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Backgrounding Cattle in 2005

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Every fall many South Dakota cattle producers face the decision of whether to background calves. In many cases producers own calves, a large supply of feed, or both. Thus, one question is whether feeder cattle will be worth more than the combined value of the calf and feed. With historically high cattle prices there is relatively more at stake financially for producers (and lenders) compared to other years. Because backgrounding involves holding cattle for 3 to 6 months, there can be substantial price movement in the value of the feeder cattle. Thus, a second question is whether the price risk is large enough to warrant managing and by what method. The purpose of this *Commentator* is to present ways to assess the risk and returns from backgrounding.

In South Dakota it is typical for producers to wean calves in the fall of the year and to market those calves weighing 500 to 600 pounds. These are often called "stocker" cattle. Once stocker cattle have been fed to a heavier weight, often from 700 to 800 pounds, they are called "feeder" cattle. The heavier feeder cattle are ready for placement in feedlots with full finishing rations. There is a lot of leeway in these terms and practices, but for the sake of discussion we will look at the practice of backgrounding (or feeding) stocker cattle with the intent to sell those as feeder cattle.

Expected Margin

The typical way to approach backgrounding is to find the difference between the initial value of stockers and the expected final value of feeders. South Dakota producers sell the largest volume of stocker cattle during October and November. Producers sell the largest volume of feeder cattle during January, February and March.

Feeder cattle contracts settle to the CME Feeder Cattle Index, which is a weighted average of prices from major beef states (including South Dakota) for steers weighing between 650 and 849 pounds. The feeder cattle futures are inverted, meaning the nearby contracts are trading at a premium to the deferred contracts. The relevant price break for backgrounders to consider occurs after January, with a futures contract that traded at $109.58 on September 16, 2005. The March feeder cattle futures contract traded at $104.60 per cwt.

A budget was prepared assuming an 800 pound feeder to be sold in mid-February. Thus, the likely price falls between the January and March futures levels. One can take a little off for the slide (the fact we are selling a steer weighing more than the contract would reflect). Then, one can add a little back on top for basis, because it tends to be a small positive level in South Dakota during February. These adjustments suggest a price of $106 per cwt. or $848 per head (table 1).

Table 1. Partial budget for backgrounding

		$/head
Feeder Income	848.00	
Stocker Cost	720.50	
Expected Margin		127.50
Feed Costs	51.47	
Price Protection	17.00	
Marketing	15.75	
Vet & Labor	11.00	
Interest	11.04	
Death loss	8.48	114.74
Net over cost listed		12.76

Note: Depreciation and utility costs are not included.

Producers need to balance the high expected revenue against the cash outlay necessary to purchase stockers or the opportunity cost of holding owned stockers. The *Superior Video Auction* (AM_LS753) report from September 7-9, 2005 had a large number of cattle trade with a November delivery date. In the north central states alone, which includes South Dakota, producers sold over 1,000 head of stocker steers at an average price of $131.00 per cwt. The range was quite wide at over $15 per cwt., so keep that in mind when looking at breakeven levels. Using the average price for a 550 pound steer, the cost equates to $720.50 per head.

Expected Cost

When backgounding calves, a key to success is keeping the buy/sell margin reasonable. A spreadsheet cannot guarantee a profit, but it can help one plan and manage the numbers needed to evaluate a backgrounding operation (Pflueger, et al. has examples). A spreadsheet designed to make the evaluation easier, *Backgrounding05*, is available on the Department's website: http://econ.sdstate.edu/. Parts of the spreadsheet are shown in tables 1-3. Producers may download the spreadsheet and enter their own information to further evaluate their feeding options. The spreadsheet can help evaluate some key assumptions and their impact on the bottom line. For instance a $5.00 per cwt. change in the purchase price results in a $27.50 per head change in income over direct costs. In this example corn is priced at $1.60 and total feed cost equals $51.47. A $0.10 per bushel change in corn price results in a $1.00 change per head in income.

Price Protection is a typical cost of buying put options. Marketing includes trucking, sale barn commissions and checkoff. Vet and labor consists of $9.00 for health costs and $2.00 of labor.

The interest cost is based on a 30% equity stake in stocker costs and a 50% stake in feed and supplies. The interest rate increase from 7% a year ago to 8% this year has added an additional $1.38 per head to cost. At 8% interest, a drop to a 20% equity stake in stocker costs would increase the interest cost by $3.25 per head. Finally, each 1% change in death loss adds an additional $8.48 per head in costs.

Table 2 provides return levels to labor, management, and facilities based on different purchase and selling prices. The figures are

Table 2. Return to labor, management, and facilities with cattle price changes

Stocker	Expected Feeder Price ($/cwt.)					
Price ($/cwt.)	$98.00	$102.00	$106.00	$110.00	$114.00	$118.00
$121.00	($21.39)	$10.29	$41.97	$73.65	$105.33	$137.01
$126.00	($48.89)	($17.21)	$14.47	$46.15	$77.83	$109.51
$131.00	($76.39)	($44.71)	($13.03)	$18.65	$50.33	$82.01
$136.00	($103.89)	($72.21)	($40.53)	($8.85)	$22.83	$54.51
$141.00	($131.39)	($99.71)	($68.03)	($36.35)	($4.67)	$27.01

Note: Assumes a fixed cost of gain of $52.82 per cwt.

Table 3. Return to labor, management, and facilities with feed cost changes

Cost of Gain	Expected Feeder Price ($/cwt.)					
($/pound)	$98.00	$102.00	$106.00	$110.00	$114.00	$118.00
$0.35	($51.39)	($19.71)	$11.97	$43.65	$75.33	$107.01
$0.40	($63.89)	($32.21)	($0.53)	$31.15	$62.83	$94.51
$0.45	($76.39)	($44.71)	($13.03)	$18.65	$50.33	$82.01
$0.50	($88.89)	($57.21)	($25.53)	$6.15	$37.83	$69.51
$0.55	($101.39)	($69.71)	($38.03)	($6.35)	$25.33	$57.01

Note: Assumes a fixed stocker purchase price of $131.00 per cwt.

different from the baseline in table 1 because of allowances for depreciation and utility costs. Table 3 provides the return figures based on different costs of gain and selling prices with a fixed purchase price of $131 per cwt. and baseline equity positions.

Cow-calf operators need to evaluate the opportunity cost of further feeding a calf compared to selling the calf and any raised feed. A stocker value of $720.50 plus home raised feed with a value of $37.07 requires net income of $15.15 to earn an 8 percent annual return.

Risk

The higher value of stockers may cause potential backgrounders to weigh the risk in addition to the returns from holding the cattle. The historical pattern of prices through the backgrounding period suggests such consideration is warranted. Consider a backgrounder looking at the March feeder cattle futures contract price during November of the preceding year (table 4). For example, in November of 1989 the March (1990) contract traded at an average of $81.08 per cwt. During March of 1990 (the settlement or expiration month) the contract traded at an average of $82.24 per cwt. Thus, the change in the futures price was an increase. A positive change would result in a price-induced benefit to any producer that was expecting the lower price and that did not hedge the cattle. Negative changes would hurt those same individuals as the price received would not have met their expectations.

Table 4. March feeder cattle futures price patterns

Year	November	March (y+1)	Change
1989	81.08	82.24	1.16
1990	84.66	90.13	5.47
1991	80.83	79.92	-0.91
1992	80.31	85.33	5.02
1993	81.30	81.68	0.38
1994	72.34	68.53	-3.81
1995	62.59	56.91	-5.68
1996	66.25	68.77	2.52
1997	79.48	75.72	-3.76
1998	72.28	72.47	0.19
1999	83.22	83.77	0.55
2000	88.46	86.32	-2.14
2001	81.65	80.57	-1.08
2002	81.38	75.96	-5.42
2003	90.49	89.23	-1.26
2004	98.46	104.61	6.15

Source: CME compiled by LMIC

Looking at the most recent 16 years, there were substantial changes in price between the start and end of the backgrounding period. During 8 years the price increased. During 8 years the price decreased. This makes economists happy, because a futures price should undershoot and overshoot the settlement price half of the time. It is a simple measure of efficiency in the market. On average the change was a small negative change of $0.16 per cwt. So on average the price dropped, which implies the astute backgrounder should always hedge. Well, that $0.16 per cwt. is equivalent to an $80 per-contract commission spread out over the contract's size of 500 cwt. This also makes economists happy because any returns are erased after transactions costs are accounted for and because nice examples are hard to come by.

The extremes show the full scope of the potential gains and losses that may arise. The largest increase in price occurred in 2004-2005. In November of 2004 a producer would have figured backgrounding returns using March futures that averaged $98.46 per cwt. By March of 2005 the same contract was trading at $104.61 per cwt., an increase of $6.15 per cwt. In contrast, a producer in 1995 saw the futures market trading at $62.59 and eventually finished trading at $56.91, a decrease of $5.68 per cwt. The contract specifications have changed over time, but the extremes are around $40-50 per head. Such a loss could easily swamp any expected returns.

Tools

What can be done? The efficiency of futures markets suggests the textbook advice to selectively hedge still applies. Always hedging or never hedging will likely yield the same returns in the long run. Thus, lock in the price if it is high enough. Producers can also use a direct (forward) sale to lock in price levels. The AMS reports such prices in the *South Dakota Direct Feeder Cattle* (SF_LS160) and *Superior Video Auction* reports.

To get to the long run, you have to make it through the substantial ups and downs possible along the way. Producers may look at buying put options. The open interest currently drops off sharply from January to March, but will likely be better by the time protection is purchased.

Producers can look at buying Livestock Risk Protection (LRP), a product available from crop insurance agents that also establishes a floor price.

LRP is still a pilot program that is not widely understood. LRP sales did not start in time for most backgrounders to utilize the program in 2004, so use will likely expand this fall. LRP is ideal for covering a small number of head. The available ending dates should match most backgrounding programs. Look for the quotes for steers in the "Weight 2" category. See Diersen (2004) and http://lrp.unl.edu/ for additional details on LRP.

While producers would likely want to avoid the extremes, insurance comes at a cost. In 2005 the cost of risk protection has been low compared to last year. The current implied volatility (a measure of risk) is at 13.5% for March feeder cattle options. The volatility level is up slightly from last month, but down from 18% a year ago. The implication is a much lower cost of buying put options or LRP now compared to in 2004. A put option for March would currently cost $2.15 per cwt. A month ago, similar coverage would have cost $2.25 per cwt., which quantifies the effect of time on the cost. A year ago, with the higher volatility level, a similar option would have cost $3.38 per cwt. The lower volatility and highe r price levels suggest that coverage would be attractive to purchase this year.

The tools can thus help evaluate the profit potential from backgrounding. The returns depend on the price paid for stockers and a historically volatile price for feeders. Different price risk management tools can be considered when producers want to mitigate adverse price moves.

Resources

Diersen, M.A. 2004. *Livestock Risk Protection: Feeder Cattle, Fed Cattle, and Swine*. FS927, Cooperative Extension Service, South Dakota State University, Brookings, December.

Pflueger, B., L. Madsen, J.Davis, D. Oedekoven, and A. May. 1999 (revised). *Planning Prices and Livestock budgets for Farm Management Programs*. EC745, Cooperative Extension Service, South Dakota State University, Brookings.

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