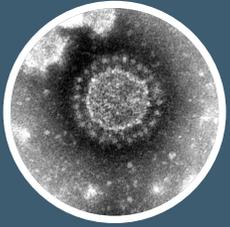




PEDv: Impact and Mitigation

What is PEDv's Impact on Food Producers?



PEDv's impact on the pork industry is driven by the consumer response to PEDv, the response by trading partners, animal morbidity and mortality, and the expense of disease prevention measures adopted by hog growers.



Mortality rate averages 50%, often approaching 100% in 1-3 day old piglets

PEDv infection in piglets up to 1 week of age causes severe watery diarrhea and vomiting for 3-4 days followed by extensive dehydration and electrolyte imbalance leading to death.



PEDv may also affect growth performance of growing pigs

If farrowing sows lose their offspring, they may subsequently suffer from reproductive disorders, leading to long-term economic impact for hog growers.

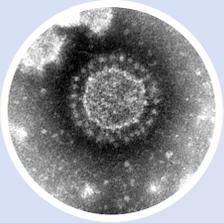
Growing pigs that survive have impaired growth and poorer feed conversions.



\$1.8 billion total industry economic loss

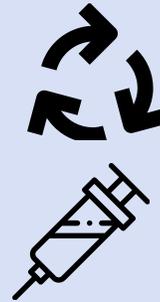
In May 2013, PEDv was first reported in the US, causing significant economic losses to the swine industry. Over 8 million pigs died, leading to an estimated total industry economic loss of up to \$1.8 billion¹.

Could Controlling PEDv Start with Animal Feed?



PEDv is a highly contagious viral disease which affects pigs of all ages. PEDv is transmitted either by direct contact between infected and susceptible pigs or indirectly through contaminated fomites.

Contaminated feed has been demonstrably tied to the spread of PEDv due to the use of contaminated feed ingredients and cross-contamination at the feed mill¹.

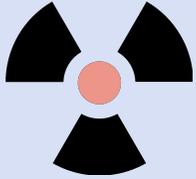


The disappearance and re-emergence of epidemic PEDv indicates that the virus might not be controllable solely with current vaccination protocols, biosecurity and control systems² and a holistic preventative approach is required.



PEDv in Feed

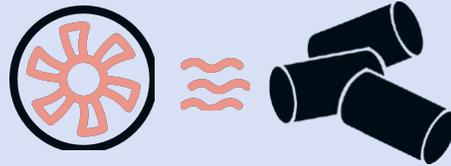
Due to the virus' ubiquity, proper decontamination in a large-scale commercial feed mill would be nearly impossible which makes it critical to prevent the entry of PEDv contamination into the mill, with animal feed as a significant risk factor.



Irradiation

Effectiveness:

Virus inactivation by irradiation is dose-dependent, greater than 99.97% virus was inactivated at 50 kGy while only 90% was killed at 10 kGy.



Heat treatment of feed

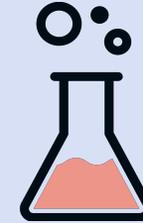
Effectiveness:

At low heat, PEDv survival depended not only on temperature and relative humidity (RH) but also on the type of feed ingredient used.

A combination of 194°F and 70% RH killed 99.99% PEDv within 10 to 30 minutes.

At high heat, increasing amounts of virus were inactivated with increased temperature (99.99% virus inactivated within 10 minutes at 293°F).

Pelleting could be effective in reducing the quantity and infectivity of PEDv, however it is a “point in time mitigation step” and does not prevent subsequent recontamination (Cochran et al, 2017).



Chemical preservatives

Effectiveness:

Termin-8 : Formaldehyde-based chemical disinfectants have the necessary characteristics to be considered for an effective intervention strategy for PEDv:

- They are effective at levels that do not impact swine performance (0.3% inclusion rate controlled TGE).
- They are effective in the presence of organic matter.
- The amount of time required for them to eliminate viruses in dry or liquid matrixes (3-6 hrs) is consistent with current feed mixing, transport and feeding practices.