



VIRAL DISEASES

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SURVEILLANCE OF PRRS VIRUS STRAINS-HOW NEW TOOLS CAN SUPPORT CONTROL INITIATIVES

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PRRS sequencing (ORF5) is widely used in Quebec, Canada. Through several signed agreements with veterinarians, a structure was established allowing near real-time transfer of sequences to our research team from 3 different laboratories in Quebec. As a result, our database has grown to nearly 6000 sequences, with an annual averaged increase of 450 sequences. This database has allowed the development of several tools that can be used for surveillance.

Among them is an on-line application available for practicing veterinarians. Through a "secured" access, a veterinarian may obtain sequence comparisons with all sequences in our database along with nominative data for sequences that he/she had submitted (farm name and address); for all other sequences, only the name of submitting veterinarians appears in the comparison, so they can be contacted for information sharing as part of an outbreak investigation.

Another application was developed to identify introduction of new PRRS strain(s) in breeding herds based on current and historical sequencing data. Threshold for declaring new introduction was a genetic similarity <92% with historical data for that herd. When no previous sequence data were available, the attending veterinarian was contacted to confirm that the site was initially negative.

Over a 3-year period, 165 new viral introductions were identified. This technique has allowed identification of 19 new viral introductions through regular monitoring even though these herds had not shown any clinical signs. Six other introductions were related to a vaccine-type strain (farms previously negative and not using any vaccine). Some sites had experienced 2 (n=20) and even 3 (n=1) new viral introductions over the study period.

With this tool, incidence of PRRS outbreak or new viral introduction in herds could be estimated at the provincial and regional levels. Moreover, outbreak could be investigated in a timelier fashion in a clinical context or for research needs.

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