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Working to assure accurate ELISA sample results

Traditionally, DHI milk samples have been analyzed for milk fat, protein, and SCC, but there is an even greater wealth of information in each of those milk sample vials. The analysis of DHI milk samples for health screening and reproductive status using ELISA (enzyme-linked immunosorbent assay) testing can provide dairymen and their consultant teams with valuable information on animal disease and/or reproductive status of their herds. Currently DHI milk samples may be analyzed for Johne's disease, bovine viral diarrhea (BVD), bovine leukemia virus (BLV) and pregnancy status. Knowing the status of individual cows helps dairies make educated management decisions when implementing treatment or vaccination protocols, evaluating reproductive programs or confirming culling decisions.

One of the key advantages of using DHI milk samples is efficiency and convenience. During routine monthly DHI technician visits, specific cows can be selected and sampled without animal sorting, restraint or additional labor. Having no additional shipping and handling costs for these samples, milk ELISA testing is normally less expensive and has a faster turnaround time compared to blood testing for Johne's, BVD or BLV.

In addition to being convenient, milk ELISA testing is very accurate when performed by well-trained laboratory technicians. For example, the milk ELISA test for Johne's has a 99% specificity. This specificity indicates that the test correctly identified non-infected animals as negative, resulting in very few 'false positive' results. With this

level of accuracy, the dairy's consultant team has quality information for management decisions on both a cow level and herd level. To ensure that each dairy is receiving reliable results from its investment in DHI milk ELISA testing, Quality Certification Services (QCS) and National DHIA offer a two-pronged approach to quality assurance for organizations in both the United States and Canada. Similar to other DHI programs, both training of personnel and monthly evaluation of laboratory performance are key focus areas.

Training of DHI personnel is a critical component

Whether it is the field service, laboratory, meter calibration center or records processing center, training of DHI personnel has long been a key focus area. The use of DHI milk samples for ELISA testing for health and reproductive status is no exception. Working in partnership with the University of Wisconsin - School of Veterinary Medicine, QCS and National DHIA offer training modules for DHI field and laboratory technicians related to general ELISA testing and specific to Johne's disease. These training modules were developed with financial support from the Johne's Disease Integrated Program (JDIP) and content from many DHI service providers and various ELISA test kit manufacturers.

In addition to training on the basics of Johne's disease transmission and effects on the dairy herd, DHI field technicians receive specific training on collection of milk samples

Accuracy in DHI milk

for ELISA testing. While the principles and guidelines are similar to the collection of milk samples for component testing, emphasis is placed on the reduction of carry-over, cross-contamination, and mislabeling of individual samples. Multiple DHI milk samples are analyzed across the cow's lactation for traditional components. However, many times the milk ELISA test is a single test with management action based on that result. Further, with the very high specificity of the ELISA test, the presence of carry-over or environmental contamination has the potential to produce a false positive result. Comprehensive training of DHI field technicians helps ensure that each sample is properly collected using the right equipment and that the test results are accurate.

DHI field technicians are able to use the field modules while QCS also provides a training module for DHI ELISA laboratory technicians. More comprehensive by design, this training module helps technicians not only understand each step of the biochemical processes of the ELISA test, but also focuses on the development and implementation of critical control procedures to maintain a high level of consistency and accuracy at the laboratory level. Complete with troubleshooting examples, this training helps laboratory technicians excel professionally and deliver reliable results back to the dairy. In addition, all ELISA laboratories are supported by test kit manufacturers with training, maintenance and operation of equipment.



Uniform training within the DHI system provides the tools today's DHI technician needs to succeed and ensures consistent results to the dairy regardless of geographic location or test conducted. For a list of DHI technicians who have successfully completed training please visit <http://www.quality-certification.com/certifiedjohnes.asp>

The bottom line...

One of the hallmarks of the DHI industry has been the accuracy and reliability of the analysis of the milk samples and the data submitted. The use of the DHI milk sample for ELISA testing is convenient, is cost effective and provides accurate results with a fast turnaround time. These data will help dairies make economically sound management decisions that not only offer a solid return on investment in testing, but can add to the dairy's profitability.