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Evaluation of Optimum Regret Decisions in Crop Selling

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Market Report	Yr Ago	4 Wks Ago	4/12/02
Livestock and Products,			
Average Prices for Week Ending			
Slaughter Steers, Ch. 204, 1100-1300 lb			
Omaha, cwt	$79.86	$74.30	$68.55
Feeder Steers, Med. Frame, 600-650 lb			
Dodge City, KS, cwt	100.72	89.83	83.34
Feeder Steers, Med. Frame 600-650 lb,			
Nebraska Auction Wght. Avg	104.33	93.86	98.35
Carcass Price, Ch. 1-3, 550-700 lb			
Cent. US, Equiv. Index Value, cwt	121.10	115.59	108.24
Hogs, US 1-2, 220-230 lb			
Sioux Falls, SD, cwt	49.87	36.50	28.25
Feeder Pigs, US 1-2, 40-45 lb			
Sioux Falls, SD, hd	57.75	40.00	34.50
Vacuum Packed Pork Loins, Wholesale,			
13-19 lb, 1/4" Trim, Cent. US, cwt	115.95	103.00	93.13
Slaughter Lambs, Ch. & Pr., 115-125 lb			
Sioux Falls, SD, cwt	78.00	60.30	*
Carcass Lambs, Ch. & Pr., 1-4, 55-65 lb			
FOB Midwest, cwt	171.00	142.66	143.65
Crops,			
Cash Truck Prices for Date Shown			
Wheat, No. 1, H.W.			
Omaha, bu	3.22	2.91	2.99
Corn, No. 2, Yellow			
Omaha, bu	1.92	1.87	1.81
Soybeans, No. 1, Yellow			
Omaha, bu	4.16	4.43	4.38
Grain Sorghum, No. 2, Yellow			
Kansas City, cwt	3.57	3.57	3.37
Oats, No. 2, Heavy			
Minneapolis, MN , bu	1.40	2.43	1.93
Hay,			
First Day of Week Pile Prices			
Alfalfa, Sm. Square, RFV 150 or better			
Platte Valley, ton	115.00	110.00	117.50
Alfalfa, Lg. Round, Good			
Northeast Nebraska, ton	85.00	65.00	45.00
Prairie, Sm. Square, Good			
Northeast Nebraska, ton	105.00	92.50	92.50

* No market.

Throughout the years how many of us have either heard ourselves or other people say, "I wish I had not done that, or I wish I would have sold earlier or why did I wait so long to sell?" If we put this another way we can always say that we are punishing ourselves, or that we regret having done or not done something. The question is, is there a way that we can go back and determine what the true level of regret was? Consequently, we have been working on testing that exact problem with respect to grain marketing.

Regret behavior has long been hypothesized as a useful perspective for decision-making under uncertainty. Its relevance has been suggested for personal, investment and management decisions. In broad terms, this approach attempts to minimize the losses incurred under various states compared to the most profitable decision for that state. Looking back, the decision-makers objective is to avoid the larger regret even if the strategy-yielding minimum regret has a lower expected return than other alternative decisions. The regret can be defined as either the absolute loss experienced by not achieving the highest net price, or the loss greater than a given target loss. In the latter case the objective is to avoid only the major regrets, because those are the regrets that can either hurt us financially or at least the ones we remember when trying to make future marketing decisions.

Among the management decisions for agricultural firms for which this behavior is potentially either practiced or potentially useful is commodity selling. Here in Nebraska we would consider the major commodities to be corn, wheat and soybeans. In fact, it was the casual comments by producers that started

the study. When visiting with producers these comments indicated a major disutility for selling decisions when looking backwards resulted in a large opportunity loss, regardless of how well that decision performed on expected value or target return basis. Often the selling strategy which yields the highest net price also yields the lowest regret, but this is not necessarily always the case. Furthermore, the avoidance of regret can come at a cost in terms of the conventional measure of risk, which is variability. In this case a diversified selling strategy may yield a result which is efficient in reducing regret as well as conventional variability. Considerable research in commodity marketing has been directed to optimal return strategies, both in terms of absolute profitability as well as securing target returns. In some cases risk behavior has been attached to the analysis. However, far less attention has been directed to regret avoidance, which involves a different objective.

In this study minimum regret choices were determined for sale times (monthly) for wheat, corn and soybeans, and the performance of these regret solutions are evaluated relative to other selling alternatives determined from other decision criteria. We only analyzed pure selling decisions and did not include hedging or other strategies that might prove useful in achieving a reduced regret.

The objective of the analysis was to determine optimum regret selling time strategies for wheat, corn and soybeans, and to compare these with maximum expected value strategies and various risk minimization strategies. Comparisons involved a degree of regret, average price and risk measures.

A series of prices received by year (1985-2000) by month for wheat, corn and soybeans were used as the data source. Then regret matrices for each crop were constructed and an implied equal probability was assumed for each year. The maximum expected value solution and various risk-return solutions were determined under MOTAB and were compared to the minimum regret solution. They were all compared with respect to deviations (from mean) expected returns and overall regret. As the target was reduced, deviations below the target are seen to decline in the usual fashion. Under reduced targets, regret was largely stable for corn and wheat but increased in soybeans. Reducing risk from this perspective involved regret sacrifice for soybeans.

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