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Managing price risk on ranch – Part III

By James Sedman and John Hewlett

Fremont County ranch owners Bob and Betsy Zomer have considered several marketing strategies for better risk management.

The Zomers have considered several options to take advantage of high spring cattle prices rather than follow their traditional fall marketing strategy of 100 head of heifer calves and 150 head of yearling steers.

A previous article described how they chose not to pursue any strategy other than selling in the fall, believing high prices would hold. Prices did not hold, however, and fell to $95/cwt. Livestock Risk Protection insurance (LRP) would have cost them $1,968.42 in total premium costs, insuring an actual price level of $113.88/cwt. Now, compare the cash sale and LRP alternatives to two other strategies the Zomers considered: purchasing September feeder cattle put options or forward contracting their cattle.

Forward Pricing Strategy

The Zomers had the opportunity to forward contract their cattle for September delivery. We will assume their yearling steers could have been sold for $110.00/cwt and $140.00/cwt for the heifers or an average price received of $118.11/cwt. While these prices were excellent historically, the Zomers thought they were undervalued and chose not to pursue this strategy because they believed the price offered was too low, mainly due to a high basis (the difference between prices at the local market and the futures price). In addition, they were reluctant to eliminate any upside potential (chance to take advantage of rising prices) where cash prices in the spring were averaging $160/cwt.

For More Information

Livestock Risk Protection Insurance (LRP) could be a fit in your livestock operation to help insure against loss due to price declines. For more information on LRP, consult your crop insurance agent or visit the Western Risk Management Library online at agecon.uwyo.edu/riskmgt.

Futures/Options strategy

When the Zomers were deciding their marketing plan, they looked at purchasing futures contracts or put options for their cattle and selling in September. The idea was to try to lock in current prices without giving up any upside price potential. The idea of paying margin calls in the event the market continued to go up did not sit well with the Zomers, so they focused on options.

A put option is a futures contract that a producer has the "option" of exercising (selling) for a price (or premium). The Zomers thought this strategy would be a better alternative than straight futures contracts because there would be no margin deposit requirements; with a put option, the margin price is essentially built into the price of the contract.

Assume that the September feeder cattle put options were trading at $135.00/cwt for a $11.50/cwt premium in the spring. For 1,850 total cwt to be marketed, the Zomers would need to purchase four September put option contracts (50,000 lbs. each). This would have cost them a total of $23,000.00 in premiums. Also assume that, in the fall, the September contract was trading at $105.00/cwt, resulting in a gain of $60,000.00 (by selling four contracts in the spring at $135.00 and buying them back for $105.00). Keep in mind to make this a simple example we did not include other fees, such as brokerage costs, interest charges, or other expenses that would further reduce the strategy's net revenue.

Strategy Comparison

The results of the various potential strategies are shown in the table below. While the Zomers did not have any increased costs associated with their cash marketing strategy, they also earned the lowest total revenue. Which alternative is the most effective strategy depends on an individual's risk preference. If the goal was to maximize the price regardless of cost, then the futures strategy would have been best. If the goal was to provide protection against downside price risk, then either the LRP or forward contract should have been followed.

In this case, the LRP policy would be most effective in terms of risk protection provided per dollar of premium cost. While a forward contract has essentially no out-of-pocket costs, the cost comes in the form of basis differences (reduced price received compared to current cash prices) and liquidating the cash position – thereby eliminating any upside price potential.

In this case, the LRP policy provides protection against both downside price risk and the potential to gain from increasing prices for a relatively low cost per cwt. While the option contract ending price is higher, the premium cost is over $20,000 more than with the LRP policy.

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Strategy	Per Cwt Cost/basis	Total Strategy Cost	Strategy Price Level ($/cwt)	Total Revenue	Net Revenue (after strategy cost)
Sell cash cattle in fall	**$0.00**	**$0.00**	**$95.00**	**$175,750.00**	**$175,750.00**
Use LRP contract	$1.22	$1,968.42	$113.88	$210,678.00	$208,709.58
Use forward contract	$0.00	$0.00	$118.18	$218,633.00	$218,633.00
Use put option	$11.50	$23,000.00	$135.00	$235,750.00	$212,750.00

Proper grain drying, storage, help maintain crop value

By Sandra Frost

Grain bins are being built around Wyoming to meet a demand for malt barley, sunflower, wheat, and corn storage.

Ken Hellevang, North Dakota State University (NDSU) Extension specialist in agricultural engineering, recently taught two workshops on crop storage in Powell and Worland.

Hellevang is author of several NDSU extension publications on crop drying and storage, including Natural Air/Low Temperature Crop Drying (NDSU Extension Bulletin No. 35 revised available at www.ag.ndsu.edu/extension-aben/post-harvest). He has published equilibrium moisture content charts for many crops including confectionery sunflowers, corn, wheat, and barley.

"The steps in grain storage sound deceptively simple: prepare the structure, prepare the grain, manage the storage," said Hellevang. "Each step involves planning, careful timing, and attention to detail."

Table 1. Recommended Long-term Storage Moisture Content

Grain	Recommended Moisture
Barley	12%
Corn	13%
Sunflower, confectionery	10%
Wheat	13%

Management Tips

- Drying time is a function of the moisture content of grain.
- An 18- to 20-foot tall bin is best for drying. Taller bins are used to store dry grain.
- In spring and summer, early morning air is coolest at sunrise.
- Condensation may freeze over vents in winter when operating fans near or below 32 F. Avoid damage by leaving the fill and top access covers open to relieve air pressure.
- Careful management is necessary to avoid over-drying barley.
- Avoid mold and insects after harvest by quickly cooling grain to 40 F or less using night or early morning air.
- Monitor bins every two weeks for insects, mold, temperature, and moisture. Keep written logs for each bin.

Design Tips

- Pushing natural air up through grain is recommended over pulling air down through grain.
- Perforated floors should have no less than 10-percent perforation.
- Level grain at the top of the pile promotes uniform cooling and drying.
- There is an upper practical horsepower limit to moving air through a bin when natural air cooling/drying. Doubling the airflow requires four times the horsepower.
- Temperature sensors only sense grain temperature close to the sensor. Grain has an R-value of 1 per inch so 2 feet of grain has R-24.

Repair any leaks and thoroughly clean the bin. Clean under the floor to eliminate insects particularly if an infestation has occurred. If you can tell what last year's crop was, it is not clean enough, he said. Clean the ground around the exterior of the bin to eliminate pests. Post safety signs provided by bin manufacturers and put locks on doors and equipment.

Harvest grain at its optimal moisture content. Record moisture content for each truckload. Time harvest to avoid green or immature kernels.

"A fundamental concept of grain storage is that, from the day it is harvested, grain has a finite, predetermined, allowable storage time based on the grain temperature and moisture content at which it was harvested," said Hellevang.

For example, cereal grains with a grain temperature of 80 F and a moisture content of 15 percent have an approximate allowable storage time of 70 days. At 12 percent, the allowable storage time would be more than 300 days. Harvested grain temperatures can exceed outdoor air temperatures at harvest.

At 11-percent moisture content and 80 F, malting barley has 32 weeks of allowable storage time. Malting barley at the same moisture content but at a temperature of 50 F has more than 100 weeks of storage.

Reducing grain temperature is very important to quality control, Hellevang said. Aeration is an efficient, low-cost method of lowering grain temperature. In fall, cool grain to prepare for winter storage.

Know the target percent moisture before the first truckload of grain is put in a bin. Grain in a full bin usually takes weeks to lower to a desirable moisture level using natural air drying. Natural outside air conditions vary from day to night and from month to month with the seasons. Compare average daily temperatures and humidity to the target values desired for the grain (See Table 1, lower left).

Grain can be brought into equilibrium with outside averages when fans are run 24 hours a day, 7 days a week. There will be a 2-foot deep buffer zone at the bottom of the bin that will change quickly with day/night variations. Grain above that buffer will change more slowly.

Grain with high moisture content can be held over winter at below-freezing temperatures and dried in spring when natural air temperatures rise.

Technology Tips: Grain Moisture Measurement

Hand-held grain moisture measurement devices have limitations.

- They are calibrated for dry grain and will have error factors when measuring grain with high moisture content
- They are not accurate below 40 F.
- They are more sensitive to the outside of a kernel than the inside (sunflowers for example). Measuring sunflowers is tricky due to hull and kernel differences.
- Are affected by condensation.
- Immature or green kernels can affect readings.

Producers can improve the accuracy of moisture meters with a few, simple techniques.

- Take several representative samples and not just one
- Place sample in a sealed container for several hours (six-12 hours); warm to 70 F and recheck moisture. Hellevang strongly recommends this technique.
- Compare your meter readings to that of the receiving station's.

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