RESEARCH ABSTRACT
SWINE HEALTH

Title: PEDV Feedback Protocol Optimization to Improve Immunity and Productivity - **NPB #:13-262**

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Scientific Abstract:

Porcine epidemic diarrhea virus (PEDV) emerged in the United States in 2013 and 16 months later had caused severe disease outbreaks in nearly 50% of all sow herds. Given the urgent need to develop diagnostic tools and immune countermeasures against PEDV, purified proteins were generated and used to characterize systemic, intestinal and mammary antibody responses in infected and recovering sows, and transfer of lactogenic immunity to piglets. Because vaccination is not available for PEDV, live virus is routinely fed orally to induce protective immunity. Feedback-induced infection is characterized by viral shedding in feces regardless of the presence or absence of clinical signs. Sero-conversion is evident at 3 to 4 weeks after exposure, and shedding is resolved within 4 weeks. Oral infection of sows results in short-lived IgG anti-nucleocapsid antibody responses in serum, and substantial levels of anti-N IgG and IgA in colostrum, resulting in anti-N antibodies in piglet serum. Lactogenic antibodies were primarily of the IgA isotype and were directed primarily against PEDV outer membrane proteins, consistent with findings from other enteric viral infections in which protection is dependent on IgA antibodies with neutralizing activity.