

SWINE HEALTH

Title: The efficacy of sow vaccination with commercial PCV2 vaccines and an experimental live PCV1-2 product – **NPB # 09-177**

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Scientific Abstract:

Porcine circovirus type 2 (PCV2) is associated with reproductive failure in the field and because of this PCV2 vaccines are now being used in some breeding herds. Research has demonstrated that PCV2 is capable of crossing the placental barrier and infecting fetuses which can result in fetal death. The objectives of this study were to determine 1) if there are differences in levels of protection against PCV2 challenge in dams vaccinated with different PCV2 vaccine doses, 2) determine if dam vaccination with either an inactivated or a live chimeric PCV2 vaccine is sufficient to reduce PCV2 viremia and presence of PCV2 antigen in fetal tissues, and 3) determine if there are differences in efficacy between PCV2 vaccines. Thirty-five sows of different parities (parity 1-7) were randomly divided into 6 groups: negative controls (n=5), positive controls (n=6), 1 dose inactive vaccine and PCV2 challenged (*1d-vaccine:PCV2*; n=6), 2 dose inactivated vaccine and PCV2 challenged, (*2d-vaccine:PCV2*; n=6), 1 dose live vaccine and unchallenged (*1d-live-vaccine*; n=6), and 1 dose live vaccine and PCV2 challenged (*1d-live-vaccine:PCV2*; n=6). A portion of the sows were challenged with PCV2 by using semen spiked with PCV2 (positive controls, *1d-vaccine:PCV2*; *2d-vaccine:PCV2*, and *1d-live-vaccine:PCV2*). Four of 35 sows became pregnant. Serum from both sows and fetuses was tested by quantitative real-time PCR for the presence and quantity of PCV2 and PCV1-2 DNA and for the presence of PCV2-specific antibodies by ELISA. The results indicate that the inactivated PCV2 vaccine is capable of inducing higher levels of PCV2-specific antibodies than the live PCV2 vaccine in sows; however, both the commercial killed vaccines and the attenuated live chimeric vaccine provided excellent protection against PCV2 viremia in sows and piglets and are capable of reducing PCV2 antigen in tissues. In conclusion, vaccination was successful in reducing PCV2 viremia and PCV2 antigen in tissues of piglets indicating that both the inactivated and the live PCV2 vaccines are successful in inducing an antibody response and decreasing PCV2 viremia and evidence suggests that live PCV2 vaccines could potentially be used effectively in breeding herds.

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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