

SWINE HEALTH

Title: Comprehensive Literature Review on the current knowledge for Porcine Epidemic Diarrhea Virus and Porcine Deltacoronavirus – **NPB #16-266**

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Date Submitted: August 31, 2017

Scientific Abstract: Swine enteric coronaviruses, including porcine epidemic diarrhea virus (PEDV) and porcine deltacoronavirus (PDCoV), have emerged and spread throughout the North American swine industry over the last four years. These diseases cause significant losses within the pork industry and within the first year after PEDV introduction, approximately 10% of the U.S. herd died due to the disease. Similar to other enteric coronaviruses, such as transmissible gastroenteritis virus (TGEV), these emerging swine enteric coronavirus diseases (SECD) are age dependent, with high morbidity and mortality in neonatal pigs. Since the introduction of SECD, research has focused on investigating viral pathogenesis through experimental inoculation, increasing maternal antibody for neonatal protection, understanding transmission risks through feed and transportation, and outlining the importance of biosecurity in preventing SECD introduction and spread. A survey of swine professionals conducted for this review revealed that the majority of respondents (75%) believe SECD can be eradicated and that most herds have been successful at long-term elimination of SECD after exposure (80%). However, unique properties of SECD, such as ineffective immunity through parenteral vaccination and a low oral infectious dose, play a major role in management of SECD. This review serves to describe the current knowledge of SECD and the characteristics of these viruses which provide both opportunities and challenges for long-term disease control and potential eradication from the U.S. swine population.

These research results were submitted in fulfillment of checkoff-funded research projects. This report is published directly as submitted by the project's principal investigator. This report has not been peer-reviewed.

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