



## **Managing for Today's Cattle Market and Beyond**

# *Feeding and Marketing Cull Cows*

*By  
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### ***Introduction***

Cull cows often are overlooked as an important source of income to the cow-calf enterprise. Depending upon the relationships between cull cow and calf prices, and the herd culling rate, cull cow receipts generally account for 15-30 percent of income from the cow-calf enterprise. However, some producers give little attention to this source of income and ways of enhancing it. For many producers, cull cows are sold at the time they are culled from the herd. Much of this culling is done in the late fall soon after calves are weaned. Is it most profitable to sell cows when they are culled, or should they be fed for a period of time? Several factors need to be considered to properly answer that question.

Three factors, important to the decision to sell cows when culled versus feeding them and selling at a latter time, are: (1) seasonality of cull cow prices, (2) price differences between cull cow slaughter grades and percentages of cull cows in each grade, and (3) cost of feeding cull cows. Each of these factors will be discussed in some detail.

### ***Price Seasonality***

Cull cow prices generally follow a consistent seasonal pattern. Prices normally are the lowest in November, December and January and are at their highest level in March, April and May. Prices during

the summer months are typically near the average for the year. If overall cattle prices are rising sharply or declining sharply in a year, then this price pattern may not be as apparent. However, by analyzing prices over a number of years the seasonal price patterns can be determined. Figure 1 contains a graph of the seasonal price pattern at Sioux Falls, South Dakota for 1985-1994 for cutter grade cows. Prices at many other locations, such as Omaha, Nebraska and Billings, Montana have very similar seasonal patterns.

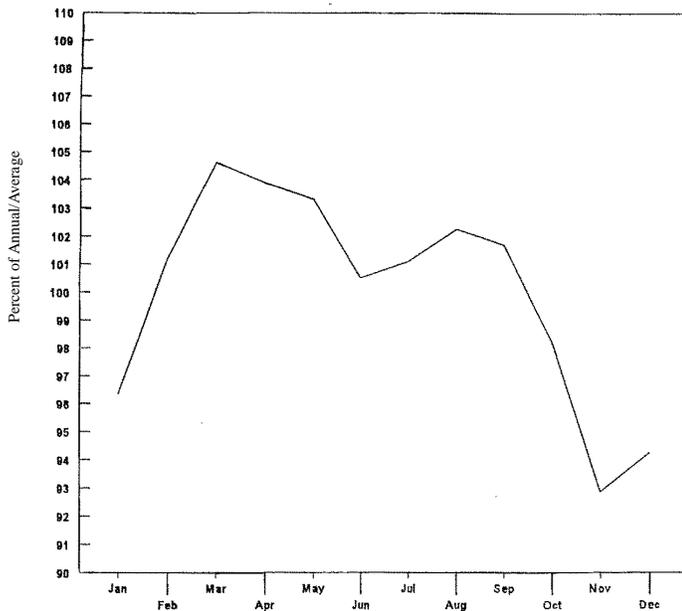
It may be profitable, by simply considering this seasonal pattern, to feed cows that are culled in the late fall or early winter into the spring months to take advantage of the seasonal prices. On the other hand, it may be most profitable to sell cows that are culled during calving season or early summer. However, the other two factors (cull cow grades and feed costs) still must be considered.

### ***Cow Slaughter Grades***

Prices for cull cows are based on their USDA carcass grade or their expected carcass grade. The most common grades, in order of the least amount of marbling to the greatest amount of marbling are: Canner, Cutter, Utility, and Commercial. Price differences between these grades impact the price of cull cows directly if a producer sells on a carcass weight and grade basis, and indirectly if the cow is sold on a live weight basis. These price differentials vary

from year to year and also from month to month within a year. The differential is wider in higher priced years and in the fourth quarter of the year. Average price differentials between grades at Sioux Falls from 1985 - 1994 are displayed in Table 1. These differences also are consistent with those at the Omaha and Billings markets.

**Figure 1. Seasonal Cull Cow Prices at Sioux Falls, South Dakota, Cutter Grade, 1985-1994.**



**Table 1. Percentage Price Increases Between Cull Cow Grades at Sioux Falls, 1985-94.**

	Cutter	Utility	Commercial
Canner	10%	18%	24%
Cutter		8%	14%
Utility			6%

Source: Computed from Feuz .

In a 1993 study at South Dakota State University (Pritchard and Burg) cull cows were

purchased in November and December from area sale barns. The cows were sent to slaughter after 0, 50, 77, and 105 days on feed. The cows were fed a high concentrate ration of 75 percent corn grain and 15 percent corn silage on a dry matter basis. The cows gained 2.8, 3.0, and 3.1 pounds per day for each of the respective feeding periods. Table 2 contains the percentage of cull cows that were in each grade at slaughter.

In the trial at South Dakota State, initial condition of the cows did not affect the rate of gain, but it did have an effect on the degree of marbling. From this trial it would appear that most cull cows could be expected to improve one grade following a 60-100 day high concentrate feeding program, and that many could improve two grades.

Cull cows that are fed on primarily a roughage diet would not obtain the same rates of gain, nor grade changes. A ration of alfalfa-grass hay should produce about 1.5 pounds per day gain over a 60-90 day feeding period, assuming the cows were fairly thin at the start of the feeding period (Wagner). It is unlikely that the cows would improve more than one slaughter grade on this feeding program.

### Cost of Feeding

Revenue can often be increased by feeding cull cows due to seasonal prices, weight gains, and slaughter grade changes. However, that doesn't automatically imply a profit from feeding. The cost of the feeding program must be considered. The primary cost in feeding is the feed cost. A charge for labor and facilities (yardage), interest on the cull cow and of the other variable costs, and any death loss should all be considered.

Feed costs will vary depending upon the price of feed and the feedstuffs used in the ration. Proper procedures should be used to balance a ration for the cows and determine the cost of feed. A cost of around

**Table 2. Percentage of Cows in Each Grade Following a Feeding Program of Shelled Corn and Corn Silage.**

Days Fed	USDA Slaughter Grade					
	Canner	Cutter	Utility	Commercial	Standard	Choice
0	64	29	7			
50	18	57	24		1	
77	8	21	65	4	1	1
105	0	19	74	6	1	

Source: Adapted from Pritchard and Burg.

\$0.20-\$0.25 per day is often used to cover the yardage charge. Interest on the value of the cull cow at the time she is placed on feed should be charged until she is sold. For example, if you could sell the cull cow for \$350 and if you are paying 10% interest and you plan on feeding the cow for 90 days, the interest charge would be \$8.63 per head [ $\$350 \times .10 \times (90/365) = \$8.63$ ].

### Partial Budget Analysis

The proper manner to consider all of these factors is to construct a partial budget and evaluate if it would be more profitable to feed the cull cow rather than selling when culling takes place. The partial budget will have three main sections: (1) the expected revenue at the end of the feeding period, (2) the additional costs from feeding the cull cow, and (3) the revenue lost by not selling the cull cow at the time of culling (opportunity cost).

When calculating expected revenue, weight gain, price changes due to seasonal variations, and price change because of grade changes all should be considered. Feed costs, yardage, death loss, and interest should be computed to estimate feeding costs.

The break-even selling price often is calculated to determine the risk involved in the feeding program. If the break-even selling price is considerably below your expected selling price, the program would be less risky than if the break-even selling price was at or above your expected selling

**Table 3. Expected Returns (\$/head) and Optimal Days on Feed from Feeding Cull Cows on a High Concentrate Ration with Varying Feed Costs and Cull Cow Prices.**

September-October Canner Grade Cull Cow Prices				
Corn Price	\$30/cwt	\$35/cwt	\$40/cwt	\$45/cwt
\$3.00/bu	-\$15 84 days	\$10 98 days	\$38 112 days	\$69 112 days
\$2.75/bu	-\$7 84 days	\$20 98 days	\$50 112 days	\$81 112 days
\$2.50/bu	\$8 98 days	\$36 112 days	\$67 112 days	\$98 112 days
\$2.25/bu	\$18 98 days	\$49 112 days	\$79 112 days	\$110 112 days
\$2.00/bu	\$35 112 days	\$66 112 days	\$96 112 days	\$128 126 days

**Table 4. Expected Returns (\$/head) from Feeding Thin Cull Cows on a Roughage Ration for 98 days with Varying Feed Costs and Cull Cow Prices.**

September-October Canner Grade Cull Cow Prices				
Hay Price	\$30/cwt	\$35/cwt	\$40/cwt	\$45/cwt
\$80/ton			-\$13	\$0
\$70/ton		-\$15	\$0	\$13
\$60/ton	-\$15	-\$1	\$13	\$27
\$50/ton	-\$2	\$12	\$26	\$40
\$40/ton	\$11	\$25	\$39	\$53

price. The break-even selling price is calculated by adding the total feeding costs to the value of the cull cow at the start of the feeding period and then dividing this sum by the expected ending weight (allowing for shrink) of the cull cow.

### Sensitivity Analysis

How sensitive to feed costs and cull cow prices are the returns to cull cow feeding? Cull cow prices were varied from \$30/cwt. to \$45/cwt. for the price of a Canner grade cull cow in September and October (Tables 3 & 4). The price in November would be somewhat lower due to the seasonal pattern.

The price of corn grain was varied from \$2.00/bu to \$3.00/bu, and corn silage and concentrate prices were adjusted relative to corn prices. The expected returns from feeding cull cows on a high concentrate ration are displayed in Table 3. The most profitable number of days on feed, in 14 day increments also is displayed in the table. The price of alfalfa/grass hay was varied from \$40/ton to \$80/ton and the expected profit from feeding a thin, Canner or Cutter grade cow for 98 days on a roughage ration is displayed in Table 4.

There are several observations that can be made from analyzing the results of this sensitivity analysis. Obviously, the higher the cost of the feed stuffs for a particular ration, the lower the expected return to the cull cow feeding program. Not so intuitive, is the finding that returns to feeding cull cows increase with higher cull cow prices. The reason this happens is that the seasonal price pattern and the price differentials between grades remains relatively similar in periods of low and high cull cow prices. Therefore, if cull cow prices increase by 10 percent, there will be a greater price and revenue increase based

on a \$40/cwt cull cow prices compared to a \$30/cwt cull cow price.

The final observation is that, in most cases, returns from the high concentrate feeding program will exceed returns from the roughage feeding program. The exception to that is in periods of relatively low cull cow prices, when corn is relatively high priced compared to hay. In that case, the roughage ration provides higher expected returns.

## *Summary*

Cull cow receipts are a valuable source of income to most cow-calf enterprises. In periods of relatively low cattle prices, properly managing and marketing cull cows may mean the difference between a profit and a loss for the year. In this paper, the seasonality of cull cow prices was discussed and the price differentials between cull cow grades were reported. By timing cull cow sales to take advantage of seasonally higher prices, and by feeding thin cull cows to improve their slaughter grade, revenue from cull cows can be increased significantly.

Feed costs vary from year-to-year, mostly depending upon the price of feeds. They also vary within each year, depending upon the feeding program.

The profit potential of various cull cow feeding and marketing alternatives can be properly evaluated through the use of a partial budget. Costs and revenue will likely be different each year. However, the partial budget analysis will help to evaluate the most profitable marketing/management decision for cull cows. Remember, when arriving at expected prices, you should consider both seasonal price changes and potential for grade changes. All costs, and not just feeding costs, should be considered on the cost side of the budget.

The feeding programs discussed in this paper are not the only available alternatives. Evaluate feed resources and analyze programs that may work for you. Your financial future in the cow-calf industry will be somewhat dependent upon the income generated from cull cows.

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