Developing Heifers

Learn how to promote longevity and to increase pregnancy rates in your herd.

by ***Kayla M. Wilkins***

In an average cow herd, only approximately 30% of heifers bred actually give birth. From a profitability and reproductive management standpoint, that statistic is an obvious challenge to cattlemen today.

In response to the challenge facing the industry, Cliff Lamb, Ph.D., department head and professor for the Department of Animal Science at Texas A&M University, College Station, has spent his career aiming to make cattle operations more productive and more economically efficient from a reproductive management standpoint.

In his more than 25 years of experience, Lamb says even with the continued progression of reproductive technologies in the beef industry, the answer lies in two very simple concepts — early attainment of puberty and early pregnancy. During the National Cattlemen's Beef Association's Cattlemen's College, he said many producers seek the newest technology available and simply overlook the tools already available.

"We have a lot of reproductive technologies that are underutilized," he notes. "It seems like we are always looking for the next silver bullet to make things different."

Pregnancy rates

The foundational concept behind adding longevity and increasing productivity within a herd is increasing pregnancy rates. Lamb says it comes down to heifers becoming pregnant earlier in the first breeding season, so they remain in the herd longer and are more productive.

"The thing that dictates when an animal becomes pregnant earlier in the weaning season more than anything else is that those heifers have to attain puberty," he says. "If they do not attain puberty before the first day of breeding season, the chances of that heifer becoming pregnant are pretty slim."

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According to Lamb there are several factors that aid in building a better and more productive cow such as the attainment of puberty, body weight and age, genetics, nutritional management, body condition score (BCS), and handling — attainment of puberty being key.

To illustrate these principles, Lamb, along with a team of researchers at the University of Florida, conducted a project implementing a variety of reproductive management strategies on a mismanaged herd with a long breeding season and low pregnancy rates. Pregnancy being four times more economical than any other trait a producer can select for, it easily topped their list of criteria.

Along with the added pressure on pregnancy, Lamb notes other changes they made to enhance reproductive development. They tightened the breeding season to avoid extra labor during calving and to promote uniformity in the calf crop. They also avoided natural service sires simply because there is tremendous cost and risk associated with exclusively using natural service sires.

For a cow to stay in their herd she had to:

- calve by 2-years-old
- have a calf every year
- need no assistance during calving
- provide genetic resources for the calf to reach potential to produce a calf that performs
- maintain a BCS comparable with the rest of the herd
- maintain a quiet disposition

In addition, Lamb and his team implemented some reproductive management criteria such as only keeping heifers that became pregnant in the first 25 days of the breeding season, tightening the breeding season and exposing every female to synchronization and artificial insemination (AI).

"The benefits of synchronization to me, are what you do to make heifers attain puberty quicker," he explains. "Think of it as a reproductive management tool to stimulate cycling animals to start a cycle and that is why we use it."

At the conclusion of the research study, Lamb says the most valuable takeaway was the increase in profit by simply utilizing these reproductive management tools. In 2013 the calves produced were worth $169 more than the calves produced six years earlier on a constant calf basis — that statistic has only increased.

"That has an economical and production advantage on your operation just because she became pregnant early as a heifer," Lamb says.

Reproduction management

When it comes to utilizing these reproduction management tools, Lamb says some producers may become overwhelmed with the variety of tools out there. He advises that they utilize synchronization and AI. In addition, he notes the Beef Breed Task Force as an excellent resource for protocols for fixed type AI systems that are conducive to whole-herd management.

Still, only 60-70% of heifers become pregnant in a typical herd. The question still stands — why? Lamb explains there are a variety of reasons for embryotic loss and the reality is almost 100% of heifers are pregnant initially and lose the embryo on day seven or eight.

Lamb identifies some of the reasons for lost pregnancies as genetics, maternal recognition, stress and nutrition, among others. At the end of the day, Lamb still emphasizes pregnancy as the most important factor in reproductive management.

"I don't care what the heifers look like in terms of their phenotype if they become pregnant because they are going to make more money for me," Lamb says.

The priority on an operation remains attaining puberty quickly and becoming pregnant early in the breeding season for maximum profit. Another big factor in reaching this goal is managing BCS and nutrition.

In a study done by Lamb and his team, a herd of cows at a BCS of 5 or 6 were divided into two groups. The first half was maintained at a moderate BCS while the other was pushed to a BCS 7. Then both groups were put on an energy restriction until they stopped cycling. Both groups stopped cycling at a BCS 3, and it was no surprise the cows that started at a BCS 7 took an extra 90 days to stop cycling.

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In the second half of the experiment, increased energy was provided until the cows reached a BCS that prompted them to resume cycling. The original moderate heifers resumed cycling once they reached a moderate BCS of 5, but, in contrast, the BCS 7 heifers did not cycle until reaching a BCS 6. Because of nutritional memory, the BCS 7 cows were more comfortable being fatter and could not cycle until they reached that threshold.

Lamb says the study illustrates why the change in condition over a period of a few months is more meaningful than absolute condition. For example, two heifers may be in good condition at a BCS 6, but if they started as a 7, they may feel as if they are starving and that situation directly affects their reproductive development.

From a nutritional management standpoint, Lamb advises producers to keep this concept in mind and to supplement with higher quality hay or grain.

"Simply adding some supplement to those animals while you are developing them will allow them to hit puberty sooner," he explains. "That will allow them to get pregnant sooner and then they will become more productive cows for you later on."

Keeping in mind the goal of increased pregnancy rates, Lamb says simply handling cattle more frequently has proven to be an asset, as well. A study done at the University of Florida divided a herd into two groups, working the first group through chutes every day and leaving the second group in a pasture without human contact. Study results indicated females handled more extensively not only became pregnant sooner but also attained puberty earlier.

With all the technologies available to enhance reproductive development, Lamb still stresses the foundational concept of simply attaining pregnancy. He advises producers to utilize the proper avenues to do so on a per operation basis.

"Just remember, whatever you can do to get animals pregnant sooner in the breeding season is probably the number one thing that is going to allow that female to stay in the herd longer and be more productive in your operation down the road," Lamb says. **HW**