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Efficacy of a killed and modified live Porcine Reproductive and Respiratory Syndrome Virus Vaccine when used alone and in combination in growing pigs.

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PRRS control strategies continue to be a major issue for swine producers. Use of autogenous PRRS vaccines have been reported to provide protection under field conditions. Evaluation of an autogenous killed PRRS product in the reproductive model under controlled situations suggests little to no benefit (Osorio). The purpose of this study was to evaluate the potential benefits of an autogenous killed PRRS product when used in combination with a modified live virus PRRS vaccine to protect growing pigs from pneumoniae.

An atypical PRRS strain (PRRS strain SDSU 73) was obtained from a herd with severe reproductive problems and sow mortality. The isolate was grown, inactivated, and mixed with an adjuvant previously shown to provide optimal antibody titers to PRRS via the PRRS IDEXX ELISA.

Seventy-five PRRS negative pigs were randomly assigned to 5 treatment groups:

1. Autogenous PRRS only (2 doses)
2. Ingelvac PRRS MLV (1 dose)
3. PRRS MLV/PRRS Killed
4. Non-vaccinated challenge controls
5. Strict controls

Pigs in groups 1 and 3 were vaccinated at 3 and 6 weeks of age. Pigs in group 2 were vaccinated at only 3 weeks of age. All pigs in groups 1-4 were then challenged with virulent PRRS at 9 weeks of age. The challenge isolate used was homologous for the killed

autogenous vaccine and heterologous to the PRRS MLV vaccine. Fourteen days post-challenge pigs were necropsied. During the study sera was evaluated for PRRS antibodies (ELISA) and by virus isolation. At necropsy, severity of gross lung lesions were scored, lymph nodes weighed, lung lavages were collected, and IHC performed on lymph nodes and lung.

Following vaccination, any group exposed to MLV seroconverted by day 14 (S/P>1.0). The group exposed to killed vaccine had a S/P ratio around 0.4 prior to challenge exposure.

At necropsy, gross lung lesion scores were 26, 8, 6, 47, and 1.5% from groups 1-5, respectively. All groups receiving the MLV product had significantly (P<0.05) reduced lung lesions. There was no significant benefit noted using the killed product in combination with the MLV vaccine

Additional parameters to be presented include clinical scores, rectal temperatures, immunohistochemistry, and PCR/Virus isolation from lung lavages and sera.

In summary, use of a single dose of MLV PRRS vaccine provides heterologous protection against respiratory disease against a recent high virulence PRRS isolate. Use of a killed autogenous PRRS vaccine alone or in combination failed to provide protection or any added benefit.