



UNIVERSITY OF MINNESOTA

VETERINARY DIAGNOSTIC LAB

Porcine Epidemic Diarrhea Virus Testing of Feeds

Porcine epidemic diarrhea virus (PEDV) is transmitted by ingestion of fecal contaminated material. The virus is shed in feces and based on experimental inoculations; PEDV replication is restricted to the intestinal tract. Much of what we know about transmission and risk of infection derives from our knowledge of transmissible gastroenteritis virus (TGEV). PEDV and TGEV are two distinct coronaviruses causing similar clinical diseases characterized by watery diarrhea and vomiting in young pigs.

The University of Minnesota Veterinary Diagnostic Laboratory (VDL) has been testing biologic samples for the presence of PEDV. This assay has been validated on tissue samples and feces. Testing a ration component for PEDV was requested as part of a PEDV disease investigation. Initial results on a feed sample were positive by gel based PCR for the PEDV S gene, weakly positive for PEDV N gene by real-time PCR and negative for PEDV M gene by PCR. Subsequent testing of a follow up sample was negative for PEDV S, N and M genes using the same tests. This sample was also submitted to the NVSL for testing and was found negative for PEDV by PCR. Based on confirmation testing, the initial test results are interpreted as a false positive reaction. The same ration component submitted directly from the supplier to the University of Minnesota VDL was also negative. False positive reactions can occur with any diagnostic test and surprising initial results are routinely re-tested to corroborate or refute the initial result. Non-standard samples such as feed may be tested as part of disease investigations, and these results should be evaluated in the context of the situation. There are no official protocols for validating the virus status of a feed sample. Bioassays on the initial ration component are in progress. The USDA APHIS Veterinary Services's NVSL is the final reporting authority on these feed samples. Other feed samples tested to date have all been negative for PEDV by PCR analysis. Historically, feed samples positive for infectious virus have rarely been documented.

For more information contact the University of Minnesota Veterinary Diagnostic Laboratory at vdl@umn.edu or call (612) 625 8787.

References:

Song D, Park B (2012). Porcine epidemic diarrhoea virus: a comprehensive review of molecular epidemiology, diagnosis and vaccines. *Virus Genes* 44:167-175.



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Swine Disease Eradication Center



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