



Considerations for KEEPING REPLACEMENTS IN THE HERD

by Troy Smith, field editor

Not everyone agrees on how long it takes for a cow to pay for herself. Some say a cow must produce five marketable calves before she covers the costs she has incurred since she was called a “keeper” and underwent development as a replacement heifer. Other people claim she must produce six calves to break even. Either number serves to illustrate the importance of cow longevity.

“Where we lose the most money is on females that leave the herd after one or two calves,” says George Perry, a beef cattle reproduction specialist at Texas A&M University.

Considering the narrow profit margins available to cow-calf producers, especially during times of drought-diminished grazing resources and high hay prices, producers need cows that stay in the breeding herd for a long time.

There are plenty of things, such as lameness or udder unsoundness

issues, that can put a young cow in the cull pen. However, a major reason is reproductive failure. Most fall out because they didn’t become pregnant during a defined breeding season.

Perry suggests producers consider benchmarks to assess a herd’s reproductive success. The answers to three questions reveal a lot about herd productivity and whether herd management is on a course toward improved cow longevity.

▶ “What’s the pregnancy rate of

your cows during the first 60-70 days of the breeding season? We want it to be 85% or greater,” says Perry.

- ▶ “What portion of your herd has calved by Day 21, Day 42 and Day 63 of the calving season? I think we should shoot for 61% in the first 21 days, 85% by Day 42 and 94% by Day 63,” he adds.
- ▶ “What’s the calving pattern of your young cows? How many calve early, in the middle of the calving season or late?” asks Perry.

“The answers foretell the future of your herd,” he says.

Set the stage

University of Wyoming animal scientist Shelby Rosasco often talks to cow-calf producers about the advantage offered by cows that deliver at the front end of calving season. Come weaning day, those cows’ calves are the oldest and the heaviest of the crop. To calve early, cows have to conceive early in the breeding season. They are more apt to do that consistently when the pattern is established at the very beginning.

According to Rosasco, research suggests replacement heifers that deliver their first calf during the first 21 days of the calving season are more likely to calve early in subsequent calving seasons. Early-calving heifers and cows have more time to recover and resume estrus prior to rebreeding. U.S. Meat Animal Research Center

Targets

DAY 21 > 61% calved

DAY 42 > 85% calved

DAY 63 > 94% calved

studies suggest setting up heifers to calve early the first time increases likelihood that these females will remain in the breeding herd for nine calving seasons.

“When heifers calve early, they wean heavier calves. When they consistently calve early as cows, they should wean more pounds of calf over their productive lifetimes,” adds Rosasco.

Nutrition for success

Management of nutrition during development of replacement heifer candidates can optimize reproductive performance and productivity for the long term. According to Rosasco, research begun in the 1960s supported the target-weight approach calling for postweaning nutrition management that would result in heifers reaching 60%-65% of mature body weight by their first breeding season. This became the industry standard.

Higher feed costs and associated increases in development costs helped drive more recent research that suggests heifers can still achieve acceptable reproduction when developed to lighter target weights. According to Rosasco, alternative nutrition management targeting 50%-57% of mature body weight at breeding may allow producers to graze dormant forages, including crop residues, along with appropriate supplementation during heifer development.

“Targeting lighter weights may be more economical for producers, with the added advantage of adapting heifers to production environments and diets they will experience after entering the breeding herd,” adds Rosasco, noting that managing heifers in extensive systems may better prepare heifers for the future and positively affect longevity.

Traditional research evaluating target body weights suggested that failing to reach 60%-65% of mature body weight would result in

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fewer heifers cycling by breeding time. Studies are inconsistent regarding the effects alternative development systems have on age at puberty or the percentage of heifers cycling at the start of breeding season. Research demonstrated, however, overall heifer pregnancy rates were similar whether heifers were managed in extensive, low-input heifer-development systems or in traditional systems.

Timing nutrition

Producers may increase economic efficiency by managing nutrition such that different rates of weight gain occur at different stages of the development period. Rosasco says there is ample evidence that a stair-step approach, where the majority of heifer weight gain occurs during the last half of the development period, results in pregnancy rates similar to heifers developed on a consistent rate of gain throughout development.

A stair-step strategy has also been reported to influence the size of the ovarian reserve, which is the pool of primordial follicles a heifer will use throughout her reproductive life. Heifers fed for increased gain during the latter half of the development period may experience an increase in ovarian reserve.

According to Rosasco, “A nutritionally mediated increase in the ovarian reserve could

potentially have a positive impact on reproductive longevity.”

Implants and vaccinations

A common question is whether growth-promoting implants should be used in heifers saved as replacements. Rosasco says studies show no significant difference in first-service conception rate whether heifer calves were implanted or not.

“There’s no difference in longevity, either,” she adds.

The timing and type of vaccinations administered to replacement heifers and cows does make a difference.

George Perry advises producers to be careful. His own research demonstrates that improper vaccination can affect fertility. It can cause short cycles, and it may take as long as two cycles for a female to return to normal.

According to Perry’s recommendations, heifers should be vaccinated the first time prior to weaning and again at weaning. Both heifers and cows should be vaccinated at least 45 days prior to breeding. He favors a modified-live virus (MLV) product, when used correctly.

“If a replacement heifer was not vaccinated the first two times, don’t use a modified-live virus near the time of breeding,” warns Perry. “But receiving a modified-live virus early in life will ‘set up’ an animal for long-term immunity. You can get a very good response from subsequent vaccinations — even with a killed vaccine product.”

Perry also advises producers to think about the role nutrition plays in keeping cows on track for a 365-day calving interval. Nutrition during late gestation influences the period of anestrus after calving, while postcalving

nutrition has an effect on conception rate. If cows carry good body condition at calving, and their plane of nutrition remains high afterward, they are more likely to resume cycling sooner. The effect on conception rate will be positive.

Environmental consistency

Heifer nutrition after breeding should be of particular concern to producers who develop replacements in a drylot, breed by artificial insemination (AI) and then take the heifers to pasture. Perry says it’s not uncommon for heifers handled this way to post disappointing pregnancy rates. Producers may blame it on poor response to AI, but it’s more apt to be a result of early embryo mortality. According to Perry, fertilization of an egg occurs more than 90% of the time, provided insemination was performed correctly and in timely fashion. Although, until attachment to the uterus occurs, between 42 and 45 days after insemination, an embryo is susceptible to the dam’s biological responses to stress.

“Usually, the two factors involved are stress from handling or shipping and the other is dietary change,” Perry explains.

For heifers accustomed to confinement and bunk-fed rations, the pasture and diet of grazed forage represent a novel environment. Until they acclimate, heifers may spend too much time walking and too little time grazing. Even with abundant high-quality forage, heifers may not consume enough to meet their energy needs. A negative energy balance results in stress, weight loss and reproductive failure.

“We don’t want the heifers’ bodies to go through any big changes. We want consistency,” Perry says. “Heifer development doesn’t stop at breeding if we want to manage heifers to stay in the herd and have a long, productive life.” ■

Program fertility in heifers

Shelby Rosasco shares how nutritional management of weaned heifers can help



program puberty attainment, fertility and the ovarian reserve in this episode of the *Angus at Work* podcast. Follow the

QR code or visit <https://bit.ly/3QGp900>.

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