

Pregnancy Diagnosis in Cattle

FARM ANIMAL FIELD SERVICES

Economic stability is critically important on every cattle farm: if a farm is not profitable it is difficult to justify continuing to keep cattle on the property. According to recent statistics produced by the United States Department of Agriculture, it costs roughly \$600-700 per year to maintain the average beef cow in the United States. This includes expenses such as feed/hay/forage, upkeep of tractors and other farm equipment, fertilizer, vaccines, etc.

While there are many methods for making a farm more efficient, one of the most important and most often overlooked is pregnancy diagnosis. Regardless of whether the farm runs beef or dairy cattle, it is critical that cows become pregnant in order to achieve the desired product (milk or feeder calves). Only about 10% of beef cattle in the southeast are checked for pregnancy each year. As a result, beef producers in Tennessee spend roughly \$47 million per year maintaining “open” (not pregnant) cows in their herd. What does that mean to the individual producer? In an average herd with 50 breeding-age cattle, roughly 5 cows (10%) will be “open” each year. If it costs \$600 dollars per head to maintain each cow, then those “open” cows cost \$3000 to keep on the farm. In addition to the cost of maintaining those cows, the producer has also lost an estimated \$5000 in calves that those cows did not produce. So in essence, the producer just paid \$8000 for 5 “open” cows.

There are several methods for pregnancy diagnosis in cattle: transrectal palpation, transrectal ultrasound, and blood or milk testing for progesterone levels or pregnancy-associated glycoproteins.

- **Transrectal palpation**—This technique can be performed by an experienced veterinarian as early as 35 days after breeding. At this stage of pregnancy, a veterinarian can detect 2 of the 4 cardinal signs of pregnancy, including the chorio-allantosis membrane slip and the amniotic vesicle. The ovaries can also be evaluated for activity if the cow is found to be “open”.
- **Transrectal ultrasound**—This technique can be performed by an experienced veterinarian as early as 28 days after breeding. When compared to transrectal palpation alone, transrectal ultrasound provides additional information. A veterinarian can see the heartbeat of the fetus as well as the presence of twins. The sex of the fetus can also be determined at 55 - 70 days after breeding. Ovaries can be evaluated for cysts or other abnormalities.
- **Progesterone level testing**—Progesterone levels may be tested using blood or milk samples at least 21 - 24 days post breeding.

However, a high progesterone level does not always mean a pregnancy is present. False positives can occur at certain times during the cow's cycle. In other words, the cow may simply be between heats. While false positives are possible, the test will not yield a false negative result. This is very important because you can trust that if the progesterone levels are low, you can be sure that the cow is not pregnant.

- **Pregnancy-associated glycoprotein (PAG) testing**—During pregnancy, certain cells in the placenta and uterus produce PAGs. Blood or milk samples are tested for the presence of PAGs. Cows must be at least 90 days postpartum and 30 days post breeding. Due to the long amount of time that these PAGs remain in the body, testing prior to 90 days postpartum may result in a false positive result. False positives may also be seen for several days after a cow has undergone an abortion. It is recommended that cattle be rechecked by a veterinarian at about 60 days of gestation as the chances of abortion dramatically decrease thereafter. At this time, the veterinarian can also perform fetal sex determination with the help of an ultrasound and confirm that the fetus is alive. Similar to progesterone testing, there are no false negatives associated with PAG testing. If the PAG levels are low, you can be sure that the cow is not pregnant. You may decide to cull these cows or administer prostaglandin to “short cycle” them with confidence that an abortion will not occur. Injected cows can then be re-exposed to a bull or artificially inseminated.

Choosing the best pregnancy diagnosis technique for your farm or ranch is important to the health and sustainability of your operation. For more information on pregnancy diagnosis in cattle, talk to your veterinarian or one of our cattle veterinarians at the UT Veterinary Medical Center.

For more information

UTCVM VETERINARY MEDICAL CENTER

Immunology Diagnostic Laboratory

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PAG testing - \$4 per sample

vetmed.tennessee.edu/vmc/dls/immunology

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