VETERINARY CALL

by Bob Larson, Kansas State University

Optimizing Pregnancy Percentage

Maximizing your herd's pregnancy rates is all about navigating the numbers.

Because reproductive efficiency has an important effect on profitability, producers should work to reach reproductive goals that match optimal targets. Although the optimal target for percent pregnant in a controlled breeding season can vary between herds based on length of the breeding season and environmental constraints, a target higher than 90% and that approaches 95% is reasonable for many herds.

The target of 90 to 95% pregnant in the herd is dependent on several important numbers:

365 days — In order to match the cow production cycle with the forage production cycle, it is necessary for beef cows to calve at about the same time each year.

82 days (365-283 = 82) — By subtracting the length of pregnancy (283 days) from the length of the annual forage growth cycle (365 days), we can calculate a cow must become pregnant for her next calf about 82 days after calving in order to calve at the same time next year.

50-80 days — Beef cows have a period of time after calving called postpartum anestrus, when they do not display "heat" behavior, and they do not ovulate fertile eggs. Postpartum anestrus lasts an average of about 50-80 days if the cows are in good body condition, and lasts for a prolonged period if cows are thin.

42 days — Cows that calve in good body condition during the first 42 days of calving are likely to resume fertile cycles before Day 21 of breeding, meaning this group of cows are the most likely to become pregnant in the first 21 days of the breeding season. In contrast, the later cows calve, the later in the breeding season they will resume fertile cycles.

65% likelihood (60-70%) — The likelihood of a fertile mating resulting in a cow being confirmed pregnant is 60 to 70%. This means following approximately 30 to 40% of matings, either fertilization fails or the embryo is imperfect and dies. When fertilization fails or an embryo is lost within 14 days, the cow will express heat and ovulate a fertile egg about 21 days after her last mating and will have another 60-70% likelihood of conceiving and maintaining a pregnancy.

90-95% — A cow that calves early enough to be cycling by the start of a 63-day breeding season will have three opportunities to become pregnant (one opportunity each 21 days) which will add up to a total of 95% likelihood of pregnancy. If a cow calves later in the calving season, so it does not resume cycling until the last 42 days of the breeding season (i.e., will have two opportunities to become pregnant), I expect the cow to have an 88% likelihood of becoming pregnant. If a cow calves late in the calving season so it does not resume cycling until the last 21 days of the breeding season (i.e., will only have one opportunity to become pregnant), I expect the cow to have a 65% likelihood of pregnancy. The overall herd pregnancy percentage will be determined by the number of cows in each category (three opportunities, two opportunities and one opportunity to become pregnant).

This mathematical exercise is meant to illustrate that several important factors interact to affect the percentage of the herd that becomes pregnant in a controlled breeding season, and good reproductive efficiency requires careful attention "to the numbers". AJ

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