MANAGEMENT

Ridin' Herd

► by **Rick Rasby,** *Extension beef specialist, University of Nebraska*

Early planning will pay dividends

In visiting with producers this spring, it's almost mind-boggling what they are telling me their annual cow costs are. Most have indicated their costs are more than $550 per cow. If pounds of calf weaned per female exposed were 500 pounds (lb.), the breakeven would calculate to $1.10 per lb.

Lowering feed costs

Those producers are probably still making money considering what 500-lb. calves sold for last fall. It wasn't that long ago their annual cow costs were slightly less than $400 with the same weaning weight and percentage calves weaned per female exposed. The breakeven calculated to about $0.80 per lb.

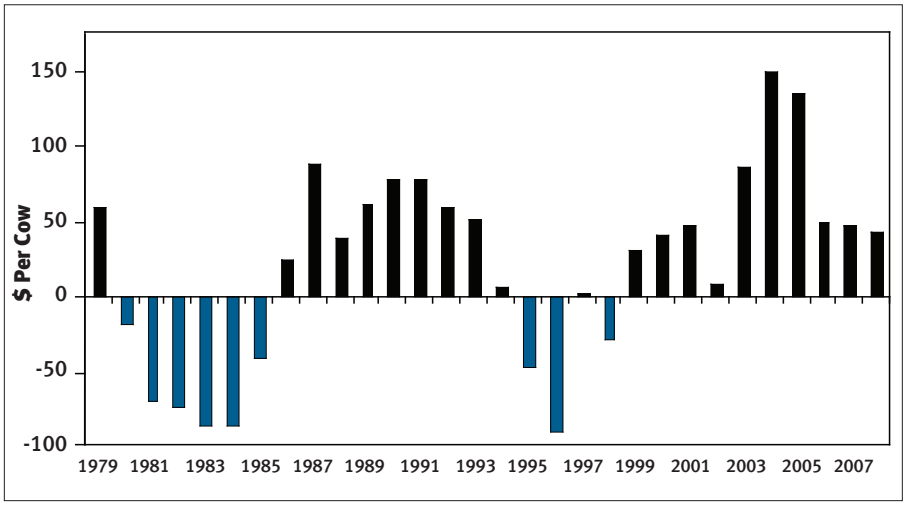
Fig. 1 supports that annual cow costs have increased, especially the last few years. About 2004, profits per cow were the highest they had been during the last 25 years. However, the last few years those profits have dwindled to less than one-third of the good years. Keeping the female grazing, harvesting her own needs, is still the most economical approach to lowering feed costs. However, in some management systems or in some areas of the United States, harvested forages are needed to feed the cow herd. Are there management practices where grazing and hay harvesting methods can be optimized?

Table 1: Effect of cutting date on average dry-matter yield and crude protein, four years of data compiled.

	First harvest		End of season (Sept.)		
Cutting date	Yield, lb./acre	CP, %	Yield, lb./acre	CP, %	Total yield, lb./acre
June 1	2,653[a]	11.9[a]	3,099[a]	9.10[a]	5,752[a]
June 15	3,453[b]	9.6[b]	1,921[b]	11.09[b]	5,374[a]
July 1	4,679[c]	8.0[c]	1,669[b]	12.48[c]	6,348[c]
July 15	4,868[c]	6.9[d]	1,208[c]	13.84[d]	6,076[b,c]
Aug. 1	5,725[d]	6.4[d]	611[d]	16.53[e]	6,336[c]
Aug. 15	5,603[d]	6.4[d]	167[e]	18.36[f]	5,770[a,b]

[a,b,c,d,e,f]Means within columns with different superscripts are statistically different.

Table 2: Estimated average cow-calf returns, annual returns over cash cost (includes pasture rent)



Quality vs. yield

It has been said three items determine forage quality: maturity at harvest, maturity at harvest and maturity at harvest. It is safe to say that maturity of forage is the primary factor that influences forage quality. As plants mature, or advance in maturity, forage quality declines.

As the plant matures, a larger portion of the plant is stem as compared to leaves. The fiber components of the plant increase, causing a decline in quality and digestibility. The lignin content also increases. Lignin is a cell wall component of the plant that is not digested by ruminants.

On the flip side of forage quality is forage yield. As the plant matures, more plant material is produced and more quantity of plant is available. As plants mature, forage yield goes up. So this is a balancing act for producers, to optimize forage quality and yield. If the producer maximizes quality, then forage yield is minimized. If forage yield is maximized, then forage quality suffers.

Optimize harvested forage

Table 1 demonstrates the concept of maturity at harvest and its effect on quality and yield. This experiment was conducted in the Sandhills of Nebraska. The grasses were warm-season grasses. More specifically, the grasses in these pastures were blue grama, little bluestem, prairie sandreed, sand bluestem, switchgrass, northern reedgrass, sand lovegrass and Indiangrass.

As cutting date increased, crude protein (CP) content decreased. Crude protein of the grass harvested June 1 was 11.9%. Forages harvested July 1 were 8.0% CP, and forages cut Aug. 1 were 6.4% CP.

There were huge differences in forage yield based on first harvest date. There was about a ton (2,026 lb. per acre) difference in forage yield when comparing the cutting date of June 1 to July 1. There was roughly half the yield (1,046 lb. per acre) difference between the July 1 (4,679 lb. per acre) and Aug. 1 (5,725 lb. per acre) cutting dates.

There was not much difference in yield between Aug. 1 and Aug. 15. The data show a reduction in yield, but, due to variation in the data, statistics indicate those yield numbers are not "significantly" different.

Early-cut hay would be a good protein and energy source for females after calving, when the nutrient requirements are high. The early-cut hay would also be a forage that could be targeted to first-calf females during their first lactation. If the forage source

doesn't meet the requirement, then only minimal supplementation would be needed.

Optimize fall grazing

Interesting in this experiment is that forage availability and forage quality were determined at a fixed time in the fall. In these cases, forage availability and crude protein were determined in September on the same locations that the different cutting dates were performed.

It is interesting that in September, forage quality increased as cutting date increased. In other words, the forage in September on the area that was harvested June 1 (9.10% CP) was lower in crude protein compared to the protein content in the area that was harvested Aug. 1 (16.53% CP). After you think about it, this makes sense. In September, the regrowth following the original June 1 cutting is more mature compared to the regrowth following the Aug. 1 cutting.

The forage available in September was much greater when the cutting date was June 1 (3,099 lb. per acre) compared to Aug. 1 (611 lb. per acre). Statistics show the September yield when first cut June 15 (1,921 lb. per acre) was not different than when cut July 1 (1,669 lb. per acre).

The final column of Table 1 reports total yield, which is the sum of yield at first harvest plus the forage yield in September. Total yield was not different when the first harvest date was July 1 compared to Aug. 1. However, crude protein (8.0%) content was greater in forage harvested July 1, and one could assume that energy content [% total digestible nutrients (TDN)] was greater in the July harvested forage compared to the crude protein (6.4%) and energy content in Aug. 1 harvested forage.

One of the management practices that keeps the cow harvesting her needs is dormant-season grazing. Forage available for dormant-season grazing was 2.7 times greater when the first cutting was taken as hay July 1 compared to the forage cut as hay Aug. 1.

Will the dormant standing forage meet the cow's nutrient needs? Maybe, maybe not — it will depend on her stage of production. If it doesn't, then a little strategic supplementation may be warranted. In addition, hay harvested in July may need little to no supplementation, depending on when it will be fed. This could be a win-win situation, depending on your goals and management strategies.

Two factors that would affect forage quality and yield are precipitation and fertilization. With the recent price of nitrogen (N) fertilizer, it's hard to pencil in the return to fertilization. Perform these calculations for your area and for different rates of application.

Final thoughts

It will be important to keep costs, especially feed cost, low without negatively affecting production. The data presented suggests there are opportunities to manipulate both hay yield and quality by changing time of first harvest. First harvest date also affects forage quantity available for stockpiled grazing opportunities.

The optimum time for first harvest will depend on management objectives and forage resource(s) for a particular ranch. These kinds of strategies can affect supplementation need and, therefore, supplementation costs.

E-MAIL: rrasby@unlnotes.unl.edu

Editor's Note: *"Ridin' Herd" is a monthly column written by Rick Rasby, professor of animal science at the University of Nebraska. The column focuses on beef nutrition and its effects on performance and profitability.*