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3-15-2000

PRICE ENHANCEMENT AND RISK MANAGEMENT

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Cornhusker Economics

Cooperative Extension

Institute of Agriculture & Natural Resources
Department of Agricultural Economics
University of Nebraska – Lincoln

PRICE ENHANCEMENT AND RISK MANAGEMENT

Market Report	Yr Ago	4 Wks Ago	3/10/00
<u>Livestock and Products,</u>			
<u>Average Prices for Week Ending</u>			
Slaughter Steers, Ch. 204, 1100-1300 lb Omaha, cwt.	*	68.88	70.66
Feeder Steers, Med. Frame, 600-650 lb Dodge City, KS, cwt.	79.68	93.44	93.07
Feeder Steers, Med. Frame 600-650 lb, Nebraska Auction Wght. Avg.	82.07	97.97	98.67
Carcass Price, Ch. 1-3, 550-700 lb Cent. US, Equiv. Index Value, cwt.	97.48	106.44	110.44
Hogs, US 1-2, 220-230 lb Sioux Falls, SD, cwt.	24.75	37.50	40.88
Feeder Pigs, US 1-2, 40-45 lb Sioux Falls, SD, hd.	40.50	53.00	57.50
Vacuum Packed Pork Loins, Wholesale, 13-19 lb, 1/4" Trim, Cent. US, cwt.	82.88	109.65	107.60
Slaughter Lambs, Ch. & Pr., 115-125 lb Sioux Falls, SD, cwt.	*	68.25	*
Carcass Lambs, Ch. & Pr., 1-4, 55-65 lb FOB Midwest, cwt.	150.00	153.00	170.00
<u>Crops,</u>			
<u>Cash Truck Prices for Date Shown</u>			
Wheat, No. 1, H.W. Omaha, bu.	2.86	3.04	2.87
Corn, No. 2, Yellow Omaha, bu.	1.97	2.00	2.00
Soybeans, No. 1, Yellow Omaha, bu.	4.40	4.80	4.84
Grain Sorghum, No. 2, Yellow Kansas City, cwt.	3.41	3.37	3.45
Oats, No. 2, Heavy Sioux City, IA, bu.	1.24	1.24	1.32
<u>Hay,</u>			
<u>First Day of Week Pile Prices</u>			
Alfalfa, Sm. Square, RFV 150 or better Platte Valley, ton.	*	97.50	87.50
Alfalfa, Lg. Round, Good Northeast Nebraska, ton.	42.50	32.50	82.50
Prairie, Sm. Square, Good Northeast Nebraska, ton.	62.50	45.00	*
* No market.			

In the recent 2000 Corn-Soybean Expo Marketing workshops participants were given an opportunity to market corn and compare their decisions with others. The workshop is described below, along with some of what we learned. Participants were asked to decide whether they wanted to purchase CRC multi-peril crop insurance and how much corn they wanted to cash forward contract from early April to late July for harvest-time delivery. For workshops in predominately irrigated areas, participants were given past corn yields for a 500-acre farm with a 10-year average yield of 165 bushels per acre based on actual yields from a University of Nebraska farm near Clay Center. Corn production that wasn't forward priced would be sold at harvest and any shortfall of contracted production would have to be purchased at 5 cents above the harvest cash price. Cash forward prices were announced to participants two weeks at a time up to the end of July. Cash forward commitments were collected before the next price was announced. The actual year was not announced until harvest time. At that time the yield and harvest cash price were announced, using 1990 prices and yields.

The results for the decisions made by the top 20 participants in one of the workshops are summarized in the following table. The top marketer (highest sales receipts net of insurance premium) priced 80,000 bushels (500 acres at a 165-bushel average is 82,500 bushels), and did not take out crop insurance (0 in the Ins. column). Since in 1990 the spring and early summer price levels exceeded harvest prices by more than the 5-cent premium required to make up any production shortfall of contracted bushels, the greater the bushels forward contracted the greater the income. Hence, cash forward pricing 45,000 bushels resulted in sacrificing more than \$25,000 (\$227,570 for the top marketer compared to \$201,070 for the 20th ranked marketer). The general price pattern in 1990 is similar to the long-term average price pattern with prices at harvest



Table 1.

1983 - 1999								
ID#	Ins.	Bu. Fwd.	1990 Net\$	Ave\$	Rank	Worst Year		Fwd \$/bu.
303	0	80,000	227,570	206,774	2*	1993	89,275	2.31
231	1	80,000	222,485	205,178	7*	1993	124,144	2.31
186	1	82,000	214,535	205,402	6*	1993	122,954	2.31
92	0	80,000	213,420	206,785	1*	1993	87,775	2.31
114	1	85,000	211,335	205,533	5*	1993	121,994	2.31
97	1	70,000	211,085	204,619	11*	1993	128,644	2.31
44	0	70,000	210,920	205,968	3*	1993	93,025	2.31
162	1	65,000	209,635	204,126	14*	1993	130,294	2.31
60	0	65,000	209,420	205,643	4*	1993	95,175	2.31
204	1	64,000	208,535	204,081	17	1993	130,974	2.31
98	1	70,000	207,585	204,231	13	1993	127,844	2.31
95	0	60,000	206,740	205,059	8	1993	97,605	2.31
82	1	75,000	206,035	204,786	9*	1993	126,494	2.31
3	1	60,000	204,485	203,700	23*	1993	132,394	2.31
115	1	65,000	203,485	203,950	20	1993	130,694	2.31
25	1	60,000	203,185	203,664	24*	1993	133,044	2.31
77	1	67,000	202,785	204,012	18	1993	128,884	2.31
193	1	70,000	201,685	204,783	10*	1993	127,794	2.32
190	1	60,000	201,405	203,448	27	1993	132,124	2.31
219	0	45,000	201,070	203,921	21	1993	104,050	2.32

that are below price levels in the spring and early summer. Perhaps two reasons producers may not take advantage of this historical pattern are: 1) fear of not producing contracted bushels, and 2) optimism that prices will go higher.

CRC insurance is designed to provide protection when forward pricing. In particular, protection increases as crop prices increase, so if less is produced than is insured and prices increase, the shortfall will generate an indemnity payment at the higher prices. Therefore, CRC can be used to provide protection against having to purchase contract shortfalls at higher prices. The impact of CRC insurance is illustrated in the following graph. The graph displays the result of applying the same market timing in 1983-99 as was used in 1990. It would appear one could do better making decisions on an individual year basis, but that may be a topic for a later workshop. One of the interesting

results that follows from a comparison of the various strategies used by participants is timing within the spring and early summer is relatively unimportant compared to the impact the total bushels forward contracted has on the outcome. For example, the 1983-99 average and the worst year returns for those not buying insurance are circled in the graph. The extreme left point in that group did not forward price grain (0 Fwd); therefore, everything was sold at harvest. Moving to the right among that group are individuals that forward contracted increasing amounts and as a result realized a higher average return but a lower return in their worst year, i.e., they increased returns at greater downside risk.

The highest average return with insurance was realized by ID#114 who ranked Number 5 in 1990. The points to the left of ID#114 in the graph are others that purchased

would be faced without insurance. Note that if the additional risk is acceptable, for example, if a worst year of \$85,000 is acceptable, a greater average return can be realized without insurance and aggressive forward pricing. Buying insurance shifts unwanted risk to the insurance company, but at the cost of foregone profit (and loss) opportunities.

As shown in the table, the top 10 performers in 1990 were also well represented among the top performers over the years 1983-99 (the top 7 plus 11th, 14th and 17th). This result follows from the 1990 price pattern being similar to the longer-term price pattern. The asterisk next to the 1983-99 rank indicates those strategies that form a set of *best* strategies. Any strategy without an asterisk has a lower average return and greater downside risk (lower worst year) than one or more of the strategies flagged with an asterisk. For example, the strategy of 0 forward contracting without crop insurance earlier identified in the graph is not one of the *best* strategies because again the strategy followed by Participant #114 has both a higher average return and a worst year with a higher return.

Finally, a striking characteristic of these strategies is, in spite of a wide variety of marketing patterns over time, the average price received for grain forward priced is essentially the same for all participants (see the last column Fwd \$/bu). Conclusion: The critical pricing decision in this exercise was how much to forward price, not when to forward price.

insurance but forward priced less than ID#114. Similar to the group that did not take crop insurance, moving to the right among the insured group are individuals who generally forward contracted increasing amounts (some exceptions resulted from differences in timing) and realized higher average returns and lower return in their worst year. Any outcome up and to the left in the graph would be preferred by most of us, i.e., a higher average return and a worst year that has a higher return. For example, the outcome realized by Participant #114 is a higher average return and is less downside risk than 0 forward contracting without insurance.

Why not forget about insurance and aggressively forward contract? The answer may be at some point that worst year is a disaster. If, for example, \$100,000 is needed to avoid having to liquidate part of the farm or refinance, the strategy followed by Participant #114 would be preferred over any of the strategies pursued by those without insurance if a year below \$100,000 is unacceptable. Projecting cash needs and determining which cash commitments must be met to avoid catastrophe is an approach to risk management that we have discussed in earlier issues. As illustrated in the graph, crop insurance enables a producer to forward price more aggressively, increasing expected returns without the downside risk that

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