

Nutrition for Replacement Heifers

Proper nutrition from the time a heifer is weaned serves as the foundation for improving rebreeding rates.

by Troy Smith



PHOTOS BY ANGIE STUMP DENTON

If genetics are the blueprint for building a beef factory, then nutrition surely represents the bricks and mortar. While genetics define a brood cow's potential, nutrition determines whether she will reach it. And at no time during the cow's life is nutrition more important than during the time prior to delivering her first calf.

If you doubt that, consider that roughly one-third of replacement females are culled within a few years after entering the herd for failing to rebreed. Most fail to breed back during their second breeding season. However, proper nutrition from the time a heifer is weaned until first calving can have a significant effect on rebreeding rates.

Research has shown how heifers that reach puberty early and conceive early are reproductively more efficient and have greater lifetime productivity. The onset of puberty is influenced by breed, age and environment, but also by weight — a factor most producers can readily influence. Here's where a sound program of nutrition for replacement heifers helps producers pocket a return on their investment in good genetics.

In practice

A growing list of ranchers in Nebraska, Wyoming and South Dakota rely on Allen Bright for help in developing replacement

females. At his facility near the Nebraska Panhandle community of Antioch, Bright handles more than 2,000 heifers/year. He wants yearling heifers to weigh 65% of their projected mature weight by breeding time. Actually, he wants them to reach that target weight about a month prior to breeding season.

"It's important to group heifers according to biological type, sorting them for frame and body condition. Then we have programs to fit each type," Bright says. "If a group is already pretty fleshy, we'll want to let them grow for a while. If another group is behind the curve for condition, we'll step up their ration accordingly."

Bright says he prefers to have weaned heifers delivered to him while they are just a bit on the green side — without fat deposits in the flank or around the tailhead, but not so thin that their ribs are noticeably visible. With heifers of average frame size and in that kind of condition, Bright shoots for an average daily gain (ADG) of 1½ pounds (lb.).

"I prefer a consistent rate of gain at about that level. At a lower rate, it's hard to meet a heifer's growth needs, and she might not even make target weight. But we don't ever want them gaining over 2 pounds per day," Bright adds, warning against potential problems with fertility and milk production if heifers get too fat.

In his heifer-development rations, Bright uses as much forage as is economically feasible. The hay he feeds generally is a 50-50 blend of alfalfa and prairie hay or cane. Corn is too inexpensive to ignore, but Bright also uses a variety of byproducts. He likes corn gluten pellets and wheat midds, but the latter haven't been as affordable during the last couple of years. Many acres of sugar beets are grown within a reasonable distance, so beet pulp has become an important feed ingredient.

Bright says a fairly typical ration for an average set of heifers might include 3-4 lb. of hay, 2 lb. of corn, 3 lb. of corn gluten pellets and 18-19 lb. of beet pulp. The ration is rounded out with a vitamin-mineral package that also contains an ionophore, such as Rumensin®.

There has been some concern that feeding ionophores to developing heifers might actually delay puberty or hinder cyclic activity, but Bright feels the advantages are clear.

"We can't afford not to use an ionophore. We get increased feed efficiency (8%-10%) plus control of bloat and coccidiosis, and we haven't experienced any negative effects," he explains. Typically, Bright boosts the nutritional level 30 days prior to breeding season. His strategy for consistent gains throughout most of the

► Above: "Having sufficient body condition at calving is critical," says Doug Hixon, University of Wyoming. "If condition score drops below 5, it's quite a challenge for a heifer to milk and rebreed."

development period, followed by the prebreeding flush, has provided customer-pleasing results.

“On the heifers we breed or position for breeding by artificial insemination (AI), first-service conception rates average 70%,” he reports. “In a realistic environment, if you can consistently do that with one pass of AI, I think you’re doing a pretty fair job.”

Western perspective

There aren’t many custom-heifer-development facilities in Wyoming, but for producers who do it themselves, Doug Hixon, head of the animal science department at the University of Wyoming, advises the same rule of thumb for targeting breeding weight. And while shooting for 65% of mature weight, Hixon also likes an overall ADG of 1½ lb. However, he favors a two-stage program.

“I’d prefer to manage for a low level of gain early in the development period, followed by a high level over the last 60 to 70 days. It’s often cheaper to do it that way, and we’ve seen some advantage in more heifers cycling and settling,” Hixon says.

“Out here, producers really have to look at optimum production from the resources available. They can use marginal-quality hay when shooting for ¾ to 1 pound of gain per day during Stage 1. As a supplement, good-quality alfalfa hay often has been a reasonably priced choice. The price isn’t so reasonable this year, so they may want to compare the costs of soybean meal or some other natural protein source,” he continues.



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In a drylot situation, Hixon says sorghum-Sudan silage, a little corn, alfalfa and ground straw can be used in an economical heifer ration. Grazing of meadow regrowth usually provides even better quality forage and still is low in cost.

“Producers who can make use of available forages, without a lot of supplement, have done a pretty good job of matching their cattle type to the environment,” Hixon adds.

Southeastern annuals

According to Auburn University’s Darrell Rankins, Alabama’s environment offers an advantage for developing spring-born replacements. Many Southern producers plant cool-season annuals — usually cereal grains — for winter grazing.

“By mid-November, heifers can be grown on excellent forage and gain 2 pounds per day with mineral as the only supplement needed. They’ll probably have to feed hay if it gets cold later in December and January. But after the first of February, there’s often plenty of forage available again, and nature provides the prebreeding flush,” Rankins says.

“It costs about \$85 to \$100 per acre to establish a winter annual for grazing, and you can run two heifers to the acre for about 150 days. That makes it just about the most cost-effective and simple way to go,” he adds.

When feeding moderate- to low-quality hay, potential supplements include whole cottonseed, soybean hulls, wheat midds and citrus pulp. Initially, Rankins advises using

the most cost-effective supplement to bring protein levels to 12%-13% of the total diet.

“We do have quite a few fall-calving herds that typically wean in July. That’s when the quality of our grazed forage is poorest,” Rankins notes. “Heifers headed back into fall herds can be weaned on good hay and supplemented until fall. If they can be turned onto a winter annual in November, they’ll be on a higher plane of nutrition and ready to breed during December.”

Postbreeding care

Rankins emphasizes that bred heifers should not lose condition after breeding or after they calve. He recommends maintaining a body condition score (BCS) of 5.5-6 (9-point scale).

Hixon agrees: “Having sufficient body condition at calving is critical. If condition score drops below 5, it’s quite a challenge for a heifer to milk and rebreed. If condition is a little low prior to calving, some data suggest a fat supplement might be beneficial. And one of the really positive things producers can do is wean her first calf early. Instead of letting her suckle down, get the calf off by about 150 days of age.

“It’s also extremely important for heifers to receive adequate nutrition without competition from older cows. I recommend grouping heifers separately from mature cows until they breed back as 3-year-olds. After that, they become very resilient, and life gets easier.”



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