VETLINE NEWSLETTER

Winter 2024

Improved Fresh Sexed Semen performance!

In February 2024, we updated our farmers on the performance of our fresh sexed semen product for the Spring 2023 mating period, following disappointing results the season prior.

In Spring 2022, the *non-return rate (NRR) of fresh sexed semen was on average 10% lower than fresh conventional semen, where we expect it to be within -5%.

We were pleased to report the NRR for fresh sexed semen in the spring 2023 mating period was 3.3% lower than fresh conventional semen.

Due to the result we experienced in Spring 2022, we conducted an end-to-end review of our sexed semen production, which allowed us to identify and make several enhancements to our processes to improve the performance of the product.

This included modifying the air conditioning systems within the sexed semen lab to prevent temperature fluctuations, and adjusting how our automated straw counting and packing machines operate.

Last season we also trialed increasing the concentration of sperm cells. Results clearly showed this benefited the product's performance and contributed to the improved NRR witnessed this season.

Based on this, we made the decision to increase the concentration of sperm cells in all fresh sexed semen straws going forward.

* We use non-return rate (NRR) data to monitor the performance of our artificial breeding products and services as this provides the percentage of cows that have not returned for a second mating within an 18-to-24-day period following their first mating.

Using Milk testing for Johnes Disease Management

From 11,791 matched milk and blood results tested during 2023/24 season, we were able to calculate the percentage of these milk results that were true positive, based on using a positive blood result as confirmation of Johne's Disease (JD) infection. Percentage true 'High Positive' milk results remained at 98% in 2023-24 season, identical to the previous season results.

There was a slight increase in the true positive rate for milk 'Suspect' animals, with 80% of milk suspects returning a positive blood result, compared to 78% last season, but we note this does tend to vary from farm to farm. We recommend the use of milk suspect tests for dealing with JD management on farm given the high rate of positive blood confirmations.

Comparison of Johne's disease milk vs blood results

		Blood results			
		POS*	NEG	Total tested	% True Positive
Milk result	High Positive	8072	144	8216	98%
	Positive	1067	74	1141	94%
	Suspect	1947	487	2434	80%

**POS blood includes: High Pos, Pos, Suspect*

Record breaking amount of Johne's disease and BVD samples tested this past season!!

Johne's disease - 1,285,550 this is an 11% increase from the previous season.
BVD testing - 316,500 a 27% increase from previous season.

This is largely to do with our new BVD Status pack test, which tests both the bulk milk and individual cows at a cost-effective price. Learn more here.

Vet Conference

What did LIC discuss?

Each year LIC attends the New Zealand Veterinary Association Annual Conference, this year we were fortunate enough to present on three key areas: Johne's disease, Semen Quality, and our new GeneMark Genomics service. Below is a short summary on each presentation.

Kara Dawson gave two talks on Johne's disease in the dairy industry.

The first presented the results of a modelling study on risk factors for higher within-herd prevalence and cow-level risk for Johne's disease using ten years of Johne's milk ELISA testing data on 2995 herds.

Breed and region were both strongly associated factors with higher risk of being infected. Jerseys and secondarily Jersey-Friesian crosses at the highest risk, and herds on the West Coast, Southland and the Central Plateau having the highest prevalence. We recommend that herds with more risk factors should be encouraged to test, especially if they have had clinical cases.

The second talk presented the results of research into the association between dam and daughter Johne's status. Investigating 108,500 dam-daughter pairs where both had Johne's test results with LIC, daughters of Johne's positive dams born in the season of the dam's positive test had 3.2 times the odds of being Johne's positive themselves.

The results have relevance for decisions on breeding, keeping replacements and culling.

Rebecca White presented the findings of a Johne's disease case series:

LIC has investigated herds with a long history of Johne's disease testing with us. Some of these herds have made great headway into decreasing their disease burden, showing a substantial drop in Johne's prevalence when compared to their first test. On the flip side, we also identified herds who have made no progress, or who have gone backwards.

In a preliminary investigation, 4 herds were surveyed on their management practices. Two have seen a substantial drop in prevalence, while the other two have not.

Insights into on-farm practices that are making a difference in decreasing prevalence, as well as those who are having the opposite effect, were identified. A robust test-and-cull strategy, as well as risk mitigation strategies to avoid exposure to young stock were highlights of the success stories.

Mark Julian presented on semen quality

In Spring 2023, 1,160 impacted farmers were notified of a quality issue that affected some batches of semen that were inseminated on farms on 17-19 October and 23-25 October.

A full investigation followed with every possibility investigated and multiple scenarios were recreated using the semen from the impacted days which is routinely frozen and stored for research purposes.

In February 2024, LIC reported back on those findings to farmers. While the investigation was able to narrow down the possible cause being a bacterial contamination, it was not possible to identify the exact species of bacteria that may have caused it.

Since then, our focus has been on implementing the recommendations that stemmed from the investigation to reduce the likelihood of the issue ever happening again. At the end of June, out of the 29 recommendations made with 113 actions making up these recommendations 103 have been completed with those remaining not critical to winter fresh semen production.

Getting cows in calf is what LIC does, and we pride ourselves on a very good track record at doing just that. We acknowledge the impact this situation caused for individual cows in herds, and we are disappointed that, in this instance, we didn't deliver to the high standard farmers expect.

GeneMark® Genomics presentation

LIC has invested more than $78 million over the past 30 years into genomic science, with these advancements underpinning our bull selection for the last decade. This investment and focus have delivered a significant increase in the rate of genetic gain on farm.

More recently LIC's research, as well as improvements in lab capability, has enabled a step change for farmers. Allowing them to access cost effective genomic technology for their herd to ultimately increase their rates of genetic gain.

The GeneMark lab has moved from a range of multiple parent verification and genomic evaluation services to a single Genomic Evaluation + Parentage solution for all samples - "GeneMark Genomics". This means that all eligible genotypes generated at LIC's GeneMark lab will be used to accurately identify parents as well as be included in the Genomic Evaluation model to deliver more reliable genomic breeding values for animals.

Additional services such as A2/A2, production variants and BVD testing will continue to be provided to customers as per usual.

As well as providing farmers with enhanced genetic information of their animals to make more informed decisions, GeneMark Genomics provides LIC with a much wider range of potential bull dams within the national herd, improving the efficiency of bull dam selection for both contract mating and possible embryo technology work.

Some of the key improvements GeneMark Genomics delivers:

- Make informed breeding decisions by identifying superior genetics in your herd at a younger age.
- Get improved reliability of your animals' breeding values with a complete assessment of their genomic profile.
- Reduce stress at calving time and prevent the mismothering of calves.
- Reduce the risk of inbreeding.