Developing Replacements

PHOTO BY SHAUNA ROSE HERMEL

Producers expanding their herds are encouraged to focus on heifer-development strategies to improve herd fertility.

35 Keys to Success
Reproductive Efficiency

*by **Kasey Brown,** associate editor; **Katy Kemp,** freelancer; & **Troy Smith,** field editor*

During recent years of herd liquidation, cull cows have sustained beef supplies. Now, with U.S. beef cow numbers at their lowest ebb since 1952, cattle feeders are concerned. They are concerned about the future supply of feeder cattle, or a lack thereof. Many have added their voices to the cry for rebuilding of the nation's cow herd through retention of more heifers for breeding. Rick Funston thinks it will take more than that.

Speaking at the Applied Reproductive Strategies in Beef Cattle (ARSBC) symposium hosted last fall in Stillwater, Okla., Funston noted how considerable acreage that once produced forage for cows has transitioned to row-crop production and other uses. The University of Nebraska (NU) researcher and extension specialist questions whether remaining forage acres will support a return to former cow numbers.

Funston doesn't dispute the need to grow the herd, but he believes the overall reproductive performance of beef cattle must improve. Rebuilding herds with females capable of greater longevity would help. Funston told the conference audience that systems to develop replacement heifers can influence reproductive performance for the long term. He questioned the logic behind applying systems that develop heifers in confinement, utilizing diets containing large amounts of grain, and then expecting those heifers to spend the remainder of their lives foraging.

Funston shared results from research conducted with cattle from Nebraska's Gudmundsen Sandhills Laboratory (GSL). The GSL work, utilizing forage-based systems,

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PHOTOS BY TROY SMITH

▶NU's Rick Funston believes heifers developed with feedstuffs similar to those they will consume as mature cows will have earned their way into the breeding herd.

challenges the traditional recommendation calling for heifers to be grown to target weights at breeding of approximating 65% of their expected mature weight.

"A heifer weaned at 500 pounds never has to gain more than a pound and a half per day, even to reach the traditional target, but I'd argue that she doesn't need to be that heavy," stated Funston, explaining how acceptable results have been achieved when heifers were developed to about 55% of mature weight, or less.

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consume as mature cows will have earned their way into the breeding herd. He reported that forage-system-developed GSL heifers examined the week previous to the conference had posted a pregnancy rate of 85%.

"I wouldn't want it any higher than that," said Funston. "The heifers that made it are better-suited to be cows because of how they were developed."

Funston said forage-system-developed heifers bred to calve early in the calving season are more likely to continue calving early and stay in the herd longer. To select for longevity, he also favors choosing replacements from among early-born daughters of the oldest cows in the herd. While some might argue that replacement heifers should represent the freshest genetics in the herd, Funston prefers daughters of cows that have proven they fit the environment.

Even if producers do not use artificial insemination (AI), Funston believes estrus synchronization for natural service should be considered. It is another way to promote prolonged reproductive performance.

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— *by Troy Smith*

Reproductive tract scoring

As producers focus on heifer retention, management practices such as reproductive tract scoring (RTS) can help assess future fertility in replacement females, said Brit Boehmer, graduate student at Oklahoma State University (OSU), presenting for Dan Stein.

An increase in market value for replacement females has also increased the economic losses when females are culled too soon because of reproductive failure associated with infertility, advised Boehmer.

Very few producers know the pubertal status of heifers before purchase or at the start of the breeding season, said Boehmer. Many select replacement females based on age or weight, but the heaviest heifers may not have started cycling. Heifers need to

► Brit Boehmer, OSU graduate student, says heifers need to reach puberty at least six to 10 weeks before breeding.

reach puberty at least six to 10 weeks before breeding, added Boehmer.

To eliminate guesswork, RTS is a management practice to assist producers in identifying cycling replacement females and pubertal status before breeding season. Potential replacement heifers can receive RTS scores ranging from 1 to 5 (see Table 1), with 1 indicating no palpable follicles (immature), and 5 indicating the presence of a corpus luteum (CL, sexually mature).

Boehmer suggested prebreeding examinations, including RTS, should be performed 30-60 days prior to breeding. Heifers receiving an RTS of 1 should be culled. Further research indicates heifers assigned RTS of 1 or 2 experienced longer days to become pregnant, decreasing their lifetime production value in the herd. Additionally, heifers with higher RTS became pregnant earlier in the breeding season to both AI and natural service.

RTS is a management tool to help identify increased fertility and lifetime productivity of heifers.

"Research suggests there is a positive correlation between RTS and pregnancy rates with a 50-day AI season, as well as reproductive success in the subsequent breeding season," said Boehmer.

— *by Katy Kemp*

Oklahoma starting new program

Missouri and Kansas have replacement-heifer programs in place, and Oklahoma will soon join the ranks, said Megan Rolf, OSU animal science assistant professor. She

revealed a few of the program components at the ARSBC symposium.

Scheduled to launch in 2015, Rolf admitted that she was being "deliberately vague" on the details of the program. She did say the health component will include a vaccination program and disease testing, and it will be designed to fit into current Oklahoma Quality Beef Network (OQBN) guidelines. This will allow cattlemen who raise steers for the OQBN to put their heifers in the heifer-certification program without having to change management strategies.

Requirements will include reproductive practice guidelines and genetic guidelines, like calving-ease direct and use of high-accuracy AI sires. The program will offer enough flexibility to enroll registered, composite and crossbred heifers, she added.

Gant Mourer with OSU Extension is the

► Megan Rolf, OSU assistant professor, says Oklahoma will soon have a replacement-heifer program.

on-campus contact, but she said if Oklahoma cattlemen are interested in the program, they should contact their county extension office for additional details and announcements as they become available.

— *by Kasey Brown*

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Table 1: Description of reproductive tract score (RTS)

RTS	Uterine horns	Length, mm	Height, mm	Width, mm	Ovarian structure
1	Immature < 20 mm diameter, no tone	15	10	8	No palpable follicles
2	20-25 mm diameter, no tone	18	12	10	8 mm follicle
3	25-30 mm diameter, slight tone	22	15	10	8-10 mm follicle
4	30 mm diameter, good tone	30	16	12	>10 mm follicle, CL possible
5	>30 mm diameter, good tone, erect	>32	20	15	>10 mm follicle, CL present