



Ridin' Herd

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

Knowledge is power

Cow costs continue to increase in the cow-calf enterprise. Fuel, labor and feed costs have caused the cost of producing a weaned calf to increase. Although pasture grazing costs have increased, it still appears more profitable to keep cattle grazing for as many months out of the year as possible compared to dry-lotting and carrying feeds to feed them. Producers can control the time of year when the nutrient demands of the cow herd are the greatest and when they are the lowest. Producers can determine when the cow herd will calve by determining when a defined breeding season will begin and end and when weaning will occur. Couple this with information on pasture quality, and producers may have the opportunity to keep unit cost of production in check as other costs continue to increase.

Grazed forage quality and cow nutrient needs

A powerful piece of information for beef producers is knowing the changes in forage quality throughout the year. So many things affect forage quality, from type of grass (cool- or warm-season), location, soil type, rainfall and grazing pressure to name a few. If you know forage quality and if you know nutrient needs of the cow herd at different stages of production, you can manage time of calving and time of weaning so that the need for supplementation is strictly on an as-needed basis.

As an example, in our spring herd, cows begin calving in March, the breeding season begins June 1, and calves are weaned in October. For the summer-calving herd, calving begins in June, breeding season begins in late August to early September,

and weaning occurs in November or January. Summer-calving cows were fed 327 pounds (lb.) of hay per cow per year compared to 3,947 lb. of hay per cow per year for the spring-calving cows.

Similar amounts of protein supplement were fed. Summer-calving cows were fed 154 lb. per cow per year, and spring-calving cows were fed 96 lb. per cow per year. The length of the grazing season went from 233 days to 357 days by adjusting the calving time from March to June.

Cow reproductive performance was not different between groups. When calves were weaned at similar days of age, summer-born calves were about 35 lb. lighter. However, January calf prices tend to be higher for the same weight of calf sold in October; therefore, summer-born calves generate similar gross income as spring-born calves.

Due to cost savings in this summer-calving system, primarily due to less labor and less hay fed, the summer-calving system was more profitable even at weaning time.

Are there challenges in this calving system? Sure. Breeding season occurs when forage quality is decreasing. This is not a concern for mature females. It can be a challenge for females trying to get bred for their second pregnancy; they may need some supplementation. In addition, heat stress could be a concern for newborn calves. Also, the breeding season occurs during a hot part of the summer, and this could affect bull fertility. This was not a problem in the central Sandhills of Nebraska. At our location, it does get hot during the day, but humidity is low and there is nighttime cooling.

If one studies the nutrient quality change in Sandhills range in Fig. 1, it appears that late April to early May calving may better fit, and the need to supplement young females during their second breeding season appears unwarranted. By moving the calving time to late April, the cow requirement line shifts slightly to the left and the shaded area is squeezed down.

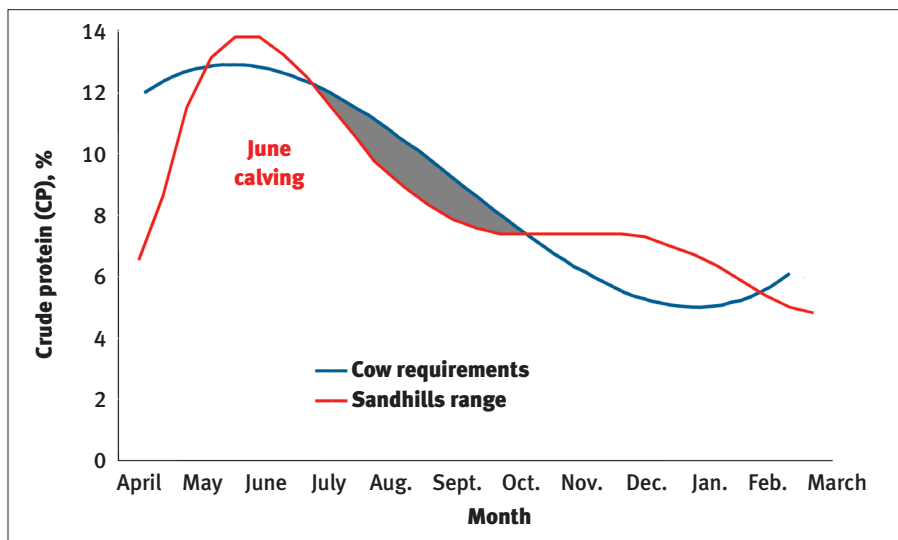
Databases that describe protein and energy content of grazed forages, like the ones developed for the Sandhills of Nebraska, are tremendous assets to producers to help them design production systems that fit their operations and have the potential to increase profit. In addition, these databases aid producers in designing strategic supplementation strategies.

A more recent *Nebraska Beef Report* (2008) contains nutrient profiles [percent crude protein (CP) and in vitro organic matter digestibility (IVOMD), which is similar to total digestible nutrients (TDN) or energy content] on Sandhills upland range and at a southwest Nebraska location.

Upland range in the Sandhills of Nebraska consists of mostly warm-season grasses. The quality of the grazed forage is greatest in April, May, June and July and begins to decline in August. The quality estimates are from grazed samples that the cattle consumed. It is interesting to note that protein quality isn't all that bad in January and February, probably meaning the cattle are grazing and have access to some forbs that are high in protein.

This report also gives us an idea of the energy content of the diet that is being consumed. On average the energy content of the diet is greater than the nutrient needs of a lactating beef cow in April, May, June and July and then decreases thereafter. This report also indicates that diet quality is influenced by rainfall and grazing pressure. In drought years and when grazing pressure

Fig. 1: Monthly CP content and change in CP requirement for a June-calving herd



is consistently high, selectivity is different compared to when pastures receive more normal rainfall and there is moderate grazing pressure.

The data also suggest that the protein content in the diet decreases in cattle when pasture grazing pressure is high for three successive years. Cattle will try to select the most nutritious plants and plant parts when selectivity is possible.

These data would also suggest that energy content of the forage is bordering less than the energy needs of a lactating female in September. Weaning all the calves by mid-to late September or weaning calves from first-calf females may be a management strategy to reduce input costs and have cows regain body condition without supplementation.

If you are calving late and weaning early, calves will not weigh as much at weaning compared to calving early and weaning late. Using this management strategy may mean that calves are retained for some time after weaning to put weight on them before selling. Young calves are efficient at converting feed to gain, especially if quality of the diet is high.

Final thought

Cattle producers can control timing of nutrient needs of the cow herd. The highest nutrient needs are after calving, when cows are lactating. The lowest nutrient needs of the cow herd are after the calves are weaned. Producers can control when calving season begins, ends and when calves are weaned.

Knowing the quality of the forage resource and nutrient needs of the cow at the different stages of production will allow for strategic supplementation when and if needed.

In addition, body condition at calving is important for reproductive success. How optimal body condition can be achieved with minimal supplementation will affect the profit potential of the cow-calf enterprise.

Contact your university personnel to see if they have a database of annual forage quality changes of grazed forages in your area. This knowledge is important for your success.



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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.