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PRRS virus antibody detection in oral fluid samples: The 1st generation PRRS oral fluid ELISA is ready for prime time

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Objective

The objective of this study was to adapt a commercial PRRS serum antibody ELISA to the detection of anti-PRRSV antibodies in oral fluids.

Experimental design

A series of experiments were performed using oral fluid specimens from swine populations of known PRRSV infection status to establish a protocol that optimized the detection of anti-PRRSV antibodies in oral fluid samples using a commercial ELISA for the detection of anti-PRRSV serum antibodies (HerdChek[®] PRRS 3X ELISA, IDEXX Laboratories, Inc., Westbrook Maine USA). Thereafter, test performance was assessed using oral fluid samples collected under experimental and field conditions.

Results

Although the oral fluids PRRS ELISA is not supported by IDEXX Laboratories or licensed by the USDA, the procedure can be performed by any diagnostic laboratory capable of performing ELISA assays. The optimized

procedure is based on changes in incubation time and temperature (16 hours at 4°C), sample dilution (1:2), sample volume (250 µl), and adjustments in kit controls and conjugate concentration.

Assessment of 367 negative samples (84 collected under experimental conditions and 283 collected from the ISU VDL from expected-negative herds) and 494 positive samples (253 collected under experimental conditions and 241 collected in the field from PRRSV-infected wean-to-finish barns) showed that a cutoff based on S/P ratio of ≥ 0.40 produced a diagnostic sensitivity of 94.7% (95% CI 92.4, 96.5) and diagnostic specificity of 100% (95% CI 99.0, 100.0).

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