weekly, monthly, and annual reports track the longer-range performance of cotton, dairy products, poultry and eggs, fruits, vegetables, specialty crops, livestock, meat, grain, floral products, feeds, wool, and tobacco. Periodically, AMS issues special reports on such commodities as olive oil, pecans, peanuts, and honey.

USDA's commodity market information in Market News is easily accessible—via newspapers, television, and radio; printed reports mailed or faxed directly to the user; telephone recorders; electronic access through the Market News Communication System, the Market News Bulletin Board, and the Internet; and by direct contact with USDA reporters.

Buying Food: Helping Farmers, School Children, and Needy Persons

AMS serves both farmers and those in need of nutrition assistance through its commodity procurement programs. By purchasing wholesome, high-quality food products that are in abundance, AMS helps provide stable markets for producers. The Nation's food assistance programs benefit from these purchases, because these foods go to low-income individuals who might otherwise be unable to afford them.

Some of the programs and groups that typically receive USDA-purchased food include: children in the National School Lunch, Summer Camp, and School Breakfast Programs; Native Americans participating in the Food Distribution Program on Indian Reservations; older Americans through the Nutrition Program for the Elderly; and low-income and homeless persons through the Commodity Supplemental Food Program and the Emergency Food Assistance Program. In addition, USDA helps provide disaster relief by making emergency purchases of commodities for distribution to disaster victims.

Once USDA determines that a purchase is appropriate, AMS publicly invites bids, and makes sure that the food it purchases meets quality and nutrition standards. Often, AMS specifies that foods be low in fat, sugar, and sodium. By policy, AMS only purchases products that are 100 percent domestic in origin.

Pesticides: Information and Records

Many Americans are concerned about the use and potential negative effects of agricultural pesticides. Recognizing this concern, AMS began coordinating a Pesticide Data Program (PDP) in 1991. Through agreements with nine States, AMS collects and analyzes samples of fresh and processed produce and grain for potential

pesticide residues. In 1996, dairy commodities were added to the program. The PDP generates objective data that support government decisions, while also serving to keep the public informed about the safety of the Nation's food supply. The Environmental Protection Agency (EPA) uses PDP data to support pesticide reregistration and special review decisions, and the Food and Drug Administration (FDA) uses PDP data to enforce EPA-established tolerances and FDA guidelines for food safety.

In addition to the PDP, AMS also has the primary responsibility for the Pesticide Recordkeeping Program. This program requires all certified private applicators of federally restricted-use pesticides to maintain records of all applications. These records will support collection of data to help analyze agricultural pesticide use, but will also be helpful to health care professionals when treating individuals who may have been exposed to an agricultural chemical. AMS strives to provide outreach and educational support to States and private applicators to broaden their understanding and participation in the program.

Helping Farmers Promote Their Products

"The Touch...the Feel of Cotton...the Fabric of Our Lives," "Beef...It's What's for Dinner," "Milk—Where's your mustache?", "Think Flowers" If you've watched television or read magazines lately, you've probably heard or read these slogans and others for a host of agricultural commodities. All of these promotional campaigns are part of the Research and Promotion Programs that AMS oversees.

Federal research and promotion programs, each authorized by separate legislation, are designed to improve farmers' incomes through promotion of their products. The programs are all fully funded by industry assessments. Board members are nominated by industry and appointed officially by the Secretary of Agriculture. AMS oversees the activities of the boards or councils and approves budgets, in order to assure compliance with the legislation.

Currently, there are research and promotion programs for beef, pork, cotton, cut flowers and greens, dairy products, eggs, fluid milk, honey, mushrooms, potatoes, soybeans, and watermelons.

But, while advertising is one part of these programs, product research and development is also a major focus. Wrinkle-resistant cotton and low-cholesterol, low-fat dairy products are just two examples of how these programs have benefitted consumers and expanded markets for producers.

New generic commodity promotion, research, and information legislation was enacted as part of the 1996 Farm Bill to make Federal promotion and research programs available to more commodities.

■ *Facts about marketing: The national Fluid Milk Processors Promotion program began its "Milk—Where's your mustache?" campaign in 1995, featuring photographs of famous personalities wearing "milk mustaches." The board estimates that 147 million consumers have already been reached by this promotion*

Marketing Orders: Solving Producers' Marketing Problems

Marketing agreements and orders help dairy, fruit, vegetable, and peanut producers come together to work at solving marketing problems they cannot solve individually. Marketing orders are flexible tools that can be tailored to the needs of local market conditions for producing and selling. But they are also legal instruments that have the force of law, with USDA ensuring an appropriate balance between the interests of producers looking for a fair price and consumers who expect an adequate, quality supply at a reasonable price.

Federal milk marketing orders, for example, establish minimum prices that milk handlers or dealers must pay to producers for milk, depending on how that milk will be used—whether fluid milk or cheese. Federal milk orders help build more stable marketing conditions by operating at the first level of trade, where milk leaves the farm and enters the marketing system. They are flexible in order to cope with market changes. They assure that consumers will have a steady supply of fresh milk at all times.

Marketing agreements and orders also help provide stable markets for fruit, vegetable, and specialty crops like nuts and raisins, to the benefit of producers and consumers. They help farmers produce for a market, rather than having to market whatever happens to be produced. A marketing order may help an industry smooth the flow of crops moving to market, to alleviate seasonal shortages and gluts. In addition, marketing orders help maintain the quality of produce being marketed; standardize packages or containers; and authorize advertising, research, and market development. Each program is tailored to the individual industry's marketing needs.

Ensuring Fair Trade in the Market

AMS also administers several programs that ensure fair trade practices among buyers and sellers of agricultural products.

The Perishable Agricultural Commodities Act (PACA) program promotes fair trading in the fresh and frozen fruit and vegetable industry. Through PACA, buyers and sellers are required to live up to the terms of their contracts, and procedures are available for resolving disputes outside the civil court system.

Fruit and vegetable buyers and sellers need this assurance because of the highly perishable nature of their products. Trading in produce is considerably different than trading for a car, a computer, or even grain. When a vegetable grower doesn't get paid, the product usually can't be reclaimed before it spoils—or before it has already been consumed.

Although PACA was initiated to protect producers, it benefits consumers and the entire produce industry. Over the past decade, AMS has handled nearly 40,000 PACA complaints, not just from growers, but also from grower-agents, grower-shippers, brokers, wholesalers, retailers, and processors. PACA is funded by license fees paid by industry, but the bottom line is that fair trade and resolved disputes mean businesses of any size can operate in a better trade environment and consumers can get a wider choice of reasonably priced, high-quality fruits and vegetables.

The Federal Seed Act (FSA) protects everyone who buys seed by prohibiting false labeling and advertising of seed in interstate commerce. The FSA also complements State seed laws by prohibiting the shipment of seed containing excessive

noxious weed seeds. Labels for agricultural seed must state such information as the kinds and percentage of seed in the container, percentages of foreign matter and weed seeds, germination percentage and the date tested, and the name and address of the shipper. USDA also tests seed for seedsmen and seed buyers on a fee-for-service basis to determine quality.

The Plant Variety Protection Act provides patent-like protection to breeders of plants that reproduce both sexually, that is, through seeds, and through tubers. Developers of new plant varieties can apply for certificates of protection. This protection enables the breeder to market the variety exclusively for 20 years and, in so doing, creates an incentive for investment in the development of new plant varieties. Since 1970, AMS' Plant Variety Protection Office has issued more than 3,000 certificates of protection.

The Agricultural Fair Practices Act allows farmers to file complaints with USDA if a processor refuses to deal with them because they are members of a producers' bargaining or marketing association. The Act makes it unlawful for handlers to coerce, intimidate, or discriminate against producers because they belong to such groups. USDA helps to institute court proceedings when farmers' rights are found to be so violated.

Organic Certification

AMS is responsible for implementing an organic certification program, which was authorized by the Organic Foods Production Act (OFPA) as part of the 1990 Farm Bill. The OFPA requires that all agricultural products labeled as organic be produced and handled according to national standards and that organic production and handling practices be certified by a State or private certifying agent accredited by USDA. AMS also would evaluate foreign certification programs to determine that imported organic agricultural products are produced and handled under equivalent standards.

The goals of the national organic certification program are to

- Establish national standards governing the marketing of certain products as organically produced,
- Assure consumers that organically grown products meet uniform standards, and
- Facilitate interstate commerce in fresh and processed food that is organically produced.

The OFPA also established the National Organic Standards Board, which was first appointed in January 1992, to provide AMS with recommendations for the national program and specifically to review substances that may be used in the production and handling of organic food.

Direct Marketing and Wholesale Market Development

AMS continually seeks ways to help farmers and marketers improve the U.S. food marketing system. For example, AMS' Federal-State Marketing Improvement Program (FSMIP) provides matching funds to State Departments of Agriculture to conduct research that will help develop or improve local marketing systems. The aim of the program is to reduce costs or expand markets for producers, ultimately benefiting

consumers through lower food costs and more food choices. Projects include research on innovative marketing techniques, taking those research findings into the marketplace to "test market" the results, and developing State expertise in providing service to marketers of agricultural products. In FY 1996, the FSMIP program funded 21 projects in 21 States for $1.2 million.

The Wholesale and Alternative Markets Program (W&AM) works to improve the handling, processing, packaging, storage, and distribution of agricultural products. AMS researchers work with local governments and food industry groups to develop modern, efficient, wholesale food distribution centers and farmers' markets. In FY 1996, W&AM initiated eight market studies, completed nine, and continued work on five other long-term projects.

■ *Fact about farmers' markets: USDA defines a farmers' market as a group of farmers and vendors leasing or renting space in a common facility on a temporary basis, with an emphasis on the sale of fresh farm products, crafts, and other locally produced items. USDA estimates there are currently 2,410 farmers' markets in the U.S.*

Moving U.S. Agricultural Products to Consumers

An efficient transportation system allows consumers access to a wide variety of agricultural products and commodities produced beyond their own localities.

AMS, through its Transportation and Marketing Division, conducts research on the availability and costs of transportation services for U.S. agricultural producers by addressing policy issues which affect movement of agricultural products by railroads, trucks, inland barges, and ocean-going vessels. AMS staff also provide technical assistance to agricultural shippers who are marketing their products in domestic or international markets. Agricultural producers, producer groups, shippers, exporters, rural communities, carriers, and consumers benefit from the analyses, technical assistance, and information provided by AMS transportation staff.

Produce Locally, Think Globally

To remain competitive in today's world, American agriculture has become more global, and AMS has striven to be a strong partner in expanding markets for U.S. agricultural products.

The AMS role in the international marketing of U.S. commodities centers on its quality grading and certification programs, which are user-funded. Grading involves determining whether a product meets a set of quality standards. Certification ensures that contract specifications have been met—in other words, that the buyer receives the product in the condition and quantity described by the terms of the contract. AMS commodity graders frequently support other USDA agencies involved in export assistance, including the Farm Service Agency and the Foreign Agricultural Service.

U.S. companies often request certification services when exporting to a country that has specific import requirements. Certification services provided by AMS help avoid rejection of shipments or delay in delivery once the product reaches its foreign destination. Delays lead to product deterioration and, ultimately, affect the image

of U.S. quality. AMS' Quality Systems Certification Program, a user-funded service for the meat industry, provides independent, third-party verification of a supplier's documented quality management system. The program was developed to promote world-class quality and to improve the international competitiveness of U.S. livestock and meat.

AMS also provides laboratory testing for exporters of domestic food commodities on a fee basis in keeping with sanitary and phytosanitary requirements of foreign countries. To date, this service has been requested by exporters of products destined for Japan, South Korea, and other Pacific Rim countries, South Africa, several European Union countries, and countries of the former Soviet Union.

For selected fruits, vegetables, nuts (including peanuts), and specialty crops, the grading of imports is mandatory. For the most part, however, firms importing agricultural products into the United States use grading services voluntarily. AMS graders are also often asked to demonstrate commodity quality to foreign firms and governments.

In addition to export grading and certification services, AMS market news offices provide information on sales and prices of both imports and exports. Today, U.S. market participants can receive market information on livestock and meat from Venezuela, New Zealand, Japan and other Pacific Rim markets, Poland, Mexico, Canada, and Australia; fruits and vegetables from France, Great Britain, Bulgaria, Poland, Mexico, New Zealand, and Canada; ornamentals from Germany, France, and Mexico; and a host of products from Ukraine, Kazakhstan, and Russia.

AMS participates in a number of international forums that aim to facilitate world agricultural trade and avoid potential trade barriers. Technical assistance has been provided to countries in Eastern and Central Europe, and elsewhere around the globe, to improve their marketing systems. With improved transportation, distribution, and marketing information systems, these countries will become better customers for U.S. food and fiber products.

Whether at home or abroad, AMS strives to help U.S. agriculture market its abundant, high-quality products. And AMS will continue to work to help U.S. agriculture market its products in growing world markets, while assuring U.S. consumers an abundant supply of high-quality, wholesome food at reasonable prices.

Animal and Plant Health Inspection Service: Protecting Agricultural Health and Productivity

Why are the farmers and ranchers of the United States able to produce so much food for the tables of America's consumers?

Of course, there's no simple answer. But one key to this plentiful supply of food can be summed up in a single phrase: "Healthy crops and livestock."

And this is no accident. America's agricultural health is a result of a team effort—good husbandry by farmers and ranchers plus an organized effort to control and eradicate pests and disease and to prevent the entry of devastating foreign plagues.

Just like frosts, floods, and droughts, pests and diseases can wreak havoc on agricultural productivity, depressing farm incomes and driving up food costs for con-

sumers in the process. While we may not be able to prevent weather-related disasters, USDA's Animal and Plant Health Inspection Service (APHIS) plays a vital role in protecting our country's agricultural health. The result is a more abundant, higher quality, and cheaper food supply than is found anywhere else in the world.

Agriculture is an important sector in our economy, and APHIS helps to ensure that it remains healthy and strong. With the advent of free trade initiatives, a global network of countries has agreed that valid agricultural health concerns—not politics, not economics—are the only acceptable basis for trade restrictions. In this environment, our country's agricultural health infrastructure will be our farmers' ally in seeking new export markets.

Excluding Foreign Pests and Diseases

Agricultural Quarantine Inspection

Agriculture, America's biggest industry and its largest employer, is under constant threat of attack. The enemies are countless and often microscopic, and they gain access to our country in surprising ways. Their potential allies are every traveler entering the United States and every American business importing agricultural products from other countries.

Many passengers entering the United States don't realize that one piece of fruit packed in a suitcase has the potential to cause millions of dollars in damage to U.S. agriculture. Forbidden fruits and vegetables can carry a whole range of plant diseases and pests. Oranges, for example, can introduce diseases like citrus canker or pests like the Mediterranean fruit fly (Medfly).

Similarly, sausages and other meat products from many countries can contain animal disease organisms that can live for many months and even survive processing. Meat scraps from abroad could end up in garbage that is fed to swine. If the meat came from animals infected with a disease, such as African swine fever, hog cholera, or foot-and-mouth disease (FMD), it easily could be passed to domestic swine, and a serious epidemic could result.

Agricultural quarantine inspection is the first line of defense against foreign pests and diseases. Seven days a week, approximately 1,300 APHIS inspectors are on duty at international airports, seaports, and border stations to inspect passengers and baggage for plant and animal products that could be harboring pests or disease organisms. These APHIS Plant Protection and Quarantine (PPQ) inspectors check millions of passengers and their baggage each year for plant or animal pests and diseases that might harm U.S. agriculture. They also inspect ship cargoes, rail and truck freight, and mail from foreign countries.

The following table provides selected inspection and interception data:

	FY1991	*1992*	*1993*	*1994*	*1995*	*1996*
Ships Inspected	52,119	53,374	47,887	53,270	55,205	52,974
Aircraft Inspected	356,915	378,643	378,634	451,342	401,741	410,318
Passengers and Crew Inspected	53,999,523	58,103,711	56,920,156	62,548,979	65,645,734	66,119,960
Interceptions of Plant Material	1,527,922	1,723,004	1,474,569	1,442,214	1,583,687	1,567,886
Interceptions of Pests	56,213	54,831	51,829	54,831	58,032	48,483
Interceptions of Meat/Poultry Products	205,407	246,878	224,340	281,230	223,392	264,001
Baggage Civil Penalties-Number	-29,089	29,700	27,137	22,164	21,813	20,716
Baggage Civil PenaltiesAmount of Fines	$1,299,270	$1,537,590	$1,407,000	$1,186,310	$1,098,220	$1,080,000

- *From high-tech to a keen nose, APHIS uses a variety of means to exclude foreign pests and protect American agriculture. PPQ inspectors augment visual inspection with some 75 x-ray units that help check passenger baggage and mail for prohibited agricultural materials. They also have enlisted trained detector dogs and their keen sense of smell to help sniff out prohibited fruit and meat. On leashes and under the constant supervision of their handlers, the friendly beagles in USDA's "Beagle Brigade" have checked the baggage of passengers arriving from overseas for the past 10 years.*
- *Currently, APHIS has about 50 canine teams at 21 airports, including 19 of America's 20 busiest international airports. Dogs also are used at three post offices. In addition to their actual function, the Beagle Brigade serves as an effective symbol of the need to protect American agriculture and the Nation's food supply from foreign pests. The Beagle Brigade program was responsible for approximately 60,000 seizures of prohibited agriculture products in FY 1994.*
- *From Taffy at Los Angeles to Abbott in Miami, the Beagle Brigade spans the United States. At Los Angeles International Airport, beagle Taffy is 3 years old and was trained at John F. Kennedy International Airport, NY. Her favorite treats are rawhide treats, and she likes looking for apples and oranges. In FY 1995 Taffy worked 690 flights and made 490 seizures. Her hobbies are playing with colleagues, especially fellow USDA detector dog Kojak, and her best trick is shaking hands.*
- *Abbott (nicknamed "The Little Prince of PPQ") is 5 years old and works at Miami International Airport. His favorite smells are beef and pork, and in 1995 he worked 815 flights and made 1,315 seizures. Abbott's proudest moments include finding 30 pounds of pork and a 25–pound ham.*

Preclearance—Checking at the Source

In addition to domestic exclusion efforts, APHIS' International Services (IS) has a corps of experts stationed overseas, as well as APHIS officers on temporary duty, to bolster the Nation's defenses against exotic pests and diseases. Often it is more practical and effective to check and monitor commodities for pests or diseases at the source through preclearance programs. APHIS has special arrangements with a number of countries for preclearance programs, which are summarized in the following table.

Country	*Commodities*
Argentina	Apples & pears
Australia	Apples, nashi pears, pears, grapes
Belgium	Bulbs
Brazil	Mangoes (hot water treatment)
Chile	Stonefruit, berries, grapes, cut flowers, fruits & vegetables
Colombia	Mangoes (hot water treatment)
Costa Rica	Mangoes (hot water treatment), papaya
Ecuador	Mangoes (hot water treatment), melons (free zone)
France	Apples
Great Britain	Bulbs
Guatemala	Mangoes (hot water treatment)
Haiti	Mangoes (hot water treatment)
Ireland	Bulbs
Israel	Bulbs
Jamaica	Ugli fruit, cut flowers, papaya, & 28 other commodities
Japan	Sand pears, Unshu oranges, Fuji apples
Korea	Sand pears, mandarin oranges
Mexico	Mangoes (hot water treatment), citrus (fumigation or from free zone), apples, peaches
New Zealand	Apples, pears, Nashi pears
The Netherlands	Bulbs
Nicaragua	Mangoes (hot water treatment)
Peru	Mangoes (hot water treatment)
Scotland	Bulbs
South Africa	Apples, pears, plums, grapes
Spain	Lemons, clementines, Valencia oranges
Taiwan	Mangoes (hot water treatment)
Turkey	Bulbs
Venezuela	Mangoes (hot water treatment)

International Programs

Through direct overseas contacts, IS employees gather and exchange information on plant and animal health; work to strengthen national, regional, and international agricultural health organizations; and cooperate in international programs against certain pests and diseases that directly threaten American agriculture. Two of the latter are the MOSCAMED program—which combats Medfly infestations in Mexico and Guatemala—and a program to eradicate screwworms, a parasitic insect of warm-blooded animals. Screwworm flies lay their eggs on the edge of open wounds, and the developing larvae feed on the living flesh of the host. Left untreated, the infestation can be fatal.

Screwworms were eradicated from the United States through the use of the sterile insect technique. With this method, millions of screwworm flies are reared in captivity, sterilized, and then released over infested areas to mate with native fertile flies. Eggs produced through such matings do not hatch, and the insect literally breeds itself out of existence.

To provide further protection to U.S. livestock, starting in 1972, eradication efforts were moved southward from the U.S.-Mexico border, with the eventual goal of establishing a barrier of sterile flies across the Isthmus of Panama. To date, screwworms have been eradicated from Mexico, Guatemala, Belize, Honduras, and El Salvador. Eradication efforts continue in Nicaragua and Costa Rica. An agreement has been signed to start an eradication program and construct a new rearing facility in Panama. Currently a production plant at Tuxtla-Gutierrez in Chiapas in southern Mexico can produce up to 500 million sterile flies weekly.

IS also works to prevent foot-and-mouth disease (FMD) from entering Mexico, Central America, and Panama and works with Colombia to eliminate FMD from the northern part of that country.

Coping with Invasions

If, despite our best efforts, foreign pests or diseases do manage to slip past our border defenses, APHIS conducts appropriate control and eradication measures. Examples include Mediterranean fruit fly eradication projects in California in the early 1990's and outbreaks of exotic Newcastle disease in pet birds in several States during the 1980's.

APHIS has a special cadre of people who deal with introductions of exotic plant pests. Known as "Rapid Response Teams," these groups have been mobilized on several occasions to combat costly infestations of Medflies.

Early detection of exotic animal diseases by alert livestock producers and practicing veterinarians who contact specially trained State and Federal veterinarians is the key to their quick detection and elimination. More than 300 such trained veterinarians are located throughout the United States to investigate suspected foreign diseases. Within 24 hours of diagnosis, one of two specially trained task forces in APHIS' Veterinary Services can be mobilized at the site of an outbreak to implement the measures necessary to eradicate the disease.

Currently, APHIS officials are actively working to prevent the entry of bovine spongiform encephalopathy (BSE)—sometimes referred to as "mad cow disease." This disease has had a serious impact on the British livestock industry. BSE has never

been diagnosed in the United States. Since 1989, APHIS has restricted the importation of live ruminants and ruminant products—including animal feed made with ruminant protein—from Great Britain and other countries where BSE is known to exist. In addition, APHIS has conducted a BSE surveillance program since 1989. Specialists have examined brain specimens from more than 3,300 cattle and have found no evidence of BSE.

Import-Export Regulations

APHIS is responsible for enforcing regulations governing the import and export of plants and animals and certain agricultural products.

Import requirements depend on both the product and the country of origin. Plants and plant materials usually must be accompanied by a phytosanitary certificate issued by an official of the exporting country. Livestock and poultry must be accompanied by a health certificate, also issued by an official of the exporting country. Animal products, such as meats and hides, are restricted if they originate in countries that have a different disease status than the United States.

APHIS regulates the importation of animals that enter the country through land ports along the borders with Mexico and Canada. Imports of livestock and poultry from other countries must be quarantined at one of four animal import centers: Newburgh, NY; Miami, FL; Los Angeles, CA; and Honolulu, HI. A special high-security animal import center at Key West, FL, provides a safe means of importing animals from countries where foot-and-mouth disease exists.

Personally owned pet birds can enter through one of six USDA-operated bird quarantine facilities: New York, NY; Miami, FL; San Ysidro, CA; Hidalgo, TX; Los Angeles, CA; and Honolulu, HI.

Pet birds from Canada can enter without quarantine because Canada's animal disease programs and import rules are similar to those of the United States. Commercial shipments of pet birds can enter through one of 60 privately owned, APHIS-supervised quarantine facilities.

APHIS cooperates with the U.S. Department of the Interior in carrying out provisions of the Endangered Species Act that deal with imports and exports of endangered plant, animal, or bird species. APHIS inspectors at ports of entry are trained to identify these species and to notify Interior of any species protected under the Convention on International Trade in Endangered Species (CITES) found during inspection. Also, at many ports, APHIS officers inspect and sample seed imported from foreign countries to ensure that it is accurately labeled and free of noxious weeds.

APHIS also maintains 14 plant introduction stations, the largest of which is at Miami, FL, for commercial importation of plant materials. Smaller stations are at Orlando, FL; San Juan, PR; JFK International Airport, Jamaica, NY; Hoboken, NJ; Houston, El Paso, and Los Indios (Brownsville), TX; Nogales, AZ; San Diego, Los Angeles, and San Francisco, CA; Seattle, WA; and Honolulu, HI.

To facilitate agricultural exports, APHIS officials certify the health of both plants and animals that are shipped to foreign countries. APHIS assures that U.S. plants and plant products meet the plant quarantine import requirements of foreign countries. This assurance is in the form of a phytosanitary certificate, issued by APHIS or its

State cooperators. During FY 1994, 271,000 phytosanitary certificates were issued for exports of plants and plant products worth $23 billion.

As with their counterparts in PPQ who deal with plant material exports, APHIS' Veterinary Services (VS) officials and its National Center for Import and Export provide health certification for animals and animal products designated for export. Examinations and tests—usually done by USDA-accredited veterinarians—cover both U.S. export health requirements and the frequently complex import requirements of the receiving nation. A VS veterinarian endorses export health certificates after all tests and other requirements have been met. Then a final examination is conducted by a VS veterinarian at the port of export before the livestock or poultry leave the country. During 1994, livestock exports increased by 30 percent over the previous year.

In addition to certifying to the health of agricultural exports, APHIS officials mount a proactive approach to the marketing of U.S. crops and livestock overseas. In 1996. for instance, APHIS and Food Safety and Inspection Service officials coordinated negotiations to avert a Russian embargo on U.S. poultry exports worth $600 million a year. On the plant side, efforts by APHIS and Foreign Agricultural Service officials helped maintain U.S. wheat exports after the March 1996 discovery of an outbreak of Karnal bunt, a fungal disease of wheat, in Arizona. The United States is the world's leading wheat exporter, accounting for one-third of world wheat exports. U.S. wheat exports in calendar 1995 were valued at $5.5 billion.

Domestic Plant Health Programs

In most cases, plant pest problems are handled by individual farmers, ranchers, other property owners, and their State or local governments. However, when an insect, weed, or disease poses a particularly serious threat to a major crop, the Nation's forests, or other plant resources, APHIS may join in the control work.

Most pests and weeds that are targets of APHIS' Plant Protection and Quarantine programs are not native to America. They gained entry into this country through commercial trade channels, international travelers, or other means.

When pests are new to this country, control techniques may not be available. In any case, PPQ applies interstate quarantines and takes other steps to prevent spread until effective control measures can be developed.

In many cases, foreign pests are only minor problems in their native lands because they are kept in check by native parasites, predators, and diseases. Since many of these natural enemies may not exist in the United States, one of PPQ's control techniques—in cooperation with USDA's Agricultural Research Service—is the importation, rearing, and release of parasites and other biological control organisms.

Biocontrol—Nature's Way

In its classical sense, biological control means using predators, parasites, and pathogens to combat plant pests. Predators and parasites include insects, mites, and nematodes that naturally attack a target pest. Pathogens include bacteria, viruses, or fungi that cause diseases specifically injurious to a target pest.

Biological control was first put to broad, practical use in the United States in the 1880's. At that time, California citrus groves were being devastated by an exotic insect, the cottony-cushion scale. A USDA scout working in Australia found the

vedalia beetle feeding on the scale insect. The beetle, part of the lady beetle family, was successfully introduced into California and other citrus-growing regions and has kept the scale insect from causing economic damage ever since.

To coordinate the important search for new and better biocontrol opportunities, a National Biological Control Institute was established in APHIS in 1989. The Institute's mission is to promote, facilitate, and provide leadership for biological control. Its main job is to compile and release technical information and coordinate the work needed to find, identify, and augment or distribute new biological control agents.

The Institute relies on scientists from ARS and elsewhere to identify potentially useful biological control agents. These agents are carefully screened at quarantine centers before being put to use.

Various agencies have successfully cooperated on biocontrol projects. For example, several decades ago, ARS scientists found six species of stingless wasps in Europe that keep alfalfa weevils in check. In 1980, APHIS took on the job of establishing these beneficial wasps across the land. Between 1980 and 1989, APHIS and its cooperators raised and distributed about 17 million wasps, and today there are beneficial wasps within reach of virtually every alfalfa field in the country. It's estimated that the benefits of the alfalfa weevil biocontrol program amount to about $88 million per year, representing a return of about $87 for each $1 spent on the project.

Other APHIS biocontrol programs currently underway in cooperation with State agencies include efforts against the cereal leaf beetle, sweet potato whitefly, Russian wheat aphid, Colorado potato beetle, euonymus scale, brown citrus aphid, leafy spurge, diffuse and spotted knapweed, and common crupina. Promising biocontrol agents for other pests are being tested at PPQ biocontrol labs located at Mission, TX, Niles, MI, and Bozeman, MT.

"Deliver Us from Weevil"—Boll Weevil Eradication

One major domestic program PPQ is coordinating is the effort to eradicate boll weevils from the United States. The boll weevil entered this country from Mexico in the late 1890's and soon became a major pest of cotton. It has caused an estimated $12 billion in losses to the Nation's economy. In 1973, it was estimated that insecticides applied to control boll weevils accounted for about one-third of the total applied to agricultural crops in the United States.

The success of a 1971-73 cooperative boll weevil eradication experiment in portions of Mississippi, Louisiana, and Alabama involving Federal and State agencies and grower associations led to two 3-year demonstration projects. One was an eradication trial in North Carolina and Virginia; the second was an optimum pest management trial in Mississippi. The eradication trial was a success in 1980, and the program has undergone regular, incremental expansion since that time.

The current boll weevil eradication effort judiciously applies pesticides based on the number of adult weevils trapped around cotton fields. The traps contain a pheromone (insect attractant) and a small amount of insecticide that kills all captured weevils. In eradication program areas, one to three traps are placed per acre and are checked weekly. Pesticides are applied only to fields that reach a predetermined number of trapped weevils. This selective use of pesticides results in fields requiring

minimal pesticide applications—sometimes none—during the growing season. After several seasons, the weevils are eradicated within the defined program area, eliminating any further need to spray for this pest. As an indirect benefit of eliminating the boll weevil, growers are able to maintain beneficial insects that help control many secondary pests. This further reduces the amount of pesticide used each season to produce the cotton crop.

The table below shows the progress in eradicating boll weevils from U.S. cotton-growing areas.

	States involved	*Eradication Acres*	*Weevil-free Acres*
1983	VA/NC/SC	160,000	35,000
1985	+CA/AZ	1,400,000	95,000
1987	+GA/FL/AL	450,000	1,500,000
1994	+MS/TN/TX	550,000	2,000,000
1996	Same	1,200,000	4,600,000

In the cooperative boll weevil eradication program, APHIS supplies equipment, technical and administrative support, and a portion of program funds. Grower assessments and/or State appropriations finance the great majority of the program—70 percent or more.

The success of the program has brought a resurgence of cotton production and supporting industries. Planting intentions reported by the National Cotton Council indicated more than a 13.5-percent increase in cotton acreage in 1995 compared with 1994.

Witchweed—A Success Story

Witchweed is a parasitic plant that attaches itself to the roots of crops such as corn, sorghum, sugar cane, and other members of the grass family, robbing them of water and vital nutrients. Each plant can produce up to 500,000 seeds per year, and the seeds can remain viable in the soil for up to 15 years, germinating only when they come into contact with the root of a host plant.

Witchweed was introduced into the Carolinas from Africa in the mid-1950's. When the parasite first struck, corn plants mysteriously withered and died. A student visiting from India recognized the weed and told U.S. agricultural experts what it was.

Over the course of an eradication effort that began in 1974, some 450,000 acres have been infested. The eradication program was based on surveillance to locate infested fields, quarantines to prevent spread, and a combination of herbicides and germination stimulants to actually eradicate the weed.

At the beginning of FY 1995, with fewer than 28,000 infested acres remaining, APHIS turned operation of the program over to North Carolina to complete eradication there, but continues to help finish the eradication effort in South Carolina. By late 1996, the infested area was reduced to less than 10,000 acres.

Grasshoppers and IPM

APHIS was the lead Agency in a cooperative Integrated Pest Management (IPM) initiative for grasshopper control in the Western United States. This IPM project, which began in 1987 and closed down in 1994, was aimed at finding better and more acceptable ways of preventing grasshopper damage, while protecting the environment. Activities included developing means to predict and manage grasshopper outbreaks, developing biological control alternatives that minimize the use of chemicals, and integrating proven control techniques into guidelines for APHIS rangeland grasshopper programs.

All this information was integrated into a computer-based decisionmaking program called "HOPPER." HOPPER is a user-friendly software package that facilitates grasshopper predictions, selection and timing of control options, compilation of weather data, and analysis of the economics of range management practices. An example of how HOPPER is used was provided by a Logan County, CO, official in August 1996. He wrote: "I was recently asked to utilize the district's resources to help ranchers save grass pasture obviously threatened by grasshoppers." Using the HOPPER computer model (previously downloaded from the Internet), he estimated the return and decided on the best treatment method.

"We discovered that we would spend $4 per acre in an effort to save $1.50 per acre of grass. The ranchers quickly realized they could purchase hay to replace lost forage and save money. The program showed us we would also have very little effect on next year's population. It also showed us that we should initiate any control effort sooner in the year than we have done in the past."

Other domestic PPQ programs include a quarantine program to prevent the artificial spread of the European gypsy moth from infested areas in the Northeastern United States through movement of outdoor household goods and other articles, quarantines to prevent the spread of imported fire ants through movement of plant nursery material from infested areas, and releasing irradiated sterile pink bollworm moths to keep this insect out of cotton in California's San Joaquin Valley.

Domestic Animal Health Programs

Protecting the health of the Nation's livestock and poultry industries is the responsibility of the APHIS Veterinary Services (VS) program. VS veterinary medical officers and animal health technicians work with their counterparts in the States and with livestock producers to carry out cooperative programs to control and eradicate certain animal diseases. The decision to begin a nationwide campaign against a domestic animal disease is based on a number of factors, the most important of which is: "Are producers and the livestock industry a leading force in the campaign?"

This organized effort against livestock diseases began in 1884 when Congress created a special Agency within USDA to combat bovine pleuropneumonia—a dreaded cattle disease that was crippling exports as well as taking a heavy toll on domestic cattle. Within 8 years, contagious bovine pleuropneumonia had been eradicated and this campaign set the pattern for subsequent animal disease control and eradication programs.

To date, 13 serious livestock and poultry diseases have been eradicated from the United States. They are:

Year	*Disease*
1892	Contagious bovine pleuropneumonia
1929	Foot-and-mouth disease
1929	Fowl plague
1934	Glanders
1942	Dourine
1943	Texas cattle fever
1959	Vesicular exanthema (VE)
1959 & 66	Screwworms (southeast & southwest)
1971	Venezuelan equine encephalitis
1973	Sheep scabies
1974	Exotic Newcastle disease
1978	Hog cholera
1985	Lethal avian influenza

Current VS disease eradication programs include cooperative State-Federal efforts directed at cattle and swine brucellosis, bovine tuberculosis, and pseudorabies in swine. The following table shows the status of States in these programs.

State	*Brucellosis**	*Cattle Brucellosis***	*Swine TB****	*Cattle Pseudorabies*****| *Swine*
AL	Class A	Stage 2	Free	Stage 4
AK	Free	Free	Free	Free
AZ	Free	Free	Free	Free
AR	Class A	Stage 2	Free	Stage 4
CA	Class A	Free	M-A	Stage 3
CO	Free	Free	Free	Free
CT	Free	Free	Free	Free
DE	Free	Free	Free	Free
FL	Class A	Stage 2	Free	Stage 3
GA	Class A	Free	Free	Stage 3
HI	Free	Free	Free	Stage 3
ID	Free	Free	Free	Free
IL	Free	Free	Free	Stage 3
IN	Free	Free	Free	Stage 2/3
IA	Class A	Free	Free	Stage 2/3
KS	Class A	Free	Free	Stage 3
KY	Class A	Free	Free	Stage 4
LA	Free	Stage 2	Free	Stage 3
ME	Free	Free	Free	Free
MD	Free	Free	Free	Free
MA	Free	Free	Free	Stage 3
MI	Free	Free	Free	Free
MN	Free	Free	Free	Stage 2/3

continued

State	Cattle Brucellosis*	Swine Brucellosis**	Cattle TB***	Swine Pseudorabies****
MS	Class A	Free	Free	Stage 3
MO	Class A	Free	Free	Stage 3
MT	Free	Free	Free	Free
NE	Free	Free	Free	Stage 2/3
NV	Free	Free	Free	Free
NH	Free	Free	Free	Stage 4
NJ	Free	Free	Free	Stage 3
NM	Free	Free	M-A	Free
NY	Free	Free	Free	Free
NC	Free	Free	M-A	Stage 2/3
ND	Free	Free	Free	Free
OH	Free	Free	Free	Stage 3
OK	Class A	Stage 2	M-A	Stage 4
OR	Free	Free	Free	Free
PA	Free	Free	M-A	Stage 3
PR	Free	Free	M-A	Free
RI	Free	Free	Free	Stage 4
SC	Free	Stage 2	Free	Free
SD	Class A	Free	Free	Stage 4
TN	Free	Free	Free	Stage 4
TX	Class A	Stage 2	M-A	Stage 3
UT	Free	Free	Free	Free
VT	Free	Free	Free	Free
VI	Free	Free	Free	Stage 4
VA	Free	Free	M-A	Free
WA	Free	Free	Free	Free
WV	Free	Free	Free	Free
WI	Free	Free	Free	Stage 3/4
WY	Free	Free	Free	Free

* Class A (less than .25 percent herd infection rate) or Class Free
** Stage 1, 2 or Free
*** Modified Accredited (M-A) or Accredited Free (Free)
**** Stage 1, 2, 3, 4 or Free

Disease control and eradication measures include quarantines to stop the movement of possibly infected or exposed animals, testing and examination to detect infection, destruction of infected (sometimes exposed) animals to prevent further disease spread, treatment to eliminate parasites, vaccination in some cases, and cleaning and disinfection of contaminated premises. In addition to the programs listed above, APHIS also cooperates with the States in a Voluntary Flock Certification Program to combat scrapie in sheep and goats. By October 1996, 302 sheep and goat flocks had been enrolled in the certification program. A current listing of enrolled flocks, by State and by breed, is available on the World Wide Web *(http://www.aphis.usda.gov/vs/scrapie/status.html)*.

APHIS animal health programs are carried out by a field force of about 250 veterinarians and 360 lay inspectors working out of area offices (usually located in State

capitals). Laboratory support for these programs is supplied by APHIS' National Veterinary Services Laboratories (NVSL) at Ames, IA, and Plum Island, NY, which are centers of excellence in the diagnostic sciences and an integral part of APHIS' animal health programs.

Under the Virus-Serum-Toxin Act of 1913, APHIS enforces regulations to assure that animal vaccines and other veterinary biologics are safe, pure, potent, and effective. Veterinary biologics are products designed to diagnose, prevent, or treat animal diseases. They are used to protect or diagnose disease in a variety of domestic animals, including farm animals, household pets, poultry, fish, and fur bearers.

In contrast to animal medicines, drugs, or chemicals—all of which are regulated by the U.S. Food and Drug Administration—veterinary biologics are derivatives of living organisms. Unlike some pharmaceutical products, most biologics leave no chemical residues in animals. Furthermore, most disease organisms do not develop resistance to the immune response produced by a veterinary biologic.

Veterinarians and other professionals in the APHIS VS Center for Veterinary Biologics regulate and license all veterinary biologics as well as the facilities where they are produced. They also inspect and monitor the production of veterinary biologics, including both genetically engineered products and products produced by conventional means. Necessary tests of veterinary biologics are conducted at the APHIS National Veterinary Services Laboratories at Ames, Iowa.

APHIS also regulates the licensing and production of genetically engineered vaccines and other veterinary biologics. These products range from diagnostic kits for feline leukemia virus to genetically engineered vaccines to prevent pseudorabies, a serious disease affecting swine. With the pseudorabies vaccines, tests kits have been developed to distinguish between infected animals and those vaccinated with genetically engineered vaccines.

Since the first vaccine was licensed in 1979, a total of 63 genetically engineered biologics have been licensed; all but 12 are still being produced.

More than a half-century ago, there were perhaps a half a dozen animal vaccines and other biologics available to farmers. Now there are 2,341 active product licenses and 120 licensed manufacturers.

Monitoring Plant and Animal Pests and Diseases

In order to combat plant pests and animal diseases, it's important to know their number and where they are located.

To monitor plant pests, APHIS works with the States in a project called the Cooperative Agricultural Pest Survey, which started in 1982 as a pilot project. Survey data on weeds, insects, and plant diseases and pests is entered into a nationwide database, the National Agricultural Pest Information System (NAPIS). This database can be accessed from anywhere in the country by persons with an authorized account.

By accessing NAPIS, users can retrieve the latest data on pests. NAPIS data can assist with forecasting, early pest warning, quicker and more precise delimiting efforts, and better planning for plant pest eradication or control efforts. Survey data—which can reflect the absence as well as the presence of pests—also helps U.S. exports, assuring foreign countries that our commodities are free of specific pests and diseases.

There are more than a million records in the NAPIS database. Approximately 200 Federal and State agencies use NAPIS. NAPIS contains survey data files as well as text and graphics files. The data can be downloaded and analyzed with geographic information systems (GIS) to provide graphic representation of information. For example, locations of pine shoot beetle detections can be shown graphically, as well as where and how often surveys have been conducted for the beetle. This information is used by the State and Federal agencies regulating this pest.

Describing animal health and management in the United States is the goal of the APHIS National Animal Health Monitoring System (NAHMS). This program, which is conducted by APHIS' Veterinary Services, began in 1983.

NAHMS compiles statistics and information from existing data bases and gathers new data through short- and long-term targeted studies to present a baseline picture of animal agriculture. This information then can be used to predict trends and improve animal production efficiency and food quality. NAHMS provides statistically sound data concerning U.S. livestock and poultry diseases and disease conditions, along with their costs and associated production practices. By the end of 1996, NAHMS had conducted seven national studies on U.S. animal populations: swine (2), dairy (2), beef cow/calf, beef feedlot, and sheep. Sentinel monitoring of morbidity and mortality in beef feedlots and Marek's disease in broiler operations were among NAHMS' short-term projects.

Information from NAHMS aids a broad group of users throughout agriculture. For instance, baseline animal health and management data from NAHMS national studies are helping analysts identify associations between Salmonella and cattle management. NAHMS data are also helping researchers evaluate management practices that contribute to the occurrence of Johne's disease and digital dermatitis in cattle. State and national officials, industry groups, and producers apply NAHMS data and information in educational programs and in setting research priorities.

NAHMS information is available through the WorldWide Web: *http://www.aphis.usda.gov/vs/ceah*

Regulating Biotechnology in Agriculture

Scientists use agricultural biotechnology with a variety of laboratory techniques, such as genetic engineering, to improve plants, animals, and micro-organisms. Recent discoveries have led to virus-resistant crops such as cucumbers, tomatoes, and potatoes; to better vaccines and diagnostic kits used for diseases of horses, chickens, and swine; and even to new and improved varieties of commercial flowers.

Since 1987, APHIS' role in agricultural biotechnology has been to manage and oversee regulations to ensure the safe and rapid development of the products of biotechnology. Applicants under APHIS' effective regulations and practical guidelines can safely test—outside of the physical containment of the laboratory—genetically engineered organisms.

APHIS officials issue permits or acknowledge notification for the importation, interstate movement, or field testing of genetically engineered plants, microorganisms, and invertebrates that are developed from components from plant pathogenic material.

Since 1987, APHIS has issued more than 2,400 release permits and notifications at more than 9,600 sites in the United States, and no environmental problems have resulted from these field tests. The biotechnology regulations also provide for an exemption process once it has been established that a genetically engineered product does not present a plant pest risk. Under this process, applicants can petition APHIS for a determination of nonregulated status for specific genetically engineered products. To date, 23 engineered plant lines have been proven safe and no longer need to be regulated by APHIS. The most recent of these—in September 1996—was a genetically engineered virus-resistant papaya developed by Cornell University.

Besides the papaya, crops deregulated include:

- Five tomato lines for delayed ripening,
- Four cotton lines, one for insect resistance and four for herbicide tolerance,
- Two soybean lines for herbicide tolerance,
- One rapeseed line for increased production of laurate,
- Two squash lines for disease resistance,
- Two potato lines for insect resistance, and
- Six corn lines, three for herbicide tolerance and three for insect resistance.

APHIS biotechnology personnel meet with regulatory officials from other nations on a regular basis to foster regulatory harmonization. These discussions are intended to help ensure that requirements imposed by other countries are as consistent as possible with U.S. requirements and that our trading partners are kept informed of biotechnology regulatory developments.

Information about APHIS' biotechnology regulations, current submissions, and new issues and events can be seen on the WorldWide Web: *http://www.aphis.usda.gov/oa/new/ab.html*

Controlling Wildlife Damage

The mission of APHIS' Animal Damage Control (ADC) program is to provide Federal leadership in managing problems caused by wildlife. Wildlife is a significant public resource that is greatly valued by the American public. But by its very nature, wildlife also can damage agricultural and industrial resources, pose risks to human health and safety, and affect other natural resources. ADC helps solve problems that occur when human activity and wildlife are in conflict with one another. In doing so, ADC attempts to develop and use wildlife management strategies that are biologically, environmentally, and socially sound.

The need for effective and environmentally sound wildlife damage management is rising dramatically. There are several reasons for this. Increasing suburban development intrudes upon traditional wildlife habitats. Population explosions of some adaptable wildlife species, such as coyotes and deer, pose increasing risks to human activities. At the same time, advances in science and technology are providing alternative methods for solving wildlife problems.

APHIS' National Wildlife Research Center (NWRC), the world's only research facility devoted entirely to developing methods for managing wildlife damage, accounts for about one-fourth of ADC's budget. In existence since the 1920's, NWRC has an integrated, multidisciplinary research program that is uniquely suited to provide scientific information and solutions to wildlife damage problems.

A few examples of current NWRC projects include:

- Developing chemosensory repellants and attractants for birds and mammals,
- Finding methods to reduce threats to human safety when birds collide with airplanes,
- Finding ways to control the brown tree snake in Guam,
- Engineering an immunocontraceptive vaccine and delivery system to help resolve problems caused by wildlife overpopulation,
- Reducing bird damage to fish hatcheries and cereal crops,
- Studying coyote biology and behavior to develop techniques for protecting livestock from these predators, and
- Looking at ways to solve wildlife problems in urban areas involving such things as deer in backyards, raccoons in gardens, squirrels in attics, and geese on golf courses.

More than half of U.S. farmers experience economic loss from animal damage. In 1994, sheep and goat producers lost an estimated $17.7 million due to predation. In 1995, cattle producers' losses to predators were worth $39.6 million. Coyotes alone caused $11.5 million in sheep losses and $21.8 million in cattle losses nationwide. A survey in 1993 showed that wildlife caused $92 million in losses to corn producers in the top 10 corn-producing States.

Additionally, beavers in the Southeastern United States cause an estimated $100 million in damage each year to public and private property, while Mississippi catfish farmers lose nearly $6 million worth of fingerlings to fish-eating birds. During 1 year in Pennsylvania, white-tailed deer caused crop losses totaling $30 million. Overall, bird populations cause an estimated annual loss to U.S. agriculture of $100 million. In 1994, the annual dollar loss to agriculture in the United States from wildlife was about $600 million.

Humane Care of Animals

A number of local, State, and Federal laws deal with the humane treatment and care of animals.

An important Federal law in this area is the Animal Welfare Act, which regulates the care and treatment of animals that are used for research or exhibition or are sold as pets at the wholesale level. This Act, which APHIS administers, does not cover retail pet stores. The Act also specifically excludes animals raised for food or fiber (including fur-bearing animals). USDA has long had a concern for the health and well-being of animals. The first Federal humane law, which mandated feed and water for farm animals being transported by barge or rail, was passed in 1873. In 1966, responding to complaints about suffering and neglected dogs and cats supplied to research institutions and focusing on the problem of "petnapping," Congress passed the Laboratory Animal Welfare Act.

Four years later, a much more comprehensive piece of legislation—the Animal Welfare Act—was enacted. This law expanded coverage to most other warmblooded animals used in research, to animals in zoos and circuses and marine mammals in sea life shows and exhibits, and to animals sold in the wholesale pet trade. The law does not cover retail pet shops, game ranches, livestock shows, rodeos, State or county fairs, or dog and cat shows.

- *APHIS deals with a wide variety of wildlife problems, ranging from coyote attacks on lambs to protecting endangered species from predation by other wildlife. Here are a few examples of Animal Damage Control efforts:*
  - *A farmer in Washington requested ADC assistance after thousands of Canada geese congregated on his 43-acre field of carrots and began eating his crop, which had a potential market value of more than $7,000 an acre. Noise-making devices and other scare tactics recommended by ADC were successful in frightening the geese and keeping them out of his field.*
  - *A mountain lion that killed a dog and attacked another dog and a mule in Colorado was captured by an ADC specialist and officials from the Colorado Division of Wildlife. The lion was released unharmed in a remote site about 165 miles from the community where the attacks occurred.*
  - *In 1991, a plane carrying 350 passengers aborted takeoff at JFK International Airport after gulls were drawn into one of its engines. Although no one was seriously injured, the aircraft lost its brakes and 10 tires in the accident. Between 1988 and 1990, there were an average of 170 bird strikes against airplanes per year at that airport. After ADC became involved in managing bird populations at the airport in 1990, laughing gull strikes were reduced by 66 percent in 1991, and by 89 percent in 1992 compared with the previous 2-year period.*
  - *Livestock guarding dogs, predator-proof fencing, and the "Electronic Guard" (a device developed by ADC that combines a flashing strobe light and a siren to scare coyotes) are examples of nonlethal ways to minimize damage from predators.*
  - *ADC helps protect many threatened or endangered species from predation, including the California least tern and light-footed clapper rail, the San Joaquin kit fox, the Aleutian Canada goose, the Louisiana pearlshell (mussel), and two species of endangered sea turtles.*
  - *In 1995, ADC cooperated with Texas officials to help combat a rabies epidemic in the southern part of that State. ADC-developed coyote baits laced with a genetically engineered rabies vaccine approved by APHIS for use in the project were dropped over a 14,400-square-mile area stretching from Maverick County, at the Mexican border, to Calhoun County, on the Gulf Coast. The goal of the project is to create a buffer zone of immunized coyotes to help prevent the further spread of canine rabies across Texas into more heavily populated areas.*

The Animal Welfare Act has been amended three times. A 1976 amendment extended the scope of the Act to include care and treatment while animals are being transported via common carriers. It also outlawed animal fighting ventures, such as dog or cock fights, unless specifically allowed by State law.

A 1985 amendment focused on research animals. It called for establishment of special committees at every research facility to oversee animal use and for regulations to provide for exercise of dogs and the psychological well-being of nonhuman primates.

In 1993, the Act was further amended to help prevent the use of lost and stolen pets in research by giving pet owners more time to find their pets and by requiring more documentation from dealers who sell animals to researchers. Under the newest regulations, pounds and animal shelters must hold dogs and cats for at least 5 days, including a Saturday, before releasing them to dealers.

The table below shows some animal welfare statistics for fiscal 1996.

Animal Welfare Accomplishments, FY 1996	
Animals used in research	1,345,739
Registered research facilities	1,264
Licensed animal dealers	4,075
Licensed and registered exhibitors	2,098
Compliance inspections	14,778

Regulatory Enforcement and Animal Care officials within APHIS enforce the Animal Welfare Act through a system of licensing and registration of regulated businesses. Inspectors check to make sure that licensees and registrants are complying with the standards for proper care and handling of animals covered by the Act.

If violations are noted, inspectors set deadlines for correcting the situation. In extreme situations, APHIS can seize and take custody of animals whose safety is in imminent danger. If the problem isn't corrected, the person responsible may be charged with a violation and prosecuted through civil procedures. Penalties include fines, suspension or revocation of licenses, and cease-and-desist orders to prevent future violations. The table below summarizes penalties over the past 4 fiscal years.

Animal Welfare Sanctions Imposed, FY 1993-96

	1993	*1994*	*1995*	*1996*
Fines imposed	$165,250	$345,900	$451,725	$1,050,590
License revocations, suspensions, and refusals	13	23	19	29

Examples of enforcement actions by APHIS during 1996 are:

- A Pennsylvania animal dealer was fined $51,250 and had his license suspended because of Animal Welfare Act violations in the areas of recordkeeping, veterinary care, housing, storage, sanitation, identification, and treatment.
- A Florida dolphin exhibitor was fined $10,000 and had his license suspended because of Animal Welfare Act violations. His four remaining dolphins were transferred to other organizations better equipped to handle these mammals.
- A university in New York agreed to the issuance of a consent decision and an order to pay a civil penalty of $450,000, all but $25,000 of which must be either used to improve housing for its nonhuman primates, at its premises or elsewhere, or donated to a nonprofit sanctuary for nonhuman primates.

As part of its outreach activities, APHIS' Animal Care home page on the Internet's WorldWide Web includes a "missing and found pets" page *(http://www.aphis.usda.gov/reac/anlost.html)* that lets people advertise missing or found cats and dogs. The service, which includes photos, also helps research institutions check to make sure they do not accept lost or stolen animals.

APHIS also enforces the Horse Protection Act, which prohibits the cruel practice of "soring" show horses. The primary enforcement tool is inspection of horses at shows by APHIS personnel and by "Designated Qualified Persons" who are licensed by industry organizations and certified and monitored by APHIS.

Aquaculture

APHIS provides services to the aquaculture industry in a number of areas. Aquaculture is the fastest growing segment of U.S. agriculture, surpassing in value most domestic fruit, vegetable, and nut crops. Between 1980 and 1990, the industry experienced a 400-percent increase in growth; it is now estimated to be worth approximately $1.5 billion. The aquaculture industry provides about 300,000 jobs nationwide.

Current APHIS services include licensing of fish vaccines and other biologics under the Virus-Serum-Toxin Act, controlling birds and damage-causing animals, and providing health certification services for exports. APHIS is currently working to expand its aquatic animal health activities, its underlying authority to support industry efforts to increase exports of aquacultural products around the world, its coordination of interstate regulation, and its protection of the industry from the entry of animal pests and diseases. Examples include:

- European Union (EU) animal health negotiators have been extremely concerned that U.S. aquatic health regulations are not equivalent to those of the EU; the main concern is that the United States does not have a single Federal Agency with legal authority to monitor, prevent, and control outbreaks of aquatic animal disease. Currently, U.S. responsibility in this area is divided among four Federal departments (Agriculture, Interior, Commerce, and Health and Human Services) and the 50 States. APHIS is working with the Joint Subcommittee on Aquaculture's Task Force on Aquatic Animal Health to clarify Federal Agency roles, avoid duplication of authority, and achieve adequate protection of U.S. aquatic animals, both wild and cultivated.

- APHIS has produced a video about health certification procedures for the export of aquacultural products. The goal of the video—which uses the example of exporting trout eggs from Washington State to Chile—is to give animal health and natural resource officials and aquacultural producers a model of how to implement an aquatic health protocol for exporting products.
- APHIS' Animal Damage Control program placed three wildlife biologists in Florida, Alabama, and Mississippi to assist aquaculture producers with bird predation problems. These biologists are helping develop new methods for controlling fish-eating birds, providing onsite assistance to aquaculture producers experiencing predation problems, and developing management plans for fish-eating bird species in the three States.
- APHIS/Veterinary Services' Centers for Epidemiology and Animal Health completed an overview of the U.S. aquaculture industry, including study of trends in farm size, geographic distribution of aquatic species, and description of the industry's diversity. During 1997, APHIS will work with USDA's National Agricultural Statistics Service on a comprehensive national study of the U.S. catfish industry.

While APHIS is authorized to prevent the introduction and dissemination of pests and diseases that can harm U.S. livestock and crops, it has no statutory authority to take similar actions to protect the aquaculture industry from foreign pests and diseases. Such deficiencies are already having serious consequences. For example, recent outbreaks of Taura Syndrome Virus in Texas and Hawaii have caused millions of dollars in losses to shrimp producers in those States. This disease is thought to have been introduced via shrimp products imported from South America. In the absence of specific legal authority, APHIS officials have been providing technical assistance to the extent possible to the producers affected by this outbreak, with efforts to control and prevent spread of the disease being very limited. APHIS is therefore exploring the best ways to achieve a coordinated Federal regulatory program to prevent the introduction and spread of aquatic plants, animals, and organisms that could harm commercial aquaculture production.

Grain Inspection, Packers, and Stockyards Administration

The Grain Inspection, Packers and Stockyards Administration (GIPSA) facilitates the marketing of livestock, poultry, meat, cereals, oilseeds, and related agricultural products and promotes fair and competitive trading practices for the overall benefit of consumers and American agriculture.

GIPSA, like its sister agencies in USDA's Marketing and Regulatory Programs, is working to ensure a productive and competitive global marketplace for U.S. agricultural products. GIPSA's Packers and Stockyards Programs ensure open and competitive markets for livestock, meat, and poultry. The Federal Grain Inspection Program provides the U.S. grain market with Federal quality standards and a uniform system for applying them.

Federal Grain Inspection Program

Through its Federal Grain Inspection Program, GIPSA facilitates the marketing of grain, oilseeds, pulses, rice, and related commodities. This program serves American agriculture by providing descriptions (grades) and testing methodologies for measuring the quality and quantity of grain, rice, edible beans, and related commodities. GIPSA also provides a wide range of inspection and weighing services, on a fee basis, through the official grain inspection and weighing system, a unique partnership of Federal, State, and private laboratories. In FY 1996, the official system performed over 2.3 million inspections on 250 million metric tons of grain and related commodities.

Specifically, under the U.S. Grain Standards Act, and those provisions of the Agricultural Marketing Act (AMA) of 1946 that relate to inspection of rice, pulses, lentils, and processed grain products, GIPSA:

- Establishes official U.S. grading standards and testing procedures for eight grains (barley, corn, oats, rye, sorghum, triticale, wheat, and mixed grain), four oilseeds (canola, flaxseed, soybeans, and sunflower seed), rice, lentils, dry peas, and a variety of edible beans.
- Provides American agriculture and customers of U.S. grain around the world with a national inspection and weighing system that applies the official grading and testing standards and procedures in a uniform, accurate, and impartial manner.
- Inspects and weighs exported grain and oilseeds. Domestic and imported grain and oilseed shipments, and crops with standards under the AMA, are inspected and weighed upon request.
- Monitors grain handling practices to prevent the deceptive use of the grading standards and official inspection and weighing results, and the degradation of grain quality through the introduction of foreign material, dockage, or other nongrain material to grain.

By serving as an impartial third party, GIPSA and the official grain inspection and weighing system ensure that the Official U.S. Standards for Grain are applied and that weights are recorded fairly and accurately. In this way, GIPSA advances the orderly and efficient marketing and effective distribution of U.S. grain and other assigned commodities from the Nation's farms to destinations around the world.

Packers and Stockyards Programs

GIPSA's Packers and Stockyards Programs administers the Packers and Stockyards (P&S) Act of 1921. The purpose of the P&S Act, which has been amended to keep pace with changes in the industry, is to assure fair competition and fair trade practices, safeguard farmers and ranchers, and protect consumers and members of the livestock, meat, and poultry industries from unfair business practices that can unduly affect meat and poultry distribution and prices.

Payment Protection

The P&S Act requires prompt payment for livestock purchased by dealers, market agencies, and packers whose operations are subject to the Act. Pursuant to this requirement, subject firms must pay for livestock before the close of the next business day following the purchase and transfer of possession. In addition, the Act establishes specific payment delivery requirements for livestock purchased for slaughter. Also, packers, market agencies, and dealers operating in commerce are required to file a surety bond or its equivalent. At the beginning of FY 1997, bonds totaling $625 million were in place to cover the livestock purchases of packers, market agencies, and dealers.

GIPSA also emphasizes custodial account investigations as a means of payment protection for consignors of livestock. All market agencies selling on a commission basis are required to establish and maintain a separate bank account designated as "Custodial Account for Shippers' Proceeds," to be used for deposits from livestock purchasers and disbursements to consignors of livestock. The custodial audit program has been very successful in protecting funds due livestock sellers.

Packer and Poultry Trust Activities

If a meat packer fails to pay for livestock or a live poultry dealer for live poultry, then receivables, inventories, and proceeds derived from such purchases in cash sales or by poultry growing arrangement become trust assets by operation of law. These assets are held by the meat packer or live poultry dealer for the benefit of all unpaid cash sellers and/or poultry growers. Cash sellers of livestock and poultry growers are legally in a priority payment position in bankruptcy or in claims against trust assets in the event of business failure.

Open Competition

Competition for livestock, either in direct trading or at public markets, should be open and free of restrictions. Any practice, agreement, or understanding that excludes potential buyers from bidding in open competition would be considered a restraint on competition. Practices resulting in the lessening of competition for producers' livestock include apportioning of territories, price agreements or arrangements not to compete, and payoffs or kickbacks to buyers. GIPSA staff members immediately investigate any practice that indicates a possible restriction of competition.

Scales & Weighing Activities

GIPSA's Scales and Weighing program is concerned with two different elements that affect the integrity of transactions: (1) the accuracy of scales used for weighing livestock, meat, and poultry, and (2) the proper and honest operation of scales to assure that the weight on which a transaction is based is accurate.

The major emphasis in the Scales and Weighing program is on detection of improper and fraudulent use of scales. An investigative program uses several different procedures to determine whether weighing activity is proper and honest. Agency investigators routinely visit livestock auction markets, buying stations, and packing plants for the purpose of checkweighing livestock, carcasses, and live poultry, along with examining weight records and equipment.

Fair Treatment for Poultry Growers

GIPSA carries out enforcement of the trade practice provisions of the P&S Act relating to live poultry dealers. Its investigative program extensively examines the records of poultry integrators to determine the existence of any unfair, unjustly discriminatory, or deceptive practices in its dealings with poultry growers and sellers. Complaints alleging unfair termination of growing contracts are investigated on a priority basis.

Carcass Merit Purchasing

GIPSA monitors the use of electronic evaluation devices by hog slaughterers who purchase hogs on a carcass merit basis, in order to ensure that the electronic measuring is accurate and properly applied and that the producer receives an accurate accounting of the sale.

Analysis of Structural Change

GIPSA examines structural changes in the livestock, meat packing, and poultry industries, and analyzes the competitive implications of these structural changes. The analyses assist in enforcing the P&S Act and in addressing public policy issues relating to the livestock and meat industries.

Clear Title

The Clear Title provisions of the Food Security Act of 1985 permit States to establish central filing systems to inform parties about liens on farm products. The purpose of this program is to remove an obstruction to interstate commerce in farm products. GIPSA certifies when a State's central filing system complies with the Act.

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Agricultural Marketing Service

When you visit the grocery store, you know you'll find an abundance and variety of top-quality produce, meats, and dairy products. If you're like most people, you probably don't give a second thought to the marketing system that brings that food from the farm to your table. Yet, this state-of-the-art marketing system makes it possible to pick and choose from a variety of products, available all year around, tailored to meet the demands of today's lifestyles. Millions of people—from grower to retailer—make this marketing system work. Buyers, traders, scientists, factory workers, transportation experts, wholesalers, distributors, retailers, advertising firms—in addition to the Nation's farmers—all help create a marketing system that is unsurpassed by any in the world. And USDA's Agricultural Marketing Service (AMS) helps make sure the U.S. marketing system remains world-class.

Services to Promote Quality: Grading, Quality Standards, and Certification

Wherever or whenever you shop, you expect good, uniform quality and reasonable prices for the food you purchase. AMS quality grade standards, grading, and laboratory services are voluntary tools that industry can use to help promote quality, and to communicate that quality to consumers. Industry pays for these services and they are voluntary, so their widespread use by industry indicates they are valuable tools in helping market their products.

USDA quality grade marks are usually seen on beef, lamb, chicken, turkey, butter, and eggs. For many other products, such as fresh and processed fruits and vegetables, the grade mark isn't always visible on the retail product. In these commodities, the grading service is used by wholesalers, and the final retail packaging may not include the grade mark. However, quality grades are widely used—even if they are not prominently displayed—as a "language" among traders. They make business transactions easier whether they are local or made over long distances. Consumers, as well as those involved in the marketing of agricultural products, benefit from the greater efficiency permitted by the availability and application of grade standards.

Grading is based on standards, and standards are based on measurable attributes that describe the value and utility of the product. Beef quality standards, for instance, are based on attributes such as marbling (the amount of fat interspersed with lean meat), color, firmness, texture, and age of the animal, for each grade. In turn, these factors are a good indication of tenderness, juiciness, and flavor of the meat—all characteristics important to consumers. Prime, Choice, and Select are all grades familiar to consumers of beef.

Standards for each product describe the entire range of quality for a product, and the number of grades varies by commodity. There are eight grades for beef, and three each for chickens, eggs, and turkeys. On the other hand, there are 45 grades for cotton, and more than 300 fruit, vegetable, and specialty product standards.

■ ***Facts about grading:***
From October 1995 through September 1996, USDA graded 35 percent of the shell eggs and 95 percent of the butter produced in the United States. Ninety-one billion pounds of fresh fruits and vegetables and more than 13 billion pounds of processed fruits and vegetables received a USDA grade mark. Nearly all of the meat industry requests AMS grading services: USDA grades were applied to 82 percent of all beef, 86 percent of all lambs, 18 percent of all veal and calves, 71 percent of all turkeys, and 49 percent of all chickens and other poultry marketed in this country. USDA also graded more than 98 percent of the cotton and 97 percent of the tobacco produced in the United States.

The food testing side of the AMS program has 11 "user fee" laboratories performing numerous microbiological, chemical, and physical analyses on a host of food and fiber commodities, including processed dairy products, meat, poultry, egg products, and fruits and vegetables. This testing supports AMS purchases for the National School Lunch Program and other domestic feeding programs, troop ration specifications for the Department of Defense, foreign government food contract purchases, laboratory quality control and assurance programs, and testing for aflatoxin in peanut products.

In addition to grading and laboratory services, USDA provides certification services, for a fee, that facilitate ordering and purchase of products used by large-volume buyers. Certification assures buyers that the products they purchase will meet the terms of their contracts—with respect to quality, processing, size, packaging, and delivery. If a large buyer—such as a school district, hospital, prison, or the military—orders huge volumes of a particular product such as catsup or processed turkey or chicken, it wants to be sure that the delivered product meets certain needs. Too much money is involved to risk getting tomato soup when you need catsup, and meals can't be postponed while the mistake gets corrected. Graders review and accept agricultural products to make sure they meet specifications set by private-sector purchasers. They also certify food items purchased for Federal feeding programs.

AMS has developed quality assurance (QA) services that include Hazard Analysis Critical Control Point (HACCP) and International Organization of Standardization (ISO)-based programs. These programs ensure and document that companies' operations are in compliance with provisions of contracts and/or their own standards and procedures. QA services are voluntary, hourly-fee-based, and value-added. HACCP concepts and procedures have been recommended by the National Academy of Sciences for application in the food industry, and ISO procedures are becoming an international norm for some processes.

Spreading the News

Farmers, shippers, wholesalers, and retailers across the country rely on AMS Market News for up-to-the-minute information on commodity prices and shipments. Market News helps industry make the daily critical decisions about where and when to sell, and what price to expect. Because this information is made so widely available, farmers and those who market agricultural products are better able to compete, ensuring consumers a stable and reasonably priced food supply.

AMS Market News reporters generate approximately 700 reports each day, collected from more than 100 U.S. locations. Reports cover local, regional, national, and international markets for dairy, livestock, meat, poultry, grain, fruit, vegetables, tobacco, cotton, and specialty products. Weekly, bi-weekly, monthly, and annual reports track the longer-range performance of cotton, dairy products, poultry and eggs, fruits, vegetables, specialty crops, livestock, meat, grain, floral products, feeds, wool, and tobacco. Periodically, AMS issues special reports on such commodities as olive oil, pecans, peanuts, and honey.

USDA's commodity market information in Market News is easily accessible—via newspapers, television, and radio; printed reports mailed or faxed directly to the user; telephone recorders; electronic access through the Market News Communication System, the Market News Bulletin Board, and the Internet; and by direct contact with USDA reporters.

Buying Food: Helping Farmers, School Children, and Needy Persons

AMS serves both farmers and those in need of nutrition assistance through its commodity procurement programs. By purchasing wholesome, high-quality food products that are in abundance, AMS helps provide stable markets for producers. The Nation's food assistance programs benefit from these purchases, because these foods go to low-income individuals who might otherwise be unable to afford them.

Some of the programs and groups that typically receive USDA-purchased food include: children in the National School Lunch, Summer Camp, and School Breakfast Programs; Native Americans participating in the Food Distribution Program on Indian Reservations; older Americans through the Nutrition Program for the Elderly; and low-income and homeless persons through the Commodity Supplemental Food Program and the Emergency Food Assistance Program. In addition, USDA helps provide disaster relief by making emergency purchases of commodities for distribution to disaster victims.

Once USDA determines that a purchase is appropriate, AMS publicly invites bids, and makes sure that the food it purchases meets quality and nutrition standards. Often, AMS specifies that foods be low in fat, sugar, and sodium. By policy, AMS only purchases products that are 100 percent domestic in origin.

Pesticides: Information and Records

Many Americans are concerned about the use and potential negative effects of agricultural pesticides. Recognizing this concern, AMS began coordinating a Pesticide Data Program (PDP) in 1991. Through agreements with nine States, AMS collects and analyzes samples of fresh and processed produce and grain for potential

pesticide residues. In 1996, dairy commodities were added to the program. The PDP generates objective data that support government decisions, while also serving to keep the public informed about the safety of the Nation's food supply. The Environmental Protection Agency (EPA) uses PDP data to support pesticide reregistration and special review decisions, and the Food and Drug Administration (FDA) uses PDP data to enforce EPA-established tolerances and FDA guidelines for food safety.

In addition to the PDP, AMS also has the primary responsibility for the Pesticide Recordkeeping Program. This program requires all certified private applicators of federally restricted-use pesticides to maintain records of all applications. These records will support collection of data to help analyze agricultural pesticide use, but will also be helpful to health care professionals when treating individuals who may have been exposed to an agricultural chemical. AMS strives to provide outreach and educational support to States and private applicators to broaden their understanding and participation in the program.

Helping Farmers Promote Their Products

"The Touch...the Feel of Cotton...the Fabric of Our Lives," "Beef...It's What's for Dinner," "Milk—Where's your mustache?", "Think Flowers" If you've watched television or read magazines lately, you've probably heard or read these slogans and others for a host of agricultural commodities. All of these promotional campaigns are part of the Research and Promotion Programs that AMS oversees.

Federal research and promotion programs, each authorized by separate legislation, are designed to improve farmers' incomes through promotion of their products. The programs are all fully funded by industry assessments. Board members are nominated by industry and appointed officially by the Secretary of Agriculture. AMS oversees the activities of the boards or councils and approves budgets, in order to assure compliance with the legislation.

Currently, there are research and promotion programs for beef, pork, cotton, cut flowers and greens, dairy products, eggs, fluid milk, honey, mushrooms, potatoes, soybeans, and watermelons.

But, while advertising is one part of these programs, product research and development is also a major focus. Wrinkle-resistant cotton and low-cholesterol, low-fat dairy products are just two examples of how these programs have benefitted consumers and expanded markets for producers.

New generic commodity promotion, research, and information legislation was enacted as part of the 1996 Farm Bill to make Federal promotion and research programs available to more commodities.

■ *Facts about marketing: The national Fluid Milk Processors Promotion program began its "Milk—Where's your mustache?" campaign in 1995, featuring photographs of famous personalities wearing "milk mustaches." The board estimates that 147 million consumers have already been reached by this promotion*

Marketing Orders: Solving Producers' Marketing Problems

Marketing agreements and orders help dairy, fruit, vegetable, and peanut producers come together to work at solving marketing problems they cannot solve individually. Marketing orders are flexible tools that can be tailored to the needs of local market conditions for producing and selling. But they are also legal instruments that have the force of law, with USDA ensuring an appropriate balance between the interests of producers looking for a fair price and consumers who expect an adequate, quality supply at a reasonable price.

Federal milk marketing orders, for example, establish minimum prices that milk handlers or dealers must pay to producers for milk, depending on how that milk will be used—whether fluid milk or cheese. Federal milk orders help build more stable marketing conditions by operating at the first level of trade, where milk leaves the farm and enters the marketing system. They are flexible in order to cope with market changes. They assure that consumers will have a steady supply of fresh milk at all times.

Marketing agreements and orders also help provide stable markets for fruit, vegetable, and specialty crops like nuts and raisins, to the benefit of producers and consumers. They help farmers produce for a market, rather than having to market whatever happens to be produced. A marketing order may help an industry smooth the flow of crops moving to market, to alleviate seasonal shortages and gluts. In addition, marketing orders help maintain the quality of produce being marketed; standardize packages or containers; and authorize advertising, research, and market development. Each program is tailored to the individual industry's marketing needs.

Ensuring Fair Trade in the Market

AMS also administers several programs that ensure fair trade practices among buyers and sellers of agricultural products.

The Perishable Agricultural Commodities Act (PACA) program promotes fair trading in the fresh and frozen fruit and vegetable industry. Through PACA, buyers and sellers are required to live up to the terms of their contracts, and procedures are available for resolving disputes outside the civil court system.

Fruit and vegetable buyers and sellers need this assurance because of the highly perishable nature of their products. Trading in produce is considerably different than trading for a car, a computer, or even grain. When a vegetable grower doesn't get paid, the product usually can't be reclaimed before it spoils—or before it has already been consumed.

Although PACA was initiated to protect producers, it benefits consumers and the entire produce industry. Over the past decade, AMS has handled nearly 40,000 PACA complaints, not just from growers, but also from grower-agents, grower-shippers, brokers, wholesalers, retailers, and processors. PACA is funded by license fees paid by industry, but the bottom line is that fair trade and resolved disputes mean businesses of any size can operate in a better trade environment and consumers can get a wider choice of reasonably priced, high-quality fruits and vegetables.

The Federal Seed Act (FSA) protects everyone who buys seed by prohibiting false labeling and advertising of seed in interstate commerce. The FSA also complements State seed laws by prohibiting the shipment of seed containing excessive

noxious weed seeds. Labels for agricultural seed must state such information as the kinds and percentage of seed in the container, percentages of foreign matter and weed seeds, germination percentage and the date tested, and the name and address of the shipper. USDA also tests seed for seedsmen and seed buyers on a fee-for-service basis to determine quality.

The Plant Variety Protection Act provides patent-like protection to breeders of plants that reproduce both sexually, that is, through seeds, and through tubers. Developers of new plant varieties can apply for certificates of protection. This protection enables the breeder to market the variety exclusively for 20 years and, in so doing, creates an incentive for investment in the development of new plant varieties. Since 1970, AMS' Plant Variety Protection Office has issued more than 3,000 certificates of protection.

The Agricultural Fair Practices Act allows farmers to file complaints with USDA if a processor refuses to deal with them because they are members of a producers' bargaining or marketing association. The Act makes it unlawful for handlers to coerce, intimidate, or discriminate against producers because they belong to such groups. USDA helps to institute court proceedings when farmers' rights are found to be so violated.

Organic Certification

AMS is responsible for implementing an organic certification program, which was authorized by the Organic Foods Production Act (OFPA) as part of the 1990 Farm Bill. The OFPA requires that all agricultural products labeled as organic be produced and handled according to national standards and that organic production and handling practices be certified by a State or private certifying agent accredited by USDA. AMS also would evaluate foreign certification programs to determine that imported organic agricultural products are produced and handled under equivalent standards.

The goals of the national organic certification program are to

- Establish national standards governing the marketing of certain products as organically produced,
- Assure consumers that organically grown products meet uniform standards, and
- Facilitate interstate commerce in fresh and processed food that is organically produced.

The OFPA also established the National Organic Standards Board, which was first appointed in January 1992, to provide AMS with recommendations for the national program and specifically to review substances that may be used in the production and handling of organic food.

Direct Marketing and Wholesale Market Development

AMS continually seeks ways to help farmers and marketers improve the U.S. food marketing system. For example, AMS' Federal-State Marketing Improvement Program (FSMIP) provides matching funds to State Departments of Agriculture to conduct research that will help develop or improve local marketing systems. The aim of the program is to reduce costs or expand markets for producers, ultimately benefiting

consumers through lower food costs and more food choices. Projects include research on innovative marketing techniques, taking those research findings into the marketplace to "test market" the results, and developing State expertise in providing service to marketers of agricultural products. In FY 1996, the FSMIP program funded 21 projects in 21 States for $1.2 million.

The Wholesale and Alternative Markets Program (W&AM) works to improve the handling, processing, packaging, storage, and distribution of agricultural products. AMS researchers work with local governments and food industry groups to develop modern, efficient, wholesale food distribution centers and farmers' markets. In FY 1996, W&AM initiated eight market studies, completed nine, and continued work on five other long-term projects.

■ *Fact about farmers' markets: USDA defines a farmers' market as a group of farmers and vendors leasing or renting space in a common facility on a temporary basis, with an emphasis on the sale of fresh farm products, crafts, and other locally produced items. USDA estimates there are currently 2,410 farmers' markets in the U.S.*

Moving U.S. Agricultural Products to Consumers

An efficient transportation system allows consumers access to a wide variety of agricultural products and commodities produced beyond their own localities.

AMS, through its Transportation and Marketing Division, conducts research on the availability and costs of transportation services for U.S. agricultural producers by addressing policy issues which affect movement of agricultural products by railroads, trucks, inland barges, and ocean-going vessels. AMS staff also provide technical assistance to agricultural shippers who are marketing their products in domestic or international markets. Agricultural producers, producer groups, shippers, exporters, rural communities, carriers, and consumers benefit from the analyses, technical assistance, and information provided by AMS transportation staff.

Produce Locally, Think Globally

To remain competitive in today's world, American agriculture has become more global, and AMS has striven to be a strong partner in expanding markets for U.S. agricultural products.

The AMS role in the international marketing of U.S. commodities centers on its quality grading and certification programs, which are user-funded. Grading involves determining whether a product meets a set of quality standards. Certification ensures that contract specifications have been met—in other words, that the buyer receives the product in the condition and quantity described by the terms of the contract. AMS commodity graders frequently support other USDA agencies involved in export assistance, including the Farm Service Agency and the Foreign Agricultural Service.

U.S. companies often request certification services when exporting to a country that has specific import requirements. Certification services provided by AMS help avoid rejection of shipments or delay in delivery once the product reaches its foreign destination. Delays lead to product deterioration and, ultimately, affect the image

of U.S. quality. AMS' Quality Systems Certification Program, a user-funded service for the meat industry, provides independent, third-party verification of a supplier's documented quality management system. The program was developed to promote world-class quality and to improve the international competitiveness of U.S. livestock and meat.

AMS also provides laboratory testing for exporters of domestic food commodities on a fee basis in keeping with sanitary and phytosanitary requirements of foreign countries. To date, this service has been requested by exporters of products destined for Japan, South Korea, and other Pacific Rim countries, South Africa, several European Union countries, and countries of the former Soviet Union.

For selected fruits, vegetables, nuts (including peanuts), and specialty crops, the grading of imports is mandatory. For the most part, however, firms importing agricultural products into the United States use grading services voluntarily. AMS graders are also often asked to demonstrate commodity quality to foreign firms and governments.

In addition to export grading and certification services, AMS market news offices provide information on sales and prices of both imports and exports. Today, U.S. market participants can receive market information on livestock and meat from Venezuela, New Zealand, Japan and other Pacific Rim markets, Poland, Mexico, Canada, and Australia; fruits and vegetables from France, Great Britain, Bulgaria, Poland, Mexico, New Zealand, and Canada; ornamentals from Germany, France, and Mexico; and a host of products from Ukraine, Kazakhstan, and Russia.

AMS participates in a number of international forums that aim to facilitate world agricultural trade and avoid potential trade barriers. Technical assistance has been provided to countries in Eastern and Central Europe, and elsewhere around the globe, to improve their marketing systems. With improved transportation, distribution, and marketing information systems, these countries will become better customers for U.S. food and fiber products.

Whether at home or abroad, AMS strives to help U.S. agriculture market its abundant, high-quality products. And AMS will continue to work to help U.S. agriculture market its products in growing world markets, while assuring U.S. consumers an abundant supply of high-quality, wholesome food at reasonable prices.

Animal and Plant Health Inspection Service: Protecting Agricultural Health and Productivity

Why are the farmers and ranchers of the United States able to produce so much food for the tables of America's consumers?

Of course, there's no simple answer. But one key to this plentiful supply of food can be summed up in a single phrase: "Healthy crops and livestock."

And this is no accident. America's agricultural health is a result of a team effort—good husbandry by farmers and ranchers plus an organized effort to control and eradicate pests and disease and to prevent the entry of devastating foreign plagues.

Just like frosts, floods, and droughts, pests and diseases can wreak havoc on agricultural productivity, depressing farm incomes and driving up food costs for con-

sumers in the process. While we may not be able to prevent weather-related disasters, USDA's Animal and Plant Health Inspection Service (APHIS) plays a vital role in protecting our country's agricultural health. The result is a more abundant, higher quality, and cheaper food supply than is found anywhere else in the world.

Agriculture is an important sector in our economy, and APHIS helps to ensure that it remains healthy and strong. With the advent of free trade initiatives, a global network of countries has agreed that valid agricultural health concerns—not politics, not economics—are the only acceptable basis for trade restrictions. In this environment, our country's agricultural health infrastructure will be our farmers' ally in seeking new export markets.

Excluding Foreign Pests and Diseases

Agricultural Quarantine Inspection

Agriculture, America's biggest industry and its largest employer, is under constant threat of attack. The enemies are countless and often microscopic, and they gain access to our country in surprising ways. Their potential allies are every traveler entering the United States and every American business importing agricultural products from other countries.

Many passengers entering the United States don't realize that one piece of fruit packed in a suitcase has the potential to cause millions of dollars in damage to U.S. agriculture. Forbidden fruits and vegetables can carry a whole range of plant diseases and pests. Oranges, for example, can introduce diseases like citrus canker or pests like the Mediterranean fruit fly (Medfly).

Similarly, sausages and other meat products from many countries can contain animal disease organisms that can live for many months and even survive processing. Meat scraps from abroad could end up in garbage that is fed to swine. If the meat came from animals infected with a disease, such as African swine fever, hog cholera, or foot-and-mouth disease (FMD), it easily could be passed to domestic swine, and a serious epidemic could result.

Agricultural quarantine inspection is the first line of defense against foreign pests and diseases. Seven days a week, approximately 1,300 APHIS inspectors are on duty at international airports, seaports, and border stations to inspect passengers and baggage for plant and animal products that could be harboring pests or disease organisms. These APHIS Plant Protection and Quarantine (PPQ) inspectors check millions of passengers and their baggage each year for plant or animal pests and diseases that might harm U.S. agriculture. They also inspect ship cargoes, rail and truck freight, and mail from foreign countries.

The following table provides selected inspection and interception data:

	FY1991	*1992*	*1993*	*1994*	*1995*	*1996*
Ships Inspected	52,119	53,374	47,887	53,270	55,205	52,974
Aircraft Inspected	356,915	378,643	378,634	451,342	401,741	410,318
Passengers and Crew Inspected	53,999,523	58,103,711	56,920,156	62,548,979	65,645,734	66,119,960
Interceptions of Plant Material	1,527,922	1,723,004	1,474,569	1,442,214	1,583,687	1,567,886
Interceptions of Pests	56,213	54,831	51,829	54,831	58,032	48,483
Interceptions of Meat/Poultry Products	205,407	246,878	224,340	281,230	223,392	264,001
Baggage Civil Penalties-Number	-29,089	29,700	27,137	22,164	21,813	20,716
Baggage Civil PenaltiesAmount of Fines	$1,299,270	$1,537,590	$1,407,000	$1,186,310	$1,098,220	$1,080,000

- *From high-tech to a keen nose, APHIS uses a variety of means to exclude foreign pests and protect American agriculture. PPQ inspectors augment visual inspection with some 75 x-ray units that help check passenger baggage and mail for prohibited agricultural materials. They also have enlisted trained detector dogs and their keen sense of smell to help sniff out prohibited fruit and meat. On leashes and under the constant supervision of their handlers, the friendly beagles in USDA's "Beagle Brigade" have checked the baggage of passengers arriving from overseas for the past 10 years.*
- *Currently, APHIS has about 50 canine teams at 21 airports, including 19 of America's 20 busiest international airports. Dogs also are used at three post offices. In addition to their actual function, the Beagle Brigade serves as an effective symbol of the need to protect American agriculture and the Nation's food supply from foreign pests. The Beagle Brigade program was responsible for approximately 60,000 seizures of prohibited agriculture products in FY 1994.*
- *From Taffy at Los Angeles to Abbott in Miami, the Beagle Brigade spans the United States. At Los Angeles International Airport, beagle Taffy is 3 years old and was trained at John F. Kennedy International Airport, NY. Her favorite treats are rawhide treats, and she likes looking for apples and oranges. In FY 1995 Taffy worked 690 flights and made 490 seizures. Her hobbies are playing with colleagues, especially fellow USDA detector dog Kojak, and her best trick is shaking hands.*
- *Abbott (nicknamed "The Little Prince of PPQ") is 5 years old and works at Miami International Airport. His favorite smells are beef and pork, and in 1995 he worked 815 flights and made 1,315 seizures. Abbott's proudest moments include finding 30 pounds of pork and a 25–pound ham.*

Preclearance—Checking at the Source

In addition to domestic exclusion efforts, APHIS' International Services (IS) has a corps of experts stationed overseas, as well as APHIS officers on temporary duty, to bolster the Nation's defenses against exotic pests and diseases. Often it is more practical and effective to check and monitor commodities for pests or diseases at the source through preclearance programs. APHIS has special arrangements with a number of countries for preclearance programs, which are summarized in the following table.

Country	*Commodities*
Argentina	Apples & pears
Australia	Apples, nashi pears, pears, grapes
Belgium	Bulbs
Brazil	Mangoes (hot water treatment)
Chile	Stonefruit, berries, grapes, cut flowers, fruits & vegetables
Colombia	Mangoes (hot water treatment)
Costa Rica	Mangoes (hot water treatment), papaya
Ecuador	Mangoes (hot water treatment), melons (free zone)
France	Apples
Great Britain	Bulbs
Guatemala	Mangoes (hot water treatment)
Haiti	Mangoes (hot water treatment)
Ireland	Bulbs
Israel	Bulbs
Jamaica	Ugli fruit, cut flowers, papaya, & 28 other commodities
Japan	Sand pears, Unshu oranges, Fuji apples
Korea	Sand pears, mandarin oranges
Mexico	Mangoes (hot water treatment), citrus (fumigation or from free zone), apples, peaches
New Zealand	Apples, pears, Nashi pears
The Netherlands	Bulbs
Nicaragua	Mangoes (hot water treatment)
Peru	Mangoes (hot water treatment)
Scotland	Bulbs
South Africa	Apples, pears, plums, grapes
Spain	Lemons, clementines, Valencia oranges
Taiwan	Mangoes (hot water treatment)
Turkey	Bulbs
Venezuela	Mangoes (hot water treatment)

International Programs

Through direct overseas contacts, IS employees gather and exchange information on plant and animal health; work to strengthen national, regional, and international agricultural health organizations; and cooperate in international programs against certain pests and diseases that directly threaten American agriculture. Two of the latter are the MOSCAMED program—which combats Medfly infestations in Mexico and Guatemala—and a program to eradicate screwworms, a parasitic insect of warm-blooded animals. Screwworm flies lay their eggs on the edge of open wounds, and the developing larvae feed on the living flesh of the host. Left untreated, the infestation can be fatal.

Screwworms were eradicated from the United States through the use of the sterile insect technique. With this method, millions of screwworm flies are reared in captivity, sterilized, and then released over infested areas to mate with native fertile flies. Eggs produced through such matings do not hatch, and the insect literally breeds itself out of existence.

To provide further protection to U.S. livestock, starting in 1972, eradication efforts were moved southward from the U.S.-Mexico border, with the eventual goal of establishing a barrier of sterile flies across the Isthmus of Panama. To date, screwworms have been eradicated from Mexico, Guatemala, Belize, Honduras, and El Salvador. Eradication efforts continue in Nicaragua and Costa Rica. An agreement has been signed to start an eradication program and construct a new rearing facility in Panama. Currently a production plant at Tuxtla-Gutierrez in Chiapas in southern Mexico can produce up to 500 million sterile flies weekly.

IS also works to prevent foot-and-mouth disease (FMD) from entering Mexico, Central America, and Panama and works with Colombia to eliminate FMD from the northern part of that country.

Coping with Invasions

If, despite our best efforts, foreign pests or diseases do manage to slip past our border defenses, APHIS conducts appropriate control and eradication measures. Examples include Mediterranean fruit fly eradication projects in California in the early 1990's and outbreaks of exotic Newcastle disease in pet birds in several States during the 1980's.

APHIS has a special cadre of people who deal with introductions of exotic plant pests. Known as "Rapid Response Teams," these groups have been mobilized on several occasions to combat costly infestations of Medflies.

Early detection of exotic animal diseases by alert livestock producers and practicing veterinarians who contact specially trained State and Federal veterinarians is the key to their quick detection and elimination. More than 300 such trained veterinarians are located throughout the United States to investigate suspected foreign diseases. Within 24 hours of diagnosis, one of two specially trained task forces in APHIS' Veterinary Services can be mobilized at the site of an outbreak to implement the measures necessary to eradicate the disease.

Currently, APHIS officials are actively working to prevent the entry of bovine spongiform encephalopathy (BSE)—sometimes referred to as "mad cow disease." This disease has had a serious impact on the British livestock industry. BSE has never

been diagnosed in the United States. Since 1989, APHIS has restricted the importation of live ruminants and ruminant products—including animal feed made with ruminant protein—from Great Britain and other countries where BSE is known to exist. In addition, APHIS has conducted a BSE surveillance program since 1989. Specialists have examined brain specimens from more than 3,300 cattle and have found no evidence of BSE.

Import-Export Regulations

APHIS is responsible for enforcing regulations governing the import and export of plants and animals and certain agricultural products.

Import requirements depend on both the product and the country of origin. Plants and plant materials usually must be accompanied by a phytosanitary certificate issued by an official of the exporting country. Livestock and poultry must be accompanied by a health certificate, also issued by an official of the exporting country. Animal products, such as meats and hides, are restricted if they originate in countries that have a different disease status than the United States.

APHIS regulates the importation of animals that enter the country through land ports along the borders with Mexico and Canada. Imports of livestock and poultry from other countries must be quarantined at one of four animal import centers: Newburgh, NY; Miami, FL; Los Angeles, CA; and Honolulu, HI. A special high-security animal import center at Key West, FL, provides a safe means of importing animals from countries where foot-and-mouth disease exists.

Personally owned pet birds can enter through one of six USDA-operated bird quarantine facilities: New York, NY; Miami, FL; San Ysidro, CA; Hidalgo, TX; Los Angeles, CA; and Honolulu, HI.

Pet birds from Canada can enter without quarantine because Canada's animal disease programs and import rules are similar to those of the United States. Commercial shipments of pet birds can enter through one of 60 privately owned, APHIS-supervised quarantine facilities.

APHIS cooperates with the U.S. Department of the Interior in carrying out provisions of the Endangered Species Act that deal with imports and exports of endangered plant, animal, or bird species. APHIS inspectors at ports of entry are trained to identify these species and to notify Interior of any species protected under the Convention on International Trade in Endangered Species (CITES) found during inspection. Also, at many ports, APHIS officers inspect and sample seed imported from foreign countries to ensure that it is accurately labeled and free of noxious weeds.

APHIS also maintains 14 plant introduction stations, the largest of which is at Miami, FL, for commercial importation of plant materials. Smaller stations are at Orlando, FL; San Juan, PR; JFK International Airport, Jamaica, NY; Hoboken, NJ; Houston, El Paso, and Los Indios (Brownsville), TX; Nogales, AZ; San Diego, Los Angeles, and San Francisco, CA; Seattle, WA; and Honolulu, HI.

To facilitate agricultural exports, APHIS officials certify the health of both plants and animals that are shipped to foreign countries. APHIS assures that U.S. plants and plant products meet the plant quarantine import requirements of foreign countries. This assurance is in the form of a phytosanitary certificate, issued by APHIS or its

State cooperators. During FY 1994, 271,000 phytosanitary certificates were issued for exports of plants and plant products worth $23 billion.

As with their counterparts in PPQ who deal with plant material exports, APHIS' Veterinary Services (VS) officials and its National Center for Import and Export provide health certification for animals and animal products designated for export. Examinations and tests—usually done by USDA-accredited veterinarians—cover both U.S. export health requirements and the frequently complex import requirements of the receiving nation. A VS veterinarian endorses export health certificates after all tests and other requirements have been met. Then a final examination is conducted by a VS veterinarian at the port of export before the livestock or poultry leave the country. During 1994, livestock exports increased by 30 percent over the previous year.

In addition to certifying to the health of agricultural exports, APHIS officials mount a proactive approach to the marketing of U.S. crops and livestock overseas. In 1996. for instance, APHIS and Food Safety and Inspection Service officials coordinated negotiations to avert a Russian embargo on U.S. poultry exports worth $600 million a year. On the plant side, efforts by APHIS and Foreign Agricultural Service officials helped maintain U.S. wheat exports after the March 1996 discovery of an outbreak of Karnal bunt, a fungal disease of wheat, in Arizona. The United States is the world's leading wheat exporter, accounting for one-third of world wheat exports. U.S. wheat exports in calendar 1995 were valued at $5.5 billion.

Domestic Plant Health Programs

In most cases, plant pest problems are handled by individual farmers, ranchers, other property owners, and their State or local governments. However, when an insect, weed, or disease poses a particularly serious threat to a major crop, the Nation's forests, or other plant resources, APHIS may join in the control work.

Most pests and weeds that are targets of APHIS' Plant Protection and Quarantine programs are not native to America. They gained entry into this country through commercial trade channels, international travelers, or other means.

When pests are new to this country, control techniques may not be available. In any case, PPQ applies interstate quarantines and takes other steps to prevent spread until effective control measures can be developed.

In many cases, foreign pests are only minor problems in their native lands because they are kept in check by native parasites, predators, and diseases. Since many of these natural enemies may not exist in the United States, one of PPQ's control techniques—in cooperation with USDA's Agricultural Research Service—is the importation, rearing, and release of parasites and other biological control organisms.

Biocontrol—Nature's Way

In its classical sense, biological control means using predators, parasites, and pathogens to combat plant pests. Predators and parasites include insects, mites, and nematodes that naturally attack a target pest. Pathogens include bacteria, viruses, or fungi that cause diseases specifically injurious to a target pest.

Biological control was first put to broad, practical use in the United States in the 1880's. At that time, California citrus groves were being devastated by an exotic insect, the cottony-cushion scale. A USDA scout working in Australia found the

vedalia beetle feeding on the scale insect. The beetle, part of the lady beetle family, was successfully introduced into California and other citrus-growing regions and has kept the scale insect from causing economic damage ever since.

To coordinate the important search for new and better biocontrol opportunities, a National Biological Control Institute was established in APHIS in 1989. The Institute's mission is to promote, facilitate, and provide leadership for biological control. Its main job is to compile and release technical information and coordinate the work needed to find, identify, and augment or distribute new biological control agents.

The Institute relies on scientists from ARS and elsewhere to identify potentially useful biological control agents. These agents are carefully screened at quarantine centers before being put to use.

Various agencies have successfully cooperated on biocontrol projects. For example, several decades ago, ARS scientists found six species of stingless wasps in Europe that keep alfalfa weevils in check. In 1980, APHIS took on the job of establishing these beneficial wasps across the land. Between 1980 and 1989, APHIS and its cooperators raised and distributed about 17 million wasps, and today there are beneficial wasps within reach of virtually every alfalfa field in the country. It's estimated that the benefits of the alfalfa weevil biocontrol program amount to about $88 million per year, representing a return of about $87 for each $1 spent on the project.

Other APHIS biocontrol programs currently underway in cooperation with State agencies include efforts against the cereal leaf beetle, sweet potato whitefly, Russian wheat aphid, Colorado potato beetle, euonymus scale, brown citrus aphid, leafy spurge, diffuse and spotted knapweed, and common crupina. Promising biocontrol agents for other pests are being tested at PPQ biocontrol labs located at Mission, TX, Niles, MI, and Bozeman, MT.

"Deliver Us from Weevil"—Boll Weevil Eradication

One major domestic program PPQ is coordinating is the effort to eradicate boll weevils from the United States. The boll weevil entered this country from Mexico in the late 1890's and soon became a major pest of cotton. It has caused an estimated $12 billion in losses to the Nation's economy. In 1973, it was estimated that insecticides applied to control boll weevils accounted for about one-third of the total applied to agricultural crops in the United States.

The success of a 1971-73 cooperative boll weevil eradication experiment in portions of Mississippi, Louisiana, and Alabama involving Federal and State agencies and grower associations led to two 3-year demonstration projects. One was an eradication trial in North Carolina and Virginia; the second was an optimum pest management trial in Mississippi. The eradication trial was a success in 1980, and the program has undergone regular, incremental expansion since that time.

The current boll weevil eradication effort judiciously applies pesticides based on the number of adult weevils trapped around cotton fields. The traps contain a pheromone (insect attractant) and a small amount of insecticide that kills all captured weevils. In eradication program areas, one to three traps are placed per acre and are checked weekly. Pesticides are applied only to fields that reach a predetermined number of trapped weevils. This selective use of pesticides results in fields requiring

minimal pesticide applications—sometimes none—during the growing season. After several seasons, the weevils are eradicated within the defined program area, eliminating any further need to spray for this pest. As an indirect benefit of eliminating the boll weevil, growers are able to maintain beneficial insects that help control many secondary pests. This further reduces the amount of pesticide used each season to produce the cotton crop.

The table below shows the progress in eradicating boll weevils from U.S. cotton-growing areas.

	States involved	*Eradication Acres*	*Weevil-free Acres*
1983	VA/NC/SC	160,000	35,000
1985	+CA/AZ	1,400,000	95,000
1987	+GA/FL/AL	450,000	1,500,000
1994	+MS/TN/TX	550,000	2,000,000
1996	Same	1,200,000	4,600,000

In the cooperative boll weevil eradication program, APHIS supplies equipment, technical and administrative support, and a portion of program funds. Grower assessments and/or State appropriations finance the great majority of the program—70 percent or more.

The success of the program has brought a resurgence of cotton production and supporting industries. Planting intentions reported by the National Cotton Council indicated more than a 13.5-percent increase in cotton acreage in 1995 compared with 1994.

Witchweed—A Success Story

Witchweed is a parasitic plant that attaches itself to the roots of crops such as corn, sorghum, sugar cane, and other members of the grass family, robbing them of water and vital nutrients. Each plant can produce up to 500,000 seeds per year, and the seeds can remain viable in the soil for up to 15 years, germinating only when they come into contact with the root of a host plant.

Witchweed was introduced into the Carolinas from Africa in the mid-1950's. When the parasite first struck, corn plants mysteriously withered and died. A student visiting from India recognized the weed and told U.S. agricultural experts what it was.

Over the course of an eradication effort that began in 1974, some 450,000 acres have been infested. The eradication program was based on surveillance to locate infested fields, quarantines to prevent spread, and a combination of herbicides and germination stimulants to actually eradicate the weed.

At the beginning of FY 1995, with fewer than 28,000 infested acres remaining, APHIS turned operation of the program over to North Carolina to complete eradication there, but continues to help finish the eradication effort in South Carolina. By late 1996, the infested area was reduced to less than 10,000 acres.

Grasshoppers and IPM

APHIS was the lead Agency in a cooperative Integrated Pest Management (IPM) initiative for grasshopper control in the Western United States. This IPM project, which began in 1987 and closed down in 1994, was aimed at finding better and more acceptable ways of preventing grasshopper damage, while protecting the environment. Activities included developing means to predict and manage grasshopper outbreaks, developing biological control alternatives that minimize the use of chemicals, and integrating proven control techniques into guidelines for APHIS rangeland grasshopper programs.

All this information was integrated into a computer-based decisionmaking program called "HOPPER." HOPPER is a user-friendly software package that facilitates grasshopper predictions, selection and timing of control options, compilation of weather data, and analysis of the economics of range management practices. An example of how HOPPER is used was provided by a Logan County, CO, official in August 1996. He wrote: "I was recently asked to utilize the district's resources to help ranchers save grass pasture obviously threatened by grasshoppers." Using the HOPPER computer model (previously downloaded from the Internet), he estimated the return and decided on the best treatment method.

"We discovered that we would spend $4 per acre in an effort to save $1.50 per acre of grass. The ranchers quickly realized they could purchase hay to replace lost forage and save money. The program showed us we would also have very little effect on next year's population. It also showed us that we should initiate any control effort sooner in the year than we have done in the past."

Other domestic PPQ programs include a quarantine program to prevent the artificial spread of the European gypsy moth from infested areas in the Northeastern United States through movement of outdoor household goods and other articles, quarantines to prevent the spread of imported fire ants through movement of plant nursery material from infested areas, and releasing irradiated sterile pink bollworm moths to keep this insect out of cotton in California's San Joaquin Valley.

Domestic Animal Health Programs

Protecting the health of the Nation's livestock and poultry industries is the responsibility of the APHIS Veterinary Services (VS) program. VS veterinary medical officers and animal health technicians work with their counterparts in the States and with livestock producers to carry out cooperative programs to control and eradicate certain animal diseases. The decision to begin a nationwide campaign against a domestic animal disease is based on a number of factors, the most important of which is: "Are producers and the livestock industry a leading force in the campaign?"

This organized effort against livestock diseases began in 1884 when Congress created a special Agency within USDA to combat bovine pleuropneumonia—a dreaded cattle disease that was crippling exports as well as taking a heavy toll on domestic cattle. Within 8 years, contagious bovine pleuropneumonia had been eradicated and this campaign set the pattern for subsequent animal disease control and eradication programs.

To date, 13 serious livestock and poultry diseases have been eradicated from the United States. They are:

Year	*Disease*
1892	Contagious bovine pleuropneumonia
1929	Foot-and-mouth disease
1929	Fowl plague
1934	Glanders
1942	Dourine
1943	Texas cattle fever
1959	Vesicular exanthema (VE)
1959 & 66	Screwworms (southeast & southwest)
1971	Venezuelan equine encephalitis
1973	Sheep scabies
1974	Exotic Newcastle disease
1978	Hog cholera
1985	Lethal avian influenza

Current VS disease eradication programs include cooperative State-Federal efforts directed at cattle and swine brucellosis, bovine tuberculosis, and pseudorabies in swine. The following table shows the status of States in these programs.

State	*Brucellosis**	*Cattle Brucellosis***	*Swine TB****	*Cattle Pseudorabies*****| *Swine*
AL	Class A	Stage 2	Free	Stage 4
AK	Free	Free	Free	Free
AZ	Free	Free	Free	Free
AR	Class A	Stage 2	Free	Stage 4
CA	Class A	Free	M-A	Stage 3
CO	Free	Free	Free	Free
CT	Free	Free	Free	Free
DE	Free	Free	Free	Free
FL	Class A	Stage 2	Free	Stage 3
GA	Class A	Free	Free	Stage 3
HI	Free	Free	Free	Stage 3
ID	Free	Free	Free	Free
IL	Free	Free	Free	Stage 3
IN	Free	Free	Free	Stage 2/3
IA	Class A	Free	Free	Stage 2/3
KS	Class A	Free	Free	Stage 3
KY	Class A	Free	Free	Stage 4
LA	Free	Stage 2	Free	Stage 3
ME	Free	Free	Free	Free
MD	Free	Free	Free	Free
MA	Free	Free	Free	Stage 3
MI	Free	Free	Free	Free
MN	Free	Free	Free	Stage 2/3

continued

State	Cattle Brucellosis*	Swine Brucellosis**	Cattle TB***	Swine Pseudorabies****
MS	Class A	Free	Free	Stage 3
MO	Class A	Free	Free	Stage 3
MT	Free	Free	Free	Free
NE	Free	Free	Free	Stage 2/3
NV	Free	Free	Free	Free
NH	Free	Free	Free	Stage 4
NJ	Free	Free	Free	Stage 3
NM	Free	Free	M-A	Free
NY	Free	Free	Free	Free
NC	Free	Free	M-A	Stage 2/3
ND	Free	Free	Free	Free
OH	Free	Free	Free	Stage 3
OK	Class A	Stage 2	M-A	Stage 4
OR	Free	Free	Free	Free
PA	Free	Free	M-A	Stage 3
PR	Free	Free	M-A	Free
RI	Free	Free	Free	Stage 4
SC	Free	Stage 2	Free	Free
SD	Class A	Free	Free	Stage 4
TN	Free	Free	Free	Stage 4
TX	Class A	Stage 2	M-A	Stage 3
UT	Free	Free	Free	Free
VT	Free	Free	Free	Free
VI	Free	Free	Free	Stage 4
VA	Free	Free	M-A	Free
WA	Free	Free	Free	Free
WV	Free	Free	Free	Free
WI	Free	Free	Free	Stage 3/4
WY	Free	Free	Free	Free

* Class A (less than .25 percent herd infection rate) or Class Free
** Stage 1, 2 or Free
*** Modified Accredited (M-A) or Accredited Free (Free)
**** Stage 1, 2, 3, 4 or Free

Disease control and eradication measures include quarantines to stop the movement of possibly infected or exposed animals, testing and examination to detect infection, destruction of infected (sometimes exposed) animals to prevent further disease spread, treatment to eliminate parasites, vaccination in some cases, and cleaning and disinfection of contaminated premises. In addition to the programs listed above, APHIS also cooperates with the States in a Voluntary Flock Certification Program to combat scrapie in sheep and goats. By October 1996, 302 sheep and goat flocks had been enrolled in the certification program. A current listing of enrolled flocks, by State and by breed, is available on the World Wide Web *(http://www.aphis.usda.gov/vs/scrapie/status.html)*.

APHIS animal health programs are carried out by a field force of about 250 veterinarians and 360 lay inspectors working out of area offices (usually located in State

capitals). Laboratory support for these programs is supplied by APHIS' National Veterinary Services Laboratories (NVSL) at Ames, IA, and Plum Island, NY, which are centers of excellence in the diagnostic sciences and an integral part of APHIS' animal health programs.

Under the Virus-Serum-Toxin Act of 1913, APHIS enforces regulations to assure that animal vaccines and other veterinary biologics are safe, pure, potent, and effective. Veterinary biologics are products designed to diagnose, prevent, or treat animal diseases. They are used to protect or diagnose disease in a variety of domestic animals, including farm animals, household pets, poultry, fish, and fur bearers.

In contrast to animal medicines, drugs, or chemicals—all of which are regulated by the U.S. Food and Drug Administration—veterinary biologics are derivatives of living organisms. Unlike some pharmaceutical products, most biologics leave no chemical residues in animals. Furthermore, most disease organisms do not develop resistance to the immune response produced by a veterinary biologic.

Veterinarians and other professionals in the APHIS VS Center for Veterinary Biologics regulate and license all veterinary biologics as well as the facilities where they are produced. They also inspect and monitor the production of veterinary biologics, including both genetically engineered products and products produced by conventional means. Necessary tests of veterinary biologics are conducted at the APHIS National Veterinary Services Laboratories at Ames, Iowa.

APHIS also regulates the licensing and production of genetically engineered vaccines and other veterinary biologics. These products range from diagnostic kits for feline leukemia virus to genetically engineered vaccines to prevent pseudorabies, a serious disease affecting swine. With the pseudorabies vaccines, tests kits have been developed to distinguish between infected animals and those vaccinated with genetically engineered vaccines.

Since the first vaccine was licensed in 1979, a total of 63 genetically engineered biologics have been licensed; all but 12 are still being produced.

More than a half-century ago, there were perhaps a half a dozen animal vaccines and other biologics available to farmers. Now there are 2,341 active product licenses and 120 licensed manufacturers.

Monitoring Plant and Animal Pests and Diseases

In order to combat plant pests and animal diseases, it's important to know their number and where they are located.

To monitor plant pests, APHIS works with the States in a project called the Cooperative Agricultural Pest Survey, which started in 1982 as a pilot project. Survey data on weeds, insects, and plant diseases and pests is entered into a nationwide database, the National Agricultural Pest Information System (NAPIS). This database can be accessed from anywhere in the country by persons with an authorized account.

By accessing NAPIS, users can retrieve the latest data on pests. NAPIS data can assist with forecasting, early pest warning, quicker and more precise delimiting efforts, and better planning for plant pest eradication or control efforts. Survey data—which can reflect the absence as well as the presence of pests—also helps U.S. exports, assuring foreign countries that our commodities are free of specific pests and diseases.

There are more than a million records in the NAPIS database. Approximately 200 Federal and State agencies use NAPIS. NAPIS contains survey data files as well as text and graphics files. The data can be downloaded and analyzed with geographic information systems (GIS) to provide graphic representation of information. For example, locations of pine shoot beetle detections can be shown graphically, as well as where and how often surveys have been conducted for the beetle. This information is used by the State and Federal agencies regulating this pest.

Describing animal health and management in the United States is the goal of the APHIS National Animal Health Monitoring System (NAHMS). This program, which is conducted by APHIS' Veterinary Services, began in 1983.

NAHMS compiles statistics and information from existing data bases and gathers new data through short- and long-term targeted studies to present a baseline picture of animal agriculture. This information then can be used to predict trends and improve animal production efficiency and food quality. NAHMS provides statistically sound data concerning U.S. livestock and poultry diseases and disease conditions, along with their costs and associated production practices. By the end of 1996, NAHMS had conducted seven national studies on U.S. animal populations: swine (2), dairy (2), beef cow/calf, beef feedlot, and sheep. Sentinel monitoring of morbidity and mortality in beef feedlots and Marek's disease in broiler operations were among NAHMS' short-term projects.

Information from NAHMS aids a broad group of users throughout agriculture. For instance, baseline animal health and management data from NAHMS national studies are helping analysts identify associations between Salmonella and cattle management. NAHMS data are also helping researchers evaluate management practices that contribute to the occurrence of Johne's disease and digital dermatitis in cattle. State and national officials, industry groups, and producers apply NAHMS data and information in educational programs and in setting research priorities.

NAHMS information is available through the WorldWide Web: *http://www.aphis.usda.gov/vs/ceah*

Regulating Biotechnology in Agriculture

Scientists use agricultural biotechnology with a variety of laboratory techniques, such as genetic engineering, to improve plants, animals, and micro-organisms. Recent discoveries have led to virus-resistant crops such as cucumbers, tomatoes, and potatoes; to better vaccines and diagnostic kits used for diseases of horses, chickens, and swine; and even to new and improved varieties of commercial flowers.

Since 1987, APHIS' role in agricultural biotechnology has been to manage and oversee regulations to ensure the safe and rapid development of the products of biotechnology. Applicants under APHIS' effective regulations and practical guidelines can safely test—outside of the physical containment of the laboratory—genetically engineered organisms.

APHIS officials issue permits or acknowledge notification for the importation, interstate movement, or field testing of genetically engineered plants, microorganisms, and invertebrates that are developed from components from plant pathogenic material.

Since 1987, APHIS has issued more than 2,400 release permits and notifications at more than 9,600 sites in the United States, and no environmental problems have resulted from these field tests. The biotechnology regulations also provide for an exemption process once it has been established that a genetically engineered product does not present a plant pest risk. Under this process, applicants can petition APHIS for a determination of nonregulated status for specific genetically engineered products. To date, 23 engineered plant lines have been proven safe and no longer need to be regulated by APHIS. The most recent of these—in September 1996—was a genetically engineered virus-resistant papaya developed by Cornell University.

Besides the papaya, crops deregulated include:

- Five tomato lines for delayed ripening,
- Four cotton lines, one for insect resistance and four for herbicide tolerance,
- Two soybean lines for herbicide tolerance,
- One rapeseed line for increased production of laurate,
- Two squash lines for disease resistance,
- Two potato lines for insect resistance, and
- Six corn lines, three for herbicide tolerance and three for insect resistance.

APHIS biotechnology personnel meet with regulatory officials from other nations on a regular basis to foster regulatory harmonization. These discussions are intended to help ensure that requirements imposed by other countries are as consistent as possible with U.S. requirements and that our trading partners are kept informed of biotechnology regulatory developments.

Information about APHIS' biotechnology regulations, current submissions, and new issues and events can be seen on the WorldWide Web: *http://www.aphis.usda.gov/oa/new/ab.html*

Controlling Wildlife Damage

The mission of APHIS' Animal Damage Control (ADC) program is to provide Federal leadership in managing problems caused by wildlife. Wildlife is a significant public resource that is greatly valued by the American public. But by its very nature, wildlife also can damage agricultural and industrial resources, pose risks to human health and safety, and affect other natural resources. ADC helps solve problems that occur when human activity and wildlife are in conflict with one another. In doing so, ADC attempts to develop and use wildlife management strategies that are biologically, environmentally, and socially sound.

The need for effective and environmentally sound wildlife damage management is rising dramatically. There are several reasons for this. Increasing suburban development intrudes upon traditional wildlife habitats. Population explosions of some adaptable wildlife species, such as coyotes and deer, pose increasing risks to human activities. At the same time, advances in science and technology are providing alternative methods for solving wildlife problems.

APHIS' National Wildlife Research Center (NWRC), the world's only research facility devoted entirely to developing methods for managing wildlife damage, accounts for about one-fourth of ADC's budget. In existence since the 1920's, NWRC has an integrated, multidisciplinary research program that is uniquely suited to provide scientific information and solutions to wildlife damage problems.

A few examples of current NWRC projects include:

- Developing chemosensory repellants and attractants for birds and mammals,
- Finding methods to reduce threats to human safety when birds collide with airplanes,
- Finding ways to control the brown tree snake in Guam,
- Engineering an immunocontraceptive vaccine and delivery system to help resolve problems caused by wildlife overpopulation,
- Reducing bird damage to fish hatcheries and cereal crops,
- Studying coyote biology and behavior to develop techniques for protecting livestock from these predators, and
- Looking at ways to solve wildlife problems in urban areas involving such things as deer in backyards, raccoons in gardens, squirrels in attics, and geese on golf courses.

More than half of U.S. farmers experience economic loss from animal damage. In 1994, sheep and goat producers lost an estimated $17.7 million due to predation. In 1995, cattle producers' losses to predators were worth $39.6 million. Coyotes alone caused $11.5 million in sheep losses and $21.8 million in cattle losses nationwide. A survey in 1993 showed that wildlife caused $92 million in losses to corn producers in the top 10 corn-producing States.

Additionally, beavers in the Southeastern United States cause an estimated $100 million in damage each year to public and private property, while Mississippi catfish farmers lose nearly $6 million worth of fingerlings to fish-eating birds. During 1 year in Pennsylvania, white-tailed deer caused crop losses totaling $30 million. Overall, bird populations cause an estimated annual loss to U.S. agriculture of $100 million. In 1994, the annual dollar loss to agriculture in the United States from wildlife was about $600 million.

Humane Care of Animals

A number of local, State, and Federal laws deal with the humane treatment and care of animals.

An important Federal law in this area is the Animal Welfare Act, which regulates the care and treatment of animals that are used for research or exhibition or are sold as pets at the wholesale level. This Act, which APHIS administers, does not cover retail pet stores. The Act also specifically excludes animals raised for food or fiber (including fur-bearing animals). USDA has long had a concern for the health and well-being of animals. The first Federal humane law, which mandated feed and water for farm animals being transported by barge or rail, was passed in 1873. In 1966, responding to complaints about suffering and neglected dogs and cats supplied to research institutions and focusing on the problem of "petnapping," Congress passed the Laboratory Animal Welfare Act.

Four years later, a much more comprehensive piece of legislation—the Animal Welfare Act—was enacted. This law expanded coverage to most other warmblooded animals used in research, to animals in zoos and circuses and marine mammals in sea life shows and exhibits, and to animals sold in the wholesale pet trade. The law does not cover retail pet shops, game ranches, livestock shows, rodeos, State or county fairs, or dog and cat shows.

- *APHIS deals with a wide variety of wildlife problems, ranging from coyote attacks on lambs to protecting endangered species from predation by other wildlife. Here are a few examples of Animal Damage Control efforts:*
  - *A farmer in Washington requested ADC assistance after thousands of Canada geese congregated on his 43-acre field of carrots and began eating his crop, which had a potential market value of more than $7,000 an acre. Noise-making devices and other scare tactics recommended by ADC were successful in frightening the geese and keeping them out of his field.*
  - *A mountain lion that killed a dog and attacked another dog and a mule in Colorado was captured by an ADC specialist and officials from the Colorado Division of Wildlife. The lion was released unharmed in a remote site about 165 miles from the community where the attacks occurred.*
  - *In 1991, a plane carrying 350 passengers aborted takeoff at JFK International Airport after gulls were drawn into one of its engines. Although no one was seriously injured, the aircraft lost its brakes and 10 tires in the accident. Between 1988 and 1990, there were an average of 170 bird strikes against airplanes per year at that airport. After ADC became involved in managing bird populations at the airport in 1990, laughing gull strikes were reduced by 66 percent in 1991, and by 89 percent in 1992 compared with the previous 2-year period.*
  - *Livestock guarding dogs, predator-proof fencing, and the "Electronic Guard" (a device developed by ADC that combines a flashing strobe light and a siren to scare coyotes) are examples of nonlethal ways to minimize damage from predators.*
  - *ADC helps protect many threatened or endangered species from predation, including the California least tern and light-footed clapper rail, the San Joaquin kit fox, the Aleutian Canada goose, the Louisiana pearlshell (mussel), and two species of endangered sea turtles.*
  - *In 1995, ADC cooperated with Texas officials to help combat a rabies epidemic in the southern part of that State. ADC-developed coyote baits laced with a genetically engineered rabies vaccine approved by APHIS for use in the project were dropped over a 14,400-square-mile area stretching from Maverick County, at the Mexican border, to Calhoun County, on the Gulf Coast. The goal of the project is to create a buffer zone of immunized coyotes to help prevent the further spread of canine rabies across Texas into more heavily populated areas.*

The Animal Welfare Act has been amended three times. A 1976 amendment extended the scope of the Act to include care and treatment while animals are being transported via common carriers. It also outlawed animal fighting ventures, such as dog or cock fights, unless specifically allowed by State law.

A 1985 amendment focused on research animals. It called for establishment of special committees at every research facility to oversee animal use and for regulations to provide for exercise of dogs and the psychological well-being of nonhuman primates.

In 1993, the Act was further amended to help prevent the use of lost and stolen pets in research by giving pet owners more time to find their pets and by requiring more documentation from dealers who sell animals to researchers. Under the newest regulations, pounds and animal shelters must hold dogs and cats for at least 5 days, including a Saturday, before releasing them to dealers.

The table below shows some animal welfare statistics for fiscal 1996.

Animal Welfare Accomplishments, FY 1996	
Animals used in research	1,345,739
Registered research facilities	1,264
Licensed animal dealers	4,075
Licensed and registered exhibitors	2,098
Compliance inspections	14,778

Regulatory Enforcement and Animal Care officials within APHIS enforce the Animal Welfare Act through a system of licensing and registration of regulated businesses. Inspectors check to make sure that licensees and registrants are complying with the standards for proper care and handling of animals covered by the Act.

If violations are noted, inspectors set deadlines for correcting the situation. In extreme situations, APHIS can seize and take custody of animals whose safety is in imminent danger. If the problem isn't corrected, the person responsible may be charged with a violation and prosecuted through civil procedures. Penalties include fines, suspension or revocation of licenses, and cease-and-desist orders to prevent future violations. The table below summarizes penalties over the past 4 fiscal years.

Animal Welfare Sanctions Imposed, FY 1993-96

	1993	*1994*	*1995*	*1996*
Fines imposed	$165,250	$345,900	$451,725	$1,050,590
License revocations, suspensions, and refusals	13	23	19	29

Examples of enforcement actions by APHIS during 1996 are:

- A Pennsylvania animal dealer was fined $51,250 and had his license suspended because of Animal Welfare Act violations in the areas of recordkeeping, veterinary care, housing, storage, sanitation, identification, and treatment.
- A Florida dolphin exhibitor was fined $10,000 and had his license suspended because of Animal Welfare Act violations. His four remaining dolphins were transferred to other organizations better equipped to handle these mammals.
- A university in New York agreed to the issuance of a consent decision and an order to pay a civil penalty of $450,000, all but $25,000 of which must be either used to improve housing for its nonhuman primates, at its premises or elsewhere, or donated to a nonprofit sanctuary for nonhuman primates.

As part of its outreach activities, APHIS' Animal Care home page on the Internet's WorldWide Web includes a "missing and found pets" page *(http://www.aphis.usda.gov/reac/anlost.html)* that lets people advertise missing or found cats and dogs. The service, which includes photos, also helps research institutions check to make sure they do not accept lost or stolen animals.

APHIS also enforces the Horse Protection Act, which prohibits the cruel practice of "soring" show horses. The primary enforcement tool is inspection of horses at shows by APHIS personnel and by "Designated Qualified Persons" who are licensed by industry organizations and certified and monitored by APHIS.

Aquaculture

APHIS provides services to the aquaculture industry in a number of areas. Aquaculture is the fastest growing segment of U.S. agriculture, surpassing in value most domestic fruit, vegetable, and nut crops. Between 1980 and 1990, the industry experienced a 400-percent increase in growth; it is now estimated to be worth approximately $1.5 billion. The aquaculture industry provides about 300,000 jobs nationwide.

Current APHIS services include licensing of fish vaccines and other biologics under the Virus-Serum-Toxin Act, controlling birds and damage-causing animals, and providing health certification services for exports. APHIS is currently working to expand its aquatic animal health activities, its underlying authority to support industry efforts to increase exports of aquacultural products around the world, its coordination of interstate regulation, and its protection of the industry from the entry of animal pests and diseases. Examples include:

- European Union (EU) animal health negotiators have been extremely concerned that U.S. aquatic health regulations are not equivalent to those of the EU; the main concern is that the United States does not have a single Federal Agency with legal authority to monitor, prevent, and control outbreaks of aquatic animal disease. Currently, U.S. responsibility in this area is divided among four Federal departments (Agriculture, Interior, Commerce, and Health and Human Services) and the 50 States. APHIS is working with the Joint Subcommittee on Aquaculture's Task Force on Aquatic Animal Health to clarify Federal Agency roles, avoid duplication of authority, and achieve adequate protection of U.S. aquatic animals, both wild and cultivated.

- APHIS has produced a video about health certification procedures for the export of aquacultural products. The goal of the video—which uses the example of exporting trout eggs from Washington State to Chile—is to give animal health and natural resource officials and aquacultural producers a model of how to implement an aquatic health protocol for exporting products.
- APHIS' Animal Damage Control program placed three wildlife biologists in Florida, Alabama, and Mississippi to assist aquaculture producers with bird predation problems. These biologists are helping develop new methods for controlling fish-eating birds, providing onsite assistance to aquaculture producers experiencing predation problems, and developing management plans for fish-eating bird species in the three States.
- APHIS/Veterinary Services' Centers for Epidemiology and Animal Health completed an overview of the U.S. aquaculture industry, including study of trends in farm size, geographic distribution of aquatic species, and description of the industry's diversity. During 1997, APHIS will work with USDA's National Agricultural Statistics Service on a comprehensive national study of the U.S. catfish industry.

While APHIS is authorized to prevent the introduction and dissemination of pests and diseases that can harm U.S. livestock and crops, it has no statutory authority to take similar actions to protect the aquaculture industry from foreign pests and diseases. Such deficiencies are already having serious consequences. For example, recent outbreaks of Taura Syndrome Virus in Texas and Hawaii have caused millions of dollars in losses to shrimp producers in those States. This disease is thought to have been introduced via shrimp products imported from South America. In the absence of specific legal authority, APHIS officials have been providing technical assistance to the extent possible to the producers affected by this outbreak, with efforts to control and prevent spread of the disease being very limited. APHIS is therefore exploring the best ways to achieve a coordinated Federal regulatory program to prevent the introduction and spread of aquatic plants, animals, and organisms that could harm commercial aquaculture production.

Grain Inspection, Packers, and Stockyards Administration

The Grain Inspection, Packers and Stockyards Administration (GIPSA) facilitates the marketing of livestock, poultry, meat, cereals, oilseeds, and related agricultural products and promotes fair and competitive trading practices for the overall benefit of consumers and American agriculture.

GIPSA, like its sister agencies in USDA's Marketing and Regulatory Programs, is working to ensure a productive and competitive global marketplace for U.S. agricultural products. GIPSA's Packers and Stockyards Programs ensure open and competitive markets for livestock, meat, and poultry. The Federal Grain Inspection Program provides the U.S. grain market with Federal quality standards and a uniform system for applying them.

Federal Grain Inspection Program

Through its Federal Grain Inspection Program, GIPSA facilitates the marketing of grain, oilseeds, pulses, rice, and related commodities. This program serves American agriculture by providing descriptions (grades) and testing methodologies for measuring the quality and quantity of grain, rice, edible beans, and related commodities. GIPSA also provides a wide range of inspection and weighing services, on a fee basis, through the official grain inspection and weighing system, a unique partnership of Federal, State, and private laboratories. In FY 1996, the official system performed over 2.3 million inspections on 250 million metric tons of grain and related commodities.

Specifically, under the U.S. Grain Standards Act, and those provisions of the Agricultural Marketing Act (AMA) of 1946 that relate to inspection of rice, pulses, lentils, and processed grain products, GIPSA:

- Establishes official U.S. grading standards and testing procedures for eight grains (barley, corn, oats, rye, sorghum, triticale, wheat, and mixed grain), four oilseeds (canola, flaxseed, soybeans, and sunflower seed), rice, lentils, dry peas, and a variety of edible beans.
- Provides American agriculture and customers of U.S. grain around the world with a national inspection and weighing system that applies the official grading and testing standards and procedures in a uniform, accurate, and impartial manner.
- Inspects and weighs exported grain and oilseeds. Domestic and imported grain and oilseed shipments, and crops with standards under the AMA, are inspected and weighed upon request.
- Monitors grain handling practices to prevent the deceptive use of the grading standards and official inspection and weighing results, and the degradation of grain quality through the introduction of foreign material, dockage, or other nongrain material to grain.

By serving as an impartial third party, GIPSA and the official grain inspection and weighing system ensure that the Official U.S. Standards for Grain are applied and that weights are recorded fairly and accurately. In this way, GIPSA advances the orderly and efficient marketing and effective distribution of U.S. grain and other assigned commodities from the Nation's farms to destinations around the world.

Packers and Stockyards Programs

GIPSA's Packers and Stockyards Programs administers the Packers and Stockyards (P&S) Act of 1921. The purpose of the P&S Act, which has been amended to keep pace with changes in the industry, is to assure fair competition and fair trade practices, safeguard farmers and ranchers, and protect consumers and members of the livestock, meat, and poultry industries from unfair business practices that can unduly affect meat and poultry distribution and prices.

Payment Protection

The P&S Act requires prompt payment for livestock purchased by dealers, market agencies, and packers whose operations are subject to the Act. Pursuant to this requirement, subject firms must pay for livestock before the close of the next business day following the purchase and transfer of possession. In addition, the Act establishes specific payment delivery requirements for livestock purchased for slaughter. Also, packers, market agencies, and dealers operating in commerce are required to file a surety bond or its equivalent. At the beginning of FY 1997, bonds totaling $625 million were in place to cover the livestock purchases of packers, market agencies, and dealers.

GIPSA also emphasizes custodial account investigations as a means of payment protection for consignors of livestock. All market agencies selling on a commission basis are required to establish and maintain a separate bank account designated as "Custodial Account for Shippers' Proceeds," to be used for deposits from livestock purchasers and disbursements to consignors of livestock. The custodial audit program has been very successful in protecting funds due livestock sellers.

Packer and Poultry Trust Activities

If a meat packer fails to pay for livestock or a live poultry dealer for live poultry, then receivables, inventories, and proceeds derived from such purchases in cash sales or by poultry growing arrangement become trust assets by operation of law. These assets are held by the meat packer or live poultry dealer for the benefit of all unpaid cash sellers and/or poultry growers. Cash sellers of livestock and poultry growers are legally in a priority payment position in bankruptcy or in claims against trust assets in the event of business failure.

Open Competition

Competition for livestock, either in direct trading or at public markets, should be open and free of restrictions. Any practice, agreement, or understanding that excludes potential buyers from bidding in open competition would be considered a restraint on competition. Practices resulting in the lessening of competition for producers' livestock include apportioning of territories, price agreements or arrangements not to compete, and payoffs or kickbacks to buyers. GIPSA staff members immediately investigate any practice that indicates a possible restriction of competition.

Scales & Weighing Activities

GIPSA's Scales and Weighing program is concerned with two different elements that affect the integrity of transactions: (1) the accuracy of scales used for weighing livestock, meat, and poultry, and (2) the proper and honest operation of scales to assure that the weight on which a transaction is based is accurate.

The major emphasis in the Scales and Weighing program is on detection of improper and fraudulent use of scales. An investigative program uses several different procedures to determine whether weighing activity is proper and honest. Agency investigators routinely visit livestock auction markets, buying stations, and packing plants for the purpose of checkweighing livestock, carcasses, and live poultry, along with examining weight records and equipment.

Fair Treatment for Poultry Growers

GIPSA carries out enforcement of the trade practice provisions of the P&S Act relating to live poultry dealers. Its investigative program extensively examines the records of poultry integrators to determine the existence of any unfair, unjustly discriminatory, or deceptive practices in its dealings with poultry growers and sellers. Complaints alleging unfair termination of growing contracts are investigated on a priority basis.

Carcass Merit Purchasing

GIPSA monitors the use of electronic evaluation devices by hog slaughterers who purchase hogs on a carcass merit basis, in order to ensure that the electronic measuring is accurate and properly applied and that the producer receives an accurate accounting of the sale.

Analysis of Structural Change

GIPSA examines structural changes in the livestock, meat packing, and poultry industries, and analyzes the competitive implications of these structural changes. The analyses assist in enforcing the P&S Act and in addressing public policy issues relating to the livestock and meat industries.

Clear Title

The Clear Title provisions of the Food Security Act of 1985 permit States to establish central filing systems to inform parties about liens on farm products. The purpose of this program is to remove an obstruction to interstate commerce in farm products. GIPSA certifies when a State's central filing system complies with the Act.

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Appendix

How To Get Information From USDA's Office of Communications

The Office of Communications is integral to USDA's historical and current mission. This office coordinates and assists with the flow of public information from USDA program agencies, reviewing all publications and audiovisuals and evaluating new information technology. It offers current information from the Office of the Secretary on programs and policy. This office ensures that adequate and appropriate channels are used to disseminate information to the public, and provides public access to USDA information through the news media.

OC administers USDA's home page on the Internet World Wide Web and the AgNewsFax service. The Internet address for USDA's home page is *http://www.usda.gov*. From this page, you can access information about the Department and about programs in all mission areas.

OC also offers an automated information line to answer questions from the public. The number for this service is 202-720-2791.

In addition, OC coordinates departmental responses under the Freedom of Information Act, the Privacy Act, and its amendment, the Computer Matching Act.

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Conversion Chart

Metric Conversions

To convert this	*to this*	*multiply by*
Length		
inches	millimeters (mm)	25.4
feet	centimeters (cm)	39
yards	meters (m)	.91
miles	kilometers (km)	1.61
millimeters	inches	.04
centimeters	inches	.4
meters	inches	39.37
meters	yards	1.1
kilometers	miles	.6
Weight		
ounces	grams(g)	28
pounds	kilograms (kg)	.45
short tons	metric tons	.9
kilograms	pounds	2.2
metric tons	pounds	2,204.6
metric tons	short tons	1.1
Area		
square inches	square centimeters	6.5
square feet	square meters	.09
square miles	square kilometers	2.6
acres	hectares	.4
square centimeters	square inches	.16
square meters	square yards	1.2
square kilometers	square miles	.4
hectares	acres	2.5
Volume		
teaspoons	milliliters	5
tablespoons	milliliters	15
fluid ounces	milliliters	30
cups	liters	.24
pints	liters	.47
quarts	liters	.95
gallons	liters	3.8
cubic feet	cubic meters	.03
cubic yards	cubic meters	.76

To convert this	*to this*	*multiply by*
milliliters	fluid ounces	.03
liters	pints	2.1
liters	quarts	1.06
liters	gallons	.26
cubic meters	cubic feet	35
cubic meters	cubic yards	1.3
Temperature		
Fahrenheit	Celsius	.56 (after subtracting 31)
Celsius	Fahrenheit	1.82 (then add 32)
Farm products		
pounds per acre	kilograms per hectare	1.14
short tons per acre	kilograms per hectare	2.25
kilograms per hectare	metric tons per hectare	.001
kilograms per hectare	pounds per acre	.88
tons per hectare	short tons per acre	.44
tons per hectare	kilograms per hectare	1,000

Bushel/Weight Conversions

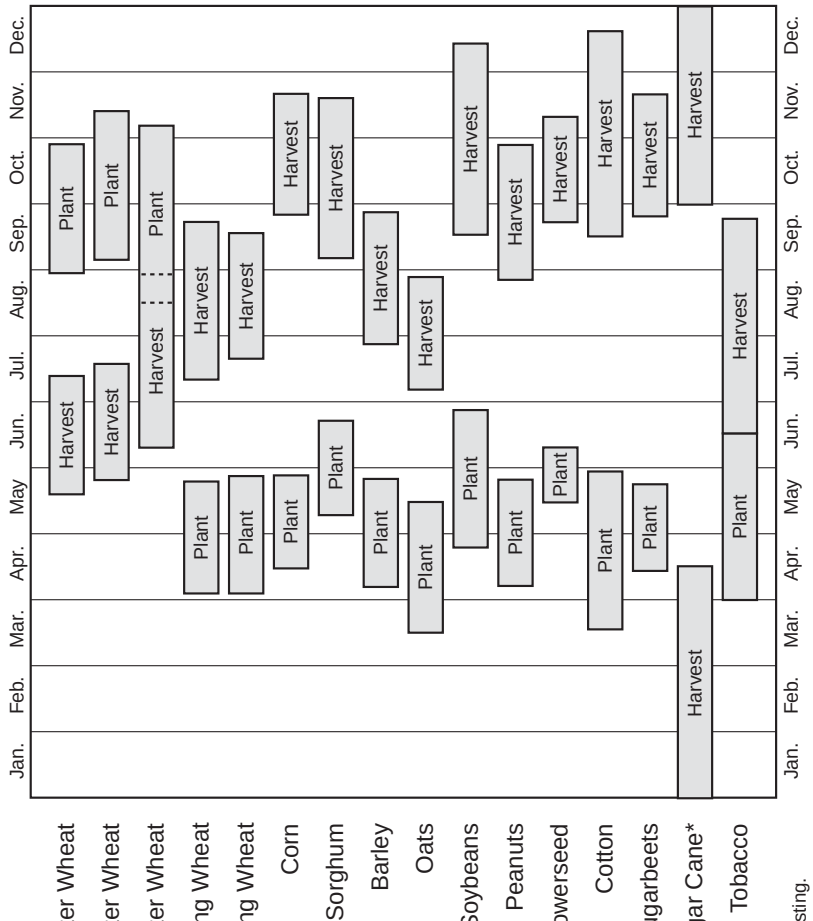
1 bushel of:	*weight in pounds*	*weight in kilograms*
wheat, soybeans, potatoes	60	27
corn, grain sorghum, rye, flaxseed	56	25
beets, carrots	50	23
barley, buckwheat, peaches	48	22
oats, cottonseed	32	14

1 metric ton of:	*weight in pounds*	*number of bushels*
wheat, soybeans, potatoes	2,204.6	36.74
corn, grain sorghum, rye, flaxseed	2,204.6	39.37
beets, carrots	2,204.6	44.09
barley, buckwheat, peaches	2,204.6	45.93
oats, cottonseed	2,204.6	68.89

Planting and Harvesting Calendar

Figure A-1.

Planting and Harvesting Calendar for Most Major U.S. Crop Areas[1]



*Planting coincides with harvesting.

[1]Represents areas where production is concentrated, but not full spectrum of planting and harvesting periods for each crop.

Glossary of Agricultural Terms

Acid soil. Soil with a pH of less than 7.0.

Agricultural Adjustment Act of 1933 (P.L. 73-10). Signed May 12, 1933, this law introduced the price support programs, including production adjustments, and the incorporation of the Commodity Credit Corporation (CCC), under the laws of the State of Delaware on October 17, 1933. The program benefits were financed mostly by processing taxes on the specific commodity. The Act also made price support loans by the CCC mandatory for the designated "basic" (storable) commodities: corn, wheat, and cotton. Support for other commodities was authorized upon the recommendation by the Secretary of Agriculture with the President's approval.

Agricultural Adjustment Act of 1938 (P.L. 75-430). Signed February 16, 1938, this law was the first to make price support mandatory for corn, cotton, and wheat to help maintain a sufficient supply for low production times along with marketing quotas to keep supply in line with market demand. The 1938 Act is considered part of permanent agriculture legislation. Provisions of this law are often superseded by more current legislation. However, if the current legislation expires and new legislation is not enacted, the law reverts back to the permanent provisions of the 1938 Act, along with the Agricultural Act of 1949.

Agronomy. The science of crop production and soil management.

Alfalfa. A valuable leguminous crop for forage or hay used in livestock feeding.

Alkaline soil. Soil with a pH of more than 7.0.

Alternative farming. Production methods other than energy- and chemical intensive one-crop (monoculture) farming. Alternatives include using animal and green manure rather than chemical fertilizers, integrated pest management instead of chemical pesticides, reduced tillage, crop rotation (especially with legumes to add nitrogen), alternative crops, or diversification of the farm enterprise.

Animal unit. A standard measure based on feed requirements, used to combine various classes of livestock according to size, weight, age, and use.

Aquaculture. The production of aquatic plants or animals in a controlled environment, such as ponds, raceways, tanks, or cages, for all or part of their life cycle. In the United States, baitfish, catfish, clams, crawfish, freshwater prawns, mussels, oysters, salmon, shrimp, tropical (or ornamental) fish, and trout account for most of the aquacultural production. Less widely established but growing species include alligator, hybrid striped bass, carp, eel, red fish, northern pike, sturgeon, and tilapia.

Arid climate. A dry climate with an annual precipitation usually less than 10 inches. Not suitable for crop production without irrigation.

Artificial insemination (AI). The mechanical injection of semen into the womb of the female animal with a syringe-like apparatus.

Back hoe. A shovel mounted on the rear of a tractor, hydraulically operated to dig trenches or pits in soil.

Base acreage. A farm's crop-specific acreage of wheat, feed grains, upland cotton, or rice eligible to enroll in commodity programs under previous legislation. Base acreage equals land planted for harvest to the crop, plus any land enrolled in acreage reduction programs, plus land considered planted to the crop in 0,50/85-92 or under permitted normal flex or optional flex acreage shifts during a specified period of time. A farmer's crop acreage base is reduced by the portion of land placed in the Conservation Reserve

Program, but is increased by CRP base acreage leaving the CRP.

Basic commodities. Six crops (corn, cotton, peanuts, rice, tobacco, and wheat) that are covered by parity-based price support provisions, provisions which have been suspended for the 1996 through 2002 crops of each of these commodities.

Biological control of pests. Control, but not total eradication, of insect pests achieved by using natural enemies, either indigenous or imported, or diseases to which the pest is susceptible. It includes such nontoxic pesticides as Bacillus thuringiensis (Bt).

Biologics. Immunization materials made from living or "killed" organisms and their products used for the detection and prevention of diseases; includes serums, vaccines, bacterins, antigens, and antitoxins.

Biotechnology. The use of technology, based on living systems, to develop processes and products for commercial, scientific, or other purposes. These include specific techniques of plant regeneration and gene manipulation and transfer (see also genetic engineering).

Blended credit. A form of export subsidy which combines direct Government export credit and credit guarantees to reduce the effective interest rate.

Brucellosis. A contagious disease in beef and dairy cattle, which causes abortion. Same disease in humans is known as undulant fever.

BST (bovine somatotropin) (also called BGH, for bovine growth hormone). A protein hormone produced naturally in the pituitary gland of cattle. Recombinant BST, or rBST, is BST produced using recombinant DNA biotechnology. BST controls the amount of milk produced by cows.

Cargo preference. A law that requires a certain portion of goods or commodities financed by the U.S. Government to be shipped on U.S. flag ships. The law has traditionally applied to P.L. 480 and other concessional financing or donations programs.

Carryover. Existing supplies of a farm commodity not used at the end of a marketing year, and remaining to be carried over into the next year. Marketing years generally start at the beginning of a new harvest for a commodity, and extend to the same time in the following year.

Cash grain farm. A farm on which corn, grain sorghum, small grains, soybeans, or field beans and peas account for at least 50 percent of value of products sold.

Census of Agriculture. A count taken every 5 years of the number of farms, land in farms, crop acreage and production, livestock numbers and production, farm expenses, farm facilities and equipment, farm tenure, value of farm products sold, farm size, type of farm, farm operator characteristics (age, race, sex), etc. Data are obtained for States and counties. USDA now administers the Census of Agriculture, which was previously done by the U.S. Bureau of the Census.

Checkoff programs. Research and promotion programs authorized by law and financed by assessments. The programs are paid for by specified industry members such as producers, importers, and handlers.

Combine. A self-propelled machine for harvesting grain and other seed crops. In one operation, it cuts, threshes, separates, and cleans the grain and scatters the straw.

Commodity certificates. Payments issued by the Commodity Credit Corporation (CCC) in lieu of cash payments to program participants. Holders of the certificates may exchange them with the CCC for CCC-owned commodities. With the exception of the upland cotton loan program, CCC authority to issue such certificates in lieu of cash payments was suspended for the 1996 through 2002 crops by the Federal Agriculture Improvement and Reform Act of 1996. Under the “special marketing loan provi-

sions" for the upland cotton loan program, however, cotton user marketing certificates may be paid by CCC with commodity certificates.

Commodity Credit Corporation (CCC). A federally owned and operated corporation within USDA created to stabilize, support, and protect agricultural prices and farm income through loans, purchases, payments, and other operations. All money transactions for agricultural price and income support and related programs are handled through the CCC.

Commodity loan rates. Price per unit (pound, bushel, bale, or hundredweight) at which the CCC provides nonrecourse loans to farmers to enable them to hold program crops for later sale. Commodity loans under the 1996 Act can be recourse for sugar and will become recourse for dairy in 2000.

Complementary imports. Agricultural import items not produced in appreciable commercial volume in the United States, such as bananas, coffee, rubber, cocoa, tea, spices, and cordage fiber (see also supplementary imports).

Compost. Organic residues, or a mixture of organic residues and soil, which have been piled, moistened, and allowed to undergo biological decomposition for use as a fertilizer.

Concessional sales. Credit sales of a commodity in which the buyer is allowed more favorable payment terms than those on the open market. For example, Title I of the Food for Peace Program (P.L. 480) provides for financing sales of U.S. commodities with low-interest, long-term credit.

Conservation compliance. This represents a portion of the Highly Erodible Land Conservation provisions of the Food Security Act of 1985 that is designed to encourage the use of conservation practices on highly erodible cropland. To remain eligible for many USDA program benefits, farmers are required to crop highly erodible land under an approved conservation plan. Also see "Sodbuster."

Conservation district. Any unit of local government formed to carry out a local soil and water conservation program.

Conservation plan. A combination of land uses and practices to protect and improve soil productivity and to prevent soil deterioration. A conservation plan must be approved by the local conservation district for acreage offered in the Conservation Reserve Program. The plan sets forth the conservation measures and maintenance that the owner or operator will carry out during the term of the contract.

Conservation practices. Methods which reduce soil erosion and retain soil moisture. Major conservation practices include conservation tillage, crop rotation, contour farming, strip cropping, terraces, diversions, and grassed waterways.

Conservation Reserve Program (CRP). A major provision of the Food Security Act of 1985 designed to reduce erosion and protect water quality on up to 45 million acres of farmland. Under the program, enrolled landowners agree to convert environmentally sensitive land to approved conserving uses for 10-15 years. In exchange, the landowner receives an annual rental payment as well as an initial cost-share payment for up to 50 percent of the cost of establishing permanent vegetative cover.

Conservation tillage. Any of several farming methods that provide for seed germination, plant growth, and weed control yet maintain effective ground cover throughout the year and disturb the soil as little as possible. The aim is to reduce soil loss and energy use while maintaining crop yields and quality. No-till is the most restrictive (soil-conserving) form of conservation tillage. Other practices include ridge-till, strip-till, and mulch-till.

Contour farming. Field operations such as plowing, planting, cultivating, and harvesting on the contour, or at right angles to the natural slope, to reduce soil erosion, protect soil fertility, and use water more efficiently.

Contract acreage. Enrolled 1996 commodity base acreage under the 1996 Farm Act for wheat, feed grains, upland cotton, and rice, generally fixed for 1996 through 2002. A farmer may voluntarily choose to reduce contract acreage in subsequent years. Land leaving the CRP may be entered into a production flexibility contract if the land had an acreage base.

Contract crops. Crops eligible for production flexibility payments: wheat, corn, sorghum, barley, oats, rice, and upland cotton.

Cooperative. An organization formed for the purpose of producing and marketing goods or products owned collectively by members who share in the benefits.

Cooperative Extension System. A national, publicly funded, nonformal education network that links the educational and research resources and activities of USDA with land-grant universities in every State, territory, and the District of Columbia. The Federal partner is the Cooperative State Research, Education, and Extension Service. This unique Federal, State, and local partnership focuses on practical solutions to critical issues affecting people's daily lives.

Cost of production. The sum, measured in dollars, of all purchased inputs and other expenses necessary to produce farm products. Cost of production statistics may be expressed as an average per animal, per acre, or per unit of production (bushel, pound, or hundredweight) for all farms in an area or in the country.

County extension agent. An educator employed by a county and/or a State cooperative extension service to bring research-based agriculture and quality of life education to local people to help them address farm, home, and community problems at the local level.

Cover crop. A close-growing crop grown to protect and improve soils between periods of regular crops or between trees and vines in orchards and vineyards.

Crop rotation. The practice of growing different crops in recurring succession on the same land. Crop rotation plans are usually followed for the purpose of increasing soil fertility and maintaining good yields.

Crop year. Generally, the 12-month period from the beginning of harvest of a particular crop.

Custom work. Specific farm operations performed under contract between the farmer and the contractor. The contractor furnishes labor, equipment, and materials to perform the operation. Custom harvesting of grain, spraying and picking of fruit, and sheep shearing are examples of custom work.

Dairy Export Incentive Program. A program that offers subsidies to exporters of U.S. dairy products to assist in competition with other nations. Payments are made by the Commodity Credit Corporation on a bid basis either in cash or through certificates redeemable for commodities. The program was originally authorized by the 1985 Farm Act and reauthorized by the 1990 Farm Act. The 1996 Farm Act extends the program through 2002.

Disaster payments. Federal payments made to farmers because of a natural disaster when (1) planting is prevented or (2) crop yields are abnormally low because of adverse weather and related conditions. Disaster payments may be provided under existing legislation or under special legislation enacted after an extensive natural disaster.

Distance Education. Delivery of instructional material over a wide geographical area via one or more technologies, including video, computer, and laser.

DNA. Deoxyribonucleic acid, a polymeric chromosomal constituent of living cell nuclei, composed of deoxyribose (a sugar), phosphoric acid, and four nitrogen bases--adenine, cytosine, guanine, and thymine. It contains the genetic information for living organisms, and consists of two strands in the shape of a double helix. A gene is a piece of DNA.

Double crop. Two different crops grown on the same area in one growing season.

Dryland farming. A system of producing crops in semiarid regions (usually with less than 20 inches of annual rainfall) without the use of irrigation. Frequently, part of the land will lie fallow in alternate years to conserve moisture.

Erosion. The process in which water or wind moves soil from one location to another. Types of erosion are (1) sheet and rill—a general washing away of a thin uniform sheet of soil, or removal of soil in many small channels or incisions caused by rainfall or irrigation runoff; (2) gully—channels or incisions cut by concentrated water runoff after heavy rains; (3) ephemeral—a water-worn, short-lived or seasonal incision, wider, deeper and longer than a rill, but shallower and smaller than a gully; and (4) wind—the carrying away of dust and sediment by wind in areas of high prevailing winds or low annual rainfall.

Ethanol. An alcohol fuel that may be produced from an agricultural foodstock such as corn, sugarcane, or wood, and may be blended with gasoline to enhance octane, reduce automotive exhaust pollution, and reduce reliance on petroleum-based fuels.

Export Enhancement Program (EEP). Started in May 1985 under the Commodity Credit Corporation Charter Act to help U.S. exporters meet competitors' prices in subsidized markets. Under the EEP, exporters are awarded bonuses, enabling them to compete for sales in specified countries.

Extra-long staple (ELS) cotton. Cottons having a staple length of 1-3/8 inches or more, characterized by fineness and high-fiber strength. American types include American Pima and Sea Island cotton.

Family Farm. An agricultural business which (1) produces agricultural commodities for sale in such quantities so as to be recognized as a farm rather than a rural residence; (2) produces enough income (including off farm employment) to pay family and farm operating expenses, to pay debts, and to maintain the property; (3) is managed by the operator; (4) has a substantial amount of labor provided by the operator and family; and (5) may use seasonal labor during peak periods and a reasonable amount of full-time hired labor.

Farm. USDA defines a farm in 1997 as any place from which $1,000 or more of agricultural products were produced and sold or normally would have been sold during the year.

Farm Credit System. The system made up of cooperatively owned financial institutions in districts covering the United States and Puerto Rico that finance farm and farm-related mortgages and operating loans. Institutions within each district specialize in farmland loans and operating credit, or lending to farmer-owned supply, marketing, and processing cooperatives. FCS institutions rely on the bond market as a source of funds.

Federal Agriculture Improvement and Reform Act of 1996 (1996 Farm Act) (P.L.104-127). The omnibus food and agriculture legislation signed into law on April 4, 1996, that provided a 7-year framework (1996-2002) for the Secretary of Agriculture to administer various agricultural and food programs. The 1996 Act fundamentally redesigns income support and supply management programs for producers of wheat, corn, grain sorghum, barley, oats, rice, and upland cotton. The 1996 Farm Act also makes program changes for dairy, sugar, and peanuts. Additionally, trade programs are more targeted and environmental programs are consolidated and extended in the 1996 Farm Act.

Feed grain. Any of several grains most commonly used for livestock or poultry feed, including corn, grain sorghum, oats, rye, and barley.

Fertilizer. Any organic or inorganic material of natural or synthetic origin which is added to soil to provide nutrients, including nitrogen, phosphorus, and potassium, necessary to sustain plant growth.

FFA. An organization for high school students studying vocational agriculture.

Flood plains. Lowland and relatively flat areas adjoining inland and coastal waters, including floodprone areas of islands. This land includes, at a minimum, those areas that are subject to a 1 percent or greater chance of flooding in any given year.

Food, Agriculture, Conservation, and Trade Act of 1990 (1990 Farm Act) (P.L. 101-624). Signed November 28, 1990, this 5-year farm bill applied to the 1991-95 crop programs. This Act continued the transition, started by the Food Security Act of 1985, toward greater market orientation of domestic commodity programs, the most notable changes being frozen minimum target prices and greater planting flexibility. Most of the commodity program provisions of this Act were superseded by the Federal Agriculture Improvement and Reform Act of 1996.

Food grain. Cereal seeds most commonly used for human food, chiefly wheat and rice.

Food Security Act of 1985 (1985 Farm Act) (P.L. 99-198). The omnibus food and agriculture legislation signed into law on December 23, 1985, that provided a 5-year framework (1986-90) for the Secretary of Agriculture to administer various agricultural and food programs.

Forage. Vegetable matter, fresh or preserved, that is gathered and fed to animals as roughage; includes alfalfa hay, corn silage, and other hay crops.

Forward contracting. A method of selling crops before harvest by which the buyer agrees to pay a specified price to a grower for a portion, or all, of the grower's crops.

Fungicide. A chemical substance used as a spray, dust, or disinfectant to kill fungi infesting plants or seeds.

Futures contract. An agreement between two people, one who sells and agrees to deliver and one who buys and agrees to receive a certain kind, quality, and quantity of product to be delivered during a specified delivery month at a specified price.

General Agreement on Tariffs and Trade (GATT). An agreement originally negotiated in 1947 to increase international trade by reducing tariffs and other trade barriers. The agreement provides a code of conduct for international commerce and a framework for periodic multilateral negotiations on trade liberalization and expansion. The Uruguay Round Agreement established the World Trade Organization (WTO) to replace the GATT. The WTO officially replaced the GATT on January 1, 1995.

Genetic engineering. Genetic modification of organisms by recombinant DNA, recombinant RNA, or other specific molecular gene transfer or exchange techniques.

Genome. All the genetic material in the chromosomes of a particular organism.

Gleaning. Collecting of unharvested crops from the fields, or obtaining agricultural products from farmers, processors, or retailers without charge.

Gopher. The Internet Gopher client/server is a distributed information delivery system around which a campuswide information system can readily be constructed. While providing a delivery vehicle for local information, Gopher facilitates access to other Gopher and information servers throughout the world.

Grade A milk. Milk, also referred to as fluid grade, produced under sanitary conditions that qualify it for fluid (beverage) consumption. Only Grade A milk is regulated under Federal milk marketing orders.

Grade B milk. Milk, also referred to as manufacturing grade, not meeting Grade A standards. Less stringent standards generally apply.

Grafting. The process of inserting a scion of a specified variety into a stem, root, or branch of another plant so that a permanent union is achieved.

Great Plains. A level to gently sloping region of the United States that lies between the Rockies and approximately the 98th meridian. The area is subject to recurring droughts and high winds. It consists of parts of North Dakota, South Dakota, Montana, Nebraska, Wyoming, Kansas, Colorado, Oklahoma, Texas, and New Mexico.

Green manure. Any crop or plant grown and plowed under to improve the soil, by adding

organic matter and subsequently releasing plant nutrients, especially nitrogen.

Ground water. Water beneath the Earth's surface between saturated soil and rock, which supplies wells and springs.

Hedgerow. Trees or shrubs grown closely together so that branches intertwine to form a continuous row.

Herbicide. Any agent or chemical used to destroy plants, especially weeds.

Humus. The well decomposed, relatively stable portion of the partly or wholly decayed organic matter in a soil, which provides nutrients and helps the soil retain moisture.

Hydroponics. Growing of plants in water containing dissolved nutrients, rather than in soil. This process is being used in greenhouses for intensive off-season production of vegetables.

Infrastructure. The transportation network, communications systems, financial institutions, and other public and private services necessary for economic activity.

Integrated crop management. An agriculture management system that integrates all controllable agricultural production factors for long-term sustained productivity, profitability, and ecological soundness.

Integrated pest management (IPM). The control of pests or diseases by using an array of crop production strategies, combined with careful monitoring of insect pests or weed populations and other methods. Some approaches include selection of resistant varieties, timing of cultivation, biological control methods, and minimal use of chemical pesticides so that natural enemies of pests are not destroyed. These approaches are used to anticipate and prevent pests and diseases from reaching economically damaging levels.

International trade barriers. Regulations used by governments to restrict imports from other countries. Examples include tariffs, embargoes, import quotas, and unnecessary sanitary restrictions.

Internet. The global connection of interconnected local, mid-level, and wide-area automated information/communications networks.

Land-grant universities. Institutions, including State colleges and universities and Tuskegee University, eligible to receive funds under the Morrill Acts of 1862 and 1890. The Federal Government granted land to each State and territory to encourage practical education in agriculture, homemaking, and mechanical arts.

Land-use planning. Decisionmaking process to determine present and future uses of land. The resulting plan is the key element of a comprehensive plan describing recommended location and intensity of development of public and private land uses such as residential, commercial, industrial, recreational, and agricultural.

Leaching. The process of removal of soluble materials by the passage of water through soil.

Legumes. A family of plants that includes many valuable food and forage species such as peas, beans, soybeans, peanuts, clovers, alfalfas, and sweet clovers. Legumes can convert nitrogen from the air to nitrates in the soil through a process known as nitrogen fixation. Many of these species are used as cover crops and are plowed under for soil improvement.

Lint. Cotton fiber remaining after the seeds have been ginned out.

Loan deficiency payments. A provision begun in the 1985 Farm Act to provide direct payments to producers who, although eligible to obtain price support loans for wheat, feed grains, upland cotton, rice, or oilseeds and thereby receive marketing loan gains, agree not to obtain loans.

Loan rate. The price per unit (bushel, bale, pound, or hundredweight) at which the Commodity Credit Corporation will provide loans to farmers enabling them to hold their crops for later sale.

Market Access Program (MAP). Formerly the Market Promotion Program. Participating organizations include nonprofit trade associations, State and regional trade groups, and private companies. Fund authority is capped at $90 million annually for FY 1996-2002.

Market basket of farm foods. Average quantities of U.S. farm foods purchased annually per household in a given period. Retail cost of these foods used as a basis for computing an index of retail prices for domestically produced farm foods. Excluded are fishery products, imported foods, and meals eaten away from home.

Marketing allotments. Provides each processor or producer of a particular commodity a specific limit on sales for the year, above which penalties would apply.

Marketing orders. Federal marketing orders authorize agricultural producers to promote orderly marketing by influencing such factors as supply and quality, and to pool funds for promotion and research. Marketing orders are initiated by the industry, and are approved by the Secretary of Agriculture and by a vote among producers. Once approved, a marketing order is mandatory.

Marketing spread. The difference between the retail price of a product and the farm value of the ingredients in the product. This farm-retail spread includes charges for assembling, storing, processing, transporting, and distributing the products.

Marketing year. Year beginning at harvest time during which a crop moves to market.

Metropolitan statistical area (MSA). A county or group of contiguous counties that contain at least one city of 50,000 inhabitants or more, or twin cities with a combined population of at least 50,000. In addition, contiguous counties are included in an MSA if they are socially and economically integrated with a central city.

Migrant farmworker. A person who travels across State or county boundaries to do agricultural work of a seasonal or other temporary nature, and who is required to be absent overnight from his or her permanent place of residence. Exceptions are immediate family members of an agricultural employer or a farm labor contractor, and temporary foreign workers.

National forest. A Federal reservation dedicated to protection and management of natural resources for a variety of benefits — including water, forage, wildlife habitat, wood, recreation, and minerals. National forests are administered by USDA's Forest Service, while national parks are administered by the Interior Department's National Park Service.

National grassland. Land, mainly grass and shrub cover, administered by the Forest Service as part of the National Forest System for promotion of grassland agriculture, watersheds, grazing wildlife, and recreation.

Nematode. Microscopic soil worm, which may attack root or other structures of plants and cause extensive damage.

Net farm income. A measurement of the profit or loss associated with a given year's production. It is an approximation of the net value of agricultural production, regardless of whether the commodities were sold, fed, or placed in inventory during the year. Net farm income equals the difference between gross farm income and total expenses. It includes nonmoney items such as depreciation, the consumption of farm-grown food, and the net imputed rental value of operator dwellings. Additions to inventory are treated as income.

Nitrogen. A chemical element essential to life and one of the primary plant nutrients. Animals get nitrogen from protein feeds; plants get it from soil; and some bacteria get it directly from air.

Nonfarm income. Includes all income from nonfarm sources (excluding money earned from working for other farmers) received by farm operator households.

Nonpoint source pollution. Pollutants that cannot be traced to a specific source, including stormwater runoff from urban and agricultural areas.

Nonprogram crops. Crops—such as potatoes, vegetables, fruits, and hay—that are not included in Federal price support programs.

Nonrecourse loan program. Provides operating capital to producers of wheat, feed grains, cotton, peanuts, tobacco, rice, and oilseeds. Dairy processors (until 2000) and sugar processors are also eligible for nonrecourse loans. Farmers or processors participating in government commodity programs may pledge a quantity of a commodity as collateral and obtain a loan from the CCC at a commodity-specific, per-unit loan rate. The borrower may repay the loan with interest within a specified period and regain control of the commodity, or forfeit the commodity to the CCC after the specified period as full settlement of the loan with no penalty. For those commodities eligible for marketing loan benefits, producers may repay the loan at the world price (rice and upland cotton) or posted county price (wheat, feed grains, and oilseeds).

Nutrient. A chemical element or compound that is essential for the metabolism and growth of an organism.

Off-farm income. Includes wages and salaries from working for other farmers, plus nonfarm income, for all owner operator families (whether they live on a farm or not).

Oilseed crops. Primarily soybeans, and other crops such as peanuts, cottonseed, sunflower seed, flaxseed, safflower seed, rapeseed, sesame seed, castor beans, canola, rapeseed, and mustard seeds used to produce edible and/or inedible oils, as well as high-protein animal meal.

Oilseed meal. The product obtained by grinding the cakes, chips, or flakes that remain after most of the oil is removed from oilseeds. Used as a feedstuff for livestock and poultry.

Organic farming. There is no universally accepted definition, but in general organic farming is a production system which avoids or largely excludes the use of synthetically compounded fertilizers, pesticides, growth regulators, and livestock feed additives. To the maximum extent feasible, organic farming systems rely on crop rotation, crop residues, animal manures, legumes, green manure, off-farm organic wastes, mechanical cultivation, mineral bearing rocks, and aspects of biological pest control to maintain soil productivity and tilth; to supply plant nutrients; and to control weeds, insects, and other pests.

Payment limitations. Limitations set by law on the amount of money any one person may receive in Federal farm program payments each year under the feed grain, wheat, cotton, rice, and other farm programs.

Percolation. The downward movement of water through soil under the influence of gravity.

Permanent legislation. Legislation that would be in effect in the absence of all temporary amendments (Farm Acts). The Agricultural Adjustment Act of 1938 and the Agricultural Act of 1949 serve as the basic laws authorizing the major commodity programs. Technically, each new Farm Act amends the permanent legislation for a specified period.

Plant germplasm. Living material such as seeds, rootstock, or leaf plant tissue from which new plants can grow.

Pomology. The science or study of growing fruit.

Price index. An indicator of average price change for a group of commodities that compares price for those same commodities in some other period, commonly called the base period.

Price support level. The price for a unit of a farm commodity (pound, ton) that the Government will support through price-support loans, purchases, and/or payments. Price support levels are determined by law and are set by the Secretary of Agriculture.

Price support programs. Government programs that aim to keep farm prices from falling below specific minimum levels. Price support programs for selected commodities

(peanuts, tobacco, sugar, and milk) are carried out through loans or purchases. With price-support loans, producers (or processors in the case of sugar) use their production of a commodity as collateral for a loan with the Commodity Credit Corporation (CCC). Loans enable the loan taker to store the commodity during periods of low prices. The loans may be redeemed later if commodity prices rise sufficiently to make the sale of the commodity on the market profitable, or the loan taker may forfeit the commodity used as collateral for the loan to CCC in lieu of cash repayment. In the case of milk, CCC is authorized through December 31, 1999, to purchase manufactured dairy products in order to support the price of fluid milk at statutorily prescribed levels.

Production Credit Associations. Lending groups, owned by their farmer borrowers, that provide short and intermediate-term loans for up to 10 years from funds obtained from investors in money markets. These associations are an integral part of the Farm Credit System.

Production flexibility contract payments. The payments to be made to farmers for contract crops in 1996 through 2002 under the 1996 Farm Act. Payments for each crop are allocated each fiscal year based on budgetary levels and crop-specific percentages in the 1996 Farm Act.

Production flexibility contract payment quantity. The quantity of production eligible for production flexibility contract payments under the 1996 Farm Act. Payment quantity is calculated as the farm's program yield (per acre) multiplied by 85 percent of the farm's contract acreage.

Production flexibility contract payment rate. The amount paid per unit of production to each participating farmer for eligible payment production under the 1996 Farm Act.

Productive capacity. The amount that could be produced within the next season if all the resources currently available were fully employed using the best available technology. Productive capacity increases whenever the available resources increase or the production of those resources increases.

Productivity. The relationship between the quantity of inputs (land, labor, tractors, feed, etc.) employed and the quantity of outputs produced. An increase in productivity means that more outputs can be produced from the same inputs or that the same outputs are produced with fewer inputs. Both single-factor and multifactor indexes are used to measure productivity. Single-factor productivity indexes measure the output per unit of one input at the same time other inputs may be changing. Multifactor productivity indexes consider all productive resources as a whole, netting out the effects of substitution among inputs. Crop yield per acre, output per work hour, and livestock production per breeding animal are all single-factor productivity indicators. The Total Farm Output per Unit of Input Index is a multifactor measure.

Program crops. Crops for which Federal support programs are available to producers, including wheat, corn, barley, grain sorghum, oats, extra long staple and upland cotton, rice, oilseeds, tobacco, peanuts, and sugar.

Public Law 480 (P.L. 480). Common name for the Agricultural Trade Development and Assistance Act of 1954, which seeks to expand foreign markets for U.S. agricultural products, combat hunger, and encourage economic development in developing countries. Title I of P.L. 480, also called the Food for Peace Program, makes U.S. agricultural commodities available through long-term dollar credit sales at low interest rates for up to 30 years. Donations for humanitarian food needs are provided under Title II. Title III authorizes "food for development" grants.

Rangeland. Land which is predominantly grasses, grasslike plants, or shrubs suitable for grazing and browsing. Rangeland includes natural grasslands, savannahs, many wetlands, some deserts, tundra, and certain shrub communities. It also includes areas seeded to native or adapted and introduced species that are managed like native vegetation.

Renewable resources. Resources such as forests, rangeland, soil, and water that can be restored and improved.

Riparian rights. Legal water rights of a person owning land containing or bordering on a water course or other body of water in or to its banks, bed, or waters.

RNA (ribonucleic acid). A molecule similar to DNA that functions primarily to decode instructions for protein synthesis that are carried by genes.

Ruminant. Animal having a stomach with four compartments (rumen, reticulum, omasum, and abomasum). Their digestive process is more complex than that of animals having a true stomach. Ruminants include cattle, sheep, and goats, as well as deer, bison, buffalo, camels, and giraffes.

Rural. An area that has a population of fewer than 2,500 inhabitants and is outside an urban area. A rural area does not apply only to farm residences or to sparsely settled areas, since a small town is rural as long as it meets the above criteria.

Saline soil. A soil containing enough soluble salts to impair its productivity for plants.

Silage. Prepared by chopping green forage (grass, legumes, field corn, etc.) into an airtight chamber, where it is compressed to exclude air and undergoes an acid fermentation that retards spoilage. Contains about 65 percent moisture.

Silviculture. A branch of forestry dealing with the development and care of forests.

Sodbuster. A portion of the Highly Erodible Land Conservation provision of the Food Security Act of 1985 that is designed to discourage the conversion of highly erodible land from extensive conserving uses, such as grasslands and woodlands, to intensive production of agricultural commodities. If highly erodible grasslands or woodlands are converted to intensive crop production without the application of appropriate conservation practices, producers may lose eligibility for many USDA program benefits. Also see "Conservation Compliance."

Staple. Term used to designate length of fiber in cotton, wool, or flax.

State Agricultural Experiment Station. State-operated institutions, established under the Hatch Act of 1887 and connected to land-grant universities in each State, which carry out research of local and regional importance in the areas of food, agriculture, and natural resources.

Stubble mulch. A protective cover provided by leaving plant residues of any previous crop as a mulch on the soil surface when preparing for the following crop.

Subsistence farm. A low-income farm where the emphasis is on production for use of the operator and the operator's family rather than for sale.

Supplementary imports. Farm products shipped into this country that add to the output of U.S. agriculture. Examples include cattle, meat, fruit, vegetables, and tobacco (see complementary imports).

Sustainable agriculture. An integrated system of plant and animal production practices having a site-specific application that will, over the long term, satisfy food and fiber needs, enhance environmental quality and natural resources, make the most efficient use of nonrenewable resources and on-farm resources, integrate natural biological cycles and controls, sustain the economic viability of farm operations, and enhance the quality of life.

Swampbuster. This provision was authorized by the Food Security Act of 1985; it discourages the conversion of natural wetlands to cropland use. With some exceptions, producers converting a wetland area to cropland may lose eligibility for many USDA program benefits.

Terminal market. A metropolitan market that handles all agricultural commodities.

Tissue culture. The technique of growing a whole plant from a single engineered cell or piece of plant tissue.

Unit cost. The average cost to produce a single item. The total cost divided by the number of items produced.

Upland cotton. A fiber plant developed in the United States from stock native to Mexico and Central America. Includes all cotton grown in the continental United States except Sea Island and American Pima cotton. Staple length of upland cotton ranges from 3/4 inch to 1 1/4 inches.

Urban. A concept defining an area that has a population of 2,500 or more inhabitants.

Uruguay Round. The Uruguay Round of Multilateral Trade Negotiations (UR) under the auspices of the GATT; a trade agreement designed to open world agricultural markets. The UR agricultural agreement covers four areas: export subsidies, market access, internal supports, and sanitary and phytosanitary rules. The agreement is implemented over a 6-year period, 1995-2000.

Vegetative cover. Trees or perennial grasses, legumes, or shrubs with an expected lifespan of 5 years or more.

Viticulture. The science and practice of growing grapes.

Watershed. The total land area, regardless of size, above a given point on a waterway that contributes runoff water to the flow at that point. A major subdivision of a drainage basin. The United States is generally divided into 18 major drainage areas and 160 principal river drainage basins containing some 12,700 smaller watersheds.

Water table. The upper limit of the part of the soil or underlying rock material that is wholly saturated with water.

Wetlands. Land that is characterized by an abundance of moisture and that is inundated by surface or ground water often enough to support a prevalence of vegetation typically adapted for life in saturated soil conditions.

Wholesale price index. Measure of average changes in prices of commodities sold in primary U.S. markets. "Wholesale" refers to sales in large quantities by producers, not to prices received by wholesalers, jobbers, or distributors. In agriculture, it is the average price received by farmers for their farm commodities at the first point of sale when the commodity leaves the farm.

Zoonotic diseases. Diseases that, under natural conditions, are communicable from animals to humans.

4-H. International youth organization that empowers young people 5-19 years old through programs and activities that foster agricultural, science, and technology literacy; citizenship; and other lifelong living skills, such as self-esteem, career and personal development. The national 4-H staff is located in the Families, 4-H, and Nutrition unit of the Cooperative State Research, Education, and Extension Service. The 4-Hs stand for Head, Heart, Hands, and Health.

1890 Land-Grant Colleges and Universities and Tuskegee University. Historically Black land-grant colleges and universities. Through the Act of August 30, 1890, and several other authorities, these institutions may receive Federal funds for agricultural research, extension, and teaching.

How To Get Information From USDA's Office of Communications

The Office of Communications is integral to USDA's historical and current mission. This office coordinates and assists with the flow of public information from USDA program agencies, reviewing all publications and audiovisuals and evaluating new information technology. It offers current information from the Office of the Secretary on programs and policy. This office ensures that adequate and appropriate channels are used to disseminate information to the public, and provides public access to USDA information through the news media.

OC administers USDA's home page on the Internet World Wide Web and the AgNewsFax service. The Internet address for USDA's home page is *http://www.usda.gov*. From this page, you can access information about the Department and about programs in all mission areas.

OC also offers an automated information line to answer questions from the public. The number for this service is 202-720-2791.

In addition, OC coordinates departmental responses under the Freedom of Information Act, the Privacy Act, and its amendment, the Computer Matching Act.

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Conversion Chart

Metric Conversions

To convert this	*to this*	*multiply by*
Length		
inches	millimeters (mm)	25.4
feet	centimeters (cm)	39
yards	meters (m)	.91
miles	kilometers (km)	1.61
millimeters	inches	.04
centimeters	inches	.4
meters	inches	39.37
meters	yards	1.1
kilometers	miles	.6
Weight		
ounces	grams(g)	28
pounds	kilograms (kg)	.45
short tons	metric tons	.9
kilograms	pounds	2.2
metric tons	pounds	2,204.6
metric tons	short tons	1.1
Area		
square inches	square centimeters	6.5
square feet	square meters	.09
square miles	square kilometers	2.6
acres	hectares	.4
square centimeters	square inches	.16
square meters	square yards	1.2
square kilometers	square miles	.4
hectares	acres	2.5
Volume		
teaspoons	milliliters	5
tablespoons	milliliters	15
fluid ounces	milliliters	30
cups	liters	.24
pints	liters	.47
quarts	liters	.95
gallons	liters	3.8
cubic feet	cubic meters	.03
cubic yards	cubic meters	.76

To convert this	*to this*	*multiply by*
milliliters	fluid ounces	.03
liters	pints	2.1
liters	quarts	1.06
liters	gallons	.26
cubic meters	cubic feet	35
cubic meters	cubic yards	1.3
Temperature		
Fahrenheit	Celsius	.56 (after subtracting 31)
Celsius	Fahrenheit	1.82 (then add 32)
Farm products		
pounds per acre	kilograms per hectare	1.14
short tons per acre	kilograms per hectare	2.25
kilograms per hectare	metric tons per hectare	.001
kilograms per hectare	pounds per acre	.88
tons per hectare	short tons per acre	.44
tons per hectare	kilograms per hectare	1,000

Bushel/Weight Conversions

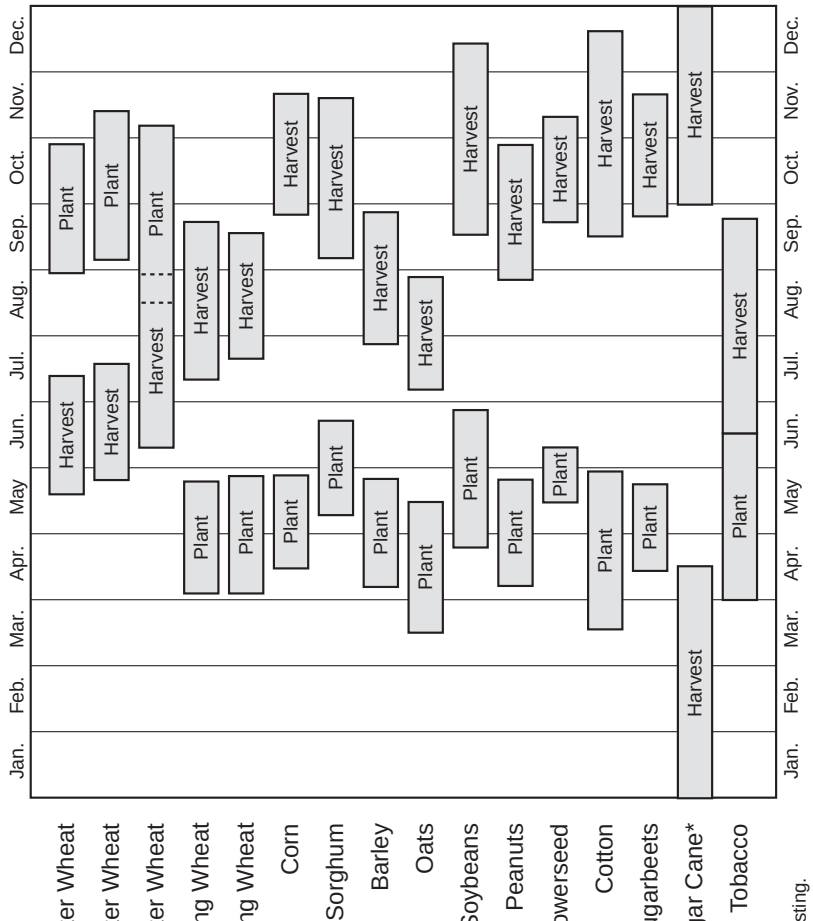
1 bushel of:	*weight in pounds*	*weight in kilograms*
wheat, soybeans, potatoes	60	27
corn, grain sorghum, rye, flaxseed	56	25
beets, carrots	50	23
barley, buckwheat, peaches	48	22
oats, cottonseed	32	14

1 metric ton of:	*weight in pounds*	*number of bushels*
wheat, soybeans, potatoes	2,204.6	36.74
corn, grain sorghum, rye, flaxseed	2,204.6	39.37
beets, carrots	2,204.6	44.09
barley, buckwheat, peaches	2,204.6	45.93
oats, cottonseed	2,204.6	68.89

Planting and Harvesting Calendar

Figure A-1.

Planting and Harvesting Calendar for Most Major U.S. Crop Areas[1]



*Planting coincides with harvesting.

[1]Represents areas where production is concentrated, but not full spectrum of planting and harvesting periods for each crop.

Glossary of Agricultural Terms

Acid soil. Soil with a pH of less than 7.0.

Agricultural Adjustment Act of 1933 (P.L. 73-10). Signed May 12, 1933, this law introduced the price support programs, including production adjustments, and the incorporation of the Commodity Credit Corporation (CCC), under the laws of the State of Delaware on October 17, 1933. The program benefits were financed mostly by processing taxes on the specific commodity. The Act also made price support loans by the CCC mandatory for the designated "basic" (storable) commodities: corn, wheat, and cotton. Support for other commodities was authorized upon the recommendation by the Secretary of Agriculture with the President's approval.

Agricultural Adjustment Act of 1938 (P.L. 75-430). Signed February 16, 1938, this law was the first to make price support mandatory for corn, cotton, and wheat to help maintain a sufficient supply for low production times along with marketing quotas to keep supply in line with market demand. The 1938 Act is considered part of permanent agriculture legislation. Provisions of this law are often superseded by more current legislation. However, if the current legislation expires and new legislation is not enacted, the law reverts back to the permanent provisions of the 1938 Act, along with the Agricultural Act of 1949.

Agronomy. The science of crop production and soil management.

Alfalfa. A valuable leguminous crop for forage or hay used in livestock feeding.

Alkaline soil. Soil with a pH of more than 7.0.

Alternative farming. Production methods other than energy- and chemical intensive one-crop (monoculture) farming. Alternatives include using animal and green manure rather than chemical fertilizers, integrated pest management instead of chemical pesticides, reduced tillage, crop rotation (especially with legumes to add nitrogen), alternative crops, or diversification of the farm enterprise.

Animal unit. A standard measure based on feed requirements, used to combine various classes of livestock according to size, weight, age, and use.

Aquaculture. The production of aquatic plants or animals in a controlled environment, such as ponds, raceways, tanks, or cages, for all or part of their life cycle. In the United States, baitfish, catfish, clams, crawfish, freshwater prawns, mussels, oysters, salmon, shrimp, tropical (or ornamental) fish, and trout account for most of the aquacultural production. Less widely established but growing species include alligator, hybrid striped bass, carp, eel, red fish, northern pike, sturgeon, and tilapia.

Arid climate. A dry climate with an annual precipitation usually less than 10 inches. Not suitable for crop production without irrigation.

Artificial insemination (AI). The mechanical injection of semen into the womb of the female animal with a syringe-like apparatus.

Back hoe. A shovel mounted on the rear of a tractor, hydraulically operated to dig trenches or pits in soil.

Base acreage. A farm's crop-specific acreage of wheat, feed grains, upland cotton, or rice eligible to enroll in commodity programs under previous legislation. Base acreage equals land planted for harvest to the crop, plus any land enrolled in acreage reduction programs, plus land considered planted to the crop in 0,50/85-92 or under permitted normal flex or optional flex acreage shifts during a specified period of time. A farmer's crop acreage base is reduced by the portion of land placed in the Conservation Reserve

Program, but is increased by CRP base acreage leaving the CRP.

Basic commodities. Six crops (corn, cotton, peanuts, rice, tobacco, and wheat) that are covered by parity-based price support provisions, provisions which have been suspended for the 1996 through 2002 crops of each of these commodities.

Biological control of pests. Control, but not total eradication, of insect pests achieved by using natural enemies, either indigenous or imported, or diseases to which the pest is susceptible. It includes such nontoxic pesticides as Bacillus thuringiensis (Bt).

Biologics. Immunization materials made from living or "killed" organisms and their products used for the detection and prevention of diseases; includes serums, vaccines, bacterins, antigens, and antitoxins.

Biotechnology. The use of technology, based on living systems, to develop processes and products for commercial, scientific, or other purposes. These include specific techniques of plant regeneration and gene manipulation and transfer (see also genetic engineering).

Blended credit. A form of export subsidy which combines direct Government export credit and credit guarantees to reduce the effective interest rate.

Brucellosis. A contagious disease in beef and dairy cattle, which causes abortion. Same disease in humans is known as undulant fever.

BST (bovine somatotropin) (also called BGH, for bovine growth hormone). A protein hormone produced naturally in the pituitary gland of cattle. Recombinant BST, or rBST, is BST produced using recombinant DNA biotechnology. BST controls the amount of milk produced by cows.

Cargo preference. A law that requires a certain portion of goods or commodities financed by the U.S. Government to be shipped on U.S. flag ships. The law has traditionally applied to P.L. 480 and other concessional financing or donations programs.

Carryover. Existing supplies of a farm commodity not used at the end of a marketing year, and remaining to be carried over into the next year. Marketing years generally start at the beginning of a new harvest for a commodity, and extend to the same time in the following year.

Cash grain farm. A farm on which corn, grain sorghum, small grains, soybeans, or field beans and peas account for at least 50 percent of value of products sold.

Census of Agriculture. A count taken every 5 years of the number of farms, land in farms, crop acreage and production, livestock numbers and production, farm expenses, farm facilities and equipment, farm tenure, value of farm products sold, farm size, type of farm, farm operator characteristics (age, race, sex), etc. Data are obtained for States and counties. USDA now administers the Census of Agriculture, which was previously done by the U.S. Bureau of the Census.

Checkoff programs. Research and promotion programs authorized by law and financed by assessments. The programs are paid for by specified industry members such as producers, importers, and handlers.

Combine. A self-propelled machine for harvesting grain and other seed crops. In one operation, it cuts, threshes, separates, and cleans the grain and scatters the straw.

Commodity certificates. Payments issued by the Commodity Credit Corporation (CCC) in lieu of cash payments to program participants. Holders of the certificates may exchange them with the CCC for CCC-owned commodities. With the exception of the upland cotton loan program, CCC authority to issue such certificates in lieu of cash payments was suspended for the 1996 through 2002 crops by the Federal Agriculture Improvement and Reform Act of 1996. Under the “special marketing loan provi-

sions" for the upland cotton loan program, however, cotton user marketing certificates may be paid by CCC with commodity certificates.

Commodity Credit Corporation (CCC). A federally owned and operated corporation within USDA created to stabilize, support, and protect agricultural prices and farm income through loans, purchases, payments, and other operations. All money transactions for agricultural price and income support and related programs are handled through the CCC.

Commodity loan rates. Price per unit (pound, bushel, bale, or hundredweight) at which the CCC provides nonrecourse loans to farmers to enable them to hold program crops for later sale. Commodity loans under the 1996 Act can be recourse for sugar and will become recourse for dairy in 2000.

Complementary imports. Agricultural import items not produced in appreciable commercial volume in the United States, such as bananas, coffee, rubber, cocoa, tea, spices, and cordage fiber (see also supplementary imports).

Compost. Organic residues, or a mixture of organic residues and soil, which have been piled, moistened, and allowed to undergo biological decomposition for use as a fertilizer.

Concessional sales. Credit sales of a commodity in which the buyer is allowed more favorable payment terms than those on the open market. For example, Title I of the Food for Peace Program (P.L. 480) provides for financing sales of U.S. commodities with low-interest, long-term credit.

Conservation compliance. This represents a portion of the Highly Erodible Land Conservation provisions of the Food Security Act of 1985 that is designed to encourage the use of conservation practices on highly erodible cropland. To remain eligible for many USDA program benefits, farmers are required to crop highly erodible land under an approved conservation plan. Also see "Sodbuster."

Conservation district. Any unit of local government formed to carry out a local soil and water conservation program.

Conservation plan. A combination of land uses and practices to protect and improve soil productivity and to prevent soil deterioration. A conservation plan must be approved by the local conservation district for acreage offered in the Conservation Reserve Program. The plan sets forth the conservation measures and maintenance that the owner or operator will carry out during the term of the contract.

Conservation practices. Methods which reduce soil erosion and retain soil moisture. Major conservation practices include conservation tillage, crop rotation, contour farming, strip cropping, terraces, diversions, and grassed waterways.

Conservation Reserve Program (CRP). A major provision of the Food Security Act of 1985 designed to reduce erosion and protect water quality on up to 45 million acres of farmland. Under the program, enrolled landowners agree to convert environmentally sensitive land to approved conserving uses for 10-15 years. In exchange, the landowner receives an annual rental payment as well as an initial cost-share payment for up to 50 percent of the cost of establishing permanent vegetative cover.

Conservation tillage. Any of several farming methods that provide for seed germination, plant growth, and weed control yet maintain effective ground cover throughout the year and disturb the soil as little as possible. The aim is to reduce soil loss and energy use while maintaining crop yields and quality. No-till is the most restrictive (soil-conserving) form of conservation tillage. Other practices include ridge-till, strip-till, and mulch-till.

Contour farming. Field operations such as plowing, planting, cultivating, and harvesting on the contour, or at right angles to the natural slope, to reduce soil erosion, protect soil fertility, and use water more efficiently.

Contract acreage. Enrolled 1996 commodity base acreage under the 1996 Farm Act for wheat, feed grains, upland cotton, and rice, generally fixed for 1996 through 2002. A farmer may voluntarily choose to reduce contract acreage in subsequent years. Land leaving the CRP may be entered into a production flexibility contract if the land had an acreage base.

Contract crops. Crops eligible for production flexibility payments: wheat, corn, sorghum, barley, oats, rice, and upland cotton.

Cooperative. An organization formed for the purpose of producing and marketing goods or products owned collectively by members who share in the benefits.

Cooperative Extension System. A national, publicly funded, nonformal education network that links the educational and research resources and activities of USDA with land-grant universities in every State, territory, and the District of Columbia. The Federal partner is the Cooperative State Research, Education, and Extension Service. This unique Federal, State, and local partnership focuses on practical solutions to critical issues affecting people's daily lives.

Cost of production. The sum, measured in dollars, of all purchased inputs and other expenses necessary to produce farm products. Cost of production statistics may be expressed as an average per animal, per acre, or per unit of production (bushel, pound, or hundredweight) for all farms in an area or in the country.

County extension agent. An educator employed by a county and/or a State cooperative extension service to bring research-based agriculture and quality of life education to local people to help them address farm, home, and community problems at the local level.

Cover crop. A close-growing crop grown to protect and improve soils between periods of regular crops or between trees and vines in orchards and vineyards.

Crop rotation. The practice of growing different crops in recurring succession on the same land. Crop rotation plans are usually followed for the purpose of increasing soil fertility and maintaining good yields.

Crop year. Generally, the 12-month period from the beginning of harvest of a particular crop.

Custom work. Specific farm operations performed under contract between the farmer and the contractor. The contractor furnishes labor, equipment, and materials to perform the operation. Custom harvesting of grain, spraying and picking of fruit, and sheep shearing are examples of custom work.

Dairy Export Incentive Program. A program that offers subsidies to exporters of U.S. dairy products to assist in competition with other nations. Payments are made by the Commodity Credit Corporation on a bid basis either in cash or through certificates redeemable for commodities. The program was originally authorized by the 1985 Farm Act and reauthorized by the 1990 Farm Act. The 1996 Farm Act extends the program through 2002.

Disaster payments. Federal payments made to farmers because of a natural disaster when (1) planting is prevented or (2) crop yields are abnormally low because of adverse weather and related conditions. Disaster payments may be provided under existing legislation or under special legislation enacted after an extensive natural disaster.

Distance Education. Delivery of instructional material over a wide geographical area via one or more technologies, including video, computer, and laser.

DNA. Deoxyribonucleic acid, a polymeric chromosomal constituent of living cell nuclei, composed of deoxyribose (a sugar), phosphoric acid, and four nitrogen bases--adenine, cytosine, guanine, and thymine. It contains the genetic information for living organisms, and consists of two strands in the shape of a double helix. A gene is a piece of DNA.

Double crop. Two different crops grown on the same area in one growing season.

Dryland farming. A system of producing crops in semiarid regions (usually with less than 20 inches of annual rainfall) without the use of irrigation. Frequently, part of the land will lie fallow in alternate years to conserve moisture.

Erosion. The process in which water or wind moves soil from one location to another. Types of erosion are (1) sheet and rill—a general washing away of a thin uniform sheet of soil, or removal of soil in many small channels or incisions caused by rainfall or irrigation runoff; (2) gully—channels or incisions cut by concentrated water runoff after heavy rains; (3) ephemeral—a water-worn, short-lived or seasonal incision, wider, deeper and longer than a rill, but shallower and smaller than a gully; and (4) wind—the carrying away of dust and sediment by wind in areas of high prevailing winds or low annual rainfall.

Ethanol. An alcohol fuel that may be produced from an agricultural foodstock such as corn, sugarcane, or wood, and may be blended with gasoline to enhance octane, reduce automotive exhaust pollution, and reduce reliance on petroleum-based fuels.

Export Enhancement Program (EEP). Started in May 1985 under the Commodity Credit Corporation Charter Act to help U.S. exporters meet competitors' prices in subsidized markets. Under the EEP, exporters are awarded bonuses, enabling them to compete for sales in specified countries.

Extra-long staple (ELS) cotton. Cottons having a staple length of 1-3/8 inches or more, characterized by fineness and high-fiber strength. American types include American Pima and Sea Island cotton.

Family Farm. An agricultural business which (1) produces agricultural commodities for sale in such quantities so as to be recognized as a farm rather than a rural residence; (2) produces enough income (including off farm employment) to pay family and farm operating expenses, to pay debts, and to maintain the property; (3) is managed by the operator; (4) has a substantial amount of labor provided by the operator and family; and (5) may use seasonal labor during peak periods and a reasonable amount of full-time hired labor.

Farm. USDA defines a farm in 1997 as any place from which $1,000 or more of agricultural products were produced and sold or normally would have been sold during the year.

Farm Credit System. The system made up of cooperatively owned financial institutions in districts covering the United States and Puerto Rico that finance farm and farm-related mortgages and operating loans. Institutions within each district specialize in farmland loans and operating credit, or lending to farmer-owned supply, marketing, and processing cooperatives. FCS institutions rely on the bond market as a source of funds.

Federal Agriculture Improvement and Reform Act of 1996 (1996 Farm Act) (P.L.104-127). The omnibus food and agriculture legislation signed into law on April 4, 1996, that provided a 7-year framework (1996-2002) for the Secretary of Agriculture to administer various agricultural and food programs. The 1996 Act fundamentally redesigns income support and supply management programs for producers of wheat, corn, grain sorghum, barley, oats, rice, and upland cotton. The 1996 Farm Act also makes program changes for dairy, sugar, and peanuts. Additionally, trade programs are more targeted and environmental programs are consolidated and extended in the 1996 Farm Act.

Feed grain. Any of several grains most commonly used for livestock or poultry feed, including corn, grain sorghum, oats, rye, and barley.

Fertilizer. Any organic or inorganic material of natural or synthetic origin which is added to soil to provide nutrients, including nitrogen, phosphorus, and potassium, necessary to sustain plant growth.

FFA. An organization for high school students studying vocational agriculture.

Flood plains. Lowland and relatively flat areas adjoining inland and coastal waters, including floodprone areas of islands. This land includes, at a minimum, those areas that are subject to a 1 percent or greater chance of flooding in any given year.

Food, Agriculture, Conservation, and Trade Act of 1990 (1990 Farm Act) (P.L. 101-624). Signed November 28, 1990, this 5-year farm bill applied to the 1991-95 crop programs. This Act continued the transition, started by the Food Security Act of 1985, toward greater market orientation of domestic commodity programs, the most notable changes being frozen minimum target prices and greater planting flexibility. Most of the commodity program provisions of this Act were superseded by the Federal Agriculture Improvement and Reform Act of 1996.

Food grain. Cereal seeds most commonly used for human food, chiefly wheat and rice.

Food Security Act of 1985 (1985 Farm Act) (P.L. 99-198). The omnibus food and agriculture legislation signed into law on December 23, 1985, that provided a 5-year framework (1986-90) for the Secretary of Agriculture to administer various agricultural and food programs.

Forage. Vegetable matter, fresh or preserved, that is gathered and fed to animals as roughage; includes alfalfa hay, corn silage, and other hay crops.

Forward contracting. A method of selling crops before harvest by which the buyer agrees to pay a specified price to a grower for a portion, or all, of the grower's crops.

Fungicide. A chemical substance used as a spray, dust, or disinfectant to kill fungi infesting plants or seeds.

Futures contract. An agreement between two people, one who sells and agrees to deliver and one who buys and agrees to receive a certain kind, quality, and quantity of product to be delivered during a specified delivery month at a specified price.

General Agreement on Tariffs and Trade (GATT). An agreement originally negotiated in 1947 to increase international trade by reducing tariffs and other trade barriers. The agreement provides a code of conduct for international commerce and a framework for periodic multilateral negotiations on trade liberalization and expansion. The Uruguay Round Agreement established the World Trade Organization (WTO) to replace the GATT. The WTO officially replaced the GATT on January 1, 1995.

Genetic engineering. Genetic modification of organisms by recombinant DNA, recombinant RNA, or other specific molecular gene transfer or exchange techniques.

Genome. All the genetic material in the chromosomes of a particular organism.

Gleaning. Collecting of unharvested crops from the fields, or obtaining agricultural products from farmers, processors, or retailers without charge.

Gopher. The Internet Gopher client/server is a distributed information delivery system around which a campuswide information system can readily be constructed. While providing a delivery vehicle for local information, Gopher facilitates access to other Gopher and information servers throughout the world.

Grade A milk. Milk, also referred to as fluid grade, produced under sanitary conditions that qualify it for fluid (beverage) consumption. Only Grade A milk is regulated under Federal milk marketing orders.

Grade B milk. Milk, also referred to as manufacturing grade, not meeting Grade A standards. Less stringent standards generally apply.

Grafting. The process of inserting a scion of a specified variety into a stem, root, or branch of another plant so that a permanent union is achieved.

Great Plains. A level to gently sloping region of the United States that lies between the Rockies and approximately the 98th meridian. The area is subject to recurring droughts and high winds. It consists of parts of North Dakota, South Dakota, Montana, Nebraska, Wyoming, Kansas, Colorado, Oklahoma, Texas, and New Mexico.

Green manure. Any crop or plant grown and plowed under to improve the soil, by adding

organic matter and subsequently releasing plant nutrients, especially nitrogen.

Ground water. Water beneath the Earth's surface between saturated soil and rock, which supplies wells and springs.

Hedgerow. Trees or shrubs grown closely together so that branches intertwine to form a continuous row.

Herbicide. Any agent or chemical used to destroy plants, especially weeds.

Humus. The well decomposed, relatively stable portion of the partly or wholly decayed organic matter in a soil, which provides nutrients and helps the soil retain moisture.

Hydroponics. Growing of plants in water containing dissolved nutrients, rather than in soil. This process is being used in greenhouses for intensive off-season production of vegetables.

Infrastructure. The transportation network, communications systems, financial institutions, and other public and private services necessary for economic activity.

Integrated crop management. An agriculture management system that integrates all controllable agricultural production factors for long-term sustained productivity, profitability, and ecological soundness.

Integrated pest management (IPM). The control of pests or diseases by using an array of crop production strategies, combined with careful monitoring of insect pests or weed populations and other methods. Some approaches include selection of resistant varieties, timing of cultivation, biological control methods, and minimal use of chemical pesticides so that natural enemies of pests are not destroyed. These approaches are used to anticipate and prevent pests and diseases from reaching economically damaging levels.

International trade barriers. Regulations used by governments to restrict imports from other countries. Examples include tariffs, embargoes, import quotas, and unnecessary sanitary restrictions.

Internet. The global connection of interconnected local, mid-level, and wide-area automated information/communications networks.

Land-grant universities. Institutions, including State colleges and universities and Tuskegee University, eligible to receive funds under the Morrill Acts of 1862 and 1890. The Federal Government granted land to each State and territory to encourage practical education in agriculture, homemaking, and mechanical arts.

Land-use planning. Decisionmaking process to determine present and future uses of land. The resulting plan is the key element of a comprehensive plan describing recommended location and intensity of development of public and private land uses such as residential, commercial, industrial, recreational, and agricultural.

Leaching. The process of removal of soluble materials by the passage of water through soil.

Legumes. A family of plants that includes many valuable food and forage species such as peas, beans, soybeans, peanuts, clovers, alfalfas, and sweet clovers. Legumes can convert nitrogen from the air to nitrates in the soil through a process known as nitrogen fixation. Many of these species are used as cover crops and are plowed under for soil improvement.

Lint. Cotton fiber remaining after the seeds have been ginned out.

Loan deficiency payments. A provision begun in the 1985 Farm Act to provide direct payments to producers who, although eligible to obtain price support loans for wheat, feed grains, upland cotton, rice, or oilseeds and thereby receive marketing loan gains, agree not to obtain loans.

Loan rate. The price per unit (bushel, bale, pound, or hundredweight) at which the Commodity Credit Corporation will provide loans to farmers enabling them to hold their crops for later sale.

Market Access Program (MAP). Formerly the Market Promotion Program. Participating organizations include nonprofit trade associations, State and regional trade groups, and private companies. Fund authority is capped at $90 million annually for FY 1996-2002.

Market basket of farm foods. Average quantities of U.S. farm foods purchased annually per household in a given period. Retail cost of these foods used as a basis for computing an index of retail prices for domestically produced farm foods. Excluded are fishery products, imported foods, and meals eaten away from home.

Marketing allotments. Provides each processor or producer of a particular commodity a specific limit on sales for the year, above which penalties would apply.

Marketing orders. Federal marketing orders authorize agricultural producers to promote orderly marketing by influencing such factors as supply and quality, and to pool funds for promotion and research. Marketing orders are initiated by the industry, and are approved by the Secretary of Agriculture and by a vote among producers. Once approved, a marketing order is mandatory.

Marketing spread. The difference between the retail price of a product and the farm value of the ingredients in the product. This farm-retail spread includes charges for assembling, storing, processing, transporting, and distributing the products.

Marketing year. Year beginning at harvest time during which a crop moves to market.

Metropolitan statistical area (MSA). A county or group of contiguous counties that contain at least one city of 50,000 inhabitants or more, or twin cities with a combined population of at least 50,000. In addition, contiguous counties are included in an MSA if they are socially and economically integrated with a central city.

Migrant farmworker. A person who travels across State or county boundaries to do agricultural work of a seasonal or other temporary nature, and who is required to be absent overnight from his or her permanent place of residence. Exceptions are immediate family members of an agricultural employer or a farm labor contractor, and temporary foreign workers.

National forest. A Federal reservation dedicated to protection and management of natural resources for a variety of benefits — including water, forage, wildlife habitat, wood, recreation, and minerals. National forests are administered by USDA's Forest Service, while national parks are administered by the Interior Department's National Park Service.

National grassland. Land, mainly grass and shrub cover, administered by the Forest Service as part of the National Forest System for promotion of grassland agriculture, watersheds, grazing wildlife, and recreation.

Nematode. Microscopic soil worm, which may attack root or other structures of plants and cause extensive damage.

Net farm income. A measurement of the profit or loss associated with a given year's production. It is an approximation of the net value of agricultural production, regardless of whether the commodities were sold, fed, or placed in inventory during the year. Net farm income equals the difference between gross farm income and total expenses. It includes nonmoney items such as depreciation, the consumption of farm-grown food, and the net imputed rental value of operator dwellings. Additions to inventory are treated as income.

Nitrogen. A chemical element essential to life and one of the primary plant nutrients. Animals get nitrogen from protein feeds; plants get it from soil; and some bacteria get it directly from air.

Nonfarm income. Includes all income from nonfarm sources (excluding money earned from working for other farmers) received by farm operator households.

Nonpoint source pollution. Pollutants that cannot be traced to a specific source, including stormwater runoff from urban and agricultural areas.

Nonprogram crops. Crops—such as potatoes, vegetables, fruits, and hay—that are not included in Federal price support programs.

Nonrecourse loan program. Provides operating capital to producers of wheat, feed grains, cotton, peanuts, tobacco, rice, and oilseeds. Dairy processors (until 2000) and sugar processors are also eligible for nonrecourse loans. Farmers or processors participating in government commodity programs may pledge a quantity of a commodity as collateral and obtain a loan from the CCC at a commodity-specific, per-unit loan rate. The borrower may repay the loan with interest within a specified period and regain control of the commodity, or forfeit the commodity to the CCC after the specified period as full settlement of the loan with no penalty. For those commodities eligible for marketing loan benefits, producers may repay the loan at the world price (rice and upland cotton) or posted county price (wheat, feed grains, and oilseeds).

Nutrient. A chemical element or compound that is essential for the metabolism and growth of an organism.

Off-farm income. Includes wages and salaries from working for other farmers, plus nonfarm income, for all owner operator families (whether they live on a farm or not).

Oilseed crops. Primarily soybeans, and other crops such as peanuts, cottonseed, sunflower seed, flaxseed, safflower seed, rapeseed, sesame seed, castor beans, canola, rapeseed, and mustard seeds used to produce edible and/or inedible oils, as well as high-protein animal meal.

Oilseed meal. The product obtained by grinding the cakes, chips, or flakes that remain after most of the oil is removed from oilseeds. Used as a feedstuff for livestock and poultry.

Organic farming. There is no universally accepted definition, but in general organic farming is a production system which avoids or largely excludes the use of synthetically compounded fertilizers, pesticides, growth regulators, and livestock feed additives. To the maximum extent feasible, organic farming systems rely on crop rotation, crop residues, animal manures, legumes, green manure, off-farm organic wastes, mechanical cultivation, mineral bearing rocks, and aspects of biological pest control to maintain soil productivity and tilth; to supply plant nutrients; and to control weeds, insects, and other pests.

Payment limitations. Limitations set by law on the amount of money any one person may receive in Federal farm program payments each year under the feed grain, wheat, cotton, rice, and other farm programs.

Percolation. The downward movement of water through soil under the influence of gravity.

Permanent legislation. Legislation that would be in effect in the absence of all temporary amendments (Farm Acts). The Agricultural Adjustment Act of 1938 and the Agricultural Act of 1949 serve as the basic laws authorizing the major commodity programs. Technically, each new Farm Act amends the permanent legislation for a specified period.

Plant germplasm. Living material such as seeds, rootstock, or leaf plant tissue from which new plants can grow.

Pomology. The science or study of growing fruit.

Price index. An indicator of average price change for a group of commodities that compares price for those same commodities in some other period, commonly called the base period.

Price support level. The price for a unit of a farm commodity (pound, ton) that the Government will support through price-support loans, purchases, and/or payments. Price support levels are determined by law and are set by the Secretary of Agriculture.

Price support programs. Government programs that aim to keep farm prices from falling below specific minimum levels. Price support programs for selected commodities

(peanuts, tobacco, sugar, and milk) are carried out through loans or purchases. With price-support loans, producers (or processors in the case of sugar) use their production of a commodity as collateral for a loan with the Commodity Credit Corporation (CCC). Loans enable the loan taker to store the commodity during periods of low prices. The loans may be redeemed later if commodity prices rise sufficiently to make the sale of the commodity on the market profitable, or the loan taker may forfeit the commodity used as collateral for the loan to CCC in lieu of cash repayment. In the case of milk, CCC is authorized through December 31, 1999, to purchase manufactured dairy products in order to support the price of fluid milk at statutorily prescribed levels.

Production Credit Associations. Lending groups, owned by their farmer borrowers, that provide short and intermediate-term loans for up to 10 years from funds obtained from investors in money markets. These associations are an integral part of the Farm Credit System.

Production flexibility contract payments. The payments to be made to farmers for contract crops in 1996 through 2002 under the 1996 Farm Act. Payments for each crop are allocated each fiscal year based on budgetary levels and crop-specific percentages in the 1996 Farm Act.

Production flexibility contract payment quantity. The quantity of production eligible for production flexibility contract payments under the 1996 Farm Act. Payment quantity is calculated as the farm's program yield (per acre) multiplied by 85 percent of the farm's contract acreage.

Production flexibility contract payment rate. The amount paid per unit of production to each participating farmer for eligible payment production under the 1996 Farm Act.

Productive capacity. The amount that could be produced within the next season if all the resources currently available were fully employed using the best available technology. Productive capacity increases whenever the available resources increase or the production of those resources increases.

Productivity. The relationship between the quantity of inputs (land, labor, tractors, feed, etc.) employed and the quantity of outputs produced. An increase in productivity means that more outputs can be produced from the same inputs or that the same outputs are produced with fewer inputs. Both single-factor and multifactor indexes are used to measure productivity. Single-factor productivity indexes measure the output per unit of one input at the same time other inputs may be changing. Multifactor productivity indexes consider all productive resources as a whole, netting out the effects of substitution among inputs. Crop yield per acre, output per work hour, and livestock production per breeding animal are all single-factor productivity indicators. The Total Farm Output per Unit of Input Index is a multifactor measure.

Program crops. Crops for which Federal support programs are available to producers, including wheat, corn, barley, grain sorghum, oats, extra long staple and upland cotton, rice, oilseeds, tobacco, peanuts, and sugar.

Public Law 480 (P.L. 480). Common name for the Agricultural Trade Development and Assistance Act of 1954, which seeks to expand foreign markets for U.S. agricultural products, combat hunger, and encourage economic development in developing countries. Title I of P.L. 480, also called the Food for Peace Program, makes U.S. agricultural commodities available through long-term dollar credit sales at low interest rates for up to 30 years. Donations for humanitarian food needs are provided under Title II. Title III authorizes "food for development" grants.

Rangeland. Land which is predominantly grasses, grasslike plants, or shrubs suitable for grazing and browsing. Rangeland includes natural grasslands, savannahs, many wetlands, some deserts, tundra, and certain shrub communities. It also includes areas seeded to native or adapted and introduced species that are managed like native vegetation.

Renewable resources. Resources such as forests, rangeland, soil, and water that can be restored and improved.

Riparian rights. Legal water rights of a person owning land containing or bordering on a water course or other body of water in or to its banks, bed, or waters.

RNA (ribonucleic acid). A molecule similar to DNA that functions primarily to decode instructions for protein synthesis that are carried by genes.

Ruminant. Animal having a stomach with four compartments (rumen, reticulum, omasum, and abomasum). Their digestive process is more complex than that of animals having a true stomach. Ruminants include cattle, sheep, and goats, as well as deer, bison, buffalo, camels, and giraffes.

Rural. An area that has a population of fewer than 2,500 inhabitants and is outside an urban area. A rural area does not apply only to farm residences or to sparsely settled areas, since a small town is rural as long as it meets the above criteria.

Saline soil. A soil containing enough soluble salts to impair its productivity for plants.

Silage. Prepared by chopping green forage (grass, legumes, field corn, etc.) into an airtight chamber, where it is compressed to exclude air and undergoes an acid fermentation that retards spoilage. Contains about 65 percent moisture.

Silviculture. A branch of forestry dealing with the development and care of forests.

Sodbuster. A portion of the Highly Erodible Land Conservation provision of the Food Security Act of 1985 that is designed to discourage the conversion of highly erodible land from extensive conserving uses, such as grasslands and woodlands, to intensive production of agricultural commodities. If highly erodible grasslands or woodlands are converted to intensive crop production without the application of appropriate conservation practices, producers may lose eligibility for many USDA program benefits. Also see "Conservation Compliance."

Staple. Term used to designate length of fiber in cotton, wool, or flax.

State Agricultural Experiment Station. State-operated institutions, established under the Hatch Act of 1887 and connected to land-grant universities in each State, which carry out research of local and regional importance in the areas of food, agriculture, and natural resources.

Stubble mulch. A protective cover provided by leaving plant residues of any previous crop as a mulch on the soil surface when preparing for the following crop.

Subsistence farm. A low-income farm where the emphasis is on production for use of the operator and the operator's family rather than for sale.

Supplementary imports. Farm products shipped into this country that add to the output of U.S. agriculture. Examples include cattle, meat, fruit, vegetables, and tobacco (see complementary imports).

Sustainable agriculture. An integrated system of plant and animal production practices having a site-specific application that will, over the long term, satisfy food and fiber needs, enhance environmental quality and natural resources, make the most efficient use of nonrenewable resources and on-farm resources, integrate natural biological cycles and controls, sustain the economic viability of farm operations, and enhance the quality of life.

Swampbuster. This provision was authorized by the Food Security Act of 1985; it discourages the conversion of natural wetlands to cropland use. With some exceptions, producers converting a wetland area to cropland may lose eligibility for many USDA program benefits.

Terminal market. A metropolitan market that handles all agricultural commodities.

Tissue culture. The technique of growing a whole plant from a single engineered cell or piece of plant tissue.

Unit cost. The average cost to produce a single item. The total cost divided by the number of items produced.

Upland cotton. A fiber plant developed in the United States from stock native to Mexico and Central America. Includes all cotton grown in the continental United States except Sea Island and American Pima cotton. Staple length of upland cotton ranges from 3/4 inch to 1 1/4 inches.

Urban. A concept defining an area that has a population of 2,500 or more inhabitants.

Uruguay Round. The Uruguay Round of Multilateral Trade Negotiations (UR) under the auspices of the GATT; a trade agreement designed to open world agricultural markets. The UR agricultural agreement covers four areas: export subsidies, market access, internal supports, and sanitary and phytosanitary rules. The agreement is implemented over a 6-year period, 1995-2000.

Vegetative cover. Trees or perennial grasses, legumes, or shrubs with an expected lifespan of 5 years or more.

Viticulture. The science and practice of growing grapes.

Watershed. The total land area, regardless of size, above a given point on a waterway that contributes runoff water to the flow at that point. A major subdivision of a drainage basin. The United States is generally divided into 18 major drainage areas and 160 principal river drainage basins containing some 12,700 smaller watersheds.

Water table. The upper limit of the part of the soil or underlying rock material that is wholly saturated with water.

Wetlands. Land that is characterized by an abundance of moisture and that is inundated by surface or ground water often enough to support a prevalence of vegetation typically adapted for life in saturated soil conditions.

Wholesale price index. Measure of average changes in prices of commodities sold in primary U.S. markets. "Wholesale" refers to sales in large quantities by producers, not to prices received by wholesalers, jobbers, or distributors. In agriculture, it is the average price received by farmers for their farm commodities at the first point of sale when the commodity leaves the farm.

Zoonotic diseases. Diseases that, under natural conditions, are communicable from animals to humans.

4-H. International youth organization that empowers young people 5-19 years old through programs and activities that foster agricultural, science, and technology literacy; citizenship; and other lifelong living skills, such as self-esteem, career and personal development. The national 4-H staff is located in the Families, 4-H, and Nutrition unit of the Cooperative State Research, Education, and Extension Service. The 4-Hs stand for Head, Heart, Hands, and Health.

1890 Land-Grant Colleges and Universities and Tuskegee University. Historically Black land-grant colleges and universities. Through the Act of August 30, 1890, and several other authorities, these institutions may receive Federal funds for agricultural research, extension, and teaching.

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