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Differential diagnosis of wasting and respiratory disease in PCV2 vaccinated populations of pigs

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Introduction and Objectives

Porcine circovirus associated disease (PCVAD) is recognized as a global epidemic disease that causes significant economic losses to pig farmers throughout the world. Strong evidence from field and experimental studies has also linked PCV2 infection to other health problems. A current challenge is how to deal with disease diagnosis in a PCV2-vaccinated population with symptoms suggestive of PCVAD.[1,2]

Materials and Methods

Case 1 involved a PRRS and *Mycoplasma hyopneumoniae* (M. hyo) positive 2400 sow system and its downstream nurseries which experienced onset of clinical symptoms of failure to thrive and respiratory distress at 5 weeks of age. Pigs had been vaccinated for PCV2 at 3 weeks of age. Case 2 involved a PRRS and M. hyo positive 4800 sow system and its downstream nurseries. Pigs were vaccinated for PCV2 at 3 and 5 weeks of age and experienced clinical onset of wasting and respiratory symptoms at 6 to 8 weeks of age.

Neither farm uses PRRS vaccination in sows or pigs or PCV2 vaccination in sows. In both cases a blood sampling protocol was implemented with 50 sows of different parities and serially sampling 30 pigs at 7, 21, 35, 49, 63 and 77 days of age. Testing included PCV2 quantitative PCR (qPCR) and PRRS PCR.

Results

Case 1. All 50 sows were negative on the PCV2 qPCR test (<4 logs) while 9/50 (18%) were PRRS PCR positive. Only the 77 day of age pig group tested positive (≥4 logs) on PCV2 qPCR which was approximately 6 weeks after the onset of clinical symptoms. PRRS viremia was detected in 13-30% of pigs in most age groups including those prior to the onset of symptoms (Figure 1). **Case 2**. Forty nine of 50 sows tested negative (< 4 logs) on the PCV2 qPCR test while 3/50 (6%) were PRRS PCR positive. All pigs tested negative (<4 logs) on PCV2 qPCR up to 77 days of age. However, in further tests

PCV2 viremia was detected in 16-week old pigs. PRRS viremia was detected in 13-36% of pigs at 5-8 weeks of age around the time of symptoms onset (Figure 2).

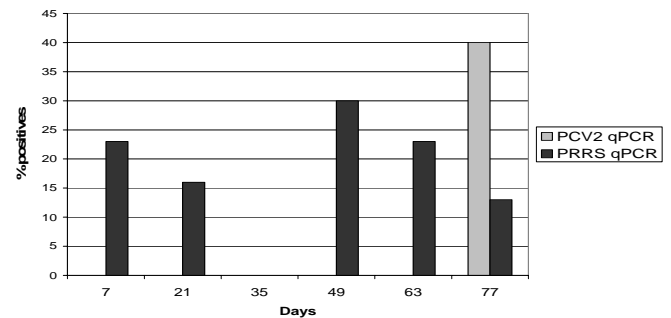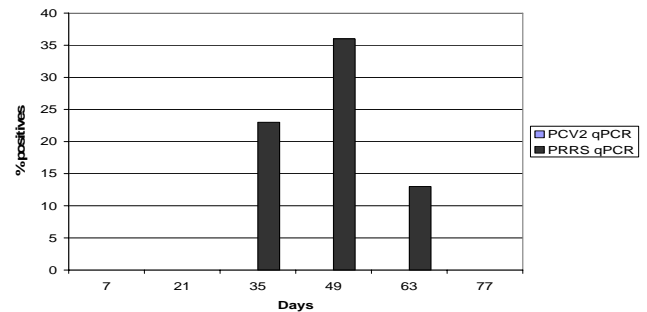**Figure 1.** Case 1- PRRS and PCV2 PCR pig sera testing results.

Figure 2. Case 2 - PRRS and PCV2 PCR pig sera testing results.

Conclusions

Even though the clinical presentation of pigs in both cases were similar to descriptions of PCVAD, PCV2 viremia (≥4 logs) was not found to be present prior to or during the onset of symptoms However PRRS viremia was confirmed in some sows and in pigs prior to or during the onset of symptoms in both cases. Clinical symptoms of wasting and respiratory disease are not specific to PCVAD, emphasizing the need for laboratory confirmation of presumptive clinical diagnoses.

References

1. Diaz, E. *Leman Swine Conf 2008. Suppl:*3.
2. Johnson, E et al. *Leman Swine Conf 2008. Suppl:*1.