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Impact of modified live PRRS virus vaccine for control of PRRS in an endemically infected continuous flow finish site

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Introduction and Objectives

Porcine reproductive and respiratory syndrome (PRRS) in growing pigs is estimated to cost $5.60 - $7.60 per pig sold.[1] Experimental studies have demonstrated that modified-live PRRS virus (PRRSv) vaccine stimulates a protective heterologous immune response in growing pigs resulting in significant reduction of lung lesions, clinical disease and a significant improvement in average daily weight gain.[2,3] A recent study demonstrated the reduction of PRRSv transmission following a protocol of mass vaccination with modified-live vaccine in a population of pigs previously infected with a heterologous PRRSv isolate.[4] The present field study evaluated the impact of a modified-live PRRSv vaccine (Ingelvac® PRRS ATP, Boehringer Ingelheim Vetmedica, Inc., St Joseph, MO) for control of PRRSv in a large continuous flow finishing site where the virus maintained an endemic circulation pattern.

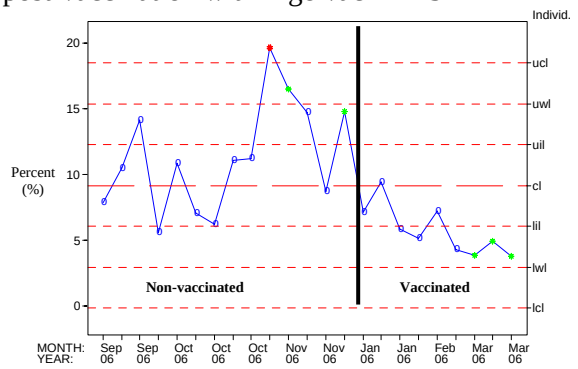
Materials and Methods

The study was conducted in a large commercial production system that utilized three-site production. The PRRSv status was classified as: *Site-1* Breeding Herds: PRRSv-negative; (no evidence of circulating PRRSv, weaning PRRSv PCR-negative offspring). *Site-2* Nurseries: PRRSv-negative; (no PRRSv seroconversion at 10 weeks of age). *Site-3* Finisher: PRRS active; (serologic and clinical evidence of PRRSv circulation due to horizontal transmission at the site). The finisher site was comprised of 16 barns that housed approximately 16,000 head of finishing pigs representing 16 weeks of continuous flow production. Pigs were uniformly PRRS ELISA-negative at 10 weeks of age (nursery exit) but 90% tested positive by 14 weeks of age. A protocol of mass vaccination of the PRRS-positive finishing site followed by vaccination of incoming pigs 2 days post-entry to the site was implemented. Statistical Process Control methods[5] were used to assess production performance.

Results

A significant reduction in total cull and mortality rates were observed following PRRSv vaccination (Figure 1). The average combined mortality and cull rate decreased from 11.36% (range=5.58-19.68%) pre-vaccination to 5.75% (range=3.76-9.43%) post-vaccination. Assuming a live market weight value of $50/cwt and $1/dose cost for vaccine, this results in a net benefit of $3.02 per pig placed.

Figure 1. Total cull and mortality rates pre- and post-vaccination with Ingelvac PRRS ATP



Conclusions

Mass vaccination of an endemically PRRSv-infected finishing population followed by vaccination of PRRS-negative pigs at finishing entry significantly improved biologic and economic performance of this large finishing site. We hypothesize that this is due to reduced PRRSv transmission following mass vaccination of the site, thereby allowing incoming vaccinates a greater opportunity for onset of vaccinal immunity prior to exposure. These field study findings support experimental observations.[4]

References

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