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PCV2 prevalence in sow farms with acceptable vs unacceptable reproductive performance

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Introduction and Objectives

Sub-optimal reproductive performance (decreased born alive, farrowing rate, and wean-to-estrus interval) was observed in 5 sow sites over an 8 month period. PCV2 viremia was also observed in 7-8 week old pigs weaned from these sites. Circulating PCV2 viremia in sows was hypothesized to be a potential contributing factor. The objective of this study was to determine if the prevalence of maternal PCV2 viremia was a significant contributing factor to these observations by comparing PCV2 viremia prevalence between sow herds with acceptable vs unacceptable reproductive performance.

Materials and Methods

Sample size calculations were conducted to determine the number of animals that would need to be bled to detect 10% prevalence with 95% confidence. At each of the seven 400-500 sow sites, 110 sows were blood sampled. At the 1100 sow site 122 sows were bled, and at the 5000 sow site 135 sows were bled. Reproductive performance was acceptable at 4 and unacceptable at 5 sites. Quantitative PCV2 PCR (qPCR) results are reported as positive when viral titers exceed 10^4 (BI HMC in Ames, IA). Replacement gilts were typically vaccinated for PCV2 at 3 weeks of age. No testing for other agents was conducted. Fisher's Exact Test was used to compare means.

Results

All of the sampled sow sites demonstrated PCV2 viremia prevalence <9%. Viremia prevalence ranged from 0-5.43% in herds with acceptable reproductive performance (mean 2.22%) versus a range of 1.82-8.18% (mean 3.46%) in herds with unacceptable reproductive performance (Table 1). Means were not different (P=0.26).

Table 1. Prevalence of PCV2 viremia* in 9 sow sites as determined by quantitative PCR testing.

Site	Reproductive Status	Total #sows	# tested	PCR Prev
Site 1	acceptable	400	110	5.43%
Site 2	acceptable	500	110	2.73%
Site 3	acceptable	1100	122	0%
Site 4	acceptable	5000	135	0.74%
				Mean = 2.22%
Site 5	not acceptable	400	110	1.82%
Site 6	not acceptable	500	110	1.82%
Site 7	not acceptable	500	110	8.18%
Site 8	not acceptable	420	110	3.64%
Site 9	not acceptable	420	110	1.82%

Mean = 3.46%

*Quantitative PCV2 PCR (qPCR) results are reported as positive when viral titers exceed 10^4 .

Difference in means P value = 0.26, Fisher's Exact Test.

Conclusions

Prevalence of maternal PCV2 viremia at these sow sites was less than 9%. This finding is consistent with maternal PCV2 viremia prevalence in the USA prior to the introduction of PCV2 vaccines where sow site PCV2 viremia prevalence was determined to be 9%¹. Same-test prevalence across these herds was found to be consistent with the prevalence of sow sites surveyed prior to the availability of PCV2 vaccines. Although the number of herds evaluated was small, the prevalence of PCV2 viremia in sows in these 9 herds was not predictive of reproductive performance.

References

- 1.Boehringer Ingelheim Vetmedica, Inc. Technical Bulletin, 2008, An overview of a diagnostic project named MAGIC.