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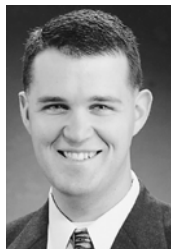


ECONOMICS COMMENTATOR

South Dakota State University

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Farm Sector Recovery Following the 2002 Drought

by

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Members of the Department of Economics at South Dakota State University monitored and assessed the likely statewide economic impacts of the 2002 drought. Timely moisture during the spring of 2003 resulted in a sizeable wheat harvest and fall prices have been significantly higher for cattle and soybeans. As a result, there have been inquiries into the extent of economic recovery in the farm sector of South Dakota. The purpose of this paper is to discuss the impacts from 2002 and the potential mitigating market effects observed during 2003. The results suggest about two-thirds of the drought and market impacts from 2002 have been restored to the farm sector by improved market impacts in 2003. However, wheat and cattle producers in the central and western parts of the state have been hit hardest, and they will likely need more time to recover.

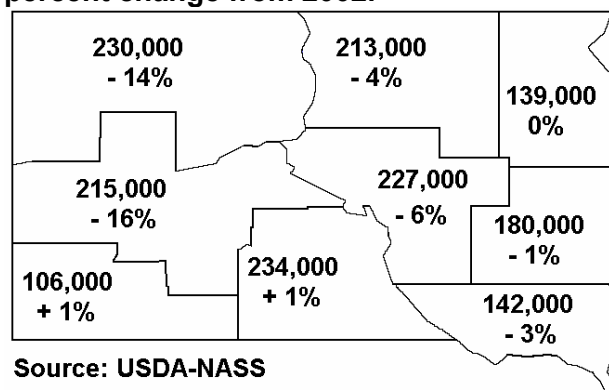
Impact Assessment and Validation

In February of 2003 we released an estimate of the drought-related impacts on the farm sector and overall economy in South Dakota. The estimated overall impact was \$1.4 billion, which included \$642 million in direct impacts to farm income. A key factor was direct federal aid of \$100 million for drought losses. No adjustments were made to the direct impacts for market effects from higher corn and wheat prices or from lower cattle prices. The indirect effect, which occurs on businesses related to agriculture, was \$642 million times the indirect multiplier of 0.77 or \$494 million. The induced effect, which occurs on local consumers and businesses, was the same \$642 million times a multiplier of 0.41 or \$263 million.

There were inquiries as to where the shortfall would come from, that is, did all of the direct impact on producers occur as a cash shortfall? The answer is no. Some of the direct effect occurred in the form of reduced pasture, hay, and grain inventories. Retained earnings or savings by farm households would have covered some of the effect. The multipliers accounted for these factors.

County level cattle inventory statistics validate the culling and feed cost estimates made for 2002. Beef cow inventories on January 1, 2003 were sharply lower in the Northwest, North Central, West Central, and Central agricultural statistics districts (figure 1). The culling was not as extensive as expected, being down 106,000 head instead of 250,000 head. Many cattle were relocated in South Dakota with and without ownership changing hands. Tronstad and Feuz document costs associated with destocking and restocking herds with different cows. They also report that herds in many western states were relocated to non-drought areas. Thus, we hesitate to reduce the related effect because of costs involved with maintaining the herds.

Figure 1. Beef cow inventory by Agricultural Statistics District on January 1, 2003 with the percent change from 2002.



Source: USDA-NASS

Accounting for higher corn prices would, on the surface, fully offset the 2002 drought losses related to corn. However, we are hesitant to do so for several reasons. First, any forward

contracted or hedged sales would not likely have been made at prices observed at harvest. The extent of hedging is unknown. Second, a substantial percentage of the 2002 crop would have been utilized as feed in South Dakota. Producers with corn would have sold it to those needing feed and the higher price received by the seller (a gain at the state level) would be offset by higher feed costs by the buyer (an equivalent loss at the state level). Third, the marketing pattern (percent sold by month) is unknown at this time.

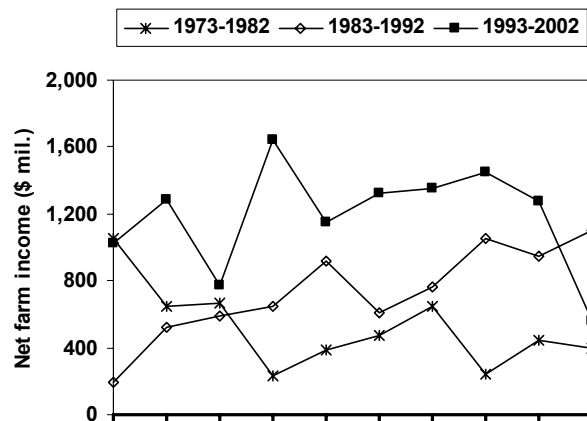
The impact at the farm level, a component of direct effects, was documented by Keen. Participants in the South Dakota Farm/Ranch Business Management Program had average net profit of \$25,700 in 2002 compared to \$47,500 the year before. Similarly, in a Federal Reserve Bank of Minneapolis survey, 82 percent of agriculture lenders in South Dakota said farm income was lower in late 2002 compared to one year earlier (Madden). As for multiplier-style effects, 50 percent of the lenders said household spending was lower and 81 percent said capital spending was lower.

For 2002 net farm income in South Dakota was only \$560 million compared to the average from 1999-2001 of \$1.36 billion (Economic Research Service). Net farm income has fluctuated widely during the past three decades, but the annual decline in 2002 was the largest absolute change on record (figure 2). Net farm income accounts for production changes, inventory adjustments, and market price changes. The estimate relies on some survey information for certain categories and is on a calendar year basis. However, the scope of the impact in 2002 is quite close to our direct effect estimate.

Mitigating Crop Situation

After two years of poor winter wheat harvests and a general turnaround in crop prices, 2003 will show sizable returns from crops in South Dakota. From 2000-2002 the combined value of crop production and crop insurance indemnity payments for corn, soybeans, and wheat averaged \$1.798 billion. During 2002 indemnity payments actually led to higher crop returns than in 2001. However, indemnity payments to wheat producers did not offset revenue losses in 2002 as extensively as for corn and soybean producers. Wheat producers tend to buy relatively lower levels of coverage.

Figure 2. South Dakota Annual Net Farm Income.



Source: Economic Research Service

Combining the gross returns from corn, soybeans, and wheat for 2003 shows a total of \$2.037 billion. The returns are \$239 million above the previous three-year average. The additional return could be looked at as a way to offset drought losses from those earlier years from the State's perspective. Any hedging activity would likely reduce that figure and any change in prices for the remainder of 2003 would affect inventory values for any unsold part of the crop.

Mitigating Livestock Situation

Conditions at the end of 2003 show range and pasture for South Dakota at 22 percent "very poor" and 35 percent "poor". This is almost as bad as conditions at the end of 2002 where 30 percent was rated as "very poor" and 27 percent as "poor". Hay yields were below the 10-year average and the relatively tight ending stocks position from 2002 results in another relatively tight supply situation for the 2003 feeding period.

NASS projections for South Dakota's calf crop indicate a reduction of 80,000 head from 2002. However, prices in 2003 are higher than during 2002. The calf crop can be valued at fall prices to capture increased revenue for those that are/will be sold and the increased inventory values for those retained by producers.

The weighted average price for stocker cattle, steer calves weighing between 500 and 600 pounds, was \$113 per cwt. in South Dakota during October of 2003. The price for the same time in 2002 was only \$88 per cwt., with data coming from USDA Agricultural Marketing

Service reports. The 2002 price allows one to value the calf crop by multiplying the \$484 per head by 1,840,000 head, giving \$890,560,000. The 2003 price of \$622 per head makes the 1,760,000 head calf crop worth \$1,094,720,000. The difference of \$204 million is sizeable, and could also be a statewide offset to 2002 drought losses. The estimate is quite susceptible to any reduction in price by the end of 2003. A \$10 per cwt. drop in calf prices would reduce the value of the calf crop by \$97 million.

Slaughter cattle prices have been higher than expected since the BSE case in Canada in late May of 2003. The midpoint of Economic Research Service price projections for the third and fourth quarters of 2003 were \$74 per cwt. and \$76 per cwt. before taking into account the ban on cattle imports from Canada. Feedlots with animals to sell from July on, that stayed in the cash market, have benefited from higher prices received since that time. Large feedlots are surveyed by NASS as to their monthly marketings. Small feedlot survey data is not available monthly, but their annual total averages out to 20,000 head marketed per month. To estimate the unexpected increase in revenue from the price spike, cattle feeding returns in excess of the projected price are calculated for marketings.

Using the marketings from July through October, the feedlot sector may generate an additional \$34 million in aggregate revenue in 2003. At some point in the feeding period, returns would no longer continue to accrue in this manner. The relative effect between calf crop and feeding values is also evident. Similar to the other enterprises, any forward pricing would reduce the returns from this estimated level.

Evidence of the disparity among those selling livestock comes from the South Dakota Animal Industry Board. From July through September of 2003 the number of cattle sold in South Dakota totaled 416,527 head. The 2002 volume during the same time period was much higher at 526,793 head as the drought stressed pastures enough that producers marketed yearlings and calves early, and culled and sold cows early. The 2003 numbers, however, are much higher than the volumes in 2001 of 326,430 head and 2000 of 249,054 head. The disparity is explained in part by sales locations. Those where cowherds were reduced (figure 1) are showing smaller sales compared to earlier years. Those located in more predominate cattle feeding

areas, especially auctions that sell a relatively large portion of slaughter animals, are seeing an increase in sales volume in 2003 compared to earlier years.

Conclusions and Outlook

The direct costs to the farm sector in 2002 can best be described using a range of \$650-800 million. The improved market conditions in 2003 would offset a portion of those losses at the state level. While the offset estimate is \$477 million, a range of \$375-550 million would better encompass the scope of the impact. Thus, about two-thirds of the drought and market impacts from 2002 have been restored to the farm sector by the market impact in 2003. At the sub sector level, most winter wheat and many cow-calf producers will have to wait longer for a full recovery.

According to South Dakota Climatologist Dennis Today, large portions of western South Dakota have received below-normal precipitation during the past 21 months and most of the state is in some stage of drought at the present time. The outlook for moisture is difficult to predict because of the absence of a defined El Nino or La Nina situation. Hence, the impacts of the drought may persist into 2004.

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