



Managing Replacement Heifers

Ryon S. Walker, University of Minnesota Beef Team
Originally published in the MN Farm Guide, January 17, 2008.

As we begin to think about spring coming, we begin planning for the breeding season and what it will entail. Pre-breeding planning also means preparing our replacement heifers for the breeding season. However, beef producers today are faced with several decisions that impact the productivity of their operations, of which selecting and managing replacement beef heifers is critical to sustaining an ever decreasing profit margin. Thus, it becomes critical to make sure your replacement heifers are on track for enhanced breeding performance, in-herd longevity and potential uniformity in genetic management and value. The management of replacement heifers is sometimes considered an exact science and predicting the performance of a replacement in any given management system is controlled by several factors; such as genetics of that animal and the environment of origin, management of heifers from weaning to breeding, production goals and economics.

Heifers should reach puberty by 15 months of age in order to calve by 24 months of age. It has been documented for years that energy balance and plane of nutrition influences reproductive performance in heifers and cows. A review out of Missouri explained that research conducted during the late 1960s through the early 1980s indicated puberty occurs at a predetermined size, and heifers must reach a target weight in order for high pregnancy rates to be achieved. From that, guidelines were established recommending that replacement heifers should be developed to achieve 60 to 65% of their expected mature

body weight and targeting a body condition score (BCS) of 6 to 6.5 (1=emaciated and 9=obese) by the time breeding starts in order to reach puberty.

As stated earlier, the development of your replacement heifers can have a long-lasting impact on heifer productivity and longevity in the herd. It has always been preached to not take shortcuts with developing heifers. But it becomes hard not to, especially in times where production costs are rising due to increases in fuel and feed prices, and hay shortages. However, based on recent research, there are some things that may offer opportunities for producers to lower their replacement heifer development cost.

Feeding replacement heifers to a traditional target weight increases development costs relative to more extensive heifer development. Where past research has stated that puberty occurs at a predetermined size, recent research has indicated that genetic changes in age may have more of an impact on puberty. Work out of Nebraska has demonstrated that pregnancy rates were similar in replacement heifers developed to reach 53% of their mature weight vs heifers developed to reach 58% of their mature weight. This study also showed that pregnancy rates of those heifers developed to reach 53% by their first breeding were similar for the subsequent three years as those developed to reach 58% of their mature weight. Therefore, heifers may be developed at a lighter than traditional target weight without negative effects on pregnancy rates, future productivity, and profitability.

Another management tool that may be beneficial is determining the pattern of growth or the course of action for those heifers to reach that target weight at breeding. Numerous studies have provided opportunities for producers to decrease feed costs by managing rate and timing of gain, which creates periods of compensatory growth. This allows producers to limit supplementation to the critical periods of heifer development. For example, research out of Kansas State University demonstrated that reproductive performance (including pregnancy rates) of heifers with restricted access to feed until 47 or 56 days prior to breeding was not negatively influenced. Nebraska showed that delaying gains until later in the postweaning period reduced total energy intake with no negative impacts on fertility and reproductive performance. So by limiting heifer gains early in the postweaning period, followed by accelerated gains before the breeding season can reduce total energy intake and development cost.

Also keep in mind that quality of the feed source has a big influence on the cost of that feed source. Based on a mature weight of 1200 lbs, a replacement heifers' nutrient requirement for crude protein and energy gaining 0.72 lbs/day (7.3 and 50%) or gaining 2.0 lbs/day (10.2 and 60%) is very important to understand. With the short supply of hay, it is critical to provide a feed source with the nutrient makeup close to the nutrient requirements of those heifers, otherwise it will be costly.

Evaluate each heifer's stage of development prior to breeding and follow this checklist of additional management tools to developing replacement heifers:

- Target your heifers to be at a BCS of 5.5 to 6 and weigh a minimum of 55% of their estimated mature body weight at breeding
- Collect pelvic measurements 30 to 60 days prior to breeding to manage calving ease
- Collect reproductive tract scores 30 to 60 days prior to breeding or visually observe for estrus activity for 5 consecutive days to know puberal status of your heifers
- Initiate breeding 20 to 30 days prior to the start of the mature cow herd breeding season

Managing your replacement heifers comes early in a heifers' developing stage. At times, producers don't realize their inputs into a developing heifer; however, it takes an average of 4 to 6 years of production from that heifer to return a profit. So the management systems you implement for your replacement heifers have a major impact on reproductive performance, longevity of replacements into the herd and economic viability of the operation.

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.