THE major problem facing dairy producers

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Improving pregnancy rate is considered "THE" major problem for dairy producers today. With that in mind, AntelBio began searching for ways to help producers' troubleshoot and optimize breeding programs.

After reviewing scientific literature it was amazing how many research trials on reproduction depend on the determination of progesterone concentration. In fact, oftentimes progesterone levels are used both for stratifying cows into various reproductive categories (cycling versus noncycling; proestrus vs diestrus), and as quantitative measures of embryo survival or reproductive performance. It is astonishing that this basic tool that is so widely used by research scientists in reproductive physiology is not in the tool chest of the typical dairy farm. Near as we figured, its utility has not been adequately demonstrated. That being said, AntelBio's decision to begin progesterone testing was an easy one. This article describes how to incorporate progesterone testing to evaluate areas of concern for first service conception; and the results are telling.

After meeting the demands of freshening and negative energy balance, when do open cows begin to cycle? This information is an important consideration in setting and adjusting the voluntary waiting period (VWP). Secondly, once cycling, are cows being inseminated at ovulation? Information on the timing of breeding relative to ovulation determines whether heat detection or synchronization is successful prior to artificial insemination.

For instance, the VWP allows time for body condition and energy balance to return to levels that will accommodate a pregnancy; when ready the reproductive system responds by commencing estrous cycles. Rather than wait for poor pregnancy rates to suggest an improper VWP, progesterone testing on groups of cows during early lactation can determine the appropriate VWP for the best breeding results. If progesterone levels in milk or blood fail to indicate significant cycling within the existing VWP, the VWP should be lengthened for the best use of resources. On the other hand, if cycling is indicated earlier within the VWP, it could be reduced to shorten the calving interval. Optimally, cows should experience at least two good cycles prior to commencing the synchronization program.

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Another instance where progesterone analysis can benefit a breeding program is during the synchronization program. Ninety percent of the cows receiving their prostaglandin shot in an Ovsynch program should have a viable corpus luteum (CL) producing high amounts of progesterone. Two or three days later at the time of A.I., CL viability and progesterone should be all but gone. If progesterone levels in blood or milk do not confirm this regression of the CL in the vast majority of the synchronized cows, poor synchronization procedures must be seriously considered.

There are a number of reasons why synchronization programs fail, but in cycling cows of adequate condition the problem must be the timing and/or the contents of the shot sequence (compliance). While 90 percent is considered a fantastic grade in the classroom, 90 percent compliance during the five-shot sequence of Presynch/Ovsynch will only result in 59 percent (0.9^5) of the cows receiving the correct program. Periodic analysis of progesterone levels in blood or milk from the prostaglandin shot to A.I. monitors whether your synchronization procedures are able to achieve desirable pregnancy rates. Similarly, analysis of progesterone levels at A.I. can be used to monitor the accuracy of heat detection; greater than 90 percent of the cows should have low progesterone levels at the time of A.I.

Utilization of Progesterone (P4) Testing to Optimize a Breeding Program

Area of Concern	When to Sample	Optimal Results	Action If Not Optimal
VWP	30 DIM to VWP	66% High P4	Adjust VWP
Timed A.I.	PGF2 and A.I.	>90% High P4 and 90% Low P4 respectively	Check procedures
Estrus Detection	A.I.	>90% Low P4	Training

If research scientists rely on progesterone analysis to design and interpret breeding trials, why shouldn't producers have access to the same tools to optimize their breeding program? The option to test milk samples makes progesterone testing more convenient through DHI or sample collection in the parlor. Contact your NorthStar representative or AntelBio at 800.351.3180 for information on implementing a diagnostic examination of your breeding program.