A PRELIMINARY ASSESSMENT OF THE EFFECTS OF HURRICANE RITA ON U.S. AGRICULTURE
USDA/OCE, October 18, 2005

Note: This paper presents estimates of the effects of Hurricane Rita on U.S. agricultural production. This assessment is based on a variety of information sources, some of which change daily. These estimates should not be interpreted as cost estimates of crop loss disaster assistance or livestock disaster assistance as provided in previous legislation. Estimates are for current production losses and exclude quality and future production losses that may be incurred by perennial crops or livestock and losses to infrastructure and increased marketing costs. Some of these losses will be offset by insurance indemnities. Production loss estimates from Hurricane Rita are summarized in Appendix Table 2 at the end of this report.

Effects of Hurricane Rita on U.S. Agriculture

Path of the Rita:
Shortly after passing between Cuba and the Florida Keys, Rita quickly became the third-most intense hurricane on record in the Atlantic Basin based on barometric readings. Rita grazed southern Florida on September 20 with heavy showers and gusty winds, although gusts to hurricane force (74 mph or greater) were confined to the Florida Keys. On the night of September 21-22, however, Rita's central pressure fell to 26.49 inches of mercury, behind only Hurricane Gilbert in 1988 and the Florida Keys' Labor Day hurricane of 1935. Rita's peak sustained winds were estimated at 175 mph.

Despite weakening before making landfall early on September 24 in Louisiana's Cameron Parish, Rita still struck with maximum sustained winds near 120 mph. Closer to the point of landfall, which occurred at 3:30 a.m. EDT on September 24 between Sabine Pass on the Texas-Louisiana border and Johnsons Bayou, Louisiana, Texas coastal winds reached 116 mph in Port Arthur and 101 mph at Sea Rim State Park. Selected rainfall totals associated with Rita included 10.48 inches in Center, Texas; 9.32 inches in Baton Rouge, Louisiana; and 6.81 inches in Greenville, Mississippi. On September 24, Shreveport, Louisiana, received 5.52 inches of rain and reported a peak wind gust to 53 mph. Rita also brought renewed storm surge-related flooding to hurricane-ravaged southeastern Louisiana and triggered more than three dozen tornadoes across Arkansas, Louisiana, Mississippi, and Alabama.

Role of Agriculture in Affected States. Portions of the States of Louisiana, Mississippi and Texas were affected by hurricane force winds (74 mph or greater) and tropical force winds (39-73 mph) from Rita (see attached map). These States account for a major portion of national cotton, rice and sugarcane production (table 1). According to the 2002 Census of Agriculture, the counties in these States that incurred hurricane force winds account for less than 1 percent of the total U.S. inventory of cattle, milk cows and hogs and less than 1 percent of U.S. corn, sorghum, cotton and soybean production. In contrast, about 11 percent of rice production and 8 percent of U.S. sugarcane production are in counties that incurred hurricane force winds.

Tropical storm winds from Rita affected additional counties in Louisiana and Texas as well as several counties in Mississippi. The total area of these States affected by either hurricane or tropical force winds account for less than 1 percent of total U.S. hog inventory, milk cows and

corn and soybean production and about 3 percent of cattle inventory. About 6 percent of broiler, 5 percent of cotton, 16 percent of rice and 35 percent of U.S. sugarcane production is in counties that incurred either hurricane or tropical force winds.

Major livestock areas along the middle Texas coast escaped a direct hurricane strike, but maturing sugarcane in south-central Louisiana was subjected to heavy rains and local wind gusts in excess of 50 mph. Rita also produced drenching rainfall (as much as 4 to 8 inches) and gusty winds in the Delta, where rice, open-boll cotton and other unharvested summer crops were highly vulnerable to adverse conditions. In addition, the loss of electricity, and damage to roads and port facilities interrupted the movement and processing of milk and other agricultural products.

Method of Estimating Production Losses. USDA State Emergency Boards have been reporting regularly to USDA on estimated agricultural damages due to Hurricane Rita based on on-site observations. Industry associations and others have also reported on losses. On October 12, USDA released the *Crop Production* and *World Agricultural Supply and Demand Estimates (WASDE)* reports. These reports provide the first systematic assessment of the effects of Rita on production of major field crops. The *Crop Production* report uses surveys to forecast yield and production for 2005 field crops in the United States, reflecting crop conditions as of October 1. The sections that follow estimate the portion of the crop production expected for 2005/06 (prior to harvest and weather loss) and the livestock inventory affected by hurricane and tropical force winds (appendix table 1). This information is combined with the October *Crop Production* report and other information to estimate production losses.

Corn, Sorghum and Soybeans. Hurricane and tropical force winds from Rita affected an estimated 58 percent of the corn in Louisiana, 1 percent of corn in Mississippi and 4 percent of corn in Texas (appendix table 1). Across all three affected States, hurricane and tropical force winds could have reduced production on acreage normally yielding about 38 million bushels, with nearly all of this production on acreage subjected to tropical force winds rather than more much damaging hurricane force winds. The corn harvest in Louisiana had been completed and 94 percent of the corn in Mississippi and 73 percent of the corn in Texas had been harvested before the Rita hit these States, further limiting the loss in corn production (table 2). The October 12 Crop Production report reduced corn production in Mississippi by 730,000 bushels. In addition, severe lodging of unharvested corn in Texas could result in production losses and higher harvesting costs in that State. The value of corn production losses are estimated at about $2 million, which includes an assumed loss of 10 percent on unharvested corn in Texas (table 3).

Over 80 percent of sorghum in Louisiana and 11 percent of sorghum in Texas were subjected to hurricane and tropical force winds from Rita. Hurricane and tropical force winds could have reduced production on acreage producing about 20 million bushels of sorghum, with over 90 percent of this acreage subjected to tropical force winds. Prior to the arrival of Rita, the sorghum harvest was 99 complete in Louisiana and 59 percent complete in Texas. The October 12 Crop report lowered sorghum production in Texas by 3.7 million bushels for an estimated loss of $7 million.

Hurricane and tropical force winds affected over 70 percent of the soybeans in Louisiana, about 1 percent in Mississippi and 19 percent of the soybeans in Texas. The acreage affected would

normally produce about 24 million bushels of soybeans. Eighty-five percent of the affected acreage was subjected to tropical force winds. About 73 percent of the soybeans in Louisiana, 78 percent in Mississippi and an estimated 50 percent in Texas were harvested prior to the arrival of Rita. The October 12 Crop Production report reduced soybean production in Louisiana by 1.5 million bushels. The hurricane could also increase losses and harvesting costs on unharvested soybeans in Mississippi and Texas. The value of soybean production losses in all three hurricane affected States are estimated at $8 million, which includes an estimated loss of 2.5 percent on unharvested soybeans in Mississippi and Texas.

Rice and Upland Cotton. No rice in Mississippi was affected by hurricane or tropical force winds from Rita but over 85 percent of rice in Louisiana and 76 percent of rice in Texas was subjected to hurricane and tropical force winds. In Louisiana, 71 percent of the rice and 16 percent of the rice in Texas were subjected to hurricane force winds. However, many Louisiana and Texas rice producers harvested their crop prior to the arrival of Rita. Ninety-two percent of the rice acreage in Louisiana and 98 percent of Texas rice had been harvested before Rita passed through these two States. In addition, heavy rain from Rita likely reduced Arkansas' rice production, which declined by 2.9 million cwt. in the October 12 Crop Production report. Rice production losses are valued at $24 million, which includes increased harvest losses on unharvested rice in Louisiana and Texas.

Two-thirds of cotton production in Louisiana and 5 percent of the cotton in Texas sustained hurricane or tropical force winds. Nearly all of the affected acreage was subjected to tropical force winds rather than the much more damaging hurricane force winds. The acreage subjected to hurricane and tropical forces winds would normally produce about 1.1 million bales. Prior to the arrival of Rita, the cotton harvest in Louisiana was 39 percent complete and 23 percent complete in Texas. Early reports indicate that deterioration in quality is a greater concern than yield loss, with most farmers waiting for fields to dry before assessing damage. The October 12, Crop Production report lowered Louisiana's cotton crop by 50,000 bales. Cotton production losses are valued at $20 million, including assumed losses of 10 percent on unharvested acreage in Mississippi and Texas. This estimate does not include quality losses.

Sugarcane. Hurricane and tropical force winds from Rita hit essentially all of the sugarcane growing areas of Louisiana, with 20-25 percent of Louisiana's crop subjected to hurricane force winds. Further compounding the damage, Hurricane Rita's tidal surge caused major flooding to southern Louisiana's sugarcane crop. The October 12, Crop Production report lowered Louisiana's sugarcane production by 810,000 tons or 7 percent. The decline in Louisiana's sugarcane crop has an estimated farm value of $24 million and a processed (cane sugar) value of $42 million. Harvest costs will also increase.

Fruits, Vegetables, Tree Nuts and Nursery Crops. Louisiana, Mississippi and Texas produce a wide variety of fruit, nuts, vegetables and nursery crops. In 2004, sales of fruits, nuts, vegetables and greenhouse/nursery crops amounted to $2.3 billion in Louisiana, Mississippi and Texas, with Texas accounting for over 85 percent of total sales in these three States. A private source estimates losses of fruits, vegetables, tree nuts and greenhouse/nursery crops resulting from Hurricane Rita at $9 million in Louisiana. This estimate includes estimated losses of $5.6 million to the pecan crop. No loss estimates have been reported for Mississippi or Texas.

Livestock. In Louisiana, Mississippi and Texas, nearly 627,000 head of cattle and calves and over 8,000 hogs and pigs were located in counties that sustained hurricane force winds. Reports from private sources indicate that more that 4,000 cattle may have been lost because of flooding. These lost animals are valued at $3 million.

In Louisiana, 19 percent of broiler production is in counties that sustained hurricane force winds and 48 percent is in counties that incurred tropical force winds. Forty-one percent of broiler production in Texas is in counties that incurred hurricane force winds from Rita and an additional 11 percent is in counties that sustained tropical force winds. Downed power lines and the loss of electricity appear to be the major problems faced by Louisiana, Mississippi and Texas poultry producers. There were also scattered reports of structural damage but no reports of birds lost. The two largest broiler chicken processors (Tyson and Pilgrim) in the U.S. have reported that Hurricane Rita had minimal impact on their contracted production farms and processing facilities.

Dairy. About 6,300 dairy cows were located in counties affected by hurricane force winds and 31,000 were located in counties subjected to tropical storm winds. Many producers in counties subjected to hurricane force winds had damage to buildings and equipment, and because of damage to power lines, would have been unable to milk their cows without generators. In counties affected by hurricane force winds, lost producer sales of milk could amount to about $400,000 per week. In addition, some dairy cows may have also been lost but no estimates are available. The average value of a dairy cow exceeds $1,800. There will also likely be an adverse effect on dairy cow productivity, which will reduce future milk production.

Fish and Shellfish. In 2004, cash receipts from the sales of farm-raised fish, shrimp and other aquaculture products reached $334 million in the three States affected by Rita's hurricane and tropical force winds. Rita may have resulted in losses to producers of fish and shellfish products. Private sources estimate losses of $80 million in Louisiana, which likely includes estimated losses incurred by commercial fisheries.

Grain Elevators. There are seven export grain elevators located in the Texas Gulf region, with a combined storage capacity of approximately 33 million bushels. Two of the export elevators, with a combined storage capacity of 11 million bushels, are located in Corpus Christi, Texas, well south and west of the path of Hurricane Rita. The Corpus Christi ship channel is open to unrestricted navigation. Another Texas Gulf export elevator with a capacity of about 3 million bushels is located at Brownville, Texas. That elevator is also located south of the Rita's path.

Three of the export elevators, with a combined capacity of 15 million bushels, are in the Houston/Galveston, Texas port region. This region received heavy rains and high winds from Rita. Reports indicated that only minimal damage was sustained and it would take less than one week for two elevators to come online, with the main problems being a lack of electricity and a shortage of personnel. Initial assessments are that the seventh elevator at Beaumont, Texas, sustained little physical damage, even though the elevator was directly in the path of Rita. The sources indicate the port of Beaumont, Texas, was without power and that it could take up to a

week for the export grain facility there to resume operations. This elevator has a storage capacity of about 3 million bushels.

Farm Production Costs. As Hurricane Rita approached, 16 refineries along the Gulf Coast shut down as a precautionary measure and to allow employees to evacuate. Currently, 4 of those refineries are completely shutdown, 3 shut down in the Port Arthur and Lake Charles areas, and 1 shut down in the Houston/Texas City/Galveston refining area. In addition, there are 3 refineries still shut down in the New Orleans area following Hurricane Katrina. In total, the shut down refineries account for about 1.9 million barrels per day of refining capacity.

Retail gasoline prices increased by about 20 cents per gallon in regions most affected by the hurricanes (the Gulf Coast via refinery outages and the Midwest and Lower Atlantic regions via reduced product pipeline flows). Diesel markets saw even larger price increases. The average U.S. retail diesel price rose by nearly 35 cents per gallon between September 26 and October 3, with the Lower Atlantic region diesel price increasing by more than 50 cents per gallon. The average diesel price in September was $2.82 per gallon, an all-time monthly high, even after adjusting for inflation, and October is likely to average even higher, given that the average price on October 10 was $3.15 per gallon, or nearly unchanged since October 3.

Higher prices for gasoline and diesel fuel increase farm production costs. Before Katrina, farm production expenses for fuels and oils were projected to reach $10.2 billion in 2005, up from $8.2 billion in 2004 and $6.8 billion in 2003. The increase in farm production expenses will depend on the duration of the price increases for fuels and oils. For every month that the cost of fuels and oils remain 10 percent higher, farmers incur additional expenses of about $85 million.

Crop Insurance. Depending on the severity of the loss and the level of crop insurance coverage, producers incurring crop losses due to damaging winds and excessive rains from Rita may be partially reimbursed through Federal crop insurance indemnity payments. In Louisiana, Mississippi and Texas more than two-thirds of planted acreage of cotton, corn, soybeans, rice and sugarcane are covered by Federal crop insurance (table 4). With the exception of sugarcane in Louisiana and corn in Mississippi more than one-half of all insured acres are covered by buy-up policies that reimburse producers for crop losses that exceed 35 percent or less in some instances.

Table 1. Production Changes for Crops Potentially Affected by Hurricane Rita: October 1, 2005 Production Estimates Compared with September 1, 2005 Production Estimates

State/Crop	Unit	September	October	Unit Change	Percent Change
Arkansas					
Cotton	1,000 bales	2,030	2,100	+70	+3.4
Soybeans	1,000 bushels	100,300	102,000	+1,700	+1.7
Corn	1,000 bushels	28,750	29,440	+690	+2.4
Rice	Mil cwt	112.488	109.545	-2.943	-2.6
Louisiana					
Cotton	1,000 bales	1,150	1,100	-50	-4.3
Cane sugar	1,000 s. tons	1,256	1,152	-104	-8.3
Sugarcane	1,000 s. tons	10,920	10,010	-810	-7.4
Rice	Mil cwt	30.713	30.713	NC	NC
Soybeans	1,000 bushels	30,100	28,560	-1,540	-5.1
Mississippi					
Cotton	1,000 bales	2,200	2,200	NC	NC
Rice	Mil cwt	17.095	17.095	NC	NC
Soybeans	1,000 bushels	54,950	54,950	NC	NC
Corn	1,000 bushels	49,275	48,545	-730	-1.5
Texas					
Cotton	1,000 bales	7,245	7,645	+400	+5.5
Soybeans	1,000 bushels	6,875	7,200	+325	+4.7
Corn	1,000 bushels	216,000	216,000	NC	NC
Sorghum	1,000 bushels	112,000	108,300	-3,700	-3.3
Rice	Mil cwt	14.070	14.070	NC	NC
U.S. Total					
Cotton	1,000 bales	22,282	22,717	+435	+2.0
Cane sugar	1,000 s. tons	3,589	3,499	-90	-2.5
Sugarcane	1,000 s. tons	30,161	30,241	+80	+0.3
Rice	Mil cwt	228.338	223.238	-5.1	-2.2
Soybeans	1,000 bushels	2,856,449	2,967,075	+110,626	+3.9
Corn	1,000 bushels	10,638,661	10,857,440	+218,779	+2.1
Sorghum	1,000 bushels	397,721	375,105	-22,616	-5.7

Table 2. Harvest Progress Prior to Rita

	% Crop Harvested
Louisiana	
Cotton	39
Corn	100
Sorghum	99
Soybeans	73
Rice	92
Mississippi	
Cotton	19
Corn	94
Soybeans	78
Rice	60
Texas	
Cotton	23
Corn	73
Sorghum	59
Soybeans	N.A.
Rice	98

N.A.—Not Available; 50% assumed.

Table 3. Estimated Crop and Livestock Losses Resulting from Rita

Commodity Production	**Estimated Value of 2005 Production Loss (mil. $)**
Corn	2
Soybeans	8
Sorghum	7
Upland Cotton	20
Rice	24
Sugarcane	42
Other Crops	9
Cattle	3
Hogs	1/
Broilers	1/
Dairy	2/
Fish and Shellfish	80 3/
Total Commodity Production	195

1/No estimate of death loss currently available.
2/No estimate of death loss available; producers subject to hurricane force winds could have lost $400,000 per week in milk sales.
3/Includes losses to commercial fisheries.

Note: Perennial crops could have reduced production in future years. Crop insurance indemnities will offset some losses; indemnity estimates not yet available.

Appendix Table 1. Number of Livestock and Crop Production in the Path of Hurricane Rita 1/

	Cattle	Beef Cows	Milk Cows	Hogs	Broilers	Corn	Soybeans	Sorghum	Cotton	Rice	Sugarcane
	----------(head)----------					----------bushels----------			bales	cwt.	tons
Louisiana											
Hurricane Path #1	255,635	137,853	4,754	4,318	40,652,603	305,870	3,380,979	312,990	0	21,924,419	2,384,605
% Hurricane Path #1	29.7	28.8	13.2	27.0	18.7	0.6	11.2	3.5	0.0	71.4	21.8
Hurricane Path #2	525,585	216,408	20,223	7,940	103,641,078	28,126,164	18,460,154	7,074,983	760,334	4,595,509	8,230,198
%Hurricane Path # 2	61.1	45.2	56.2	49.6	47.8	57.4	61.3	78.4	66.1	15.0	75.4
Total Hurricane Path	781,220	354,261	24,977	12,259	144,293,681	28,432,034	21,841,133	7,387,973	760,334	26,519,927	10,614,803
% Hurricane Path	90.8	74.0	69.4	76.6	66.5	58.0	72.6	81.9	66.1	86.3	97.2
Mississippi											
Hurricane Path #1	0	0	0	0	0	0	0	0	0	0	0
% Hurricane Path #1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hurricane Path #2	57,782	26,837	2,151	290	18,509,386	539,759	388,968	0	6,774	0	0
%Hurricane Path # 2	5.4	4.7	8.3	0.1	2.2	1.1	0.7	0.0	0.3	0.0	0.0
Total Hurricane Path	57,782	26,837	2,151	290	18,509,386	539,759	388,968	0	6,774	0	0
% Hurricane Path	5.4	4.7	8.3	0.1	2.2	1.1	0.7	0.0	0.3	0.0	0.0
Texas											
Hurricane Path #1	371,135	182,627	1,558	3,798	253,257,094	1,091,425	176,335	1,264,975	0	2,313,925	0
% Hurricane Path #1	2.7	3.3	0.5	0.4	40.8	0.5	2.6	1.1	0.0	16.4	0.0
Hurricane Path #2	1,221,123	687,303	8,620	12,091	68,143,326	8,235,645	1,103,727	11,523,444	380,682	8,320,876	0
%Hurricane Path # 2	8.8	12.4	2.7	1.2	11.0	3.8	16.1	10.3	5.3	59.1	0.0
Total Hurricane Path	1,592,258	869,930	10,178	15,888	321,400,420	9,327,069	1,280,062	12,788,419	380,682	10,634,801	0
% Hurricane Path	11.5	15.7	3.2	1.6	51.8	4.3	18.6	11.4	5.3	75.6	0.0
All-State Total											
Hurricane Path #1	626,770	320,480	6,312	8,116	293,909,697	1,397,294	3,557,315	1,577,965	0	24,238,344	2,384,605
% U.S. Hurricane Path #1	0.7	1.0	0.1	0.0	3.4	0.0	0.1	0.4	0.0	10.6	7.9
Hurricane Path #2	1,804,490	930,548	30,993	20,321	190,293,790	36,901,568	19,952,848	18,598,427	1,147,790	12,916,385	8,230,198
% U.S. Hurricane Path # 2	1.9	2.8	0.3	0.0	2.2	0.3	0.7	4.7	5.2	5.7	27.3
Total Hurricane Path	2,431,260	1,251,028	37,306	28,437	484,203,487	38,298,862	23,510,163	20,176,392	1,147,790	37,154,729	10,614,803
% U.S. Hurricane Path	2.5	3.7	0.4	0.0	5.5	0.4	0.8	5.1	5.2	16.3	35.2

1/Path #1--Winds greater than 73 mph; Path #2--Winds of 39-73 mph.

Appendix Table 2. Summary of Production Losses due to Hurricane Rita

Crop/livestock sector	Louisiana	Mississippi	Texas	Total
Corn	No loss; 100% harvested by Sept. 25	730,000 bushels valued at $1 million based on Oct. 12 crop production report	$1 million; assumes 10 percent yield loss in harvesting; corn 73% harvested by Sept. 25	$2 million
Soybeans	1.5 million bushels valued at $8 million based on Oct. 12 crop production report	Less than $0.1 million; assumes 2.5 percent yield loss in harvesting; 78% harvested by Sept. 25	Less than $0.1 million; assumes 2.5 percent yield loss in harvesting	$8 million
Sorghum	No loss; 99% harvested by Sept. 25	No loss; no sorghum production in path of Hurricane	3.7 million bushels valued at $7 million based on Oct. 12 crop production report	$7 million
Upland Cotton	50,000 bales valued at $13 million based on Oct. 12 crop production report	$0.1 million; excludes quality losses; assumes 10 percent yield loss in harvesting; 19% harvested by Sept. 25	$7 million; doesn't include quality losses; assumes 10 percent yield loss in harvesting; 23% harvested by Sept. 25	$20 million
Rice	$1.8 million; assumes 10 percent yield loss in harvesting; 92% harvested by Sept. 25	Less than $0.1 million; assumes 10 percent yield loss in harvesting; 60% harvested by Sept. 25	$0.2 million; assumes 10 percent yield loss in harvesting; 98% harvested by Sept. 25	$24 million* *Includes $22 million in estimated losses in Arkansas
Sugarcane	104,000 tons of refined sugar valued at $42 million based on Oct. 12 crop production report	No loss; no sugarcane production	No loss; no sugarcane production in path of Hurricane	$42 million
Nursery plants, fruits and vegetables	$3 million; private estimate; not estimated by USDA	NR	NR	$3 million
Pecans	$6 million; private estimate; not estimated by USDA	NR	NR	$6 million

AN UPDATE OF THE PRELIMINARY ASSESSMENT OF THE EFFECTS OF DROUGHT IN THE MIDWEST
USDA/OCE, October 18, 2005

A preliminary assessment of the effects of Hurricane Katrina and drought on U.S. agriculture was released on September 19, 2005, and is available at www.usda.gov/oce/Katrinadamage_1_2.pdf. This paper updates the drought portion of that assessment, based on the crop production estimates from the October 12, 2005 USDA *Crop Production* report.

Drought in the Eastern Corn Belt and Excess Moisture in the Northern Plains. Many parts of the nation experienced adverse weather during 2005 beyond the Hurricane affected areas. Such disturbances are typical for U.S. agriculture. The long-term drought continued in many western states, particularly affecting reservoir and other hydrological conditions. Agricultural losses appear most notable in the drought that emerged in the eastern Corn Belt this summer. In addition, excess moisture in the Northern Plains caused additional agricultural losses.

Drought in the Corn Belt. Drought developed in key areas of the Corn Belt during the spring and persisted during the summer of 2005. June-August rainfall totaled less than 50 percent of normal at several locations, including:

Location	Total (Inches)	Normal (Inches)	Percent of Normal
De Queen, Arkansas	3.74	11.04	34
Moline, Illinois	4.70	13.07	36
Burlington, Iowa	4.94	12.79	39
El Dorado, Arkansas	5.24	12.53	42
Chicago, Illinois	5.18	11.76	44
Lincoln, Illinois	5.84	12.32	47
Galesburg, Illinois	6.12	12.62	48

Corn and soybeans were among the most drought-affected crops. Illinois corn was rated 48 percent poor-to-very poor on October 9. Missouri's corn acreage was rated 43 percent poor-to-very poor. On the same date, Arkansas, Illinois and Missouri soybeans were rated 29 percent poor-to-very poor. Beneficial rains in the region provided some relief to drought-stressed soybeans in August and September.

Excessive Rains in the Northern Plains and the Northwest. After an unfavorably dry winter, wet weather developed in the Northwest. Above-normal precipitation persisted through the spring, resulting in the second wettest March-May period on record in Idaho and Nevada. The wet weather shifted eastward during the summer months, covering much of the northern and central Plains and parts of the upper Midwest. North Dakota experienced its third-wettest summer during the 111-year period of record. As a result, rare summer flooding occurred on the northern Plains. The final spring wheat condition report on August 14 showed 20 percent of Minnesota's crop to be in poor-to-very poor condition. Along the North Dakota-Minnesota

border, the Red River crested on June 18 in Fargo at 11.19 feet above flood stage and Grand Forks, 12.07 feet above flood stage, the second-highest summer level on record in both locations. Summer high-water marks along the Red River were established in July 1975, when crests climbed 16.26 feet above flood stage in Fargo and 15.08 feet above flood stage in Grand Forks. Ironically, Washington suffered from a late-season drying trend, which left the state's final spring wheat condition at 22 percent poor-to-very poor.

Effects on Principal Corn Belt Crops. A number of crops have been damaged by drought in drought affected states. Corn and soybeans are the principal crops in the area, however, other crops such as sorghum and forage crops have been lost. As of October 9, 2005, in Illinois 37 percent of the pasture and range and 17 percent of the sorghum were as rated poor or very poor. In Missouri, 36 percent of the pasture and range and 31 percent of the sorghum were as rated poor or very poor. The effect of the Corn Belt drought is estimated by comparing actual estimated 2005-crop production as of October 1, 2005 as reported in USDA's *Crop Production* report with normal production. Production effects are presented for soybeans and corn, the principal crops, for the States of Arkansas, Illinois, Indiana, Missouri, Ohio and Wisconsin. Producers in other nearby States also may have incurred additional losses. Normal production is estimated two ways by using a 5-year average of State yields and a trend yield. These measures of normal yield were estimated by multiplying estimated harvested area as of October 1 to produce an estimate of normal production. Production losses are valued using the forecast season-average price for soybeans and the national average loan rate for corn. Because corn prices are below loan rates, the forgone income due to lost production for a producer is the market price plus the loan deficiency payment rate which is the difference between the local loan rate and the posted county price. The national average corn loan rate is used as a proxy for the market price plus the loan deficiency payment rate. The results are reported in table 1.

For soybeans, as of October 1 crop conditions, the value of lost production in the 5-state area is $35 million when measured from 5-year average yields and $224 million when measured from trend yields, with losses concentrated in Illinois, Missouri and Ohio. For corn, as of October 1 crop conditions, the value of lost production in the 5-state area is $415 million when measured from 5-year average yields and $477 million when measured from trend yields, with losses again concentrated in Illinois and Missouri and no losses in Indiana and Ohio. Combined losses are $450 million when measured from 5-year average yields. **When measured from trend yields, losses are $701 million. This is down from the level of losses from trend yields estimated at $1.27 billion in the September 19 assessment. Individual producers in other states likely experienced losses as well.**

Crop Insurance. Producers in the drought-affected Corn Belt States appear to be well covered by crop insurance (table 2). The percent of planted acreage of corn and soybeans covered ranges from about 60 to 76 percent. About one-quarter or less of policies are at the catastrophic level of coverage, the minimum available, except for Arkansas, where the majority of coverage is at the catastrophic level. Catastrophic coverage insures a loss in excess of 50 percent of normal yield valued at 55 percent of price, or a maximum of 27.5 percent of the market value of normal production in the event of a total loss.

Table 1. Estimated Soybean and Corn Losses in Major Drought-Affected States

Soybean Summary						
	Arkansas	Illinois	Indiana	Missouri	Ohio	Wisconsin
2005 yield (bu/ac) as of Oct. 1	34.0	45.0	46.0	35.0	44.0	38.0
5-year average yield (bu/ac)	33.8	43.9	45.3	36.3	40.1	36.8
2005 trend yield (bu/ac)	35.6	45.8	46.6	37.1	46.6	40.5
Yield difference from average (bu/ac)	0.2	1.1	0.7	-1.3	3.9	1.2
Yield difference from trend (bu/ac)	-1.6	-0.8	-0.6	-2.1	-2.6	-2.5
2005 harvested area (1,000 acres)	3,000	9,450	5,370	4,950	4,470	1,580
Production						
with 2005 yield (1,000 bu)	102,000	425,250	247,020	173,250	196,680	60,040
with 5-year average yield (1,000 bu)	101,400	414,855	243,261	179,685	179,247	58,144
with trend yield (1,000 bu)	106,800	432,810	250,242	183,645	208,302	63,990
difference from average (1,000 bu)	600	10,395	3,759	-6,435	17,433	1,896
Difference from trend (1,000 bu)	**-4,800**	**-7,560**	**-3,222**	**-10,395**	**-11,622**	**-3,950**
Price (Forecast U.S. average farm price, $/bu)	5.40	5.40	5.40	5.40	5.40	5.40
Production value difference from average ($1,000)	3,240	56,133	20,299	-34,749	94,138	10,238
Productions value difference from trend ($1,000)	**-25,920**	**-40,824**	**-17,399**	**-56,133**	**-62,759**	**-21,330**
Corn Summary						
	Arkansas	Illinois	Indiana	Missouri	Ohio	Wisconsin
2005 yield (bu/ac)	128.0	145.0	149.0	105.0	141.0	138.0
5-year average yield (bu/ac)	137.8	156.4	147.4	130.2	137.6	131.8
2005 trend yield (bu/ac)	138.5	158.8	148.4	129.7	140.5	139.5
Yield difference from average (bu/ac)	-9.8	-11.4	1.6	-25.2	3.4	6.2
Yield difference from trend (bu/ac)	-10.5	-13.8	0.6	-24.7	0.5	-1.5
2005 harvested area (1,000 acres)	230	11950	5750	2950	3220	2850
Production						
with 2005 yield (1,000 bu)	29,440	1,732,750	856,750	309,750	454,020	393,300
with 5-year average yield (1,000 bu)	31,694	1,868,980	847,550	384,090	443,072	375,630
with trend yield (1,000 bu)	31,855	1,897,660	853,330	382,615	452,410	397,575
difference from average (1,000 bu)	-2,254	-136,230	9,200	-74,340	10,948	17,670
Difference from trend (1,000 bu)	**-2,415**	**-164,910**	**3,450**	**-72,865**	**1,610**	**-4,275**
Price (U.S. average loan rate $/bu.)	1.95	1.95	1.95	1.95	1.95	1.95
Revenue difference from average ($1,000)	-4,395	-265,649	17,940	-144,963	21,349	34,457
Production value difference from trend ($1,000)	**-4,709**	**-321,575**	**6,728**	**-142,087**	**3,140**	**-8,336**

Table 2—Crop Insurance Coverage for Key Crops in Major Drought Affected States

	Acres Planted	Acres Insured	Percent of planted covered	Percent covered at catastrophic level
Arkansas				
Corn	240,000	170,648	71.1	55.0
Soybeans	3,000,000	2,031,881	67.7	52.7
Illinois				
Corn	12,100,000	8,533,725	70.5	9.3
Soybeans	9,700,000	6,763,346	69.7	
Kentucky				
Corn	1,250,000	768,872	61.5	18.7
Soybeans	1,260,000	846,793	67.2	18.9
Missouri				
Corn	3,100,000	2,345,812	75.7	22.4
Soybeans	5,100,000	3,685,371	72.3	25.6
Wisconsin				
Corn	3,700,000	2,190,665	59.2	13.8
Soybeans	1,600,000	1,107,254	69.2	7.4