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**Final Estimates of Arkansas Crop Losses
from Poor Harvest Conditions
in 2009 – January 25, 2010**

By
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Throughout the 2009 cropping season Arkansas producers were challenged by a wet spring, dry June, and then excessive rainfall again from July through harvest. Although some crops were predisposed to lower yields from late planting, this report provides estimates of acreage, yield, and quality losses plus additional fieldwork costs related to poor weather conditions during fall harvest and season losses for grass hay within the state.

Based on yield and price data from the USDA, National Agricultural Statistical Service (NASS), quality loss estimates from local elevators, and additional fieldwork estimates from University of Arkansas extension specialists, the losses in gross receipts for crops and grass hay for 2009 are estimated to be \$397 million. Cotton and sorghum are estimated to have experienced the largest negative impact per acre but total loss is greatest for soybeans (\$204 million) and cotton/cottonseed (\$120 million).

Table 1. Estimated Reduction in Arkansas Gross Receipts from Poor Harvest Conditions, 2009.

Crop	USDA Estimated Harvested Acreage ¹ (1,000)	September Estimated Gross Receipts ² (\$1,000)	Reduced Gross Receipts ³ (\$1,000)	Percent Loss from Estimated Total Gross Receipts ⁴	Per Acre Loss by Total Acreage ⁵
Corn	410	\$221,437	-\$13,955	-6.3%	-\$34
Cotton	500	\$310,533	-\$103,365	-33.3%	-\$207
Cottonseed	500	\$63,798	-\$17,050	-26.7%	-\$34
Grass Hay	1,400	\$200,200	-\$7,808	-3.9%	-\$6
Rice	1,470	\$1,293,158	-\$46,298	-3.6%	-\$31
Sorghum	37	\$10,942	-\$4,507	-41.2%	-\$122
Soybeans	3,270	\$1,248,585	-\$204,196	-16.4%	-\$62
Total	7,087	\$3,348,653	-\$397,178	-11.9%	-\$56

¹ Estimates from January 2010 NASS Arkansas Crop Production Report.

Grass Hay estimates come from the October NASS Crop Production Report released Oct. 9, 2009.

² Estimated value of crop in September before harvest.

³ Reduction in revenue from acreage, yield, and quality loss plus additional fieldwork costs.

⁴ Equals Reduced Gross Receipts divided by Estimated Gross Receipts

⁵ Equals Reduced Gross Receipts divided by USDA Estimated Harvested Acreage

Data Sources and Analysis

The NASS September 2009 (October for grass hay) Arkansas yield estimates, pre-harvest acreage estimates, and the September through December average marketing crop prices were used to generate a pre-harvest expected revenue for each crop. The NASS January 2010 harvested acreage and yield report was used along with the September through December average marketing crop price to estimate the actual crop revenue. The difference from the estimated crop revenue and actual crop revenue is the loss from destroyed acreage and yield reductions. In addition, estimates on quality loss were provided by grain elevators and additional fieldwork estimates were provided by Arkansas extension specialists.

Corn. Poor harvest conditions are estimated to have a negative impact of almost \$14 million on corn producers from yield and quality loss plus additional fieldwork. The September NASS yield estimate was 153 bu/ac was reduced to 148 bu/ac in the January 2010 report. The 5 bu/ac decrease in yield reduced revenue by \$7.2 million. It is estimated that 44% of the harvested acres (180.4 thousand) had a quality loss of \$0.15/bu for a total of \$4 million. Additional fieldwork is estimated at \$2.7 million, assumed to be needed on 16.7% of harvested corn acres at a cost of \$36.70/ac.

Cotton. Arkansas cotton producers have been hit the hardest as a percentage of gross receipts compared to the other crops. The economic losses from acreage, yield and quality plus additional fieldwork costs on cotton and cotton seed combined is estimated to be a \$120 million reduction in gross receipts. The September NASS yield estimate was 1,056 lbs/ac but the January estimate has been reduced to 797 lbs/ac. It is estimated that 15 thousand acres were completely destroyed from the poor weather conditions. Together, yield loss and destroyed acres reduced revenue from lint and seed by \$100 million. It is estimated that 66.5% of the harvested acres (332.5 thousand) had a quality loss of \$0.04/lb for a total of \$10.6 million. Additional fieldwork is estimated at \$9.8 million. This rut remediation is assumed to be needed on 52% of the harvested cotton acres at a cost of \$36.70/ac.

Grass Hay. Hay producers have lost an estimated \$7.8 million from poor conditions throughout the growing season. Estimates come from the October 9, 2009 crop production and crop prices reports released by USDA NASS. It is estimated that there were 1.4 million acres of grass hay with a normal yield of 2.2 ton/acre. The weather reduced yields by approximately 4% according to unpublished estimates from the Arkansas Farm Service Agency. Losses on hay pastures are concentrated in the south and southwest part of Arkansas. No losses in quality have been included in this report. Furthermore, reductions in pasture forage for grazing has not been included, although preliminary analysis by Arkansas Cooperative Extension forage experts suggests that the cloudy and wet weather has had negative impacts on pasture conditions.

Rice. Rice producers in Arkansas have seen moderate losses from poor harvest conditions, varying from none to substantial depending on location. Gross receipts are estimated to be reduced by nearly \$46.3 million from acreage, yield and quality losses plus additional fieldwork costs. The September NASS yield estimate was 152.2 bu/ac but this was reduced to 151.1 bu/ac in the January report. It is estimated that 10 thousand acres were destroyed by poor weather at harvest. Combining losses from destroyed acres and yield loss, revenue was reduced by \$18 million. It is estimated that 68% of the harvested acres (999.6 thousand) had a quality loss of \$0.15/bu for a total of nearly \$22.7 million. Additional fieldwork is estimated at \$5.5 million and this is assumed to be needed on 10% of the harvested rice acres at a cost of \$36.70/ac.

Sorghum. Arkansas sorghum producers experienced a loss of approximately 41.2% of their gross receipts from reduced acreage, yield, quality and additional fieldwork from poor harvest conditions. The estimated loss in gross receipts from reduced yield, quality, and additional fieldwork costs is \$4.5 million. The September NASS yield estimate was 93 bu/ac, however NASS reported a final estimate of only 79 bu/ac in the January report. Yield losses contributed \$1.6 million to the total loss. Quality loss was estimated on 47% (17.8 thousand acres) of the crop at a rate of \$1.80/bu contributing \$2.5 million to the total loss estimate. Additional fieldwork costs, estimated at \$334 thousand, are assumed to be needed on 24% of the harvested sorghum acres at a cost of \$36.70/ac.

Soybeans. It is estimated that Arkansas soybeans producers lost nearly \$204.2 million from decreased acreage, yield, quality, and additional fieldwork. The September NASS yield estimate of 38 bu/ac was reduced to 37.5 bu/ac in January. It is estimated that 100 thousand acres were destroyed from the poor harvest conditions. Combining losses from destroyed acres and yield loss, revenue was reduced by \$52.9 million. The largest portion of losses in soybeans was from deterioration in quality. It is estimated that 80% of the harvested acres (2.6 million) had a quality loss of \$1.04/bu for a total of \$102 million. Additional fieldwork is estimated at \$49.1 million and is assumed to be needed on 40% of the harvested soybean acres at a cost of \$36.70/ac.

Value-Added. In addition to the direct loss of \$397 million, the economic loss has reduced economic activity beyond the farm-gate. The additional loss to the value added (Arkansas gross state product) is estimated to be nearly \$202.7 million. The loss from crop damage is estimated for three activities. First, crop damage results in less farm revenue which is estimated to reduce farm household spending for consumer goods and services. Second, since crop output is reduced, there are fewer grains and oilseeds (corn, rice, sorghum and soybeans) to process. This reduces milling and processing activity, which in turn has negative impacts on the transportation, wholesale and many other industries that supply goods and services to the processing industries. Similarly, since cotton production is diminished there will be less cotton to gin which requires fewer workers and, therefore, less paid in wages and salaries and less value added to the state

economy. Less cotton to gin also affects those industries that supply goods and services to operate the gins, including transportation.

Estimates of the economic loss due to crop damage are a decline of nearly 3,700 full and part-time jobs, a reduction of approximately \$102 million in wages and salaries, and a decline of nearly \$202.7 million in value added (Arkansas Gross State Product).

Table 2. Estimated Arkansas Value-Added Impacts from 2009 Crop Damage.

	Employment		Wages*		Value Added*
Corn, Soybean, Rice Processing	-266	\$	(10,776)	\$	(19,276)
Cotton Ginning	-262	\$	(6,098)	\$	(7,713)
Reduced Household Spending	-3172	\$	(85,149)	\$	(175,686)
Total	-3,700	\$	(102,023)	\$	(202,675)

* Figures are in \$1,000

Table 3. Detailed Analysis of Calculating Loss of Gross Receipts from Poor Harvest Conditions by Commodity, 2009.

	Estimated Area Harvested Pre-Harvest ¹ (1,000)	Yield Estimate Pre- Harvest ²	Unit	Crop Price	Unit	Revenue Estimate Pre- Harvest (\$1,000)	Area Harvested Estimate Post- Harvest ⁴ (1,000)	Yield Estimate Post- Harvest ⁴	Unit	Revenue Estimate Post-Harvest (\$1,000)	Revenue Loss From Yield & Acreage Reduction (\$1,000)	Quality Loss ⁵ (\$1,000)	Additional Fieldwork ⁶ (\$1,000)	Total Loss From Poor Harvest Conditions (\$1,000)
Corn	410	153	bu	\$3.53	bu	\$221,437	410	148	bu	\$214,200	-\$7,236	-\$4,005	-\$2,713	-\$13,955
Cotton	515	1,056	lb	\$0.57	lb	\$310,533	500	797	lb	\$227,544	-\$82,989	-\$10,600	-\$9,776	-\$103,365
Cottonseed	515	0.76	tn	\$163.00	tn	\$63,798	500	0.57	tn	\$46,748	-\$17,050			-\$17,050
Grass Hay	1,400	2.2	tn	\$65.00	tn	\$200,200	1,400	2.1	tn	\$192,392	-\$7,808			-\$7,808
Rice	1,480	152.2	bu	\$5.74	bu	\$1,293,158	1,470	151.1	bu	\$1,275,045	-\$18,113	-\$22,658	-\$5,527	-\$46,298
Sorghum	37	93.0	bu	\$3.18	bu	\$10,942	37	79.0	bu	\$9,295	-\$1,647	-\$2,525	-\$334	-\$4,507
Soybeans	3,370	38.0	bu	\$9.75	bu	\$1,248,585	3,270	37.5	bu	\$1,195,594	-\$52,991	-\$102,024	-\$49,181	-\$204,196
Total	7,212					\$3,348,653	7,087			\$3,160,819	-\$187,835	-\$141,812	-\$67,531	-\$397,178

¹ Acreage that would have been harvested if harvest weather conditions were normal.

² USDA September yield estimate for each crop.

³ Crop price is average of USDA monthly farm price received from September - December, 2009. Grass hay acreage and yield estimates come the Oct. 9, 2009 Crop Production report. Price estimate is the Missouri price for Other Hay in the Oct. 9, 2009 USDA NASS Crop Prices report.

⁴ USDA's Arkansas yield and acreage estimates from January, 2010.

⁵ Quality loss from additional drying or poor grain/lint quality. See text for assumptions.

⁶ Costs of additional fieldwork due to rutting fields. Assumes two passes with a disk and land plane at \$37.60/acre.

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