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## Risk Management Update for Crops

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# *ECONOMICS COMMENTATOR*

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## **Risk Management Update For Crops**

by  
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Portfolio theory establishes the tradeoff between risk and returns for different investments. Those willing to take on more risk are generally rewarded with greater returns compared with those choosing safer investments. However, sometimes risks can be misjudged or the nature of risk can change. In this commentator, several risks related to crop production are addressed and the tools to manage those risks are highlighted.

In our Extension programming efforts related to production risk and marketing we have stressed the absence of a natural hedge in South Dakota. A natural hedge exists when crop revenue is held constant when farm-level prices and yields change in tandem with U.S. prices and yields. We stress how farm policy tools (mainly the loan rate), crop insurance, and marketing tools can be combined to effectively manage risk in the local price environment.

The presence of a natural hedge in the corn belt was a motivation for a different tack in policy. Dr. Carl Zulauf proposes using "yield-difference insurance" as a way to account for the natural hedge and improve the effectiveness of risk management strategies (Zulauf). He acknowledges the greater risk specific to individual producers outside the corn belt that lack a natural hedge. However, he makes a case for how changing crop insurance and policy practices would still be an improvement.

Baquet et al. report survey results for crop producers in Indiana, Mississippi, Nebraska, and Texas. Producers rated "price variability" as the highest risk they face. This result is consistent with the high use of crop insurance, which offsets yield risk. Except for Indiana, the result is consistent with the absence of a natural hedge in the sample states. The same producers were also asked to rate how well risk management tools worked. Being a low-cost producer and maintaining financial reserves were rated as more effective than crop insurance and forward pricing.

## **Recent Trends for Crops**

In South Dakota producers have informally rated yield risk as a primary concern in recent years. However, price risk has not been as great of an issue as price levels for most crops have been below the price support level of loan rates. We are currently in a price environment where price risk may once again be a greater concern.

South Dakota producers have responded to risk in recent years by purchasing crop insurance over a large percentage of planted corn and soybean acres (Table). The corn acres insured in 2001 actually exceeds the acres planted. The disparity may be due to prevented planting or sampling error for the NASS estimate. The trend on both crops has been for producers to increase use of revenue insurance products. The 2002 crop year was an exception for soybeans as the spring price levels favored yield insurance.

**Table. Recent Crop Insurance Coverage for South Dakota**

Year	Corn for Grain		Soybeans	
	Planted (1,000,000 acres)	Insured	Planted (1,000,000 acres)	Insured
1998	3.90	3.39	3.45	3.15
1999	3.60	3.50	4.10	3.74
2000	4.30	3.86	4.40	4.15
2001	3.80	3.93	4.50	4.49
2002	4.40	4.06	4.25	4.04

Sources: USDA-NASS and USDA-RMA

A tool that we use to educate producers about the interaction of risk management strategies is the *MBM Risk Calculator*, available on the SDSU Extension website (Box). The calculator is an Excel spreadsheet that combines government programs, crop insurance, and marketing tools together. One can then adjust harvest-time price and yield to show crop revenue sensitivity to various strategies. With an enterprise budget the calculator has proven useful for determining which insurance product to purchase and at what coverage level. Rate quotes are readily available online at the farmdoc website (Box). Farmdoc recently added quotes for revenue assurance with the harvest price option for corn, soybeans, and wheat to their choices. Other rate quotes are available at the Risk Management Agency website (Box).

### Websites of Interest

SDSU Extension Service

<http://sdces.sdstate.edu/>

Click on the "Markets" tab to find the *MBM Risk Calculator*, ExEx 5040, and EMC-926.

KSU's Art Barnaby

<http://www.agecon.ksu.edu/risk/>

Univ. of Illinois' farmdoc

<http://www.farmdoc.uiuc.edu/>

Risk Management Agency

<http://www.rma.usda.gov/>

Agricultural Marketing Policy Center

<http://www.ampc.montana.edu/>

## Policy Changes

The latest farm bill has received much attention, primarily focused on the sign-up deadline to adjust base acres and yields. What might be getting lost in the shuffle is the impact the latest program may have on risk management. Aside from updating the base, the farm bill did three things (May). First, loan rates were adjusted at the national and county level. Second, direct payments were again established. Third, there was a return to target prices that are covered by a counter-cyclical payment.

The loan rates were increased for corn and wheat and decreased for soybeans in South Dakota. The adjustments change the price levels at which other marketing strategies become relevant. The county-specific loan rates are an input line in the *MBM Risk Calculator*. The target price might be relevant to consider if expected production is close to base production. However, uncertainty over whether a payment will exist at all and the timing of such payments suggests not accounting for such a payment using the *MBM Risk Calculator*. The counter-cyclical payments are tied to base production levels and to marketing year average prices. As such, they present somewhat of a risk management challenge because the payments are not tied to harvest price levels. The direct payments are not tied to production so are irrelevant for making risk management decisions beyond projecting cash flows for the operation.

There have been numerous other minor policy changes directly tied to crop insurance. For details, the reader is advised to consult the websites of Art Barnaby and the Risk Management Agency (Box).

## Market Changes

The current price environment is different because of smaller crops and thus smaller stocks for corn, soybeans, and wheat. Details on the current supply situation can be found in May and Diersen. Inclement weather affected aggregate supplies of most crops and South

Dakota was likewise impacted. This is reflected in the basis, that is, the difference between cash price and the futures price, in South Dakota. Drought conditions reduced crop production and increased demand for feed crops such as corn. The result was a narrowing of the basis or an increase in the relative price for crops in the area.

The relevant issue is what level of basis to expect at harvest in 2003. The grain industry is offering forward prices that reflect a narrower basis than those offered in recent years. Continued drought concerns would support the narrower basis as does the continued expansion of ethanol production. Basis is an input line the *MBM Risk Calculator* and can be adjusted to show the effects of changes in the basis at harvest.

One last issue that can be addressed with the *MBM Risk Calculator* is hedging. Producers that feed their own crops to livestock and those with processing plant commitments in essence have forward contracts. Such producers can protect themselves against production shortfalls with revenue insurance or with call options. By entering the amount implicitly hedged producers can determine their risk exposure. Similarly, producers with aggressive marketing strategies would also want to know the prudent level to hedge so as not to overexpose themselves to price risk that may not be adequately covered by yield or revenue insurance. Adjusting the hedge ratio would show the sensitivity to different situations or strategies.

## Hay and Pasture

Typically crop insurance decisions for hay and pasture in South Dakota must be made in the fall (Diersen). The deadline for alfalfa hay yield insurance is September 30. Thus, insurance has already been purchased for alfalfa hay coverage. During 2002 about 80 percent of insured alfalfa hay units received an indemnity payment, suggesting widespread and extensive losses. Corresponding to that heightened awareness of risk and of available insurance, the

alfalfa acres insured increased 34 percent to about 700,000 acres for 2003.

The deadline for Non-Insured Assistance Program (NAP) coverage on other hay, pasture, and rangeland is normally December 1. That deadline was recently extended to March 15, 2003 for those crops. While this coverage only provides protection similar to Catastrophic Coverage, it is not expensive. For additional details on NAP and other ways to cover minor crops see the briefing papers on the Agricultural Marketing Policy Center website (Box).

In summary, farm policy and the price environment have changed, but sound risk management practices have not. Basis bears watching in 2003, as does the prudent hedging level for corn and soybeans.

## References

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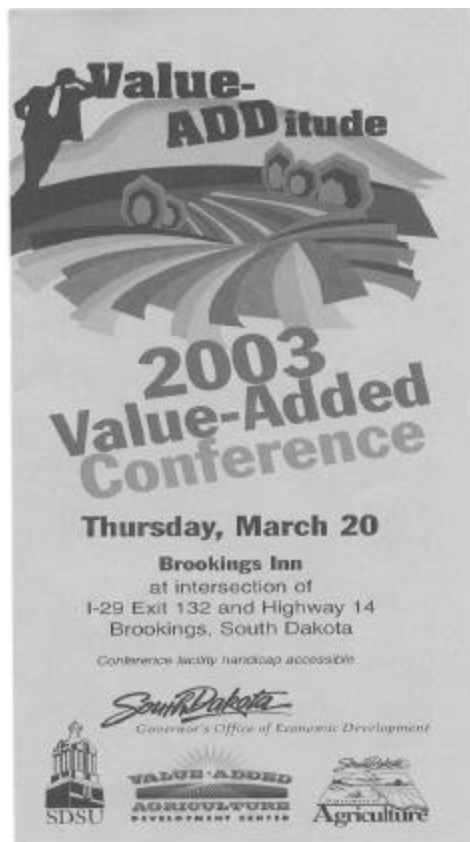
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## 2003 Value-ADDitude Conference Schedule

10:00am	Welcome – Fred Cholick
10:05 am	Sun Grant Initiative – Larry Tidemann
10:15 am	How Much Value Can We Add? – Joe Parcell
10:50 am	Break / poster viewing
11:15 am	Forming farmer-owned, value-added cooperatives – Rocky Weber
12:00	Lunch
12:30-1:00pm	New Opportunities for Value-Added Agriculture – Larry Gabriel
1:15-3:30 pm	Breakout sessions (choose two of four) ? Value-Added Agriculture ? Dialogue with Speakers ? How to ... ? Leadership
1:15 pm	Panel Session One
2:15 pm	Break / poster viewing
2:30 pm	Panel Session Two
3:30 pm	Concluding Remarks – Dean Fred Cholick
4:00 pm	Meet-the-Speakers Mixer / poster viewing

For more information, see the website:  
<http://www.sdvalueadded.com>

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