

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 for excellence 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.

For More Information

Agricultural Research Service

Dir., Infor. Staff

Robert Norton
Rm 450, 6303 Ivy Ln, Greenbelt, MD 20770
301-344-2340
FAX 301-344-2325
rnorton@ars-grin.gov

Audiovisual Br. Chief

Vacant
6303 Ivy Lane, Greenbelt, MD 20770
301-344-2152
FAX 301-344-2325

Current Info Br. Chief

Sandy Miller Hays
Rm 441, 6303 Ivy Ln, Greenbelt, MD 20770
301-344-2303
FAX 301-344-2311
shays@asrr.arsusda.gov

Pubs. Branch Chief

Ruth Coy
Rm 400, 6303 Ivy Ln, Greenbelt, MD 20770
301-344-2152
FAX 301-344-2325
rcoy@asrr.arsusda.gov

Nutrition Infor Team

Dianne Odland
Rm 420, 6303 Ivy Ln, Greenbelt, MD 20770
301-436-5196
FAX 301-436-7626
dodland@asrr.arsusda.gov

Nat'l Visitor Ctr Head

Jay Green
Bldg 302, BARC-E, Beltsville, MD 20705
301-504-9403
FAX 301-504-8069
jgreen@asrr.arsusda.gov

FOIA Officer

Stasia Hutchison
Rm 405, 6303 Ivy Ln, Greenbelt, MD 20770
301-344-2207
FAX 301-344-2325
shutchis@asrr.arsusda.gov

National Agricultural Library

Public Affairs Officer

Brian Norris
204-NAL, Beltsville, MD 20705
301-504-6778
FAX 301-504-5472
bnorris@nal.usda.gov

Special Services & Comm.

Joseph Swab
204-NAL, Beltsville, MD 20705
301-504-6778
FAX 301-504-5472
jswab@nal.usda.gov

Library Services

(reference, lending, etc.)
1Flr-NAL, Beltsville, MD 20705
301-504-5755

FOIA Officer

Stasia Hutchison
Rm405, 6303 Ivy Ln, Greenbelt, MD 20770
301-344-2207
FAX 301-344-2325
shutchis@asrr.arsusda.gov

NAL TDD/TTY

301-504-6856

DCRC TDD/TTY

202-720-3434

Information Centers Branch

Robyn Frank
304-NAL, Beltsville, MD 20705
301-504-5414
FAX 301-504-6409
rfrank@nal.usda.gov

Agricultural Trade and Marketing Information Center

Mary Lassany
304-NAL, Beltsville, MD 20705
301-504-5509
FAX 301-504-6409
mlassany@nal.usda.gov

Alternative Farming Systems Information Center

Jane Gates
304-NAL Beltsville, MD 20705
301-504-5724
FAX 301-504-6409
jgates@nal.usda.gov

Animal Welfare Information Center

Jean Larson
304-NAL, Beltsville, MD 20705
301-504-5215
FAX 301-504-7125
jlarson@nal.usda.gov

Food and Nutrition Information Center

Vacant
304-NAL, Beltsville, MD 20705
301-504-5719
FAX 301-504-6409
fnic@nal.usda.gov

Rural Information Center

Patricia John
304-NAL, Beltsville, MD 20705
301-504-5372
FAX 301-504-5181
pjohn@nal.usda.gov

Rural Information Center

DC area & International
301-504-5547
304-NAL, Beltsville, MD 20705
All other U.S. calls 1-800-633-7701
304-NAL, Beltsville, MD 20705

Reference & User Service Branch

Leslie Kulp
4Flr-NAL, Beltsville, MD 20705
301-504-6875
FAX 301-504-7098
lkulp@nal.usda.gov

Reference Section

Alvetta Pindell
100-NAL, Beltsville, MD 20705
301-504-5204
FAX 301-504-6927
apindell@nal.usda.gov

Reference Desk

Librarian on Duty
1Flr-NAL, Beltsville, MD 20705
301-504-5479
FAX 301-504-6927
agref@nal.usda.gov

Grain Dust Project

Sheldon Cheney
100-NAL, Beltsville, MD 20705
301-504-5204
FAX 301-504-6927
scheney@nal.usda.gov

Russian Wheat Aphids Project

Wayne Olson
100-NAL, Beltsville, MD 20705
301-504-5204
FAX 301-504-6927
wolson@nal.usda.gov

Educational Programs Unit

Deborah Richardson
100-NAL, Beltsville, MD 20705
301-504-5204
FAX 301-504-6927
drichard@nal.usda.gov

Tours and Demonstrations

Deborah Richardson
100-NAL, Beltsville, MD 20705
301-504-5204
FAX 301-504-6927
drichard@nal.usda.gov

Biotechnology Information Center

Raymond Dobert
4Flr-NAL, Beltsville, MD 20705
301-504-6875
FAX 301-504-7098
rdobert@nal.usda.gov

Plant Genome Data and Infor. Center

Susan McCarthy
4Flr-NAL, Beltsville, MD 20705
301-504-6875
FAX 301-504-7098
pgenome@nal.usda.gov

Special Collections Program

Susan Fugate
3Flr-NAL, Beltsville, MD 20705
301-504-6503
FAX 301-504-5675
speccoll@nal.usda.gov

Technology Transfer Infor. Center

Kathleen Hayes
4Flr-NAL, Beltsville, MD 20705
301-504-6875
FAX 301-504-7098
khayes@nal.usda.gov

Water Quality Information Center

Joseph Makuch
4Flr-NAL, Beltsville, MD 20705
301-504-6875
FAX 301-504-7098
jmakuch@nal.usda.gov

D.C. Reference Center

Janet Wright
Rm1052-S, Washington, DC 20250
202-720-3434
FAX 202-720-3200
jwright@nal.usda.gov

Global Change

Janet Wright
Rm1052-S, Washington, DC 20250
202-720-3434
FAX 202-720-3200
jwright@nal.usda.gov

**Cooperative State
Research, Education, and
Extension Service****Dep Admin, Comm., Tech. and Distance
Education**

Barbara A. White
Rm 3328-S Washington, DC 20250
202-720-6133
FAX 202-690-0289
bwhite@reeusda.gov

Distance Education

Barbara A. White
Rm 3328-S Washington, DC 20250
202-720-6133
FAX 202-690-0289
bwhite@reeusda.gov

Senior OIRM Officer

Jerry McNamara
Rm 348 Aerosp Washington, DC 20250
202-401-4186
FAX 202-401-5174
jmcnamara@reeusda.gov

Communications/Info. Access

Jane Dodds
Rm 3331-S Washington, DC 20250
202-720-3401
FAX 202-690-0289
jdodds@reeusda.gov

Media Relations

Len Carey
Rm 3333-S Washington, DC 20250
202-720-1358
FAX 202-690-0289
arey@reeusda.gov

FOIA Officer

Jane Dodds
Rm 3331-S Washington, DC 20250
301-720-3401
FAX 202-690-0289
jdodds@reeusda.gov

**Economic Research
Service****Chief, Publishing & Communications**

Adrie Custer
301 N.Y. Ave.,NW, Rm. 237,
Washington,DC 20005-4788
202-219-05121
FAX 202-501-6250
acuster@econ.ag.gov

Media Services

Jack Harrison
1301 N.Y. Ave.,NW, Rm. 237
Washington,DC 20005-4788
202-219-0510
FAX 202-501-6156
jackh@econ.ag.gov

Outlook

Diane Decker
1301 N.Y. Ave.,NW, Rm. 237
Washington,DC 20005-4788
202-219-0509
FAX 202-219-0308
ddecker@econ.ag.gov

Periodicals/Annual Rpts

Linda Hatcher
1301 N.Y. Ave.,NW, Rm. 237
Washington,DC 20005-4788
202-219-0519
FAX 202-501-6250
lhatcher@econ.ag.gov

Research Publishing

Thomas McDonald
1301 N.Y. Ave.,NW, Rm. 237
Washington,DC 20005 4788
202-219-0518
FAX 202-501-6250
thomasm@econ.ag.gov

Design and Technology

Douglas Parry
1301 N.Y. Ave.,NW, Rm. 237
Washington,DC 20005-4788
202-219-0585
FAX 202-501-6250
dparry@econ.ag.gov

**Office of Energy & New Uses
Public Information Contact**

James Duffield
1301 N.Y. Ave.,NW, Rm 1212
Washington,DC 20005-4788
202-501-6255
FAX 202-501-6338
duffield@econ.ag.gov

**ERS Information Center
Publications Dist.**

1301 N.Y. Ave.,NW, Rm. 110
Washington,DC 20005-4788
202-219-0515
FAX 202-219-0112
service@econ.ag.gov

FOIA Coordinators

Valerie Herberger
Rm 456, 6303 Ivy Greenbelt, MD 20770
301-344-2066
FAX 301-344-2325
Lnvherberg@assr.arsusda.gov

Stasia Hutchison
Rm 456, 6303 Ivy Ln
Greenbelt, MD 20770
301-344-2207
FAX 301-344-2325
shutchis@assr.arsusda.gov

National Agricultural Statistics Service

There are a variety of ways to obtain NASS reports, data products, and services:

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Gopher Site/Telenet/FTP:

HOST=usda.mannlib.cornell.edu

NASSFax (Autofax)

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(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 complete listing of NASS reports/highlights available from the autofax.)

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Census of Agriculture Information

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FAX:301-763 8499

Hours: 8:00 a.m. - 5:00 p.m. M-F

nass@nass.usda.gov

CONTACTS:

Agricultural Statistics Board Release Schedule

William Pratt

Rm. 5805-S Washington, DC 20250

202-720-7017

FAX 202-690-1311

Bpratt@nass.usda.gov

Census Division

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NASS Freedom of Information Officer

Valerie Herberger

301-344-2066

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)

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Arkansas (Little Rock, AR)

501-296-9926

California (Sacramento, CA)

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Colorado (Lakewood, CO)
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Maryland (Annapolis, MD)
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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)
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Nevada (Reno, NV)
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New England (Concord, NH)
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New Jersey (Trenton, NJ)
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New Mexico (Las Cruces, NM)
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New York (Albany, NY)
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North Carolina (Raleigh, NC)
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Ohio (Reynoldsburg, OH)
614-728-2100

Oklahoma (Oklahoma City, OK)
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Oregon (Portland, OR)
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