A PRELIMINARY ASSESSMENT OF THE EFFECTS OF KATRINA AND DROUGHT ON U.S. AGRICULTURE
USDA/OCE, September 19, 2005

Note: This paper presents preliminary estimates of the effects of Hurricane Katrina and drought in 2005 on U.S. agricultural production. The estimates contained herein are based on early damage estimates obtained from a variety of information sources, some of which change daily. These estimates are subject to change and 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 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 also be offset by insurance indemnities.

I. Effects of Hurricane Katrina on U.S. Agriculture

Path of the Katrina:
Following Katrina's brief August 25 strike on southern Florida, the hurricane explosively strengthened over the Gulf of Mexico and turned toward Louisiana. On the morning of August 29, Katrina became one of the strongest hurricanes on record to make landfall in the United States. Katrina made landfall as a category 4 hurricane around 7:10 a.m. EDT near Buras, LA, with maximum sustained winds near 140 mph (map 1). Based on Katrina's minimum barometric pressure at landfall, only the Labor Day hurricane of 1935 (Florida Keys) and 1969's Hurricane Camille (southern Mississippi) were more intense.

Katrina's large wind field and tremendous storm surge caused extensive damage along and near the central Gulf Coast. One of the Nation's greatest disasters unfolded in Katrina's wake, when storm-damaged levees unleashed flood waters on New Orleans, LA, submerging the majority of the city. New Orleans had escaped a direct strike from Katrina, although the hurricane's western eye wall moved across the city on August 29. Some wind gusts recorded across southeastern Louisiana prior to instrumentation failure included 105 mph at the Belle Chasse Naval Air Station and 86 mph at New Orleans' Lakefront Airport. After crossing the sparsely populated Mississippi Delta, Katrina's eye crossed Lake Borgne and made its final landfall near the Louisiana-Mississippi border.

Southern Mississippi communities and cities just to the east of the landfall—such as Waveland, Gulfport, Biloxi, and Pascagoula—were shredded by high winds and inundated by a devastating storm surge in excess of 20 feet. Along the Gulf Coast, wind gusts were clocked to at least 118 mph in Pascagoula and 102 mph. on Dauphin Island, AL. Farther inland, Mississippi wind gusts to 100 mph or greater were reported at emergency operations centers as far north as Hattiesburg and Laurel. Wind gusts topped 50 mph in Birmingham, AL and Memphis, TN.

Katrina's remnants tracked across Mississippi and western Tennessee before turning northeastward across the Ohio Valley and into the Northeast. Heavy rain (locally 4 inches or

more) caused minor flash flooding but replenished soil moisture reserves in advance of soft red winter wheat planting.

Some daily-record rainfall totals associated with Katrina's remnants included 4.40 inches (on August 29) in Tupelo, MS; 3.08 inches (on August 30) in Louisville, KY; and 3.90 inches (on August 31) in Watertown, NY. Storm totals in excess of 4 inches were common as far north as Ohio, northern Pennsylvania, New York, and northern New England, with amounts of 10 inches or more reported in the central Gulf Coast region. Big Branch, LA, tallied an unofficial total of 14.82 inches.

Role of Agriculture in Affected States. Portions of the States of Alabama, Florida, Louisiana and Mississippi were affected by hurricane force winds (74 mph or greater) from Katrina (see attached map of Hurricane's track). According to the 2002 Census of Agriculture, the counties in these States that incurred hurricane forces 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, cotton, rice and soybean production (Appendix Table 1). In contrast, about 9 percent of U.S. broiler production and 12 percent of U.S. sugarcane production is in counties that incurred hurricane force winds.

Tropical storm winds (39-73 mph) from Katrina affected additional counties in Alabama, Florida, Louisiana and Mississippi as well as several counties in Tennessee. The total area of these States affected by either hurricane or tropical force winds accounts for less than 1 percent of total U.S. hog inventory, 1 percent of milk cows, 3 percent of cattle, and about 1 percent of corn and 3 percent of soybean production. However, about 17 percent of broiler, 18 percent of upland cotton, 14 percent of rice and 85 percent of U.S. sugarcane production is in counties that incurred either hurricane or tropical force winds.

Primary agricultural effects included timber losses, lodging of sugarcane in Florida and southeastern Louisiana, damage to broiler houses and greenhouses and other farm infrastructure in the central Gulf Coast States and destruction of port facilities, including stored commodities, and navigation aids in the Lower Mississippi River. Summer crops such as soybeans, rice, cotton, nursery crops, fruit and vegetables were vulnerable to damage due to gusty winds and heavy rain. In addition, the loss of electricity, lack of fuel, and damage to roads and port facilities interrupted the movement and processing of poultry, milk and other agricultural products.

Method of Estimating Production Losses. USDA State Emergency Boards have been reporting daily to USDA on estimated agricultural damages due to the Hurricane based on on-site observations. Industry associations have also reported on losses. On September 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 Katrina on production of major field crops. *Crop Production* forecasts are based on objective yield surveys and area estimates for 2005 field crops in the United States, reflecting crop conditions as of September 1. Crop production losses are valued at the higher of the current market price or the marketing assistance loan rate for the commodity. Table 1 presents the national crop production

estimates for August 1 and September 1, 2005. Production loss estimates from Hurricane Katrina are summarized by State and crop in Appendix Table 2.

Corn and Soybeans. Hurricane and tropical force winds from Katrina affected an estimated 61 percent of the corn in Alabama, 15 percent of corn in Florida, 69 percent of corn in Louisiana, 87 percent of corn in Mississippi and 43 percent of corn in Tennessee (appendix table 1). Across all five affected States, hurricane and tropical force winds were recorded on acreage which normally produces about 120 million bushels. However, most of this acreage was subjected to tropical force winds rather than more much damaging hurricane force winds. In addition, 70 percent of the corn in Louisiana and 37 percent of the corn in Mississippi had been harvested before the hurricane hit these States, further limiting the loss in corn production. Based on the September 12 crop production report, Katrina lowered corn production in Alabama and Tennessee by 2.6 million bushels (table 2). In addition, severe lodging of corn in Louisiana and Mississippi likely will result in production losses and higher harvesting costs in those States. The value of corn production losses are estimated at about $14 million, which includes an estimated loss of 10 percent on unharvested corn in Louisiana and Mississippi (table 3).

Hurricane and tropical force winds affected 60 percent or more of the soybeans in Alabama, Louisiana and Mississippi and nearly 40 percent of the soybeans in Tennessee. The acreage affected would normally produce about 80 million bushels of soybeans. As with corn, nearly all of the affected acreage was subjected to tropical force winds. Also, losses were limited because 20 percent of the soybeans in Louisiana and 25 percent of the soybeans in Mississippi were harvested prior to the arrival of Katrina. The September 12 crop production report lowered soybean production in Alabama and Tennessee by Katrina by 1.2 million bushels. The hurricane could also increase losses and harvesting costs on unharvested soybeans in Louisiana and Mississippi. The value of soybean production losses in all five hurricane affected States are estimated at $17 million, which includes an estimated loss of 2.5 percent of unharvested soybeans in Louisiana and Mississippi

Rice and Upland Cotton. About 80 percent of rice in Louisiana and 50 percent of rice production in Mississippi were subjected to tropical force winds. Essentially all rice production in both States is located outside areas that incurred hurricane force winds. In addition, many Louisiana rice producers harvested their crop prior to the arrival of Katrina. Sixty-three percent of the rice acreage in Louisiana and 2 percent of Mississippi rice had been harvested before Katrina passed through these two States. The September 1 crop production report shows no rice production losses in these two States from Katrina. However, severe lodging will increase harvest costs and lead to increased harvest losses which are estimated at $21 million.

One-half to three-fourths of upland cotton production in Alabama, Louisiana, Mississippi and Tennessee sustained hurricane or tropical force winds. Again, nearly all of the affected acreage was subjected to tropical force winds rather than the much more damaging hurricane force winds. The September 1 crop production report reduced Alabama's cotton production by 20,000 bales and cotton production in Mississippi by 100,000 bales. These production losses have an estimated value of $30 million. In addition, private sources have indicated that the hurricane resulted in cotton production losses of $10 million in Louisiana.

Sugarcane. Hurricane and tropical storm winds from Katrina hit essentially all of the sugarcane growing areas of Florida and Louisiana, with about 30 percent of Louisiana's crop subjected to hurricane force winds. Very little of the Florida crop was subjected to hurricane force winds. The September 1 crop production report lowered Louisiana's sugarcane production by 1.04 million tons or 9 percent and made no change in Florida's sugarcane production. The decline in Louisiana's sugarcane crop has an estimated farm value of $30 million and a processed (cane sugar) value of $50 million. Harvest costs will also increase.

Fruits, Vegetables and Nursery Crops. Alabama, Florida, Louisiana, Mississippi and Tennessee produce a wide variety of nursery crops. In 2004, sales of fruits, vegetables and nursery crops amounted to $4.7 billion in Florida and an additional $1.1 billion in Alabama, Louisiana, Mississippi and Tennessee. Damage to fruits, vegetables and nursery crops are estimated at $25 million in Alabama and $400 million in Florida. In addition, private sources have indicated losses of $30 million in Louisiana and $108 million in Mississippi.

Livestock. In Alabama, Louisiana, and Mississippi nearly 825,000 head of cattle and calves and over 33,000 hogs and pigs were located in counties that sustained hurricane force winds. High winds and flooding resulted in losses of building, equipment and some cattle and hogs. Of the 15,000 beef cattle left in St. Bernard Parish area, 10,000 are presumed dead. These lost animals are valued at an estimated at $8 million.

Katrina disrupted broiler production in the Gulf region, but is expected to have limited short-term negative impacts on U.S. broiler production. In Alabama, 60 percent of broiler production is in counties affected by tropical storm winds. In Mississippi, 95 percent of broiler production is in countries that sustained hurricane force winds and the remaining 5 percent is in counties that incurred tropical force winds. An estimated 200,000 chickens were lost in Alabama and over 6 million birds and 2,400 poultry barns were damaged in Mississippi. The 6.2 million broilers lost due to Katrina have an estimated market value of about $15 million. Although Hurricane Katrina has temporarily affected broiler exports, firms will shift exports to other ports, minimizing disorder. In addition, losses of eggs and poults will reduce future broiler production and producers that had their grow-out facilities destroyed will have lost production and incomes until they can be rebuilt.

Dairy. About 60,000 dairy cows were located in counties affected by hurricane force winds and 40,000 were located in counties subjected to tropical storm winds. In Louisiana and Mississippi, over two-thirds of dairy cows were in areas that experienced hurricane-force winds. Many producers suffered damage to buildings and equipment and loss of power, leaving them unable to milk their cows without generators. In addition, the absence of electricity and impassable roads prevented the processing and movement of milk to processing plants. In counties affected by hurricane force winds, lost producer sales of milk could amount to about $3 million 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 totaled $467 million in the five States affected Katrina's hurricane and tropical force winds. Katrina likely resulted in losses to producers of fish and shellfish products. Private sources estimate losses of $151 million in Louisiana.

Forestry. Early estimates from the Forest Service indicate potential timber losses from Hurricane Katrina amount to 4.2 billion cubic feet of timber, spread over 5 million acres of light to heavily damaged forest land in Alabama, Louisiana and Mississippi. Nearly 90 percent of all forests damaged were within 60 miles of the coast, predominately in Mississippi, with 60 percent of the damage occurring to softwoods. Estimated timber losses, initially placed in the billions of dollars, will depend on the success of salvage operations.

Farm Production Costs. Katrina destroyed oil platforms in the Gulf and disrupted oil delivery and refining causing the prices of gasoline and other petroleum products to increase sharply. In the week immediately following Katrina's Gulf landfall, the national average price of gasoline increased by 18 percent and the price of diesel fuel rose by 12 percent. Despite declining the following week, the price of gasoline remained 13 percent higher and the price of diesel fuel 10 percent above prices prior to Katrina's Gulf landfall. 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.

Katrina will affect fertilizer availability and costs two ways. First, natural gas is the primary input in the production of nitrogen fertilizer, representing 70 to 90 percent of the cost anhydrous ammonia nitrogen fertilizer (anhydrous ammonia is the source of nearly all the nitrogen fertilizer produced in the world). Average U.S. ammonia production costs doubled from 1999 to 2003, the latest year for which data are available. These rising production costs have been reflected in the prices paid for fertilizers by farmers. Most recently, the August 2005 USDA fertilizer price index rose 0.6 percent from July and 13 percent above August a year ago. Therefore, any long-term increase in natural gas prices due to Katrina will lead to an increase in the cost of domestically produced nitrogen fertilizers and an increase in prices paid by farmers for fertilizers.

Second, the U.S. imports a significant share of nitrogen fertilizers. In calendar year 2004, about 14 percent of nitrogen fertilizer use was met by imports through the port of New Orleans (total imports represented about 50 percent of nitrogen fertilizer use). Therefore, long-term disruption to the port of New Orleans could have an impact on the availability and price of nitrogen fertilizers. One factor mitigating the impact of any disruption on the port of New Orleans on fertilizer imports is the timing of Katrina. Based on data from the Department of Commerce, in 2004, chemical fertilizer imports were at their lowest levels in June and July and peaked from October to December. If the port of New Orleans is fully operational latter this year, any impacts on the availability and price of fertilizer would be mitigated.

Farm Prices. Katrina damaged and destroyed port facilities, moved navigation aids and sank barges disrupting the flow of a wide variety of agricultural products to Gulf ports. Over one-half of all grain exports move out of Gulf Coast ports. Ports in the Gulf Coast region affected include New Orleans, LA; Gulfport, MS; Biloxi, MS; Pascagoula, MS; Bayou LaBatre, AL; Mobile, AL; Pensacola, FL; and Destin/Panama City, FL. The disruption in the flow of grain to Gulf ports, higher energy prices, large carryover stocks of corn reducing storage capacity for this year's corn harvest, and the early commencement of this year's corn harvest has led to lower prices for corn and other farm commodities. The effects on farm income will depend on the length of time that port facilities remain less than fully operational and the ability to divert agricultural commodities to alternative port facilities or to alternative uses. Corn prices are currently below the loan rate in nearly all counties. As a result, lower corn prices do not necessarily translate into lower farm income, since lower corn prices lead to an equivalent increase in marketing loan deficiency payments. However, for soybeans, prices are presently above the loan rate and lower prices would lead to a decline in farm income.

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 Katrina may be partially reimbursed through Federal crop insurance indemnity payments. In Alabama, Louisiana and Mississippi, 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.

II. Other Natural Disasters in 2005 Affecting U.S. Agriculture

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 (map 2). 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 53 percent poor-to-very poor on September 11. Missouri's corn acreage was rated 43 percent poor-to-very poor. On the same date, Missouri soybeans were rated 35 percent poor-to-very poor, while Illinois and Arkansas soybeans were rated 30 and 29 percent poor-to-very poor, respectively. Beneficial rains in the region provided some relief to drought-stressed soybeans in August.

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 September 4, 2005, in Illinois 56 percent of the pasture and range and 20 percent of the sorghum were as rated poor or very poor. In Missouri, 59 percent of the pasture and range and 35 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 September 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. Parts of other states are affected as well. 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 multiplied by estimated harvested area as of September 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 5.

For soybeans, as of September 1 crop conditions, the value of lost production in the 5-state area is $266 million when measured from 5-year average yields and $557 million when measured from trend yields, with losses concentrated in Illinois and Missouri. For corn, as of September 1 crop conditions, the value of lost production in the 5-state area is $638 million when measured from 5-year average yields and $710 million when measured from trend yields, with losses again concentrated in Illinois and Missouri and no losses in Indiana and Ohio. Combined losses are $804 million when measured from 5-year average yields and $1.267 billion when measured from trend yields. 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 6). 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. U.S. Production Forecasts For Selected Crops as of August 1 and September 1, 2005

State/Crop	Unit	August	September	Unit change	Percent change
Sugarcane	1,000 s. tons	31,104	30,161	- 943	-3.0
Cane sugar	1,000 s. tons	3,709	3,589	-120	-3.2
Cotton, upland	Mil bales	20.566	21.575	+1	+4.9
Rice	Mil cwt	226.7	228.3	+1.6	+0.7
Soybeans	Mil bushels	2,791	2,856	+65	+2.3
Corn	Mil bushels	10,350	10,639	+289	+2.8
Peanuts	Mil pounds	5,142	5,010	-132	-2.6
Tobacco	Mil pounds	677.1	644.3	-32.8	-4.8

Sources: Cane sugar: *WASDE*; other crops: *Crop Production*.

Table 2. Production Changes For Crops Potentially Affected by Hurricane Katrina: September 1, 2005 Production Estimates Compared with August 1, 2005 Production Estimates

State/Crop	Unit	August	September	Unit change	Percent change
Alabama					
Cotton	1,000 bales	840	820	-20	-2.4
Soybeans	1,000 bushels	4,480	4,480	NC	NC
Corn	1,000 bushels	21,600	21,240	-360	-1.7
Peanuts	Mil pounds	657.0	624.4	-32.6	-5.0
Florida					
Cane sugar	1,000 s. tons	1,899	1,899	NC	NC
Sugarcane	1,000 s. tons	15,540	15,540	NC	NC
Tobacco	Mil pounds	7.000	6.720	-0.280	-4.0
Louisiana					
Cane sugar	1,000 s. tons	1,376	1,256	-120	-8.7
Sugarcane	1,000 s. tons	11,960	10,920	-1,040	-8.7
Rice	Mil cwt	29.925	30.713	+788	+2.6
Soybeans	1,000 bushels	27,520	30,100	+258	+9.4
Corn	1,000 bushels	43,750	49,000	+5,250	+12.0
Mississippi					
Cotton	1,000 bales	2,300	2200	-100	-4.3
Rice	Mil cwt	16.767	17.095	+0.328	+2.0
Soybeans	1,000 bushels	54,950	54,950	NC	NC
Corn	1,000 bushels	49,275	49,275	NC	NC
Tennessee					
Cotton	1,000 bales	1,110	1,100	NC	NC
Soybeans	1,000 bushels	48,000	46,800	-1,200	-2.5
Corn	1,000 bushels	71,680	69,440	-2,240	-3.1
Tobacco	Mil pounds	50.918	50,918	NC	NC

Sources: Cane sugar: *WASDE*; other crops: *Crop Production*.

Table 3. Estimated Crop, Livestock and Fish Losses Resulting from Hurricane Katrina	
Commodity Production	**Estimated Value of 2005 Production Loss (Mil. $)**
Corn	14
Soybeans	17
Upland Cotton	40
Rice	21
Sugarcane	50
Other Crops	563
Cattle	8
Hogs	1/
Broilers	15
Dairy	3 2/
Fish and Shellfish	151
Total Commodity Production	882
Other	
Higher energy prices	$85 per month 3/
Infrastructure losses, increased marketing costs; increased basis	4/

1/No estimate of death loss available.
2/No estimate of death loss available.
3/ Assumes 10 percent higher fuel and oil cost per month for producers due to Hurricane Katrina.
3/No estimate currently available.

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

Table 4. Crop Insurance Coverage for Key Crops in Major Katrina-affected States				
	Acres Planted	**Acres Insured**	**Percent of planted covered**	**Percent covered at catastrophic level**
Alabama				
Cotton	560,000	533,115	95.2	7.8
Corn	200,000	147,753	73.9	29.0
Soybeans	150,000	109,532	73.0	32.4
Louisiana				
Cotton	600,000	563,811	94.0	49.0
Corn	360,000	311,953	86.7	32.6
Soybeans	900,000	769,744	85.5	28.3
Sugarcane	460,000*	313,044	68.1	84.6
Rice	530,000	403,086	76.1	49.3
Mississippi				
Cotton	1,210,000	1,095,536	90.5	53.5
Corn	380,000	283,468	74.6	62.6
Soybeans	1,600,000	1,358,735	84.9	39.4

* Estimated harvested area

Table 5. Estimated Soybean and Corn Losses in Major Drought-Affected States						
Soybean Summary						
	Arkansas	Illinois	Indiana	Missouri	Ohio	Wisconsin
2005 yield (bu/ac) as of Sept. 1	34.0	41.0	45.0	33.0	44.0	36.0
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	-2.9	-0.3	-3.3	3.9	-0.8
Yield difference from trend (bu/ac)	-1.6	-4.8	-1.6	-4.1	-2.6	-4.5
2005 harvested area (1,000 acres)	2,950	9,650	5,470	5,050	4,430	1,570
Production						
with 2005 yield (1,000 bu)	100,300	395,650	246,150	166,650	194,920	56,520
with 5-year average yield (1,000 bu)	99,710	423,635	247,791	183,315	177,643	57,776
with trend yield (1,000 bu)	105,139	442,292	254,931	187,204	206,461	63,654
difference from average (1,000 bu)	590	-27,985	-1,641	-16,665	17,277	-1,256
Difference from trend (1,000 bu)	-4,839	-46,642	-8,781	-20,554	-11,541	-7,134
Price (Forecast U.S. average farm price, $/bu)	5.60	5.60	5.60	5.60	5.60	5.60
Production value difference from average ($1,000)	3,304	-156,716	-9,190	-93,324	96,751	-7,034
Productions value difference from trend ($1,000)	**-27,099**	**-261,193**	**-49,172**	**-115,105**	**-64,631**	**-39,950**
Corn Summary						
	Arkansas	Illinois	Indiana	Missouri	Ohio	Wisconsin
2005 yield (bu/ac)	125.0	136.0	149.0	103.0	141.0	136.0
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)	-12.8	-20.4	1.6	-27.2	3.4	4.2
Yield difference from trend (bu/ac)	-13.5	-22.8	0.6	-26.7	0.5	-3.5
2005 harvested area (1,000 acres)	230	11950	5650	2950	3220	2800
Production						
with 2005 yield (1,000 bu)	28,750	1,625,200	841,850	303,850	454,020	380,800
with 5-year average yield (1,000 bu)	31,694	1,868,980	832,810	384,090	443,072	369,040
with trend yield (1,000 bu)	31,855	1,897,660	838,460	382,615	452,410	390,600
difference from average (1,000 bu)	-2,944	-243,780	9,040	-80,240	10,948	11,760
Difference from trend (1,000 bu)	-3,105	-272,460	3,390	-78,765	1,610	-9,800
Price (U.S. average loan rate $/bu.)	1.95	1.95	1.95	1.95	1.95	1.95
Production value difference from average ($1,000)	-5,741	-475,371	17,628	-156,468	21,349	22,932
Production value difference from trend ($1,000)	**-6,055**	**-531,297**	**6,611**	**-153,592**	**3,140**	**-19,110**

Table 6. Crop Insurance Coverage in 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	6,806,554	70.2	9.1
Missouri				
Corn	3,100,000	2,345,812	75.7	22.4
Soybeans	5,100,000	3,685,371	72.3	25.6
Ohio				
Corn	3,450,000	2,383,695	69.1	4.4
Soybeans	4,450,000	3,040,371	68.3	4.1
Wisconsin				
Corn	3,700,000	2,190,665	59.2	13.8
Soybeans	1,600,000	1,107,254	69.2	7.4

Appendix Table 1. Livestock and Crop Production in the Path of Hurricane Katrina 1/											
	Cattle	Beef Cows	Milk Cows	Hogs	Layers	Broilers	Corn	Soybeans	Cotton	Rice	Sugarcane
	----------(head)----------						-----bushels----		bales	cwt.	tons
Alabama											
Hurricane Path #1	74,330	17,887	808	2,085	218,208	8,532,854	748,818	342,929	38,305	0	0
% Hurricane Path #1	5.2	2.3	4.3	1.2	2.3	0.8	3.5	7.7	4.6	0.0	0.0
Hurricane Path #2	844,455	321,567	10,339	56,420	4,619,687	635,780,881	12,398,591	2,395,699	593,172	0	0
%Hurricane Path # 2	58.7	42.0	54.6	33.6	47.8	60.5	57.4	53.5	70.6	0.0	0.0
Total Hurricane Path	918,785	339,454	11,147	58,505	4,837,895	644,313,735	13,147,410	2,738,629	631,477	0	0
% Hurricane Path	63.9	44.3	58.9	34.8	50.1	61.3	60.9	61.1	75.2	0.0	0.0
Florida											
Hurricane Path #1	9,095	2,011	66	164	2,084	390	0	0	0	0	0
% Hurricane Path #1	0.5	0.2	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hurricane Path #2	179,212	106,597	4,381	4,054	52,777	21,555,145	358,518	59,160	53,190	717,423	14,286,492
%Hurricane Path # 2	10.3	10.9	3.0	12.1	0.5	19.7	14.6	24.4	54.8	99.3	91.9
Total Hurricane Path	188,307	108,608	4,447	4,218	54,861	21,555,535	358,518	59,160	53,190	717,423	14,286,492
% Hurricane Path	10.8	11.1	3.1	12.6	0.5	19.7	14.6	24.4	54.8	99.3	91.9
Louisiana											
Hurricane Path #1	165,494	56,837	35,119	2,189	6,556	1,766,640	115,782	0	0	0	3,610,640
% Hurricane Path #1	19.3	11.9	78.9	12.0	0.3	0.8	0.3	0.0	0.0	0.0	30.2
Hurricane Path #2	299,666	179,282	1,773	7,105	7,115	2,511	29,863,822	22,086.008	641,532	23,755,628	7,881,300
%Hurricane Path # 2	35.0	37.5	4.0	38.9	0.3	0.0	68.3	80.3	64.2	79.4	65.9
Total Hurricane Path	465,160	236,119	36,892	9,294	13,671	1,769,151	29,979,604	22,086,008	641,532	23,755,628	11,491,939
% Hurricane Path	54.4	49.4	82.9	50.9	0.7	0.8	68.5	80.3	64.2	79.4	96.1
Mississippi											
Hurricane Path #1	575,436	252,837	23,854	28,810	3,167,635	716,887,287	5,334,557	1,317,386	45,488	697	0
% Hurricane Path #1	53.6	44.5	67.9	9.5	58.8	95.3	10.8	2.4	2.0	0.0	0.0
Hurricane Path #2	482,452	200,119	8,893	107,045	66,824	30,391,108	37,725,858	34,913,570	1,585,957	7,833,168	0
%Hurricane Path # 2	45.0	35.2	25.3	35.4	1.2	4.0	76.6	63.5	69.0	46.7	0.0
Total Hurricane Path	1,057,888	452,956	32,747	135,855	3,234,459	747,278,395	43,080,415	36,230,856	1,631,444	7,833,865	0

% Hurricane Path	98.6	79.7	93.3	45.0	60.0	99.3	87.4	65.9	70.9	46.7	0.0
Tennessee											
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
Hurricane Path #2	661,826	306,865	16,129	127,639	436,641	2,928,171	30,974,545	18,478,851	768,312	0	0
%Hurricane Path # 2	29.6	28.1	19.2	55.4	37.6	1.6	43.2	38.5	69.8	0.0	0.0
Total Hurricane Path	661,826	306,865	16,129	127,639	436,641	2,928,171	30,974,545	18,478,851	768,312	0	0
% Hurricane Path	29.6	28.1	19.2	55.4	37.6	1.6	43.2	38.5	69.8	0.0	0.0
All-State Total											
Hurricane Path #1	824,355	329,572	59,847	33,248	3,394,483	727,187,171	6,199,157	1,660,215	83,793	697	3,610,640
% U.S. Hurricane Path #1	0.9	1.0	0.7	0.1	1.0	8.6	0.1	0.1	0.4	0.0	11.6
Hurricane Path #2	2,467,611	1,114,430	41,515	302,263	5,183,044	690,657,816	111,321,335	77,933,289	3,642,162	32,306,219	22,167,792
% U.S. Hurricane Path # 2	2.6	3.3	0.5	0.5	1.5	8.1	1.1	2.8	17.1	14.2	71.3
Total Hurricane Path	3,291,966	1,444,002	101,362	335,511	8,577,527	1,417,844,987	117,520,491	79,593,504	3,725,955	32,306,916	25,778,432
% U.S. Hurricane Path	3.4	4.3	1.1	0.6	2.6	16.7	1.1	2.9	17.5	14.2	82.9

1/Path #1--Winds greater than 73 mph; Path #2--Winds of 39-73 mph.
Production estimates from 2002 Census of Agriculture.

Appendix Table 2. Summary of Agriculture, Fish and Forest Production Losses From Hurricane Katrina (Preliminary as of September 19, 2005); NA=Not available, NQ=Not quantified

Crop/livestock sector	Alabama	Florida	Louisiana	Mississippi	Tennessee	Total
Corn	360,000 bushels valued at $720,000; based on USDA Sept. 1 crop production survey	NR	$3 million; assumes 10 percent yield loss in harvesting; corn 70% harvested by Aug. 28. USDA crop production survey for Sept. 1 shows higher production than on Aug. 1	$6 million; assumes 10 percent yield loss in harvesting; corn 37% harvested by Aug. 28. USDA crop production survey for Sept. 1 shows production unchanged from Aug. 1	2.24 million bushels valued at $4.5 million; based on USDA Sept. 1 crop production survey	$14 million
Soybeans	$1 million; assumes 2.5 percent yield loss in harvesting. USDA crop production survey for Sept. 1 shows same production as on Aug. 1	NR	$3 million; assumes 2.5 percent yield loss in harvesting. USDA crop production survey for Sept. 1 shows higher production than on Aug. 1	$6 million; assumes 2.5 percent yield loss in harvesting. USDA crop production survey for Sept. 1 shows same production as on Aug. 1	1.2 million bushels valued at $7 million based on USDA Sept. 1 crop production survey	$17 million
Upland Cotton	20,000 bales valued at $5 million; based on USDA Sept. 1 crop production survey	NR	$10 million; private estimate; USDA crop production survey for Sept. 1 shows more production than on Aug. 1	100,000 bales valued at $25 million; based on USDA Sept. 1 crop production survey	NR. USDA crop production survey for Sept. 1 shows same production as on Aug. 1	$40 million
Rice	No rice production	No rice production	$8 million; assumes 10 percent yield loss in harvesting. USDA crop production survey for Sept. 1 shows more production than on Aug. 1	$13 million; assumes 10 percent yield loss in harvesting. USDA crop production survey for Sept. 1 shows more production than on Aug. 1	No rice production	$21 million
Sugarcane	No sugarcane production	NR	1.04 million tons valued at $50 million based on Sept. 1, crop production survey.	No sugarcane production	No sugarcane production	$50 million
Nursery plants, fruits and vegetables	$25 million	$400 million	$30 million; private estimate; not estimated by USDA	$108 million; private estimate; not estimated by USDA	NR	$563 million
Pecans	Initial damage; future productivity losses expected; not estimated by USDA	Initial damage; future productivity losses expected; not estimated by USDA	NR	NR	NR	NQ
Pasture	Possible saltwater damage; loss not estimated by USDA	NR	Possible saltwater damage; loss not estimated by USDA	Possible saltwater damage; loss not estimated by USDA	NR	NQ

App. Table 2, Cont. Crop/livestock sector	Alabama	Florida	Louisiana	Mississippi	Tennessee	Total
Christmas trees	Damages reported but unspecified	NR	NR	NR	NR	NQ
Cattle	NR	NR	10,000 head lost with market value of $8 million. Future productivity losses not estimated by USDA	NR	NR	$8 million
Hogs	NR	NR	NR	NR	NR	NQ
Poultry	200,000 bird lost with market value of $0.5 million. Future production losses due to loss of eggs and poults expected—not estimated by USDA	NR	NR	6 million birds lost with market value of $14 million Future production losses due to loss of eggs and poults expected—not estimated by USDA	NR	$15 million
Dairy	NR	NR	$1.5 million in dumped milk. Future cow productivity losses expected and not estimated by USDA	$1.5 million in dumped milk. Future cow productivity losses expected and not estimated by USDA	NR	$3 million
Fish, shellfish	Loss of aeration for catfish; minimal loss reported	NR	Various fish and shellfish losses reported. $151 million in total; private estimate; not estimated by USDA	NR	NR	$151 million
Honeybees	Losses to bees and bee infrastructure. Losses not estimated.	NR	NR	NR	NR	NQ
Timber	325 million cubic feet damaged; salvage value not estimated	NR	882 million cubic feet damaged; salvage value not estimated	3,028 million cubic feet damaged; salvage value not estimated	NR	4,235 million cubic feet; salvage value not estimated
Total, agriculture, fish	$32 million	$400 million	$265 million	$174 million	$12 million	**$882 million**