Evaluating Information Obtained from Diagnosis of Pregnancy Status of Beef Herds

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KEYWORDS

• Reproductive profile • Fetal aging • Breeding soundness examination
• Pregnancy loss

KEY POINTS

- Diagnosis of pregnancy status for beef herds is commonly done at a time point in midgestation that is early enough to allow accurate estimation of fetal age but late enough to facilitate evaluation of the first 3 21-day periods of the breeding season.
- Breaking the fetal age estimation data collected at the time of pregnancy diagnosis into separate reproductive profiles based on categories of cow age, breed, breeding pasture, or other management groups is often necessary to accurately identify deficiencies in herd reproductive efficiency and to direct the investigation to the correct subset of the cow herd.
- By starting with the flow of beef cows through the reproductive system and gathering fetal age estimation at the time of pregnancy diagnosis, veterinarians can use reproductive profiles and other readily available information to systematically go through a decision tree to diagnose reproductive inefficiency and to advise producers which areas of improved reproductive efficiency are available for their herds.

INTRODUCTION

Good reproductive efficiency and low pregnancy wastage are critical for economic sustainability of beef cow-calf herds. Two standard measurements of reproductive success for beef cowherds are the percentage of cows exposed to bulls at the start of the breeding season that are identified as pregnant at a midgestation evaluation and the percentage of pregnant cows that give birth to a live calf. In addition to these standard performance assessments, converting fetal age data to a reproductive

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profile (or pregnancy distribution) that displays pregnancy percentages by 21-day periods can provide enhanced information to assist in the diagnostic work-up for suboptimal reproductive efficiency and to guide the design of intervention strategies. The value of fetal age data can be amplified by further segregating reproductive profiles by animal age and/or other management groups when evaluating a herd with reproductive or production shortfalls.[1–4]

FLOW OF COWS THROUGH POTENTIAL REPRODUCTIVE STATES DURING A PRODUCTION CYCLE

From a reproductive standpoint, mature female cattle should pass through a series of states each year (Fig. 1):

- Starting in late pregnancy, a cow moves from the state of pregnancy before calving to the state of being nonpregnant but not having fertile ovulations once parturition has completed (see Fig. 1).
- Beef cows have a period of time after calving, called postpartum anestrus, when they do not display the behavioral aspects of estrus necessary to initiate mating and they do not ovulate fertile eggs. Postpartum anestrus in multiparous (mature) cows averages about 50 to 80 days if the cows are in good body condition[5,6] and requires an estimate of 70 to 100 days to reach a herd goal of 90% of cows that resume fertile cycles.
  - This period is longer if cows are thin and following the first (primiparous) pregnancy (average of 80–100 days)[7,8] compared with later (multiparous) pregnancies (50–80 days).

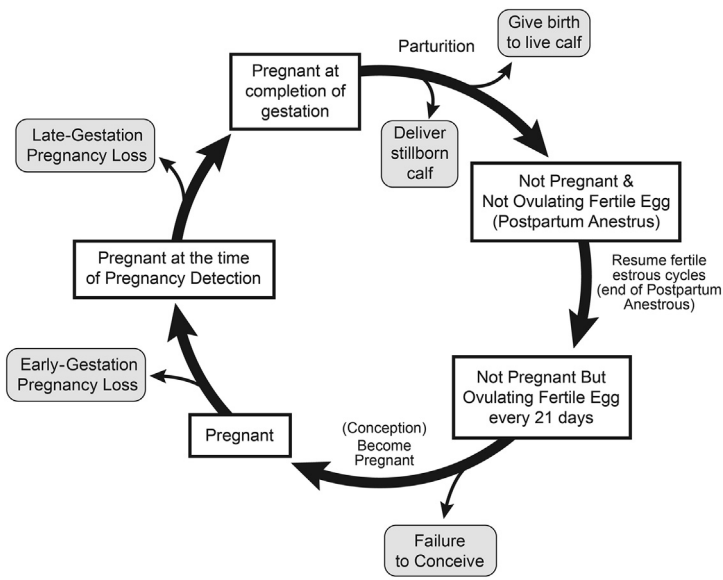

Fig. 1. Female beef cattle flow through specific reproductive states: not pregnant and not ovulating fertile oocytes, not pregnant and ovulating fertile oocytes every 21 days, pregnant, pregnant at the time of pregnancy detection, and pregnant at the completion of gestation. There are several alternative pathways in this system, including failure to conceive, early-gestation pregnancy loss, late-gestation pregnancy loss, and delivery of a stillborn calf.