



## Swine Health Research Just as the Doctor Ordered

By Geoff Geddes, for Swine Innovation Porc

Pigs and producers have one thing in common: they can't call in sick. In a business where margins are thin, a few ill pigs can be hazardous to your fiscal health. As a result, research has made this a major focus of their efforts on behalf of industry. In particular, three threats to pigs received special attention in recent studies: *Brachyspira*, PRRS and PEDv.

### ***Brachyspira***

Comeback stories can be inspiring, but not when they involve the re-emergence of *Brachyspira*-associated disease in Canadian swine herds. Deadly to both pigs and producer livelihoods, this disease drew the attention of research aimed at developing tools to fight the condition.

Of course, before you can win the war, you must understand your opponent, so scientists began by learning all they could about the *Brachyspira* organism and its resistance to antibiotics. Because labs in different countries have their own way of testing antibiotic effectiveness against this bacteria, researchers worked on creating a standardized method that would illuminate how resistance conditions differ around the world.

As well, they tested *Brachyspira* isolates to produce baseline data and enable the testing of samples from sick pigs submitted by veterinarians or producers.

The benefits of this research are numerous. For vets, it will aid in selecting the right drug and dosage from the outset for treating the condition, resulting in less disease mortality.

For producers, it means cost savings, both from fewer pig losses and fewer drugs being tried before settling on the proper one.

Perhaps most importantly, the study is a boost for animal welfare and the image of pork production. Reducing the length and severity of disease should please the pigs, and minimizing antibiotic use should limit the impact of swine production on anti-microbial resistance. By doing so, industry can offer evidence to consumers that it is employing antibiotics in the most limited and targeted way possible. In

THIS NEW TESTING METHOD WILL ALLOW VETS TO BETTER SELECT DRUGS, AND IN THE LONG RUN, IT WILL AID IN COST SAVINGS FOR THE PRODUCER, DUE TO FEWER PIG LOSSES AND FEWER DRUGS TRIED



Working on the susceptibility test in the lab. Photos: University of Saskatchewan

this age of growing focus on social license, that could prove a vital shot in the arm for industry.

For more information, contact Dr. Joseph Rubin, University of Saskatchewan at [joseph.rubin@usask.ca](mailto:joseph.rubin@usask.ca)

## PRRS (Porcine Reproductive and Respiratory Syndrome)

Sure, money isn't everything, but when one disease costs the industry \$130 million every year, there's a real urgency to address it. That's the price tag on PRRS, and it prompted researchers to study it, understand it and, ultimately, find ways to control its transmission. This is easier said than done with PRRS, as the disease can mutate and is passed in a number of ways including air, pigs, clothing and equipment.

In identifying risk factors for PRRS transmission, it was found that, in spite of what your parents taught you, sometimes it's bad to share. The sharing of employees and equipment among farms were singled out as the two biggest factors in spreading PRRS. Also posing a threat is proximity to other farms and truck movement between farms, such as for feed delivery or dead animal disposal.

Apart from helping to guide policy on how to spend funds on PRRS prevention, these findings reinforce the vital need for proper biosecurity, especially in high-risk areas. Though keeping PRRS off your farm is no easy task, controlling it once it gets there is even tougher. By learning which measures are the most effective in preventing PRRS, producers can spend their hard-earned dollars most effectively, knowing they are doing everything practically possible to secure a PRRS-free future.

For more information, contact Dr. Sylvie D'Allaire, University of Montreal [sylvie.dallaire@umontreal.ca](mailto:sylvie.dallaire@umontreal.ca)



Suckling piglets. Photo: University of Montreal

## PEDv (Porcine Epidemic Diarrhea virus)

While preventing PEDv from reaching your barn is the ultimate goal, that's not always realistic, as producers throughout the United States and in parts of Canada learned the hard way. The next best thing is to detect it as quickly as you can, in the cheapest and easiest manner possible. Research is helping to make that happen, using a sophisticated device and test that detects the presence of pathogenic DNA or RNA in a blood or fecal sample.

To date, the test has proven effective on diseases like PRRS and porcine circovirus, and the fact that it can be used on farm instead of just in a lab makes it faster and less costly than other tests. Given the devastating effects of PEDv, researchers are hoping to adapt the instrument used in the test to address that virus. It's already working in the lab, so the next step is achieving success in the field so the test can be employed in barns and vet offices.

At present, the testing device costs about \$5,000. When you consider that standard lab tests run from \$25 - \$50 per test, whereas

this test will cost from \$5 - \$20, it won't take long to pay for itself. Since new technology is about the only thing that goes down in price over time, the device itself may well become more affordable in the future.


Regardless of cost, the ability to yield results in one or two hours versus one or two days for traditional tests, allowing producers and vets to assess a disease threat and plan a response, may earn this approach a rare label: priceless.

*For more information, contact David Alton, Aquila Diagnostics System at [david.alton@aquiladiagnostics.com](mailto:david.alton@aquiladiagnostics.com)*



On-farm testing instrument. Photos : Aquila Diagnostics Systems.

THIS NEW ON-FARM DEVICE AIMS  
TO HELP PRODUCERS AND VETS  
QUICKLY DETECT PEDV AT A  
LOWER COST PER TEST

Perhaps one day, technology will eliminate porcine disease entirely. In the meantime, science is committed to learning all it can about the "enemy", identifying risk factors and improving testing options. The only thing more intriguing than how far research has come in this area is considering where it goes from here. 

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