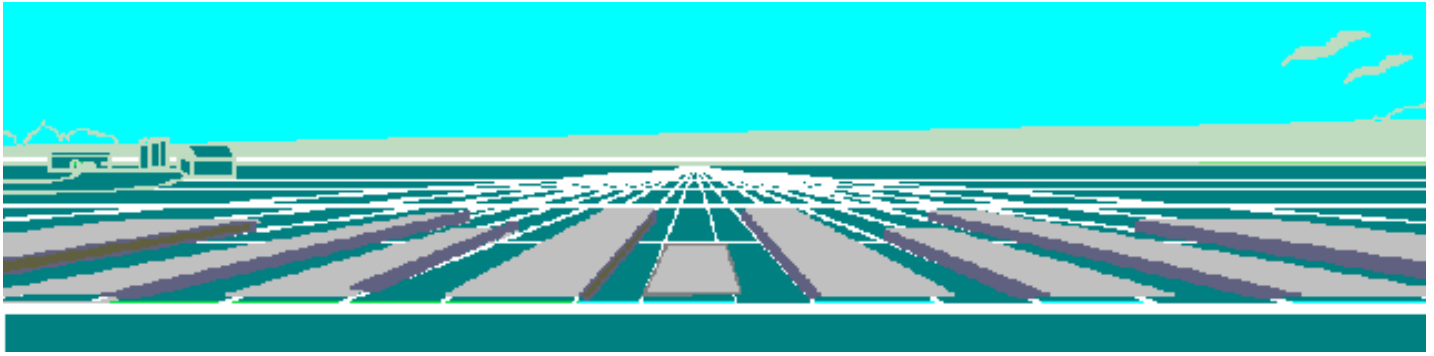


# Iowa Farm Outlook



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## How Often Can Cattle Feeders Hedge a Profit with Futures?

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### Introduction

Cattle feedlots face significant market risk during the feeding period. Research of Midwest feedlots indicated that 74 percent of the variation in cattle feeding returns in fed is due to changes in fed cattle, feeder cattle, and corn prices compared to 10 percent of the profit variation due to production risk from average daily gain and feed efficiency (Lawrence, Wang, Loy, 1999).

Live cattle futures offer a method to reduce price risk by hedging a selling price at or above the breakeven cost of production for the cattle. But, how often is it possible to hedge a profit? This simple analysis evaluates 16 years of data to determine the percent of trading days during a six month feeding period that Live Cattle Futures (LCF) adjusted for an expected basis was above the breakeven price for fed cattle. The analysis was extended to look that the percent of trading days that a return between a \$4/cwt loss to a \$4/cwt profit could be hedged.

### Method and data

Breakeven cost of production is from Iowa State University Estimated Return to Feeding Yearling Steers (M-1284<sup>1</sup>). This series reports an estimated cost of production per hundredweight and profit per head for each month based on the relevant feeder and fed cattle and feed prices and interest rates. Cattle are assumed to be placed the 15<sup>th</sup> of each month and sold on the fifteenth six months later. If the fifteenth was not a trading day they were bought/sold on the previous trading day. The underlying assumption is that the final breakeven cost is accurately predicted at the start of the feeding period.

Daily closing futures prices were adjusted to a hedge price using a historic estimate of basis as the expected basis. This expected basis for each month based on the previous five year's average from 1990-1999 and the previous three year's average from 2000-2005. The expected hedge price is compared to the estimated breakeven each trading day of the 180 day feeding period. The percent of days that the expected hedge price was greater than the breakeven cost out of the total number of trading days is reported (Table 1). This process was repeated for different target levels of return from a \$4/cwt loss through a \$4/cwt profit (Table 2).

### Results and discussion

Table 1 shows the percentage of trading days that produced a hedge that was equal to or better than the projected breakeven price for yearling steers fed to slaughter. For example, 74 percent of the trading days

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<sup>1</sup> <http://www.econ.iastate.edu/faculty/lawrence/EstRet/Index.html>

during the six months the cattle sold in January 1990 could have hedged a profit. The simple average across the months for each year is reported in the column on the right and the average for a selling month is report in the row across the bottom.

After analyzing the data several trends seemed to appear. Certain years had few opportunities to hedge breakeven (1991, 1996, 1998, 2002, and 2005). Other years had several opportunities to hedge to breakeven (1993, 1997, 1999, and 2003). Particular months also had a much better chance of hedging to breakeven than others. Over the entire time period studied, 64 percent of the days offered a breakeven hedge or better. March, April, and November had the best chances of hedging breakeven with each carrying a 77 percent chance or better to breakeven. The months with the lowest chances of hedging to breakeven were June, July, and August. Theses months all had less than a 50 percent chance of breaking even. This hedging pattern is similar to cash markets as spring months are more profitable than summer months. The fall months averages, particularly October and November, were higher than normal do to record profits in 2003 during these months.

**Table 1. Percent of Trading Days During Six Month Feeding Period that Breakeven or Better Could be Hedged for Yearling Steers and Average Profit per Head**

	Month Sold												Avg
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
<b>1990</b>	74%	56%	100%	100%	11%	5%	4%	91%	100%	100%	86%	25%	63%
<b>1991</b>	52%	87%	100%	100%	6%	2%	0%	21%	79%	71%	83%	43%	54%
<b>1992</b>	2%	94%	100%	99%	39%	79%	28%	98%	100%	100%	100%	100%	78%
<b>1993</b>	100%	100%	100%	100%	100%	100%	84%	88%	90%	70%	80%	53%	89%
<b>1994</b>	58%	17%	98%	100%	93%	67%	50%	35%	30%	35%	99%	99%	65%
<b>1995</b>	100%	98%	100%	100%	94%	48%	0%	0%	0%	35%	94%	92%	63%
<b>1996</b>	100%	82%	72%	49%	30%	0%	17%	24%	54%	92%	88%	89%	58%
<b>1997</b>	100%	100%	100%	100%	100%	100%	100%	100%	99%	55%	19%	20%	83%
<b>1998</b>	42%	21%	50%	43%	100%	9%	56%	58%	38%	22%	24%	43%	42%
<b>1999</b>	91%	98%	98%	91%	100%	98%	50%	46%	98%	100%	100%	100%	89%
<b>2000</b>	100%	100%	100%	100%	96%	0%	0%	7%	44%	15%	97%	94%	63%
<b>2001</b>	40%	62%	100%	100%	70%	34%	83%	45%	73%	23%	66%	28%	60%
<b>2002</b>	34%	10%	19%	69%	68%	46%	33%	0%	1%	9%	73%	87%	37%
<b>2003</b>	100%	100%	100%	100%	100%	92%	19%	26%	92%	66%	99%	92%	82%
<b>2004</b>	86%	71%	40%	17%	2%	21%	56%	63%	82%	95%	91%	46%	56%
<b>2005</b>	2%	2%	78%	80%	73%	98%	50%	56%	25%	9%	26%	42%	45%
<b>Avg</b>	67%	69%	85%	84%	68%	50%	39%	48%	63%	56%	77%	66%	64%
<b>Avg Profit</b>	28.44	33.15	54.83	49.72	25.35	-7.63	-3.53	10.06	21.77	38.04	51.46	30.56	27.69

Table 2 shows the average percent of trading days by month that a futures hedge produced a return of breakeven +/- \$X/cwt. For example, on average, a feedlot could hedge a price that was \$4/cwt below breakeven 94 percent of the days during the feeding period ending in January. Reading down the column, it could hedge a breakeven 67 percent of the time and a \$4/cwt profit 23 percent of the time. Table 2 shows that on average there is 54 percent chance of hedging to make a \$1/cwt profit. March and April also carry the best chances of hedging a profit as each has a 50 percent chance or better of hedging a \$3/cwt profit, while the best any other month can do is a 50 percent chance at \$1/cwt. June, July, August, and October were the only four months not to carry a 50 percent chance of hedging a \$1/cwt profit.

Through looking at hedging opportunities for yearling cattle one can conclude that this market is efficient. This does not mean that there are no opportunities to hedge for a profit or that hedging is unproductive for an operation. It simple means that hedging is way to minimize risk by decreasing losses and increasing the probability of profit.

**Table 2 Percent of Trading Days During Six Month Feeding Period that Breakeven + \$X/cwt  
Could be Hedged for Yearling Steers, 1990-2005**

BE +	Month Sold												Avg
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
<b>-\$4</b>	94%	92%	96%	96%	92%	82%	86%	86%	92%	91%	94%	93%	91%
<b>-\$3</b>	90%	89%	95%	94%	88%	72%	76%	78%	86%	86%	91%	90%	86%
<b>-\$2</b>	86%	83%	92%	92%	82%	65%	62%	71%	78%	78%	89%	86%	80%
<b>-\$1</b>	76%	76%	88%	88%	76%	57%	50%	61%	71%	67%	83%	78%	73%
<b>\$0</b>	67%	69%	85%	84%	68%	50%	39%	48%	63%	56%	77%	66%	64%
<b>\$1</b>	59%	58%	79%	79%	54%	42%	27%	36%	51%	43%	63%	51%	54%
<b>\$2</b>	47%	45%	67%	72%	46%	32%	17%	23%	36%	34%	45%	39%	42%
<b>\$3</b>	36%	33%	52%	60%	40%	22%	12%	14%	24%	27%	30%	29%	32%
<b>\$4</b>	23%	22%	42%	47%	30%	16%	7%	10%	16%	22%	21%	20%	23%

### How to Use

Past performance is not a perfect predictor of outcomes, but it can provide some insight. First, some months are less profitable than others and offer less of an opportunity to hedge a profit (June, July and August). These were low return months in the cash market as well. In these months it may be prudent to hedge a profit when it is offered. Second, there was relatively low probability of hedging more than \$2/cwt in any month other than March and April.

## Grain Markets Focus on Weather and Weakness in Wide Range of Commodities

Despite rainfall that has been about half the normal level since mid-April in much of Iowa, a large part of west central Illinois, and parts of South Dakota and Nebraska, corn and soybean prices have weakened in the past two weeks. The weakness reflects (1) better crop condition ratings for both corn and soybeans than a year ago, (2) generally favorable weather for crop development and root growth, and (3) a general decline in a wide range of commodity prices in the last month. In the next several weeks, corn and soybean markets will focus on rainfall, especially from west central Illinois westward to central Nebraska, and USDA's June 30 planted acreage and grain stocks reports. However, with the increased role of commodity funds in the grain market, prices may be sensitive to trends in other non-agricultural commodities.

### Potential Acreage & Stocks Changes

An updated estimate from a major private forecasting firm shows the potential for a 2.2 million acre increase in corn plantings from the March 2006 intentions and a 2.5 million acre decline from March soybean intentions. The greater decline in soybean acreage reflects the firm's expectations that spring wheat acreage will be modestly above the intentions report, thus shifting some intended acreage from soybeans to wheat. The corn acreage shift would be about 0.7 million acres larger than we have been using in our balance sheet, and bean acres would be 1.4 million acres below our projection. Our latest balance sheets are shown on our web site at <http://www.econ.iastate.edu/faculty/wisner/> in the right hand column. USDA's latest balance sheets are available just below the link to ours.

The grain stocks report will provide an updated indication of domestic corn feeding during the March-May quarter. Last year, indicated corn feeding during the March-August period rose well above a year earlier. Corn feeding is not measured directly. It is calculated as a statistical residual by taking stocks changes from the start to the end of the quarter and subtracting known exports and processing use from Census reports. We suspect that a big part of last year's March-August indicated increase in corn feeding was due to corn going out of condition in outdoor piles rather than actual feed use. This year, cattle on feed numbers have been well above a year earlier, and marketing weights for both cattle and hogs have been heavy. Those conditions appear to point to strong feed use during the last three months. Grain elevators in many cases covered piles last fall with tarps, and spoilage appears to have been considerably less this year. For soybeans, the stocks report serves as a check on last year's crop estimate.

### Weather and Price Risk

At this writing, several private weather services indicate there is a good chance for widespread rain over much of the western and eastern Corn Belt for the weekend of June 16-18. With current crop conditions, the rain likely would put additional downward pressure on corn prices, and perhaps to some extent on soybeans. If the rains would represent a shift to a more normal summer weather pattern, there would be moderate down-side risk in corn prices and the basis into late August and September. Pressure would come from limited storage space and large total grain supplies, especially in the western Corn Belt. Our forecasting models show potential down-side risk in new-crop corn futures prices of \$0.20 to \$0.30 per bushel from recent levels, plus some additional basis risk.

Soybean prices have been under less pressure than corn recently. That partly reflects expectations that farmers have planted fewer soybeans and more corn than indicated in the March intentions. It also reflects a higher than expected NOPA May soybean crush and concern that Brazil's soybean planted acreage may decline again this fall. Even with a 5% to 7% decline in Brazil's fall soybean plantings, cash soybean prices with normal rainfall this summer also appear to have considerable down-side risk. Some reports also indicate that fund traders may not have been as heavily long in beans as in corn. For fund traders, the way out when cashing in on trading profits has been to sell long positions.

## Brazil Developments

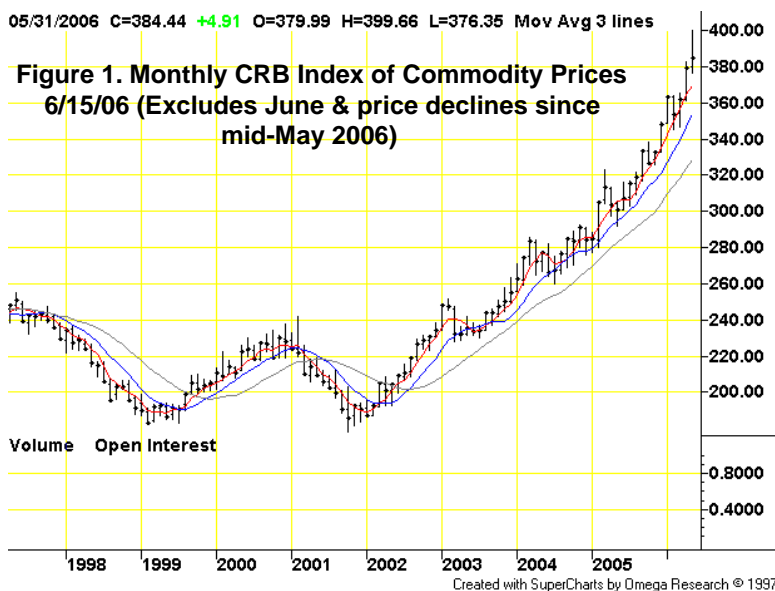
Brazil's government recently has provided its farmers additional financing to help with serious financial problems. But reports from Brazil indicate the package will fall well short of needs. Soybean growers there, especially in Mato Grosso, have experienced serious financial problems because of the high cost of multiple sprayings for Asian Soybean Rust and an adverse exchange rate. The exchange rate has become somewhat more favorable for farmers in recent weeks, and distant futures are offering a considerably better price than the cash market. These conditions may temper the decline in Brazil's plantings, but plantings also will depend on the response of farm supply firms to slow farmer repayment of debts from last fall's plantings. Because of high rainfall, humidity, and other favorable conditions, Asian rust problems tend to be worse in Mato Grosso than other Brazilian states. But there are rust problems elsewhere, and the unfavorable exchange rates have affected all of Brazil's soybean growers.

## Prices for Non-Ag Commodities

In the last year and a half, commodity index fund traders have become important new players in grain markets. Managers of these funds trade a portfolio of a large number of different commodities including both agricultural and non-agricultural commodities. A benchmark for these traders is the Commodity Research Bureau index of all major commodity prices, known as the CRB Index. As shown in Figure 1 below, the CRP index has risen at the rate of about 50% per year since late 2001. Its performance has caught the attention of pension fund managers. Index fund traders tend to buy a portfolio of futures reflecting important commodities in the CRB index, and continuously roll those positions forward as long as the CRB index is trending up. At times, they have lost money on grain while gaining on other commodities. If a time comes when fund traders decide to close out their positions rather than rolling them forward, that could exert considerable weakness on prices of the commodities in their portfolios. In the last month, the CRB index has turned downward. That is in sharp contrast to its performance in the last year.

Price changes since May 11-12 for several major commodity futures:

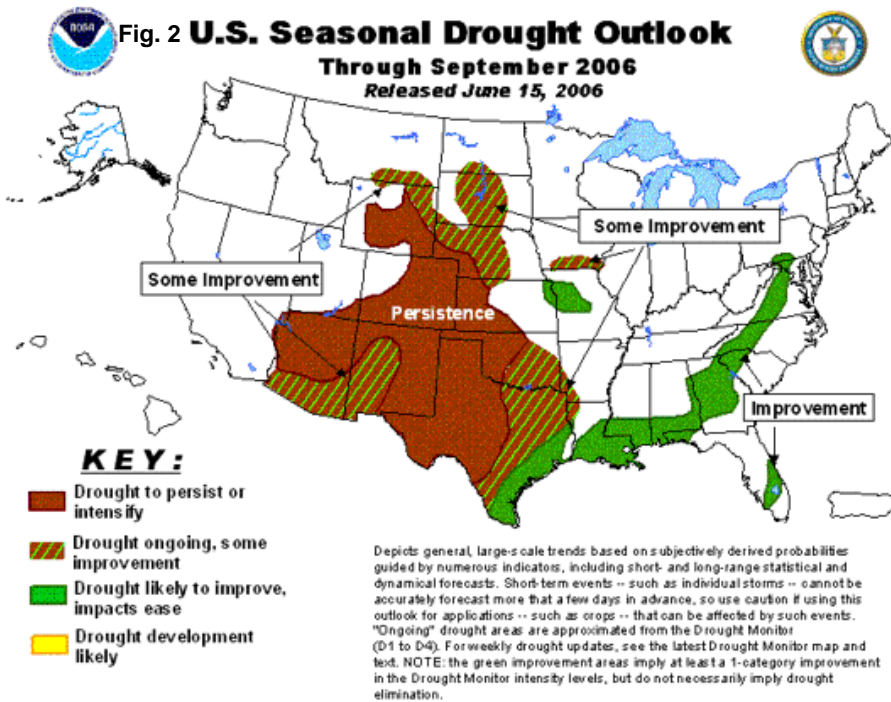
Copper	-24%	Lumber	-10%
Silver	-37%	Aluminum	-25%
Crude oil	-10%	<b>Dec. Corn</b>	<b>-6%</b>
Gold	-23%	<b>July Wheat</b>	<b>-17%</b>
Coffee	-13%	<b>Nov. Soybeans</b>	<b>-3%</b>
Palladium	-33%	Sugar	-17%



The sharp decrease in such a broad range of commodities after a continual four and a half year uptrend raises the question: *Have commodity markets peaked out and shifted to a downtrend?* If so, commodity index fund traders may be less attracted to the grain markets than in the last 18 months. Forces behind the sharp drop in prices of these commodities are not entirely clear. One influence might be a perception that the new chairman of the Federal Reserve System will be more aggressive in fighting inflation than previously anticipated – via continued increases in interest rates. It may reflect key foreign economic indicators, including expectations that the Chinese

government may tighten its monetary policy to slow inflation there. The exchange rate of the U.S. dollar also is another variable influencing commodity prices. The trade-weighted index of the dollar bottomed on May 12 and has risen about 4% since then. The dollar's value is related to relative interest rates of the U.S. vs. other countries. May 11 to May 12 is when prices of many of these commodities peaked and started downward.

If the downturn in major commodities continues for another 2 or 4 weeks, it would not be surprising to see it exert some negative influence on corn and soybean prices.



### Crop and Weather Conditions

The latest Drought Index Map from the USDA and National Weather Service, with projections through the summer is shown in Figure 2 above. The updated map was released June 15. The map shows rather limited areas of drought in the Corn Belt, all of which are expected to show some improvement from now through September. In Iowa, the drought area is across the southern two tiers of counties, except for the southwest corner of the state. The other drought areas are in central Nebraska and central South Dakota.

Eastern areas of these two states are not rated as having drought.

**Figure 3. Corn Crop Condition by State 6/11/06 & Changes vs. Year Ago.**

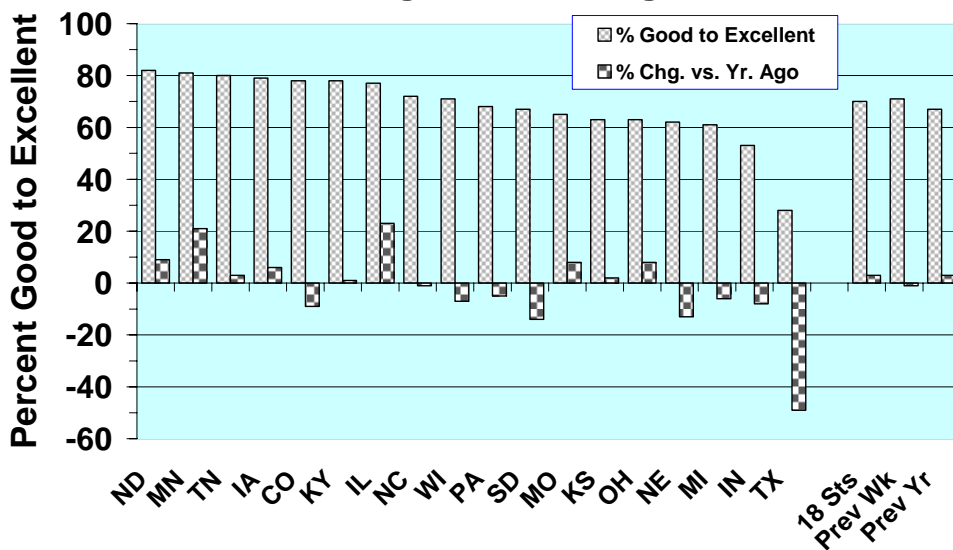
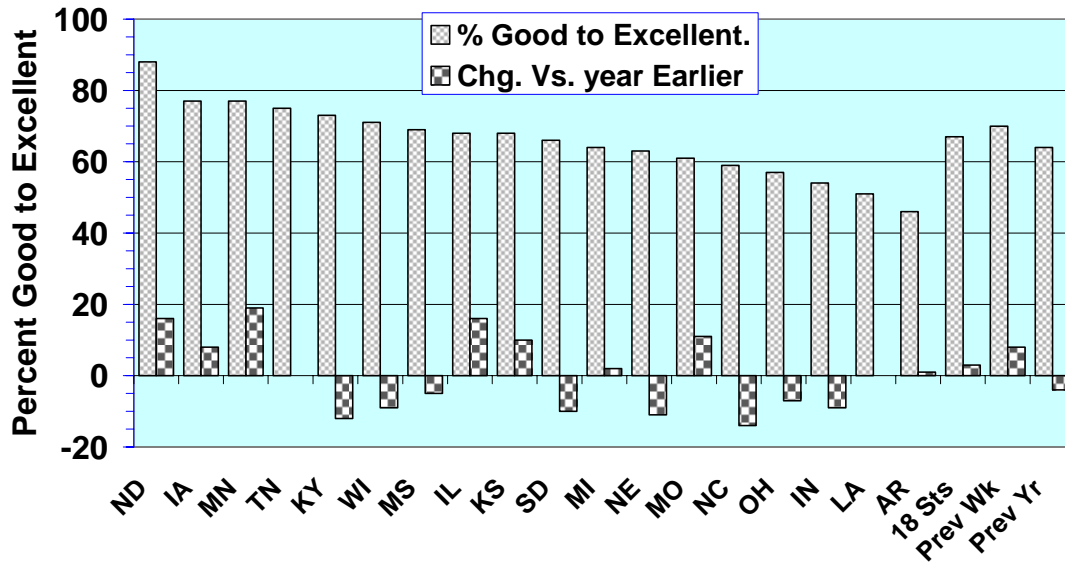


Figure 3 shows the percent of the corn crop rated good to excellent on June 11 by states and changes from a year earlier. The nine states with a smaller percentage of the crop rated good to excellent than a year ago were Texas, South Dakota, Nebraska, Wisconsin, Pennsylvania, North Carolina, Michigan, Indiana, and Colorado. States with substantially better crop conditions than a year ago included Illinois (up 23

percentage points), Minnesota (up 21 points), North Dakota, Missouri, Ohio, and Iowa.

**Figure 4. Soybeans % Good to Excellent  
6/11/06 by State vs. A Year Earlier**



The Iowa corn condition rating was up 6 percentage points from a year ago. For the 18 states as a group, 70% of the crop was rated good to excellent vs. 67% a year earlier. Figure 4 shows comparisons for soybeans. For the 18 states, the crop was rated 67% good to excellent, up 3 percentage points from a year earlier.

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