

Hungry Heifers

A little TLC during development pays big dividends for a future cow herd.

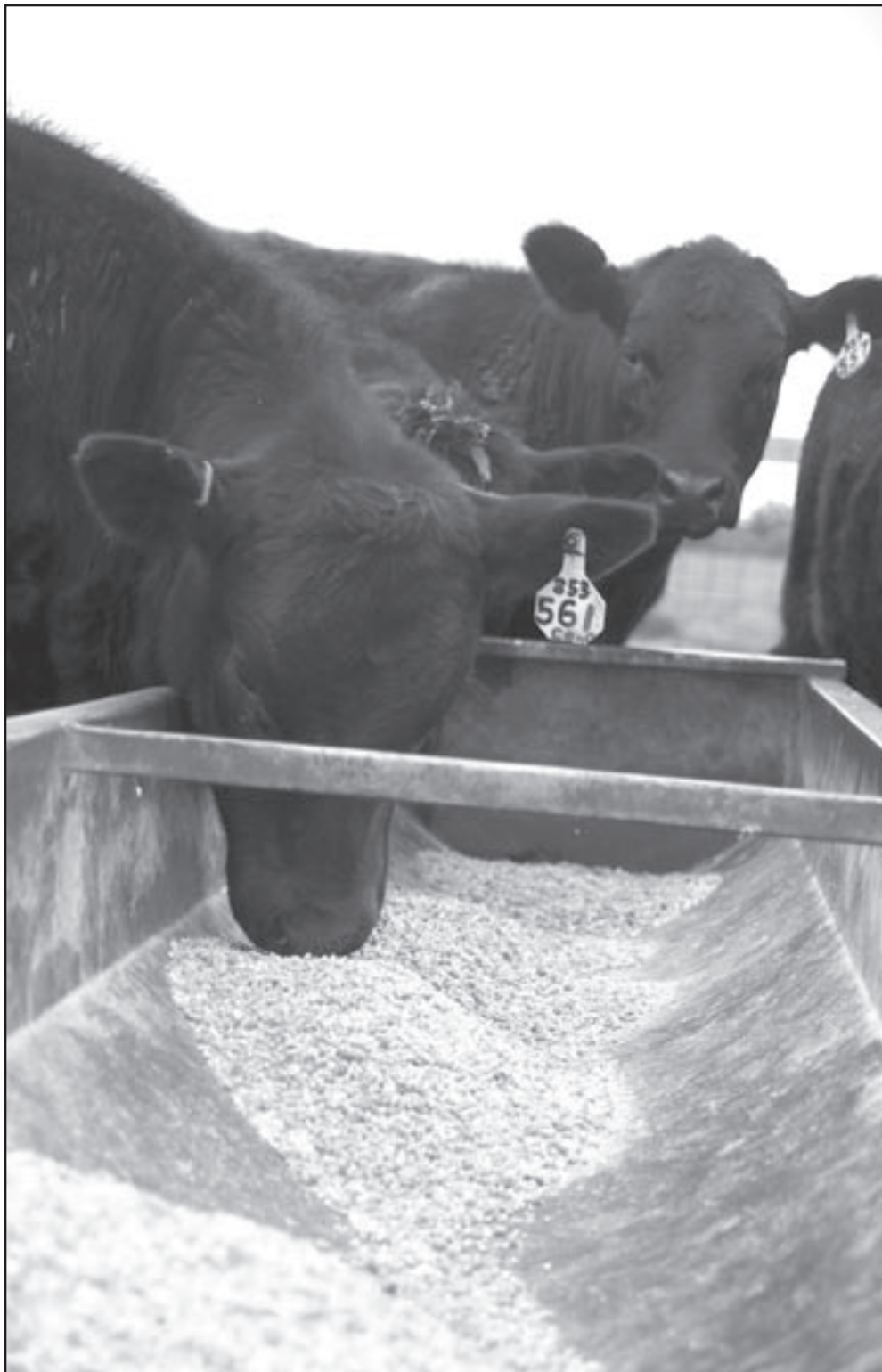


PHOTO BY SHAUNA ROSE HERMEL

Story by
BOYD KIDWELL

“Heifer nutrition is a key to profitable beef production. Unfortunately, due to the perceived high cost of developing heifers, many young females have a slow start in life and this impacts their lifetime productivity,” says Matt Poore, North Carolina Extension beef nutritionist.

In his effort to help beef herds become more productive, Poore gives advice on heifer nutrition to many cattle ranchers. The veteran nutritionist also puts his

recommendations into practice on the family’s Triple Creek Ranch at Virgilina, Va. He operates the ranch in a joint effort with his parents, Henry and Nina Poore. Each year, they raise 60 Angus-sired heifers. Half of these heifers are retained as replacements for the Triple Creek herd and the other heifers are sold to commercial producers.

Feed focus

“Nutrition for replacement heifers begins before birth,” Poore says. “Cows expected to produce replacements should be in good body condition [body condition score (BCS) 6.0] at calving.”

Adequate nutrition for dams contributes to vigorous calves and produces high levels of colostrum to help newborn calves ward off diseases. As heifers develop, the future replacements should be fed to a BCS of 5.0 to 6.0. But heifers should never be allowed to become overly fat early in life. Overfed heifers develop fat deposits in their udders that later limit milk production. Creep-feeding heifers is expensive and isn’t needed if adequate forage is available, Poore points out.

To produce a 1,200-pound (lb.) mature cow, heifers should weigh a minimum of 500 lb. when weaning at 8 months of age. Weaning puts stress on heifers, which is a critical point in their development. At Triple Creek Ranch, the Poores start heifers on

Cheap Feed

In the Carolina/Virginia area, some of the less expensive feeds include soybean hulls, corn gluten feed and whole cottonseed. A 50/50 mix of soybean hulls and corn gluten feed makes a good ration. But you can also use corn gluten top-dressed with 3% calcium carbonate [1 pound (lb.) to 30 lb.] and a free-choice rumensin mineral, according to North Carolina Extension beef nutritionist Matt Poore.

“This year, we fed 3 pounds of corn gluten feed and 2 pounds of whole cottonseed (per head per day), both of which we purchased at \$87 per ton delivered to the farm (in November),” Poore says. “We always use whole cottonseed, which is a good deal during ginning time in this area. In the Midwest, producers should look at feeds like dried distiller’s grains (DDG) that are increasing in availability due to ethanol production.”

Midwestern producers are indeed working DDG into rations for replacement heifers.

“In Missouri, there’s concern among ethanol plants about keeping DDG sold,” says Extension educator Chris Zumbrennen, who coordinates the Show-Me-Select Heifer program at Milan, Mo. “With the fat, protein and fiber content, I think DDG will start taking over a large part of the soybean meal and commercial protein market in cattle rations. As compared to \$2.50-per-bushel corn and \$180-per-ton soybean meal, DDG has a feed value of \$126 per ton (on a gain basis).

“The nearby ethanol plant prices DDG at \$92 per ton with a \$9-per-ton delivery charge,” he continues. “For \$101 per ton you can buy feed that’s worth \$126 per ton in a ration. It’s a pretty good deal if you can get it.”

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high-quality hay the day they are weaned. They also provide a palatable grain mix that includes recommended levels of trace minerals and an ionophore. Their grain mix contains molasses and consists of grains, oilseed meals or byproduct commodities.

Although the ingredients can vary, the grain mix should be balanced to about 16% protein. The Poores feed 1 lb. per head per day of the grain mix and 1 lb. per head per day of whole cottonseed the first day of weaning. If whole cottonseed isn't available, then 2 lb. per head per day of grain mix is suitable. During the four-week weaning period, the ration is increased to 3 lb. per head per day for grain and 2 lb. per head per day for whole cottonseed.

After weaning, the Poores turn heifers out into high-quality pastures when possible. If forage quality isn't sufficient to meet the desired growth rate, they continue to supplement with 2-5 lb. of concentrate daily.

Weight gain benchmarks

This postweaning phase lasts until the heifers are ready for breeding. During this period, heifers can be sorted and managed at two nutritional levels to help slower-gaining animals catch up. To reach their target rate for breeding, heifers should gain 1.5 lb. per day during the postweaning phase. At breeding, heifers should attain 65% of their mature body weight. For most Angus-cross heifers destined to mature into 1,200-lb. cows, the target weight is 780 lb.

From breeding to calving, heifers should continue to gain 1 lb. per day. This daily gain can be achieved on good-quality forage, but if grazing conditions are poor, the animals should be supplemented to ensure that they

reach a target weight of 1,020 lb. (85% of expected mature weight) when they give birth. At precalving, heifers should have a BCS of 6 to 7.

If heifers are thin at this time, they should be placed on a higher level of nutrition. It's difficult to improve a heifer's condition just before calving and even harder to improve her condition after calving. Good condition at calving improves a heifer's colostrum production, increases the survivability of calves and decreases a heifer's postcalving anestrus period. Pay extra attention to mineral and vitamin A nutrition during the last trimester of pregnancy, Poore suggests.

From calving to rebreeding for second calves, heifers should continue to gain 0.5 lb. per day. Achieving these gains can prove challenging, especially if heifers calve in winter when forage quality is low. Poore encourages producers to develop plans that provide lactating first-calf heifers the highest-quality hay or pasture available. A grain supplement may again be needed to keep each heifer above a BCS 5. Heavy-milking heifers are especially prone to rapid weight loss, which results in reduced chances of cycling.

While this tender loving care at Triple Creek Ranch seems expensive, the Poore family knows that their early investment pays off over a cow's reproductive life.

"The nutritional program for heifers need not be based on expensive purchased feeds, and target gains can be met easily with minimal energy and protein supplementation," Poore says. "But the improved profitability of calving heifers at 2 years old, as compared to 3 years old, has been long proven."



Ridin' Herd

by **RICK RASBY**, *Extension beef specialist, University of Nebraska*

Managing body condition is key to success

Many times I have discussed the importance of managing the body condition of your cow herd. Body condition at calving for spring-calving cows has a major effect on reproductive performance during the next breeding season. Cows and first-calf females in good body condition at calving [body condition score (BCS) 5 for cows and BCS 6 for first-calf females] will resume estrous cycles and breed early in the breeding season. How cows are managed late in the grazing season will have a major effect on their body condition as they enter the winter.

Time of weaning

Lactation has a major effect on how nutrients are partitioned in the beef cow. Until the diet meets and exceeds a cow's nutrient requirement for lactation, nutrients will not be partitioned to other activities, such as replenishing body energy reserves. The balance between available nutrient (feed) resources and level of milk production is critical. Too much milk matched with medium- to low-quality feed resources results in a cow herd that you are constantly trying to catch up in body condition.

When feed resources and milk-producing ability for mature cows are matched in an ideal production system, cows will be a little thin at weaning. Once the calves are weaned, and that nutrient demand for lactation is removed, cows should begin to gain back body condition in about 45 days. In this ideal production system, cows would be in BCS 5 going into the winter without any supplementation. However, if weaning occurs late in the grazing season for spring-calving cows and grass resources decrease rapidly such that quality is low, then gaining back body

condition will be a challenge without some supplementation.

The challenge is spring-calving, first-calf females and managing body condition of this group without a lot of supplementation. These females are the ones that are likely to be thin in the fall at weaning. Body condition is critical for this group of females, and it affects their stayability in the cow herd.

Because they have not reached maturity, you are working with a smaller rumen compared to mature cows. This is the major reason why quality of the diet is so important. As we all know, warm-season pasture quality decreases as the season changes from summer into fall. This is a critical time of the year to manage condition of young cows.

At the University of Nebraska's Gudmundsen Sandhills Laboratory, located in the heart of the Sandhills of Nebraska, we conducted an experiment to look at the effect of weaning date of March-born calves on cow BCS change. The primary grass resource at this location is warm-season native pasture. Its nutrient quality peaks in late May and early June and begins to decline rapidly in August. We began weaning the March-born calves in mid-August and weaned every two weeks until the end of November (see Fig. 1).

The Y axis indicates change in BCS; the graph indicates that on Aug. 18, cows were 0.4 BCS above the average. The relationship between weaning date and BCS change appears to be highly correlated ($r^2 = 0.95$), and it appears to be linear (or a straight line) from Aug. 18 to Nov. 24. Also, the slope of the line is negative. This means that for every two weeks that weaning is delayed past Aug. 18, there is a 0.1 unit decrease in BCS.

(Continued on page 66)

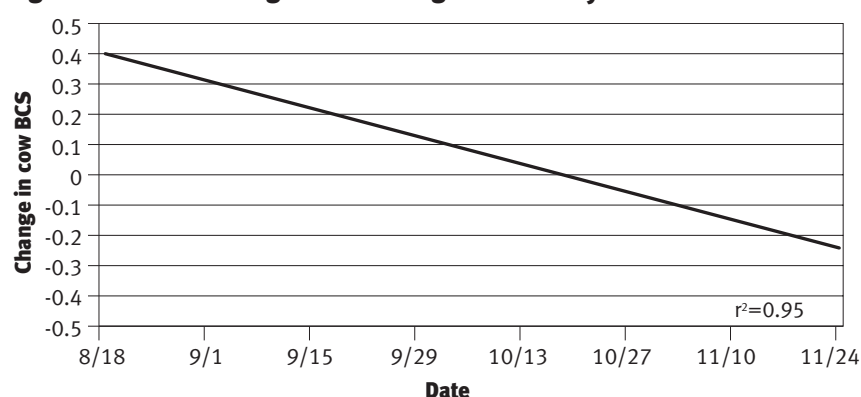
Protect your investment

While nutrition is important, heifers should also have a comprehensive vaccination program before joining your herd. A veterinarian can advise you on a program to fit your area. As a sample vaccination program, the following are the guidelines for Missouri's Show-Me-Select Replacement Heifer program.

- Calfhood vaccinations against brucellosis (Bang's disease) are required in accordance with state and federal regulations.
- At weaning, heifers should be vaccinated for infectious bovine rhinotracheitis (IBR), bovine viral diarrhea (BVD), parainfluenza-3 virus (PI₃), bovine respiratory syncytial virus (BRSV) and seven-way clostridial.
- To maximize protection against reproductive loss, vaccinations against leptospirosis (five-way) and vibriosis should be given between 60 days and 30 days prior to breeding.
- Booster vaccinations against IBR and BVD are required between 60 days and 30 days prior to breeding.
- Booster vaccinations against leptospirosis (five-way) are required at initial pregnancy checks.

The Show-Me-Select program also requires prebreeding reproductive evaluations. Heifers must meet minimum requirements for pelvic area measurements and reproductive tract scores.

Fig. 1: Effect of weaning date on change in cow body condition score



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In addition to the effect of weaning date on cow body condition, the data in this same experiment suggest that calf weight increased until Oct. 13 at the same time that cow BCS decreased. After Oct. 13, calf gain was minimal as cow BCS continued to decrease. Knowing this information can allow you to manage the body condition of

young, lactating females and more closely predict the effect of delaying weaning. In some management systems, it may be economical to strategically wean calves from first-calf cows before the mature cows at a specific time of the grazing season to get condition back on them using the grass resource instead of waiting later in the

grazing season when supplementation is likely to be needed.

Partial weaning

One management technique that, in theory, puts condition back on young females and reduces the stress on the calf is to wean the calf for a period of time

to dry up the dam, then reintroduce the calf to its dam. This technique, if successful, would reduce the stress on the calf, because it is back with its nonlactating dam, and allow the cow to gain back body condition, as she is no longer lactating.

We have weaned calves for 4 days, 8 days and 12 days, then turned the calves and dams back together. Calves weaned at 4, 8 and 12 days all mothered up and began suckling their dams. We measured milk production, and all cows, regardless of calf removal length, produced milk after the calves were returned. Milk composition didn't change much depending on whether cows had their calves weaned for 4 or 8 days.

But when calves were weaned for 12 days, milk composition was slightly different, indicating that the cows that had their calves weaned for 12 days were beginning to dry up. It appears to me that to use this management technique, calves would need to be weaned from their dam for at least 30 days for the dam to dry up before dam and calf could be commingled.

Final thoughts

I write a lot about managing young females in a beef production system. To me they are the most challenging group of females in a cow herd, and most of my calls from producers are in regard to this set of females. I don't want to provide a "false" feed environment for them, and the management practices that have been discussed in this column don't do that.

If you have been diligent in your breeding program and selection of genetics that fit your feed resources, then paying close attention to young cow management to provide them an opportunity to be a productive part of the herd as mature cows is not providing a false feed environment. The challenge with the young female from a nutritional perspective is the small rumen capacity and the quality of the feed resource available at certain times of the year.



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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.

