

VETERINARY CALL

by Bob Larson, Kansas State University

Systems Approach to Beef Cattle Reproduction

Management can positively affect reproductivity of the cattle herd.

A systems approach to beef cattle reproduction recognizes that many different factors including the environment, primary forage type, herd genetics and operational goals affect cow herd reproductive efficiency. Because high reproductive efficiency (defined as weaning a healthy calf each year) at an optimized cost is the goal of cow-calf systems, identifying and replicating cows that excel at reproduction, calf care and maintaining body condition on available forages is key to efficient cow herd production. Genetic selection, nutritional and health management, and good animal husbandry are all needed to create an optimized reproductive system.

High bull fertility is critical for a successful cow-calf production system. Careful selection, management and assessment of bulls is necessary to ensure bulls are ready for the breeding season, and sub-fertile bulls can be identified and replaced before they can negatively affect herd reproductive efficiency.

Nutrients available per acre of grazed forage vary throughout the year, with highest levels coinciding with vegetative growth and lower levels occurring when plants are dormant. A reproductive system that optimizes beef cow-calf production requires nutritional demands for

mature cows that vary throughout the production year based on stage of pregnancy and lactation can be primarily met with available forage.

Consider timing

The combination of varying nutritional demands of cows and varying nutrients available from grazing requires herd managers to consider the timing of calving, as well as mature cow size and lactation level.

Cows have a period of time after calving called postcalving infertility, when they do not display estrus (heat) behavior necessary to initiate mating and they do not ovulate fertile eggs. Because pregnancy lasts about 280 to 285 days, in order to have an opportunity to become pregnant again at a time that allows a 365-day interval between calves, cows must resume fertile cycles soon enough to become pregnant again within 80 to 85 days after having their last calf.

The average length of postcalving infertility for many beef herds is about 50 to 80 days. Individual cows within a herd may resume fertile cycles as soon as 20 days after calving or as late as more than 180 days after calving. The length of postcalving infertility is prolonged if cows are thin, and is often longer following the first pregnancy compared to the length of postcalving infertility

following mature cow pregnancies.

Selecting and managing heifers so they can calve earlier than the mature cow herd provides extra time between calving and the start of breeding, to ensure they can conceive early for their second pregnancy.

The timing of calving in the current calving season affects timing of breeding in the subsequent breeding season. Therefore, cow-calf herds have inherent momentum from year to year. This momentum can be positive (most cows calve early in calving season and breed early in the following breeding season) or negative (most cows calve late in calving season and breed late in the following breeding season).

In order to create and maintain positive reproductive momentum, one must focus on a system that includes ensuring bull breeding soundness, developing heifers to become pregnant early in the breeding season, aligning the calving period with optimal resource availability, managing forage and supplementation to ensure good cow body condition going into calving, and minimizing reproductive losses due to disease. **A**

Editor's note: Robert L. Larson is a professor of production medicine and executive director of Veterinary Medicine Continuing Education at Kansas State University.