



Ridin' Herd

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Feeding first-calf females

The most challenging group of females in the cow herd is the group of first-calf females after calving. Their nutrient requirements are high because they are lactating, repairing their reproductive tract to get ready for their next pregnancy and still trying to grow. These females should be calved in a body condition score (BCS) 6 (where 1 = thin and emaciated, 9 = obese; see www.cowbcs.info/ for more information), as compared to a BCS 5 for the rest of the cow herd.

Nutrition after calving is important to the cow herd, especially first-calf females. Many times producers do a good job of meeting protein needs of the first-calf female in early lactation; however, in many feeding situations, they do not meet their nutrient need for energy.

After calving there should be three management groups: mature cows, first-calf females, and replacement heifers being developed.

Many byproduct feeds would work well in high-forage diets. Byproduct feeds, when fed in high-forage diets, do not have a negative effect on forage digestibility. Distillers' grains could be used to meet the energy needs after calving.

Nutritional differences

Nutrient needs for mature cows and first-calf females increase, especially during the last trimester and after calving when lactation occurs. When looking at the nutrients required, especially pounds of protein and energy (total digestible nutrients, TDN), there is not a big difference in total pounds of these nutrients needed in the diet for first-calf females compared to mature cows. However, when you compare the dry-matter intake of a first-calf female compared to a mature cow, there is a considerable difference.

With that in mind, to get the same pounds of nutrients into a first-calf female compared to a mature cow, the nutrient density of the diet needs to be greater. In other words, the quality of the feeds in a first-calf-heifer diet need to be high.

Research reported in the 2004

Nebraska Beef Report indicate that a first-calf female that is within three weeks of calving experiences a 17% decrease in daily feed intake (see Fig. 1). These data further illustrate the need to separate first-calvers from mature cows beginning at least three weeks before the start of the calving season. These data also suggest that the nutrient density of the diet has to be high because intake is restricted. Intake is re-established to more "normal" levels by about one week postcalving.

This reduction in feed intake is not yet understood. The most logical explanation would be that the fetus has increased in size and takes space that the rumen would normally be occupying. Another explanation could be that hormones being produced late in gestation in first-calf females affect appetite.

The 2000 *Nutrient Requirements for Beef Cattle* (NRC) indicates that first-calf females postcalving need to consume a diet that is 62%-64% TDN and 10%-11% crude protein (CP), depending on level of milk production. These nutrient densities also assume that females are being fed to maintain, not increase, body condition postcalving.

If in the stack yard there is meadow hay that tests 58% TDN and 12% CP, prairie hay that tests 54% TDN and 6.5% CP, bromegrass hay that is 58% TDN and 11% CP, or early-bloom alfalfa at 60% TDN and 20% CP, feeding a combination of these feeds or any of these feeds individually will not meet the first-calf female's energy (TDN) needs, and some of these forages will not meet their protein needs.

Feeding management

Again, first-calf females should be calved in a BCS 6, as compared to a BCS 5 for the rest of the cow herd. Fig. 2 illustrates the effect of body condition on second pregnancy rates when first-calf females are calved at BCS 5 or less than 5, then fed differently postcalving. Heifers that calve in a BCS greater than 5 and fed to maintain body condition postcalving have a very acceptable pregnancy rate. Heifers that calve at less than a BCS 5 and are fed to increase body condition postcalving achieve an unacceptable pregnancy rate during their second breeding season.

The interesting part of this figure is that if heifers are calved for their first time in a BCS greater than 5 and fed to increase body condition after calving, on average, they have only about a 3-percentage-unit increase in pregnancy rate as compared to heifers that calve in a BCS greater than 5 and are fed to

Fig 1: Forage dry-matter intake of first-calf females

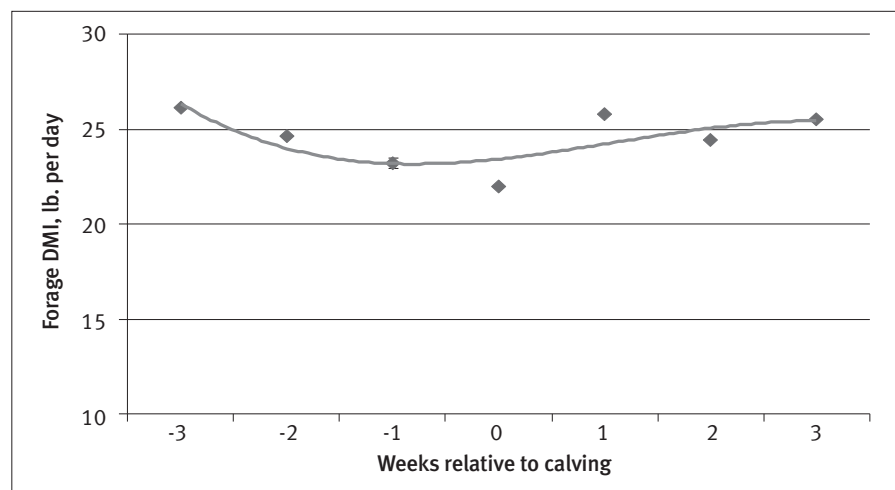
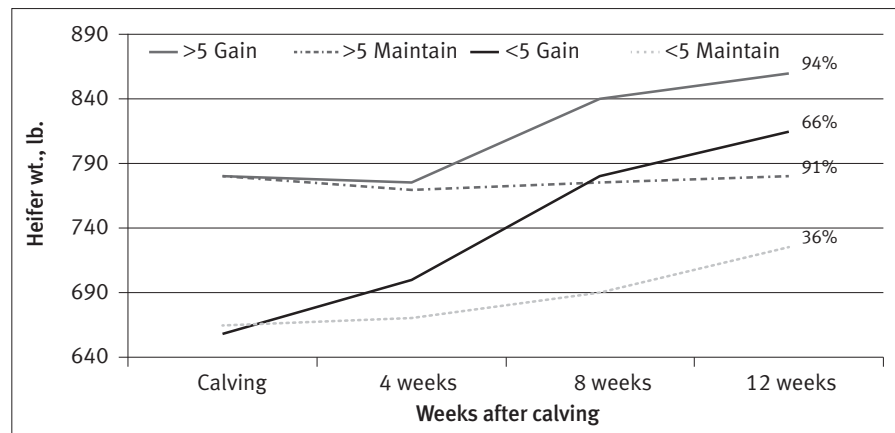


Fig 2: Heifer weights at and after calving and pregnancy rate



maintain condition after calving. Many times the extra feed fed to increase BCS after calving goes into milk production and is not used to increase body condition.

The energy feeds that are selected and fed in high-forage diets cannot have a negative effect on forage digestion because the majority of the diet is still forage. Corn could be an option and would work well. In most feeding situations, about 3 lb. per head, per day "as-is" would come close to meeting energy needs when feeding a combination of average-quality hay and alfalfa. When feeding corn at this level, there will be a slight reduction in forage digestion, but not enough to likely see any reduction in performance. The corn could be fed whole. It is important that protein needs be met when corn is fed in this diet.

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digestibility. Distillers' grains could be used to meet the energy needs after calving. Again, if the first-calf heifers are being fed good-quality hay, adding 2.5-3.5 lb. per head per day of dried distillers' grains (DDG at 110% TDN) would fit.

Final thoughts

Once replacement females become pregnant, give them a chance to be productive members of the cow herd for many years. Manage their body condition so they calve in a BCS 6. Make sure that protein and energy needs are met after calving for the young female. It will likely be necessary to add a high-energy feed to the forage diet to meet the extra energy demand.

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.