

PEDv Update

Spread of Porcine Epidemic Diarrhea virus

Recently, PEDv has spread to far-reaching pig populations including Hawaii and Ukraine.

During the summer, Hawaii tightened biosecurity by imparting more strict import requirements for live pigs. The requirements included PEDv testing and a ban on all infected pigs, but those requirements as well as an ocean of separation did not prevent transmission to a 150-head farm on the island of Oahu. In the continental US, many routes of transmission of PEDv have been suspected or identified by epidemiologic studies including fomites such as market, cull animal, and carcass disposal transportation methods; wildlife as a mechanical vector, porcine plasma and other feed products; and aerosol transmission. It is still unclear how PEDv entered Hawaii, but it is unlikely that wildlife or aerosolized virus from the mainland was the source. The stringent requirements for importing should have helped to reduce the risk of transmission via any hog-related transportation methods overseas. Feed-related contamination seems to be a possibility for the origin of spread. It was reported that the infected farm didn't use any porcine plasma in its feed ingredients. Person-related fomites such as boots or clothing could be a possible route of transmission. State officials are preventing any movement of pigs to other islands of Hawaii from Oahu in hopes of preventing further spread of virus.

Ukraine has also recently experienced severe PED in multiple herds according to Dr. John Carr. He described the disease as severe, similar to the Chinese or American experience rather than the milder, earlier-discovered European outbreaks. Carr describes the farmers' response to infection in the Ukraine along the lines of a slippery slope. He reports that producers may let pigs finish longer which may be detrimental to pig flow and biosecurity alike. This may create conditions for lateral transmission of the virus to other farms. Dr. Carr specifically identified faltering truck disinfection as a possible culprit of transmission. Transportation has been identified as a likely route of transmission in market pig and carcass hauling vehicles in United States. Dr. Carr expected this virus to spread to other farms not only in the Ukraine, but across borders within Europe.

These reports are discouraging. Our numbers in the monitored herds within our Swine Health Monitoring Project show that in the first 1.5 years of monitoring in the US, approximately 55% of the herds were infected. So far this winter we have seen sporadic outbreaks with only 7 herds being reported as re-infected since the beginning of July. Part of this reduction in incidence may be due to immunity in the US sow population. If that is the case, one would expect low incidence of spread within Europe due to pre-existing herd immunity caused by PEDv strains that apparently are of low virulence. We recently completed a sow challenge experiment where we reported at least partial cross protection between a low virulence strain and the more severe, original PEDv strain (<https://docs.google.com/a/umn.edu/file/d/0BzGsnfsQ28heNmJCbXZhm9XYjQ/edit>).

Hawaii article by Tom Polansek (Reuters), "Deadly pig virus jumps to Hawaii, animal feed tested" 12/1/2014
<http://www.reuters.com/article/2014/12/01/pig-virus-hawaii-idUSL2N0TL1UA20141201>

Ukraine report by Harry Siemens "An outbreak of PEDv in the Ukraine could be the start of major outbreak in Europe" 11/26/2014
<http://www.siemenssays.com/2014/11/26/outbreak-pedv-ukraine-start-major-outbreak-europe/>