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PRRSV IGM-IGA ELISA DETECTS INFECTION IN THE FACE OF CIRCULATING MATERNAL IGG ANTIBODY

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Introduction

Oral fluids (OF) are used extensively for PRRSV surveillance: qRT-PCR detects active infection and antibody ELISA is useful for establishing prior exposure. However, in weaned pig populations originating from PRRSV infected and/or vaccinated sow herds, colostral IgG cannot be differentiated from IgG produced by the pigs in response to infection. To address this problem, we developed and evaluated IgM- and/or IgA-specific oral fluid ELISAs as a means to detect PRRSV infection in weaned pig populations with circulating colostral antibody.

Materials & Methods

Antibody isotype-specific PRRSV ELISAs were evaluated using samples from two studies. Study 1: individual OF samples were collected from pigs housed under experimental settings and vaccinated with a commercial PRRSV MLV vaccine. OF were collected from days post vaccination (DPV) -7 to DPV 42. Study 2: OF samples were collected from 3 commercial wean-to-finish sites. Pigs originated from PRRSV vaccinated and/or exposed sow herds, but the pigs themselves were not vaccinated for PRRSV. Samples were collected weekly from every occupied pen for 9 samplings. All OF in Study 2 were randomized and tested by PRRSV qRT-PCR. OF samples from both studies were randomized and tested for IgG, IgA, IgM, and the combination of IgM-IgA using ELISAs developed in our laboratory.

Results

Study 1 showed that the combined IgM-IgA PRRSV ELISA provided better discrimination than individual IgM or IgA ELISAs. Study 2 confirmed the findings of Study 1 and showed that the IgM-IgA ELISA could detect antibody produced by pigs infected with wild-type PRRSV, despite the presence of maternal PRRSV IgG.

Discussion & Conclusion

Swine practitioners need both nucleic acid- and antibody-based tests to track PRRSV in the field. This study suggested that the PRRSV IgM/IgA ELISA could be used to detect active infection in populations of weaned pigs in the presence of circulating maternal antibody.