

# Changing Commodity Production on Rural Economies and the Role of Storage/Infrastructure in Southern US Agriculture

State Ag. and Rural Leaders  
Legislative Agricultural Chairs VI  
January 18 – 20, 2008  
St. Louis, Missouri

## **Abstract**

Farmers in the South, especially the Mid-South, saw historic shifts in acreage among commodities in 2007 – particularly from cotton to corn. The switch resulted in increased demands on infrastructure for corn (harvesting equipment, hauling, on- and off-farm storage) while excess capacity lay idle or at reduced activity (cotton gins). Optimal growing and harvest conditions for much of the Mid-South resulted in historic harvests and logistical nightmares moving the crop from field to market. This presentation focuses on the economic impacts of the switch and the role that policies promoting infrastructure investment can assist the agricultural community in future years better handle increased variability in commodity production.

## **Introduction**

Southern US row crop agriculture saw a historical switch in commodity production in 2007. States and regions, particularly in the Mid-South, saw large reductions in cotton production and historic increases in corn production. For example:

- Arkansas witnessed a 29% decrease in cotton production from the 2006 level of 1.17 million acres to 830,000 acres in 2007. A 195% increase in corn production occurred to approximately 560,000 acres.
- Mississippi received a 620,000 acre increase (182%) in corn production. (340,000 in 2006 compared to 960,000 in 2007). A corresponding decrease of 570,000 acres occurred (46% decrease) in cotton production (660,000 acres) during the same period.
- Louisiana dealt with a 46% decrease in cotton production to 340,000 acres and 150% increase in corn acreage over the 06-07 period to 750,000 acres. A 15 year time series of selected commodities in Louisiana is presented in Figure 1.

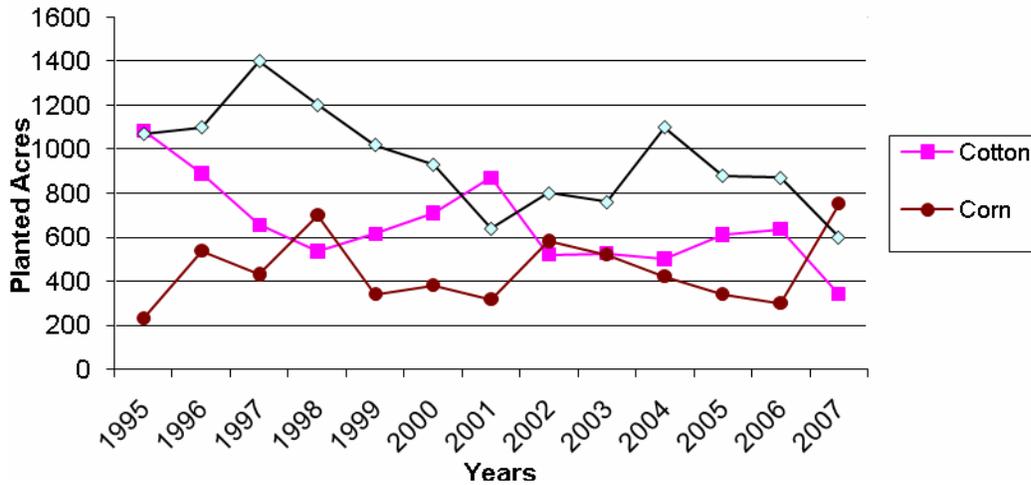
## **Economic Impacts of Switching Commodities**

The switching of agricultural commodities by farmers impacts a particular state economy all along the supply chain.

- Non-Labor Inputs purchased by farmers and value-added processors

- Household spending from hired farm labor and farm operator proprietary income earned
- Profits re-invested in facilities and equipment of farms and value-added agribusinesses

**Cotton, Corn and Soybean Acreage, Louisiana 1995-2007**



**Figure 1.**

To assess the economic impact of the switch from cotton to corn, we assess the economic impact of representative Mid-South state, Louisiana, along major elements of its supply chain. Conventional wisdom in cotton growing areas might suggest that reduced cotton acreage has a negative impact on the state economy compared to other feed grains. This would be supported by the following statistics.

- In 2007, it took approximately \$397 acres to grow an acre of cotton in Louisiana compared to only \$290 for the same acre of corn.
- Similarly, approximately \$33 was spent to gin an equivalent acre's harvest of cotton compared to only \$20 per bushel to handle and dry an acre's harvest of corn at the local elevator.

However, such conventional wisdom fails to account for two realities about the economic impact along this supply chain: 1) farmers purchase only a portion of their inputs from in-state suppliers and 2) farmers' profit margins can be reinvested in facilities and equipment or spent by the farm household stimulating the economy.

- When comparing approximately 300,000 acres of cotton in Louisiana that switched from cotton to corn, the direct proprietary income earned to corn

exceeded \$28.8 million compared to only \$10.8 million if the same acreage was planted in cotton.

The direct and total impact (including multiplier or spin-off effects) in terms of overall output, value-added and labor income in Louisiana can be seen in Table 1.

**Table 1.**

Category	Corn Direct Combined (\$)	Cotton Direct Combined (\$)	Difference (\$)	Corn Total Combined (\$)	Cotton Total Combined (\$)	Difference (\$)
Output	78,759,950	77,329,596	1,430,353	128,811,332	128,087,584	732,748
Value Added	47,208,927	47,928,409	-719,482	75,364,592	76,040,973	-676,381
Labor Income	29,375,914	31,490,898	-2,114,984	45,538,428	47,510,966	-1,972,539

- The net effects of the switch are almost flat in percentage terms. The large proprietary income effects from corn farming in 2007 almost equally offset the higher in-state spending of on-farm inputs, processing inputs, and hired off-farm labor as well as higher in-state linkages the cotton sector has with the remainder of the non-agricultural economy.
- What is unknown is how variable the economic impacts of such a switch are across regions of the state. Non-labor and hired labor inputs are more likely to purchase within rural farm regions providing multiplier effects locally.
- However, proprietary income spent by farm households is likely to be much more mobile. Farm households may spend a much higher percentage of discretionary household income above household essentials at regional malls, car dealerships, and higher order retail and service businesses in larger metropolitan regions creating a “leakage” out of the rural community.

### **Policy Issues for States**

In light of the increased variability of commodity production from year-to-year that has been made easier since the 1996 Farm Bill, states should consider policies that help to “smooth over” the risk to farmers and other firms along the supply chain from large year-to-year transitions in production.

While transportation logistics are extremely challenging for Midwest agriculture due to biofuel refining expansion, a related issue in the South, particularly the Mid-South, is the issue of storage infrastructure both on- and off-farm.

### *On-Farm Storage Policy*

On-Farm Storage has several benefits to the farmer that over the long-term provide net economic benefits to state economies:

- Over the long-term farmers are compensated with higher prices through timely marketing of commodities
- Minimizes logistical issues during harvest (loss of commodity due to inability to harvest from fields; spoilage of commodity prior to transfer of ownership)
- Assists with quality issues

USDA funds through the Commodity Credit Corporation (CCA) Charter Act the **Farm Storage Facility Loan Program**. Administered by the Farm Service Agency (FSA), this program encourages investment in on-farm storage by farmers through low-cost loans. (Current loan rate below 4%). However, there are several conditions that must be approved that might challenge southern US farmers.

- Farmers must show a 3 year average production level of specified crops. (Some loopholes do exist).
- Farmers must provide a 15% down payment on the loan.
- Farmers are limited to \$100,000 cap on storage loans.

Policy tools at the discretion of states to promote on-farm storage capacity:

- Tax incentives to promote investment in new storage (tax credits, tax deductions, etc)
- Strategies that leverage the federal program (second loans to cover federal down payment; state tax deductions on interest paid in federal program)
- Tax incentives to "refurbish" existing storage facilities

### *Off-Farm Storage Policy*

Much of the off-farm storage in the South is located at terminal elevators. Many of these facilities are located at state-financed ports and were built to accommodate lower capacities of locally supplied feed grains.

Policy tools at the discretion of states to promote off-farm storage capacity:

- Similar to on-farm storage, provide tax incentives to terminal elevator owners to increase storage capacity at their facilities
- Increase state infrastructure investments in public port facilities

### **Cotton Ginning**

One of the primary concerns for the cotton industry in the Mid-South is the uncertainty of long-term cotton production levels. Presently, cotton industry leaders are concerned how long-term (four year or greater) reduced production levels will impact the cotton infrastructure. At the heart of the industry's infrastructure concerns is cotton ginning.

- The number of cotton gins has steadily declined over the past two decades. These declines have been the result of technological advances in harvest (such as the cotton module) and ginning technology that has improved economies of scale of larger gins. Most of this decline to date has not impacted the ability of US cotton farmers to gin their cotton.
- The reduced acreage in 2007 has resulted in multiple gins not operating during harvest season. In Louisiana in particular, only 40 gins operated in 2007, a 7% reduction from 2006. Early discussion with cotton industry leaders suggest another 3 gins possibly choosing not to operate in 2008.
- For many gins in Louisiana, financial support came from higher cotton seed prices. Cotton seed prices approximately doubled during 2007 providing gin operators who were paid with in-kind cotton seed a safety net for fewer bales being ginned in 2007.

Policy options for state to consider with cotton infrastructure

- Conduct additional studies on efficiency and optimal number, location, and size of ginning facilities
- Monitor ginning capacity regionally within state – density of cotton production relative to capacity of nearby ginning facilities

## **Conclusion**

Crop production in the southern US saw many changes in 2007 highlighted in the Mid-South by the sharp increases in corn production and major decline in cotton production. States interested in minimizing long-term variability in their state's farm income as well as the underlying stability of their rural economies that are highly dependent on agriculture should consider the role of investments in on- and off-farm storage in their policy portfolios. Similarly, cotton ginning infrastructure should be addressed on an individual state-by-state basis to assess whether ginning capacity will be maintained at a sufficient threshold level to allow farmers in historically cotton producing regions to transfer back to the commodity as market prices dictate.

## **References**

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