



Replacement Heifer Development “Stay on Track”

Ryon S. Walker, University of Minnesota Beef Team

What are your heifers currently weighing? How many pounds/day are your heifers gaining? What is the quality of winter feed your replacement heifers are receiving? Do you feed your replacement heifers separately from your cow herd? When do you plan to breed your replacement heifers? These are important questions to ask yourself so that you know if your heifers are on track for their first breeding season. Developing replacement heifers can be among a producer's most expensive enterprise. A replacement heifer's level of nutrition the first winter following weaning will influence her rate of development, weight gain and age and weight at puberty. Because weight impacts sexual development, it allows producers to nutritionally manage through *target weights*.

Most producers may have a replacement heifer winter feeding program currently in place, but knowing if they're on track for next year's breeding season could make the difference of having a successful or unsuccessful breeding season. A replacement heifer's target weight should be approximately 65% of her mature body weight by 13 months of age, or at the beginning of her first breeding season. On average, you can expect about 80-90% to be cycling when they reach 65% of their mature weight. Because most producers do not weigh their mature cows, often times, they may over/underestimate replacement heifer mature weights. Overestimating can result in heifers reaching > 65% of their mature weight. Heifers fed for a higher rate of gain will be heavier and reach puberty earlier; however, this can have negative affects on

reproductive performance through decreases in the percentage of heifers cycling and lower pregnancy rates. Also understand that over feeding your heifers will increase your feed cost. Underestimating mature body weights can result in heifers fed for a lower rate of gain, thus delaying puberty. Nebraska research has demonstrated that heifers bred at 53 or 58% of their mature weight resulted in no differences in overall pregnancy rates (92 and 88%). While it may be appealing to feed less/animal, there are risk that includes lower pregnancy rates due to decreasing levels of development and calving difficulty.

Nutrient requirements of beef cattle will vary based on the stage of production of that animal (backgrounded calf, pregnant or lactating first-calf heifer, pregnant or lactating cow). Heifers can be developed most economically on high forage rations supplemented with grains and grain by-products, protein concentrates and minerals. How much should your heifers be gaining? For example, a set of replacements heifers fed to achieve a consistent rate of gain from weaning to first breeding (heifers weaned October 1 an average 500 lbs, breeding season begins May 15). You have 227 days to gain 280 lbs, so those heifers need to gain approximately 1.23 lbs/head/day. The National Research Council (NRC, 2000) nutrient requirements of a growing replacement heifer with a mature weight of 1200 lbs and a targeted average daily gain of 1.23 lbs/head/day is as follows: crude protein (CP) 9%, total digestible nutrients (TDN/energy) 58%, dry matter intake (DMI) 15 lbs/day of dry matter.

Years of research has demonstrated that rate of gain does not need to be consistent throughout the feeding period in replacement heifers between weaning and first breeding, as long as the target weights are met at first breeding. However, studies have indicated that growing heifers on a slower rate of gain through the growing period, followed by periods of compensatory growth two months prior to breeding can reduce feed cost and produce similar pregnancy results.

Do you know what the quality of your forage or feed supplements are? If not, take samples and send them to a laboratory for quality analysis. Also know what percent dry matter your feedstuff consist of. Quality analysis report will often provide the percent dry matter of that sample. However, if you know what your forage quality is, one way to determine the percent of forage dry matter is using the Direct Estimate Method, or as I call it “The Cowboy Method”. First, record the weight of an empty paper plate (example: 1 oz); Second, take a half pound sample of forage and place it on the plate and weigh; Third, place the sample in a microwave oven along with a cup of water and microwave on high for 3 minutes (make sure the cup of water stays in the microwave along with the sample to prevent burning up the microwave) then weigh the sample; Fourth, microwave the sample for another minute, then reweigh the sample; Fifth, repeat

the fourth step until the sample consistently weighs the same; Sixth, record the final weight. At this point, you can calculate the percent of forage dry matter (DM): = (final weight of dry sample - weight of plate) / (original weight of sample - weight of plate).

At this point, your heifers should be on track to reach their target weight at breeding. The easiest and surest way to confirm this is weighing those heifers. At this time, a producer can make corrections for too much or not enough gain. If heifers are gaining too much, you can reduce the DMI each heifer is consuming or limit feed them with a limiter (such as salt), but do not cheat the quality of feed. If heifers are not gaining enough, you can supplement with energy, as long as the CP is adequate.

Winter feeding strategies will be more critical this year due to states affected by drought and feed resources being limited. Knowing the quality of your forage/feed supplement and percent dry matter of your feeds will help you develop or adjust an effective winter feeding program for developing your replacement heifers. For more information on Minnesota Cow/Calf reference materials or Minnesota Beef Team Events go to: www.extension.umn.edu/beef/ or call us at (218) 327-4490.