Diagnostic performance of a commercial PRRS serum antibody ELISA adapted to oral fluid specimens: longitudinal response in experimentally-inoculated populations

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Previous work (AAVLD abstract "Adaptation of a commercial PRRS serum antibody ELISA to oral fluid specimens") showed that a commercial PRRS ELISA (HerdChek® PRRS X3 ELISA) could be adapted to detect anti-PRRSV IgM, IgA, and IgG in oral fluid specimens. Further, the protocol for the IgG ELISA for oral fluid samples was readily amenable to the routine performance of the assay in high throughput diagnostic laboratories. This suggests the possibility of a cost-effective method to routinely monitor commercial swine populations for maternal antibody, vaccination compliance, and herd immune parameters using oral fluid sampling.

The purpose of the present study was to evaluate the ability of the PRRS oral fluid IgG ELISA to detect anti-PRRSV IgG antibody in pen-based oral fluid samples from experimentally inoculated pigs over time. In nine trials, ~200 pigs per trials were intramuscularly (IM) inoculated with PRRSV isolate NVSL 97-7895. Oral fluid samples were collected on 0, 5, 7, 9, 11, 14, 17, and 21 days post inoculation (DPI). All oral fluid samples were randomized and tested for anti-PRRSV antibodies using the PRRS ELISA protocol for oral fluids: 1:2 oral fluid sample dilution, 16 hour incubation at 4°C, reaction detected using anti-swine IgG_{FC}. Anti-PRRSV IgG antibodies were detected as early as 7 DPI and all samples were positive by DPI 9. These results indicated that the ontogeny of anti-PRRSV antibodies in oral fluid is amenable to rapid detection of infection. Testing based on oral fluids could provide an efficient, cost-effective approach to PRRSV monitoring in commercial herds and surveillance in elimination programs.