



Rapid PEDv Test Earns Top Marks

By Geoff Geddes, for Swine Innovation Porc

Test taking can be stressful at the best of times: Am I ready? Did I study enough? Will the brainy kid sit next to me? When you're testing for the presence of Porcine Endemic Diarrhea Virus (PEDv), a deadly disease that can devastate a farm, the stakes and the strain are that much greater. As with any threat, the sooner you're aware of its presence, the better your chance of defeating it. That's certainly the case for PEDv, which prompted researchers to find an easier, faster and cheaper method of PEDv detection on farm.

"We've been developing diagnostic tests for humans over the last several years and recently expanded to food production and companion animals," said David Alton, COO of Edmonton -based Aquila Diagnostic Systems Inc.

"We have a very sophisticated molecular diagnostic platform called the Accutas™ that detects the presence of pathogenic DNA or RNA in a blood or fecal sample. Because the tests can be performed on the farm rather than in central labs, they are less expensive and results are available almost immediately."

In the wake of the PEDv outbreak in Canada, Alton's company was approached by the Manitoba and Saskatchewan pork industries, who were concerned about the disease and wanting to get it under control.

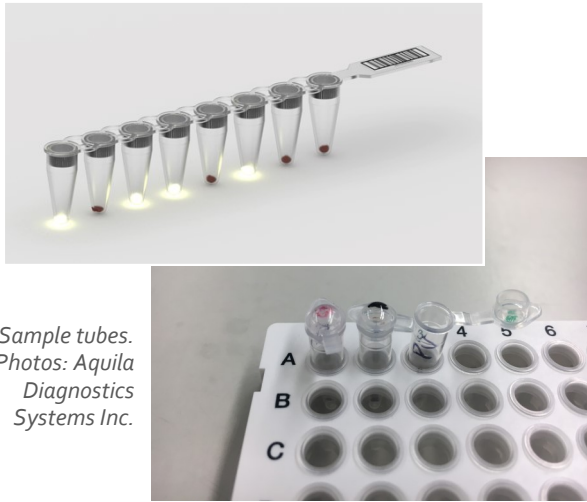
Tool shopping

"They wondered if we had a tool that could be used to manage the situation and measure what is happening out there. This would allow them to do disease surveillance and check the environment before moving animals off the farm or between barns."

The Accutas™ is a toaster-sized instrument that runs strips of small tubes about the size of



Top: The Accutas™ on-farm testing instrument is about the size of a regular household toaster. Middle: Where sample tubes are inserted. Bottom: Sample tubes.
Photos: Aquila Diagnostic Systems Inc.



Sample tubes.
Photos: Aquila
Diagnostics
Systems Inc.

a baby fingernail and contains the “secret sauce”, which is all the material, chemicals and primers needed to run the test. Once a small sample is injected into the tube, the operator presses “go” and lets molecular genetics work its magic. Depending on the type of test, results are normally given in one or two hours.

This device has already been used successfully to detect a number of other porcine pathogens including PRRS and porcine circovirus. Work is now underway to adapt it for PEDv testing for use on site at barns or veterinary offices.

Faster, better, cheaper

“At this point we have demonstrated the PEDv test in the lab. The next phase is to bring the test into the field. Our hope is to have a tool which producers, government and vets can use to get results in one or two hours rather

than one or two days. That will allow them to quickly assess the situation and craft a plan of attack.”

After an initial investment of about \$5,000 for the device itself, a test will run from \$5 - \$20 depending on the number of tests performed. For comparison, Manitoba spent millions of dollars last spring on traditional lab tests, with each sample submission costing \$25 - \$50.

Thanks to the current trend towards nanotechnology and miniaturization, Alton expects the time and cost involved with the test to decrease, even as the benefits continue to grow.

“In an outbreak, this tool could be testing animals coming and going to determine where each facility is at in terms of the presence of PEDv, thereby lessening the chance of transmitting disease to other farms. You might also choose to do regular surveillance testing of your barn or area for several viruses of concern just to stay on top of things.”

Given the impact of PEDv on the welfare of animals and businesses, Alton is excited by the prospect of bringing testing from the lab to the farm while making it affordable and easy to use. Once this test is fully validated, its use might be broadened to other applications and industries.

With any luck, this new, more modern approach to diagnosis could help industry pass the next disease test with flying colors.

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