

Identify Open Cows Early to Reduce the Interservice Interval

One of the major factors contributing to extended calving intervals is low post-breeding heat detection rate. Failure to observe and record heats for those cows that failed to conceive to the initial breeding frequently results in long interservice intervals. Even though most open cows have had at least one and more likely two opportunities to exhibit heat before a pregnancy examination at 40-42 days, the percentage of cows identified in heat during this period is generally low. During the last few years many dairy producers have implemented *Resynchronization* programs to efficiently manage open cows so fewer days are lost before rebreeding. There are several “*Resynch*” programs available. One program involves use of ultrasound to identify open cows and assign them to a resynchronization program. Wisconsin research (Fricke et al. 2003, Journal of Dairy Sci.) compared fertility of a resynchronization program using ultrasound at various intervals after timed insemination to identify open cows. It was suggested when using transrectal ultrasound that a “*Resynch*” program commence on day 26 (initial GnRH injection) post insemination. Prostaglandin would then be administered to open cows based upon ultrasound diagnosis on day 33 with GnRH administered two days later.

Another management tool has become available to determine which cows failed to conceive so they can be managed to be rebred earlier. This system is called BioPRYN™ technology which measures the quantity of pregnancy-specific protein B (PSPB) in the blood of ruminants to determine pregnancy status. In the cow, pregnancy-specific protein B (PSPB), produced by specific cells of the placenta can be quantified very accurately at 30 days post insemination. With this technology the accuracy in determining overall pregnancy status on a herd basis is 97%. Accuracy when a cow has the test result of open is nearly 100%; when the test result is pregnant, accuracy is 91 to 95%. This is not a cow-side test. Blood samples are obtained from the tail, refrigerated if kept overnight or are shipped cold but without ice to the laboratory. The results are returned the next working day after the laboratory receives the sample via FAX, email, phone or mail. The cost is \$1.95 per sample. It is recommended that blood samples be obtained 30 or more days after insemination for heifers or lactating cows. Since there is residual PSBP in the blood from the previous pregnancy, the earliest lactating cows can be sampled is 90 days after calving. This would mean any cow inseminated beyond 60 days post partum would be eligible for pregnancy determination with this method if samples were obtained 30 days post insemination (total 90 days). With most estrous synchronization timed-insemination programs cows are targeted to be inseminated around 70-75 days. In this situation, blood samples for PSPB analysis would be obtained at 100-105 days.

With the embryonic loss in cattle estimated to be between 15-20%, one might question if residual PSPB would be present in the blood when the sample was taken approximately 30 days post breeding but the embryo died during this period. The assay is developed so that the concentration of PSPB can be quantified. The results are reported as pregnant, pregnant with repeat sample, open with repeat and definitely open. Those few cows requiring repeat samples may have lost their embryo and a submission of a second sample would verify pregnancy status. The timing of this system is similar to the

Wisconsin study described above when ultrasound was used to identify open cows for “Resynch” at 33 days post insemination.

Herd managers must appreciate the value of early determination of the non pregnant cows. Since post breeding heat detection is generally poor on many dairies resulting in long intervals between inseminations, this non invasive method of identifying open cows allows dairy producers to resynchronize open cows as a group. This test is popular for dairy and beef producers who do not have access on a regular basis to a veterinarian.

The following website has more detailed information describing this concept and procedures for submission of samples: BioTracking LLC website <http://www.biotracking.com/sitemap.php> A new laboratory in Pennsylvania has been established. It is Laurel Hill Vet. Clinic (contact Tim Wilcox at twilcox@lhvsinc.com or phone 570-596-2020).

This is another tool for reproductive management which can be used to determine pregnancy status early enough so open cows can be managed to be rebred in a timely fashion.

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