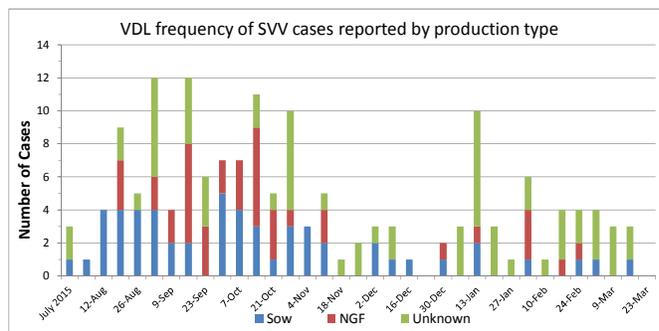
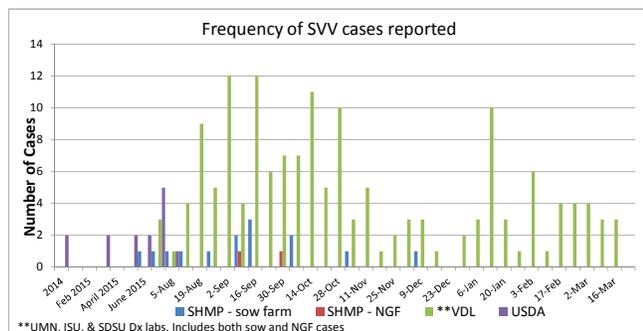


Seneca Valley Virus Update

We requested SHMP participants and UMN, ISU, and SDSU diagnostic labs to report frequency of Seneca Valley virus cases each week.

- 3 new SVV cases to report this week
- Note that the reported cases between data sources may overlap



Dr. Scott Dee has been at the forefront of understanding the risk that PEDv contaminated feed might pose to a herd. The abstract below is from Scott's most recent publication describing the potential for contaminated feed ingredients to make their way to a US herd from China. Scott was recently acknowledged by his peers at the annual conference of American Association of Swine Veterinarians for his service to the industry and received our Howard Dunne Memorial award. Here are a few of Scott's other publications regarding PEDv and feed.

- An evaluation of contaminated complete feed as a vehicle for porcine epidemic diarrhea virus infection of naïve pigs following consumption via natural feeding behavior: proof of concept. Scott Dee, Travis Clement, Adam Schelkopf, Joel Nerem, David Knudsen, Jane Christopher-Hennings and Eric Nelson. BMC Veterinary Research 2014 10:176
- An evaluation of a liquid antimicrobial (Sal CURB®) for reducing the risk of porcine epidemic diarrhea virus infection of naïve pigs during consumption of contaminated feed. Scott Dee, Casey Neill, Travis Clement, Jane Christopher-Hennings and Eric Nelson. BMC Veterinary Research 2014 10:220
- An evaluation of porcine epidemic diarrhea virus survival in individual feed ingredients in the presence or absence of a liquid antimicrobial. Scott Dee, Casey Neill, Travis Clement, Aaron Singrey, Jane Christopher-Hennings and Eric Nelson. Porcine Health Management 2015 1:9

Modeling the transboundary risk of feed ingredients contaminated with porcine epidemic diarrhea virus

Scott Dee, Casey Neill, Aaron Singrey, Travis Clement, Roger Cochrane, Cassandra Jones, Gilbert Patterson, Gordon Spronk, Jane Christopher-Hennings and Eric Nelson

ABSTRACT

Background: This study describes a model developed to evaluate the transboundary risk of PEDV-contaminated swine feed ingredients and the effect of two mitigation strategies during a simulated transport event from China to the US.

Results: Ingredients imported to the USA from China, including organic & conventional soybeans and meal, lysine hydrochloride, D-L methionine, tryptophan, Vitamins A, D & E, choline, carriers (rice hulls, corn cobs) and feed grade tetracycline, were inoculated with PEDV. Control ingredients, and treatments (ingredients plus a liquid antimicrobial (SalCURB, Kemin Industries (LA) or a 2 % custom medium chain fatty acid blend (MCFA)) were tested. The model ran for 37 days, simulating transport of cargo from Beijing, China to Des Moines, IA, US from December 23, 2012 to January 28, 2013. To mimic conditions on land and sea, historical temperature and percent relative humidity (% RH) data were programmed into an environmental chamber which stored all containers. To evaluate PEDV viability over time, ingredients were organized into 1 of 4 batches of samples, each batch representing a specific segment of transport. Batch 1 (segment 1) simulated transport of contaminated ingredients from manufacturing plants in Beijing (day 1 post-contamination (PC)). Batch 2 (segments 1 and 2) simulated manufacturing and delivery to Shanghai, including time in Anqing terminal awaiting shipment (days 1–8 PC). Batch 3 (segments 1, 2 and 3) represented time in China, the crossing of the Pacific and entry to the US at the San Francisco, CA terminal (day 1–27 PC). Batch 4 (segments 1–4) represented the previous events, including transport to Des Moines, IA (days 1–37 PC). Across control (non-treated) ingredients, viable PEDV was detected in soybean meal (organic and conventional), Vitamin D, lysine hydrochloride and choline chloride. In contrast, viable PEDV was not detected in any samples treated with LA or MCFA.

Conclusions: These results demonstrate the ability of PEDV to survive in a subset of feed ingredients using a model simulating shipment from China to the US. This is proof of concept suggesting that contaminated feed ingredients could serve as transboundary risk factors for PEDV, along with the identification of effective mitigation options.

Keywords: Transboundary, Porcine, Epidemic, Diarrhea, Virus, Antimicrobial, Ingredient, Lysine, Soybean meal, Choline

<http://bmcvetres.biomedcentral.com/articles/10.1186/s12917-016-0674-z>