RESEARCH ABSTRACT

SWINE HEALTH

Title: Assessing PEDV infectivity of samples collected from a PEDV contaminated feed mill – NPB #15-211

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Scientific abstract: The objective of this experiment was to evaluate the infectivity of sequenced feed and the infectivity of swabs collected from PEDV contaminated feed manufacturing equipment. All samples were collected from our previous PEDV study (NBP #14-273). In the previous study, PEDV-free swine feed was manufactured to represent the negative control. Feed was mixed for 5 min then sampled, then discharged for 10 min into a conveyor and sampled again upon exit. Next, a 500 mL aliquot of PEDV isolate (USA/IN/2013/19338 P8) with a quantitative real-time PCR (qPCR) cycle threshold of 11 was used to inoculate 49.5 kg of PEDV-free feed to form the positive control. The positive control was mixed, conveyed and sampled similar to the negative control. Next, 4 sequence treatments (sequence 1 to 4) were formed by adding a 50 kg batch of PEDV negative feed to the mixer after the prior batch was mixed and conveyed; all sequences were mixed, conveyed, and sampled as previously described. None of the equipment was cleaned between treatments. This process was replicated 3 times. Designated feed manufacturing equipment surfaces were swabbed after each feed treatment. Bioassay for samples collected from the mixer during sequence 3 and 4, all conveyor feed treatments, and swabbed conveyor dust was conducted and consisted of 54 mixed sex (3.18 ± 0.79 kg BW) initially 10 d old pigs. Pigs were confirmed negative for PEDV and were allocated to 1 of 18 treatment rooms. Control pigs remained PEDV negative for the study. All pigs from the conveyor positive treatment (3/3) were qPCR positive on fecal swabs by the end of the study. No PEDV infectivity was found in feed samples from sequence 3 and 4 collected from the mixer and samples collected from the bucket elevator conveyor during sequence 1 to sequence 4. Finally, bioassay surface samples from the conveyor did not result in infectivity. It is unclear if storing these samples for 11 months before initiation of the bioassay contributed to the lack of infectivity that was observed.