The Digestive Tract

Merits of a quality heifer-development program.

by Dan Shike, University of Illinois

The U.S. cow herd has reached lows not seen since the 1960s. Many factors have contributed to the shrinking cow herd. However, a positive beef outlook is likely to entice some producers into rebuilding numbers.

With historically high feeder-calf prices this past year, the decision to purchase or retain additional replacement heifers may be difficult. Having a good plan for developing those heifers is a must to capitalize on that investment.

Heifer development represents a significant expense in beef operations due to the opportunity and development costs associated with retaining heifers. Producers have the opportunity to manage replacement heifers a number of ways after weaning. The strategy or development system used can vary considerably in terms of costs and success. When possible, implementing a heifer-development system that mimics the females' future production environment is recommended.

Creating a program

A successful heifer-development program is one that results in heifers cycling prior to the start of breeding season, becoming pregnant early in the breeding season, calving unassisted and breeding back early.

Age of puberty is important, as conception rates are improved in females that are bred on second or third estrus rather than at pubertal estrus.

Plane of nutrition affects age at puberty. If you have retained heifers that were born late in the calving season, those heifers will require a greater plane of nutrition to reach puberty prior to the start of the breeding season than heifers that were born earlier.

Some operations like to calve heifers prior to cows to allow for management to focus on calving heifers and allow greater time between calving and rebreeding. If this is a system you employ, those heifers will likely require a greater plane of nutrition. Keep in mind, calving at 23 months instead of 24 months means those heifers need to be cycling a month sooner if you want them to calve a month sooner.

You should have a goal of high pregnancy rates in your heifers. However, if you focus solely on maximizing heifer pregnancy, you might find yourself spending too

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much on development costs.

To make matters worse, if you employ a heifer-development system that doesn't mimic the production system the females have to work in, you will likely see high fallout and compromised longevity. With a heifer typically having to wean five to six calves to pay off her development costs, cow longevity is a must for commercial cow-calf producers to be successful.

Basically, if developing heifers on fewer resources and to a lighter weight at breeding does result in a slightly smaller number of pregnancies, the females that do not breed are likely metabolically and reproductively less efficient. From a long-term profitability standpoint, it costs less to cull these females for not becoming pregnant as heifers than it does to cull them for not rebreeding after having their first calf.

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When to breed

Historically, heifer-development recommendations have been made based on the heifers obtaining a percentage of mature body weight by the time of breeding. This is a practical approach that takes into account differences in mature size.

Traditionally, it has been recommended heifers reach 60%-65% of their mature body weight by breeding to ensure proper development and a high proportion of heifers cycling at the onset of the breeding season. More recently, some research groups have investigated developing heifers to 50%-57% of mature body weight.

The primary motivation for considering a system that develops heifers to a lighter weight would be the cost savings for feed. Many of these recent studies have reported comparable reproductive results and reduced costs for heifers developed to 50%-57% of mature body weight compared to systems that develop heifers to 60%-65% of mature body weight before breeding.

Some may ask why developing heifers to a lighter weight would work sometimes, but not always. There are certainly older studies supporting developing heifers to heavier weights prior to breeding, and some new work, as well.

Several factors could lead to different results. Environment, health protocols, synchronization protocols, breed of cattle and desired age at calving could all contribute. This will continue to be an area of interest, and future research addressing different heifer-development systems in different regions of the country is certainly warranted.

What is success?

My recommendation is simply to evaluate your current system, as well as the costs and success associated with it. If you are achieving high pregnancy rates and keeping costs in check, you have a system that works for your operation. If your costs are low, but your pregnancy rates are as well, you may want to consider developing your replacements to a heavier target weight. If you have good pregnancy results on your heifers but your costs are high, you may want to consider developing to a lighter target weight to save input costs.

Nutritional management and heifer-development systems can vary significantly from operation to operation and from region to region. There are many systems that can be implemented and result in success. It is key to evaluate your current situation and determine if your approach is achieving the results you would like.

As always, it is critical you not just focus on maximum output (reproductive success). Weigh the inputs required and costs associated to achieve that output. You should be in the business of optimizing your heifer-development system, not maximizing it. Remember, developing heifers in a system that mirrors your future production environment will likely lead to the greatest longevity of those females in the operation. ABB

Digital EXTRAs

Listen in for tips on successful heifer development from Lee Jones, Boehringer-Ingelheim, who presented an Angus University session on the topic at the 2023 Angus Convention in Orlando, Fla.

Editor's note: "The Digestive Tract" is a regular column focused on nutrition for the beef cattle life cycle. Dan Shike is an associate professor in animal sciences at the University of Illinois.