RESEARCH ABSTRACT
SWINE HEALTH

Title: The role of maternal antibody in determining PCV2 vaccine efficacy – **NPB #08-271**

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Scientific Abstract:
In a previous NPB-supported study (#06-073), called the Suther Trial (Horlen et al.,2008, JAVMA 232:906), we performed a vaccine study involving 485 pigs in a PRRSV-negative farrow to finish operation, which had a history of PCVAD and had not been previously vaccinated. This was a carefully controlled blind trial that incorporated 235 vaccinates and 250 non-vaccinated control pigs. Pigs were bled and vaccinated with the Intervet vaccine at approximately three and six weeks of age. A third blood sample from a subset of pigs was collected at entry into the finisher. Mortality was recorded and all pigs were weighed just prior to being loaded for shipment to market. This study identified improved weight gain as an outcome of PCV2 vaccination. In the current study, the set of samples and weight information were used to determine if the level of maternal antibody was associated with the decreased effectiveness of vaccination, as measured by weight. Objective 1 was to correlate the level of passive maternal antibody with the response of three week-old pigs to vaccination. The hypothesis was that successful vaccination at three weeks would be evident as increased antibody at six weeks. Because of the high levels of maternal antibody at three weeks, it was not possible to detect increased antibody levels at six weeks in the vaccinated pigs. The second objective was to correlate the level of maternally-derived antibody levels at 3 weeks of age with outcome and performance. The hypothesis was that pigs with high maternally-derived PCV2 antibody at the time of vaccination would be in the same weight class as the control pigs. The results showed that vaccinated pigs, regardless of titer at the time of first or second vaccination, showed increased weight gain. Therefore, there was no evidence for the presence of blocking antibody. The third objective was to determine if PCV2 virus replication was present in the nursery. The analysis of approximately 900 serum samples showed no evidence of PCV2 infection at three and six weeks of age. Only 2% of 100 serum samples were positive for PCV2 at nine weeks of age, the time when pigs entered the finisher. Together, these results further demonstrate the effectiveness of vaccination against PCV2 and indicate that maternal antibody is likely a minor factor in blocking vaccination.