Is She Pregnant?

Blood test allows producers to determine if a cow is pregnant 30 days after conception.

by Angie Stump Denton

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For years producers have been looking for an easy way to determine if a cow is pregnant as soon as possible after conception. BioTracking LLC, Moscow, Idaho, offers producers a fast, accurate, safe and economical pregnancy diagnostic result with BioPRYN™ — an acronym that stands for "Pregnant Ruminant Yes/No."

The blood test uses an enzyme-linked immunosorbent assay to evaluate bovine blood samples for pregnancy. The system was developed by Garth Sasser, former University of Idaho animal science professor.

According to BioTracking, the test evaluates blood samples for the presence of a protein called pregnancy specific protein B (PSPB). This is unlike previous attempts at diagnosing pregnancy that evaluated blood or milk for progesterone or other hormones or proteins that can occur in normally cycling animals. The only source of PSPB is the placenta.

BioPRYN can detect the presence of PSPB as early as 30 days after insemination. Pregnancy can be diagnosed in lactating cows 30 days after breeding, but cows also must be at least 90 days in milk, to ensure that the PSPB from the previous calf is eliminated from the bloodstream. Any cow that is inseminated at 60 days postpartum or later can be tested at 30 days postbreeding.

The test takes 27 hours to process, which means results typically are available the day after delivery to the lab.

"For years, producers have been frustrated by the somewhat cumbersome nature of other pregnancy-detection methods," says Sasser. "We are pleased to bring industries a new option that meets all of the criteria that producers want: it is fast, accurate, inexpensive, safe for the embryo, and increases income, and can detect pregnancy very early in gestation."

Industry use

Hereford breeder, Jim Coley of Coley Herefords, Castalian Springs, Tenn., has sent 80 samples to be tested since June 2005. "I wanted help determining short-term pregnancies," Coley says. "The blood test offered low-cost and safe pregnancy determination."

Coley can palpate cows that are 60-plus days with reasonable accuracy, but he wanted to determine pregnancy status and sire of the pregnancy on cows that were bred AI (artificial insemination), then put with a clean-up bull. "I have started using the test on all AI cows when they have been bred over 30 days but have been with the clean-up bull 16 days or less," he says. "This eliminates sire questions at calving. A good vet can perform this same task and also help with any problems with open cows. But the test is less expensive and there is no danger of the test causing a cow to abort as can be the case in a small percentage of cows palpated with short-term pregnancies. Especially with someone less experienced doing the palpating."

With a full-time job off the farm, Coley can do the blood tests at night or on the weekends. He can take the samples over a week, refrigerate the blood and submit all samples at one time.

Garth Sasser, co-founder of BioTracking and developer of BioPRYN.

The process

According to Coley, the process is simple. Producers need to draw the blood from the tail vein. Samples of at least 2 mL per animal are needed in individual vacuum tubes (red or gray and red topped) and must be labeled with the animal's identification number.

It is important to draw samples using individual, disposable needles (1 inch, 18 or 20 gauge) to avoid cross-contamination. Producers can obtain needles and tubes from veterinarians or veterinarian supply companies.

The samples should then be packaged for shipping to the laboratory in a well-padded container. No ice is needed. A submittal form must be included and can be downloaded from the BioTracking Web site, *www.biotracking.com*. Visit this site for more information about the collection and submittal process.

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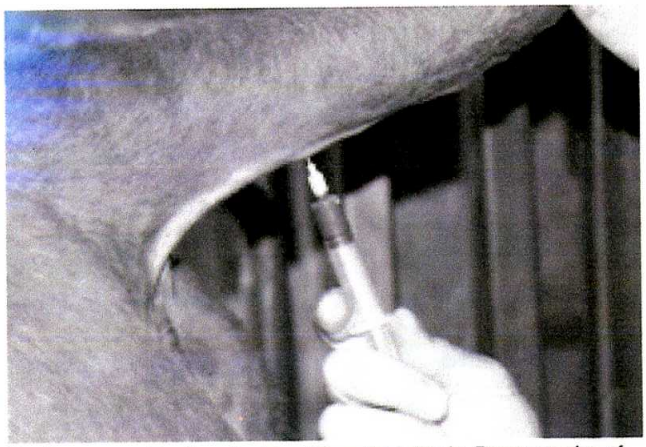


Producers need to draw the blood from the tail vein. Draw samples of at least 2 mL per animal using individual, disposable needles (1 inch, 18 or 20 gauge).

Each tube must be labled with the animal's identification number.

The cost of the test is $2.25, plus the cost of the sample tube and needle, shipping expenses and collection fees if you hire someone to collect the sample.

The results

Once the samples arrive at the lab the process takes 27 hours from setup to results. In most cases, if the sample arrives today, you can have the report tomorrow. Reports can be returned via e-mail, fax or phone.

According to BioTracking, the overall accuracy rate of the test is 97%, with 99% accuracy in pregnant animals and 95% accuracy in open animals. In other words, it may call up to 5% of open animals pregnant (false positive) and call less than 1% of the animals that are pregnant open (false negative).

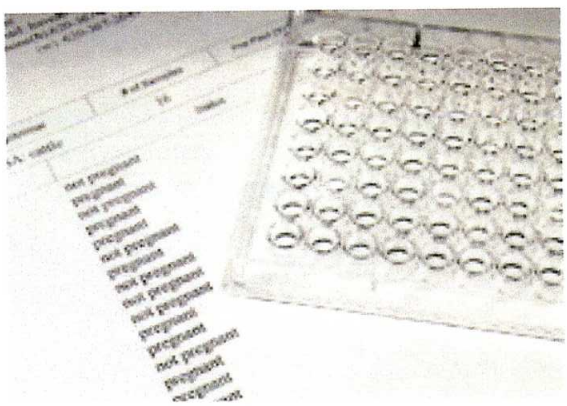
"These results are more accurate than those achieved by rectal palpation, and the diagnosis is available earlier in the pregnancy," says Sasser. "This method also eliminates the risk of potential trauma to the embryo and disruption of the pregnancy that palpation can cause. It also will eliminate palpation-arm muscle and nerve damage, which is an issue of concern for veterinarians."

For Coley the test has been 100% accurate on open cows. "I have had a few cows, two to three, test pregnant that did not calve to the breeding date," he says. "I feel like these cows were probably pregnant at the time of testing and then reabsorbed the pregnancy."

The additional days that producers gain by diagnosing pregnancies earlier can add more to their bottom lines, because open animals can be returned to breeding programs more quickly. Days open also are reduced, because embryos are not touched and damaged by palpation. The result: fewer days open, more pregnant cows and more calves born per year.

For additional information on BioPRYN, call (208) 882-9736 or visit *www.biotracking.com.* ◊

After collecting the sample producers should cool, but not freeze, the whole blood sample and refrigerate until shipping. Samples need to be packaged in a well-padded container and shipped without ice to the testing laboratory.



At the lab the technician performs the ELISA assay on the samples. After testing the lab prepares a report and provides it to the producer by fax, phone or e-mail.