

Research: Test and trace PEDV in US

Food animal health researchers with Ohio State University's College of Food, Agricultural, and Environmental Sciences are looking for a unique way to test and trace the spread of porcine epidemic diarrhea virus (PEDV), a disease of swine that was found for the first time in the US in April and which has impacted hundreds of hog operations in 15 states, including Ohio.



Funded by the National Pork Board, virologists Linda Saif and Qihong Wang are working on a six-month project that involves growing the virus in the lab and using this material to develop a serological test, which will allow scientists to determine how widespread PEDV is in the U.S. swine population.

"Serology allows you to trace the history of the outbreak through antibodies," said Saif, an international expert on viral diseases of swine and cattle and a distinguished university professor in the college's Food Animal Health Research Program, part of the Ohio Agricultural Research and Development Center. "This is very important in this case because we don't know how and where PEDV got into the US, and how it is spreading across state lines."

Growing the virus in cell culture and developing a serological test are also important steps for the future development of a vaccine against PEDV, Saif said. Currently, there is no vaccine or treatment for the disease. Biosecurity measures are the only way to protect herds.

PEDV belongs to the coronavirus family, which is known to cause respiratory and intestinal diseases in mammals and birds. It has been present in Europe since the 1970s and in Asia since the 1980s. PEDV causes intestinal disease in swine, especially young pigs. It is transmitted via feces or insects contaminated with feces.

PEDV does not sicken humans and does not impact the safety of pork products.

"The entire US swine population is at risk of this disease because it doesn't have any

immunity to the virus," Saif said. "We have seen 50-100 percent mortality in baby pigs. Adults pigs only show mild illness, but the problem is that the pigs can become carriers of the virus and spread it to other pigs."

Saif said PEDV is difficult to identify because its symptoms, which include vomiting, diarrhea, poor appetite, dehydration and depression, are almost identical to those of transmissible gastroenteritis virus (TEGV), another coronavirus that Saif has researched extensively and which has been present in the US since the mid-20th century.

"The only way to tell these two viruses apart is through laboratory testing," Saif said. "Producers and veterinarians who observe these symptoms are being encouraged to submit samples for testing so that we can better determine the extent of the outbreak."

Saif said having enough PEDV samples available is also important for researchers such as she and Wang who are working on ways to learn more about and combat this new disease.

"This virus is difficult to grow in the lab," she said. "We need all the samples we can possibly get."

Ohio producers and veterinarians can submit samples to the Ohio Department of Agriculture's Animal Disease Diagnostic Laboratory, which has PEDV tests available and has been instrumental in providing Saif and Wang with virus material to conduct their research.

The American Association of Swine Veterinarians advises producers to follow these recommendations to decrease the chances of their herds becoming infected:

Pay particular attention to anything sourced internationally, including feed ingredients of foreign origin.

- Be diligent about personnel who have traveled abroad and visitors from overseas who may be carrying the disease.
- Limit traffic (people and equipment) onto the farm.
- Thoroughly clean and disinfect anything coming onto the farm, especially animal transport vehicles.
- Take care when disposing of dead stock, particularly if using a communal disposal method.
- Isolate newly arriving animals and continue vet-to-vet discussions about animal health at the herd of origin.

Saif added that swine producers are not the only ones that should be vigilant about

PEDV.

"With fair season upon us, fair boards and 4-H clubs need to take precautions and monitor for the disease," Saif said. "You will have a conglomeration of animals from many different farms coming together at one place, and people going back and forth. This could help spread the disease among pigs even further."

Source: [Ohio State University](#)

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