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Supplement Allows Ranchers to Eliminate Hay Feeding and Reduce Winter Feed Costs

Abstract

Winter feeding of beef cows represents the highest single annual cost to producers across the United States, and more specifically in south central Idaho. Typically, producers utilize hay as the sole source of nutrients for their cows during the winter feeding period. In an attempt to decrease feed costs and maintain animal performance, the utilization of a winter feed supplement consisting of a protein source, ground corn and salt was implemented. Results indicate that the use of the supplement was more economically feasible than feeding hay to cows during the winter feeding period.

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Introduction

Profitability is often an elusive aim for many beef cattle producers. Narrow margins of profit in the cow-calf enterprise are often the rule rather than the exception. In 2005, it was reported (Cattle-Fax, 2005) that total annual cow costs in the northwest region of the United States were \$379 per head. Generally, feed costs account for at least 50% of the total cost to maintain a cow throughout the year, and winter feed costs account for a majority of the total.

Managing winter feed costs is critical for the profitability and survival of beef cattle enterprises. As beef cattle producers search for ways to decrease costs and increase profits, some consideration should be given to alternative feeding methods that minimize feed costs without sacrificing animal performance.

Project Background

Cassia County, located in south central Idaho, ranks second in the state for number of beef cows, with 30,500 (Idaho Agricultural Statistics, 2005). These cows generate in excess of one million dollars annually for the local economy. The majority of beef producers in this part of Idaho utilize both private and government rangelands to support their operations.

In general, producers place their cows on government ranges (State of Idaho, Bureau of Land Management, and U.S. Forest Service) from April 1 to December 1. Producers wean their calves in mid October and place the cows back on government rangelands until the winter feeding period (December 1 to April 1) begins in December.

Most producers winter their cows on private lands (crop aftermath, dormant hay meadows, sacrifice areas, etc.), with hay being the major source of nutrition. However, a few producers have private crested wheatgrass pastures that are used during the winter feeding period.

Project Objective

The objective of the project described here was to develop a winter feeding program that was more economical than feeding hay, enabling Cassia county ranchers to better utilize their private crested wheatgrass pastures without sacrificing animal performance.

Project Design

In 1995, a Cassia County rancher asked University of Idaho faculty members for assistance in developing a more economical winter nutrition program for his cow herd. Each year, the crossbred (Angus x Hereford) cows were bred to Red Angus bulls, with a target calving date of March 1. Calves were weaned on December 1 (+/- three days) as cows were removed from the government rangelands. Cows were culled if they were not pregnant at the end of the breeding season.

Prior to 1996, the rancher utilized hay as the single source of nutrition for his cows during the winter. Faculty members assisted the rancher in determining the nutritional requirements of the cows, the nutrients available in the standing forage (crested wheatgrass), and the costs of available feedstuffs. These factors were used to develop a winter supplement mix (Table 1) that consisted of a protein source (cottonseed meal, soybean meal or canola meal), ground corn, and salt. Salt was included in the mix as a means of limiting consumption.

Table 1.
Supplement Fed During Winter Feeding Period

Year	Ingredient	Percent (%) ^a
1996	Cottonseed meal	53.5
	Corn	30.1
	Salt	16.4
1997	Soybean meal	44.8
	Corn	26.0
	Salt	29.2
1998	Soybean meal	39.3
	Corn	38.9
	Salt	21.8
1999	Canola meal	37.1
	Corn	40.3
	Salt	22.6
^a On a dry matter basis.		

From 1996 to 1999, all cows in the herd were allowed to range on crested wheatgrass pastures during the winter feeding period (early December to early March) and were supplemented with 2 to 4 pounds per head per day of the winter supplement mix. The cows received no hay during the winter feeding period, unless warranted by extreme winter weather conditions. During the duration of the project, University of Idaho Extension faculty members and the cooperator monitored the cows to ensure they maintained body condition, remained healthy, and remained reproductively sound. This regular observation of the herd also allowed supplement consumption to be monitored and regulated when necessary.

Project Benefits

To gauge the effectiveness and the benefits of the alternative winter feeding program, supplement costs and animal performance measures were recorded and monitored. The total number of cows maintained on the supplement ranged from 165 in 1996 to 179 in 1999. Table 2 provides an overview and comparison of the supplement and hay costs from 1996-1999. The amount of supplement required per cow, on an annual basis, was determined by the total pounds of supplement fed to the herd divided by the total number of the cows in the herd. Cost of the supplement varied from \$24.99/cow/year to \$46.33/cow/year. The variation in supplementation costs was due in part to the variation in conditions during the four winter feeding periods. Cows ate more supplement as winter conditions worsened.

Table 2.
Costs of Feeding Supplement Versus Hay During the Winter Feeding Period

Year	Start of Feeding Period	End of Feeding Period	Supplement per Cow (lbs.) ^a	Cost of Supplement (\$/head) ^b	Hay per Cow (tons) ^c	Cost of Hay (\$/head) ^d	Savings per Cow (\$/head) ^e
1996	12-19-96	03-04-97	251.87	24.99	2.19	152.21	127.22
1997	12-09-97	03-10-98	445.97	46.33	2.19	173.36	127.03
1998	12-08-98	03-03-99	398.34	27.77	2.19	148.37	120.06
1999	12-03-99	03-01-00	454.86	32.59	2.19	125.55	92.96

^aTotal pounds of supplement fed / total number of cows. Number of cows: 165 in 1996, 164 in 1997, 169 in 1998, and 179 in 1999.
^bCost of supplement per cow = [(Total # consumed / number of cows) x (price / pound of supplement)].
^cTons of hay per cow as reported in the 1998 Idaho Livestock Costs and Returns Estimates.
^dCost of hay per cow based on prices reported by the Idaho Crop Reporting Service.
^eCost of hay (\$/head) - cost of supplement (\$/head).

Actual values for the amount of hay fed and the cost of the hay were not available. Therefore, the amount of hay (2.19 tons/cow) needed to maintain a cow during the winter feeding period was taken from annual cow-calf budgets provided by University of Idaho Extension (Gray, Loucks, Smathers, & Rimbey, 1998). The cost of the hay was determined using prices supplied by the Idaho Crop Reporting Service (USDA-NASS, 2006).

In each of the winter feeding periods, the supplement was shown to be more cost effective than feeding hay. Cost savings (\$/cow) varied from \$92.96 to \$127.22. As was the case with the supplement costs, the variation in savings was due in part to the varying winter conditions, which resulted in cows needing varying amounts of nutrients to maintain themselves during the winter feeding period.

Some animal performance measures were monitored and recorded during the duration of the project and are presented in Table 3. Calving activity, defined here as the percent of cows calving in the first 45 days of the calving season, ranged from 89% to 92%. Calf weaning percentages were consistently above 90% and combined (steers and heifers) weaning weight increased from 485 pounds to 532 pounds. The values reported for 1996 are from cows that were not part of the study. They provide some indication of how the herd was performing on hay versus supplement.

Table 3.
Performance Measures for Cows Fed Supplement During the Winter Feeding Period

Year ^a	Calving Activity (%) ^b	Calves Weaned (%) ^c	Weaning Weights (lbs.) ^d
1996	78	93	483
1997	90	91	485
1998	91	92	498
1999	89	93	509

2000	92	94	532
<p>^aSupplementation program began in December 1997.</p> <p>^bCalving activity is defined as the percentage of females that calved in the first 45 days of calving season.</p> <p>^cPercent calves weaned is defined as [(# of calves weaned/# of cows exposed) x 100].</p> <p>^dWeaning weights are represented by an average weight of steers and heifers combined.</p>			

Conclusions

Winter feeding of beef cows represents the highest single annual cost to producers across the United States and more specifically in south central Idaho. Hay is often the sole source of nutrients for cows during the winter feeding period. Producers implementing cost effective alternatives to hay can improve their profitability. Results of this demonstration have shown that a winter supplement mix consisting of a protein source, ground corn and salt was more cost effective than feeding hay, yielding an average savings per cow per year of \$116.81.

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