

Estimated Value of Crop Production Losses in Mississippi in 2009¹

The past year has been a challenging one for Mississippi's farmers. Wet, cool springtime weather resulted in late planting for most crops in many areas of the state. Crop progress data from the last week of April illustrates the difficulties faced by producers early in the 2009 season:

Table 1. Mississippi Crop Progress for Week Ending April 26, 2009

| Crop | Current Week <i>percent</i> | Prior Week <i>percent</i> | Year Ago <i>percent</i> | 5-Year Avg. <i>percent</i> |
|-------------------|--------------------------------|------------------------------|----------------------------|-------------------------------|
| Corn, planted | 88 | 84 | 95 | 95 |
| Corn, emerged | 73 | 61 | 83 | 86 |
| Cotton, planted | 13 | 0 | 6 | 23 |
| Rice, planted | 38 | 17 | 54 | 62 |
| Rice, emerged | 14 | 4 | 26 | 31 |
| Sorghum, planted | 31 | 6 | 37 | 50 |
| Sorghum, emerged | 10 | 0 | 17 | 27 |
| Soybeans, planted | 33 | 15 | 43 | 57 |
| Soybeans, emerged | 16 | 5 | 20 | 35 |

Source: USDA Mississippi Agricultural Statistics Service. *Weekly Weather Crop Report*. April 27, 2009.

Following this year's late planting, hot, dry conditions in the first half of the summer further challenged developing crops. Despite the problems, by late summer potential yields looked, for the most part, better than average on most of the state's major crops. Table 2 shows August and September yield estimates from monthly USDA *Crop Production* reports along with 5-year average yields (2004 through 2008) for the state's major row crops.

Table 2. Mississippi 5-Year Average Crop Yields and Projected 2009 Yields

| Crop | 5-Year Avg. Yield | USDA Aug Yield Estimate | USDA Sep Yield Estimate |
|--------------------|----------------------|----------------------------|----------------------------|
| Corn (bu) | 131 | 135 | 137 |
| Cotton (lbs) | 918 | 875 | 960 |
| Grain Sorghum (bu) | 79 | 75 | 78 |
| Rice (lbs) | 6,900 | 7,100 | 7,000 |
| Soybeans (bu) | 36 | 41 | 41 |

Source: USDA National Agricultural Statistics Service.

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Persistent rains through September and October have severely damaged this year's crops.² MAFES Bulletin 1026 reports that on average producers will have 20 days available for field work between the second week of September and the first week of October and that no less than 14 days will be available. According to Mississippi Agricultural Statistics Service's *Weekly Weather Crop Report* over the same time period this year only 16 days occurred without rain. When taking into consideration the time it takes for the soil to dry between rains the number of days producers could be in the field would likely fall below the minimal threshold reported. As a result, crop losses will show up as increased abandonment, reduced yields on acres that are ultimately harvested, and reduced crop quality resulting in substantial price discounts to producers. The following represent preliminary estimates of these losses at the state level on Mississippi's primary row crops along with peanuts and sweet potatoes. A number of caveats are in order regarding these estimates. First, these estimates are preliminary, reflecting crop conditions as of mid-October. It is possible that continued adverse field conditions could compound these losses, increasing abandonment, yield losses, and/or quantity losses beyond those examined here. Second, these estimates are based on assumptions about market prices and quality discounts that are, of course, subject to change. Finally, estimates of this year's yield potential – the benchmark from which quantity adjustments are made – are rather subjective. This issue is discussed in greater detail below.

Methodology

To estimate the value of lost and/or damaged production for Mississippi's major crops, estimated harvested acres and yields published in USDA's September *Crop Production* report are used to establish a benchmark for production.³ These estimates reflect USDA's assessment of Mississippi production at an early enough point in the season that substantial crop damage had not occurred. This is supported by weekly USDA *Crop Progress* reports, which show relatively small changes in the proportion of each of the state's crops rated in the Good and Excellent categories until after around September 20. To determine the acreage of each crop that was harvested without major damage, for each crop the estimate of percent harvested in the September 20 *Crop Production* report was multiplied by USDA's September harvested acreage estimate. The resulting product (representing acres harvested prior to sustaining weather damage) was multiplied by USDA's September yield estimate to calculate the amount of production of each crop that was not damaged. Acres of each crop remaining unharvested by September were adjusted by expected abandonment as estimated through a survey of crop production specialists. Similarly, USDA's September 1 yield estimates were adjusted by a percentage of yield loss obtained through a survey of production specialists. Finally, value of each crop lost due to quality degradation was calculated based on the volumes of each crop

² This year's delayed planting followed by a period of hot, dry weather may have had some impact on yield potential; however, there is no objective data with which to estimate those potential yields. USDA's September 1 yield estimates for all crops are higher than 5-year average yields for all crops, suggesting that any losses associated with early-to-mid-season stress were not abnormally large.

³ For rice, the yield estimate from the August *Crop Production* report was used as the yield benchmark since USDA reduced the Mississippi rice yield estimate from August to September.

subject to quality loss and typical price discounts, with both of these variables based on a survey of crop production specialists. For crop prices, the average difference between Mississippi marketing year average (MYA) prices and US national MYA prices over the past five years was calculated. This average difference was used to adjust the 2009/10 national MYA price estimates from USDA to obtain Mississippi MYA price estimates. National MYA price estimates for major row crops were taken from USDA's October *World Agricultural Supply and Demand Estimates (WASDE)* report. For sweet potatoes, the Mississippi MYA price estimate was taken from the USDA Economic Research Service's August *Vegetables and Melons Outlook* report. The peanut price were taken from the national MYA price reported in the USDA Economic Research Service's October *Oil Crops Outlook* report. Parameters used in estimating losses are reported in table 3.

Table 3. Parameters Used to Estimate 2009 Mississippi Crop Losses

| Crop | USDA | | Percent Harvested by Sep 20 | Percent of Unharvested Acres Abandoned | Estimated Percentage Yield Loss | Estimated MS Marketing Year Avg. Price |
|----------------|--------------------------------------|----------------------|-----------------------------|--|---------------------------------|--|
| | Estimated Harvested Acreage (1,000s) | USDA Estimated Yield | | | | |
| Soybeans | 2,170 | 41 | 29% | 25% | 20% | \$ 7.88 |
| Corn | 780 | 137 | 79% | 0% | 15% | \$ 3.67 |
| Cotton | 285 | 960 | 0% | 10% | 35% | \$ 0.55 |
| Rice | 238 | 7,100 | 28% | 8% | 8% | \$ 14.15 |
| Grain Sorghum | 19 | 78 | 46% | 100% | 100% | \$ 2.56 |
| Sweet Potatoes | 17 | 175 | 25% | 50% | 50% | \$ 20.70 |
| Peanuts | 20 | 3,500 | 0% | 0% | 20% | \$ 0.19 |

Notes: Soybean, corn, and grain sorghum yields in bushels per harvested acre; prices in \$/bu. Cotton and peanut yields in pounds per harvested acre; prices in \$/lb. Rice yield in pounds per harvested acre; price in \$/cwt. Sweet potato yields in tons per harvested acre; price in \$/cwt.

Estimated crop losses for Mississippi commercial row crops are summarized in Table 4. Total loss for row crops amounts to over \$371 million, around 23% of the potential value of the crop. Of the state's three largest crops, losses are projected to be greatest on cotton at about 43% of the crop's potential value. This reflects the fact that essentially none of the crop had been harvested prior to sustaining damage. By contrast, a large proportion of the state's corn crop had been harvested prior to the beginning of the recent rains. Also, corn is less susceptible to harvest losses due to wet weather. As a result, losses on corn are projected to be relatively small. Losses on sweet potatoes are also expected to be quite severe. Only about 25% of the state's acreage of this crop had been harvested when rains began. As much as half of the remaining sweet potato acreage will most likely be abandoned.

Table 4. 2009 Mississippi Crop Production and Value Losses

| Crop | Estimated | Total Value | | Percent of |
|----------------|--------------|--------------|------------|------------|
| | Crop Value | of Harvested | Lost Crop | |
| | On Sep 20 | Crop | Value | Value Lost |
| | (\$1,000s) | (\$1,000s) | (\$1,000s) | |
| Soybeans | \$ 701,137 | \$ 489,507 | \$ 211,630 | 30.2% |
| Corn | \$ 391,989 | \$ 379,642 | \$ 12,348 | 3.2% |
| Cotton | \$ 149,221 | \$ 84,494 | \$ 64,728 | 43.4% |
| Cotton Seed | \$ 41,774 | \$ 24,438 | \$ 17,336 | 41.5% |
| Rice | \$ 239,107 | \$ 213,455 | \$ 25,651 | 10.7% |
| Grain Sorghum | \$ 3,795 | \$ 1,746 | \$ 2,049 | 54.0% |
| Sweet Potatoes | \$ 61,583 | \$ 26,942 | \$ 34,640 | 56.3% |
| Peanuts | \$ 13,449 | \$ 10,759 | \$ 2,690 | 20.0% |
| Total | \$ 1,602,055 | \$ 1,230,982 | \$ 371,073 | 23.2% |