

# Progesterone testing pinpoints source of breeding problems

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In November we discussed a herd that was having breeding problems and Julie Ainsworth, NorthStar Cooperative's Dairy Production Analyst was called in to assess the problem. With a pregnancy rate of just 15 percent and a first-service conception rate of only 22 percent, this herd was struggling to determine the underlying cause of poor breeding results. After careful evaluation of the herd, progesterone testing was performed to evaluate the presence and strength of estrous cycles, and compliance to the herd's PreSynch/OvSynch program.

The milk samples taken at the time of the second prostaglandin shot of PreSynch turned out to be the most informative. Testing on these samples indicated that most of the cows had not begun cycling during the 60-day voluntary waiting period; when really greater than 70 percent of the cows should be synchronized by this time. Clearly the cows just weren't ready to begin a synchronization program. As a result, Julie recommended the voluntary waiting period be extended to 80 days to give cows additional time to reach a more permissive energy balance.

It has been four months since the herd extended its voluntary waiting period to 80 days and reproductive performance has improved considerably. Pregnancy rate had improved from 15 percent to 33 percent and overall, services-per-conception has dropped steadily from 5.5 to 3.7. More recently, six out of the last ten services resulted in pregnancies. A summary of follow-up progesterone testing results for these most recently bred cows is presented in Table 1.

Sample	Desired Results <sup>1</sup>		60-day VWP <sup>2</sup>		80-day VWP	
	Compliance (%)	Progesterone (ng/mL)	Compliance (%)	Progesterone (ng/mL)	Compliance (%)	Progesterone (ng/mL)
PreSynch 2 <sup>nd</sup> PGF <sub>2α</sub>	<b>70</b>	<b>13</b>	40	2	70	8
OvSynch 2 <sup>nd</sup> PGF <sub>2α</sub>	<b>90</b>	<b>13</b>	40	5	80	10
Insemination	<b>90</b>	<b>1</b>	100	1	100	1

<sup>1</sup> Compliance is the percentage of tested animals with expected progesterone levels for each sample point in the synchronization program. Progesterone levels in milk should be high in the luteal phase of the estrous cycle and low at the time of breeding.

<sup>2</sup> Voluntary waiting period.

Compared to results obtained when a 60-day voluntary waiting period was in place, results from cows enrolled in an 80-day voluntary waiting period indicated more were cycling during PreSynch, and these cycles were more significant as evidenced by much higher progesterone levels and greater percentage of heats observed. Specifically, progesterone profiles of each of the ten cows indicated that all were experiencing normal cycles during the OvSynch program compared to only 13 percent of the cows when a 60-day voluntary waiting period was in place. As expected, progesterone profiles and breeding performance move in the same direction, a fact that underscores the critical role of progesterone in reproductive success.

Now the most obvious question for the dairy is "Can the voluntary waiting period be moved back to 60 days?" The follow-up testing showed average milk progesterone levels at the two prostaglandin sample points (8 and 10 ng/mL) in this herd are still below desired levels (13 ng/mL), suggesting that production or metabolism of this hormone are still such that early embryonic growth and uterine receptivity could be compromised. If reproductive success continues,

milk progesterone concentrations can be tested again for desired levels during PreSynch and once the appropriate levels are achieved, returning to the shorter waiting period can be considered.

Screening cows for progesterone levels during synchronization can be used to diagnose causes of poor reproductive performance, as well as optimizing a breeding program. For ease and flexibility, either blood or milk samples can be used to incorporate progesterone profiling in any synchronization program. Breeding cows when progesterone profiling indicates they are most receptive is key to reproductive success.

For more information on how progesterone testing can help pinpoint breeding problems contact AntelBio at 800.631.3510.