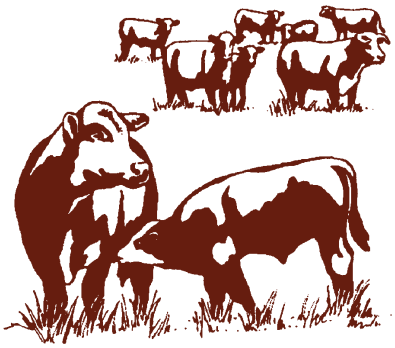

# Beef Cattle Handbook

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## Marketing Cull Cows

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Cull cow receipts account for approximately 20 percent of income from most cow-calf enterprises. 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 culling takes place, and 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, and that is the purpose of this factsheet.

Cows are culled from a herd for a number of reasons, and the reason for culling will most likely affect the time culling takes place and could alter the most profitable marketing strategy. Reproductive failure, problems resulting from old age, and unsatisfactory performance are the most common reasons for culling an animal. While reproductive failure is generally diagnosed in the fall of the year, culling for other reasons could take place at other times.

Three factors of importance regarding the decision to sell cows when culled versus feeding them and selling at a later time are: (1) the seasonality of cull cow prices, (2) the price difference between grades of cull cows, and (3) the cost of feeding the cull cow. Each of these factors will be discussed in some detail.

### Seasonality

Cull cow prices generally follow a consistent seasonal pattern. Prices are normally 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. Figure 1 contains a graph of the prices at Sioux Falls, South Dakota from 1984-1993 for utility grade cows. Prices are typically lowest in November when they are 6 percent below the annual average. In March, the price is typically 4.5 percent above the annual average.

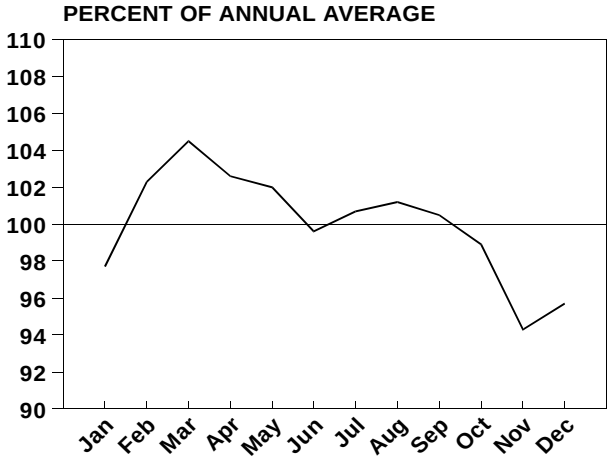


Figure 1. Seasonal Cull Cow Prices at Sioux Falls, South Dakota, 1984-1993.

Considering this seasonal pattern, it may be profitable 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, cows that are culled during calving season or early summer may be most profitable if sold at the time of culling. However, the other two factors still need to be considered.

## Cow Grades

The price of cull cows is based on their carcass grade or their expected carcass grade. The most common grades, in order of least desirable to most desirable are: Canner, Cutter, Utility, and Commercial. Younger cows may also reach the Standard, Select, or Choice grades. The price difference between these grades at Sioux Falls are displayed in Table 1.

Table 1. Percentage Price Increases Between Cull Cow Grades.

| | Cutter | Utility | Commercial |
|---|---|---|---|
| Canner | 9% | 14% | 15% |
| Cutter | - | 5% | 6% |
| Utility | - | - | 1% |

In a recent study at South Dakota State University conducted by R.H. Pritchard, cull cows were purchased in November and December from area sale barns. The cows were processed after 0, 50, 77, and 105 days on feed. The cows were fed a corn grain and corn silage balanced ration and 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 the time of processing.

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

| Days | Grades | | | |
|---|---|---|---|---|
| Fed | Can | Cut | Utl | Com + |
| 0 | 64% | 28% | 8% | - |
| 50 | 18% | 57% | 24% | 1% |
| 77 | 8% | 21% | 65% | 6% |
| 105 | - | 19% | 74% | 7% |

*Can = Canner* *Cut = Cutter*
*Utl = Utility* *Com + = Commercial or higher*

In the trial at South Dakota State, the initial condition of the cows did not affect the rate of gain, but it did have an effect on the size of the ribeye and the degree of marbling. From this trial it would appear that most cull cows could be expected to improve one grade following a feeding period, and that many could improve two grades. Therefore depending upon costs, it may not only be profitable to feed fall and winter culls, but also other culls if they are in the canner-grade at the time of culling.

## Cost of Feeding

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

Feed costs will vary depending upon the price of feed and the feedstuffs used in the ration. A cost of around $0.20 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 $500, and you are paying 10 percent interest on an operating note and you plan on feeding the cow for 90 days, the interest charge would be:

$500 x .10 x (90/365) = $12.33.

Death loss would be the percent of death loss multiplied by the expected sale value. For example,

($649 x .01 = $6.49).

## Partial Budget Analysis

The proper way to consider all of these factors is to construct a partial budget and evaluate whether it would be 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.

When calculating the expected revenue, both weight gain and the price change from seasonal variations and from grade changes should be considered. Feed costs, yardage, death loss, and interest should be computed to arrive at an estimate of costs.

Table 3 contains an example of a partial budget analysis. A canner-grade cull cow weighing 1,000 lbs. could be sold in November for $40.42 per cwt. Based on the seasonal relationship in Figure 1, the price in March should be about 10 percent higher for the same grade, or $44.46 ($40.42 x 1.10 = $44.46). If the cow also improves to the Cutter-Grade, then that price should be 9 percent higher, or $48.46 ($44.46 x 1.09 = $48.46). The weight gain was projected at 3.00 lbs. per day for 105 days.

Feed costs were estimated to be $0.41 per lb. of gain and the total feeding costs were $0.53 per lb. of gain. Subtracting the total additional costs and the lost revenue (from not selling the cull cow in November) from the expected revenue in March, results in an expected net revenue from feeding of $67 per head. Since no labor was charged to this enterprise, this return is the return to the operator's labor and management.

The return on investment in the cull cow for the duration of the feeding period can be calculated by the following formula:

Return on Investment =

$$\frac{\text{Net Rev + Int Cost - Labor Mgmt}}{\text{Initial Cull Cow value}} \text{ X (365/Days Fed) X 100}$$

Interest is added back into the net revenue, and a charge for operator labor and management is subtracted when calculating return on investment. In this case the return on investment is 32.8 percent, a very good return.

The break-even selling price is often 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 price. The break-even selling price is calculated by the following formula:

Break-even Selling Price ($/cwt.) =

$$\frac{\text{Lost Revenue + Total Additional Costs}}{\text{Final Weight}} \text{ X 100}$$

For this example the break-even selling price is $43.35/cwt.

This is only an example of feeding cull cows. Your costs and revenue will likely be different. However, the partial budget analysis will help you to evaluate the most profitable marketing/management decision for your cull cows. Remember when arriving at your expected prices to consider both seasonal price changes and potential for grade changes. All costs, and not just feeding costs, should also be considered.

**Table 3. A Partial Budget for a Canner-Grade Cull Cow in November fed for 105 Days and Processed as a Cutter-Grade Cull Cow in March.**

| | | Per head |
|---|---|---|
| Additional Revenue | | |
| 1315 lbs X $48.46/cwt | | $637 |
| Less | | |
| Lost Revenue | | |
| 1000 lbs X $40.42/cwt | | $404 |
| Feeding Margin | | $233 |
| Less | | |
| Additional Costs | | |
| Feed | $130 | |
| Yardage | 21 | |
| Interest | | |
| $404*.08*105/365 | 9 | |
| Death Loss | | |
| $649*.01 | 6 | |
| Total | | $166 |
| Net Revenue | | $67 |
| Feed Costs per Pound of Gain | | |
| $130/315 lbs. | | $0.41 |
| Total Costs per Pound of Gain | | |
| $166/315 lbs. | | $0.53 |

Return on Investment

$$\frac{\$67 + \$9 + \$37.9}{\$404} * (365/105) * 100 = 32.*\%^{a}$$

Break-even Selling Price

$$\frac{\$404 + \$166}{1315 \text{ lbs.}} * 100 = \$43.35/\text{cwt.}$$

[a] *Labor is $26.25/cow (3.5 hours/cow * $7.50/hr.) and management is five percent of the feeding margin ($233 * .05 = $11.65/cow). So the total charge for operator labor and management is $37.90/cow.*

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