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Controlling PCV2 and co-infections to reduce the impact of PCVAD in growing pigs

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Introduction and Objectives

An essential component of porcine circovirus associated disease (PCVAD) is Porcine Circovirus Type 2 (PCV2) infection. Two key PCVAD co-infections are PRRS virus and *Salmonella*. Etiologic diagnosis of PCVAD in the study farm included PCV2, PRRS, SIV and *Salmonella*. This paper describes the use of multiple vaccines to control the infectious components of PCVAD.

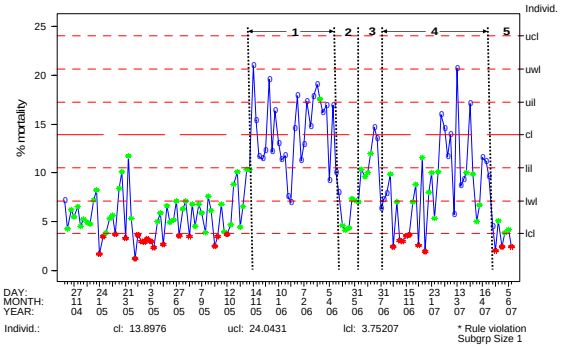
Materials and Methods

A three-site production system with finishing mortality rates averaging 5.2% (range=1.6-11.7%) observed average mortality rates increase to 13.9% (range=7-21%) after PCVAD was diagnosed. A piglet vaccination program targeted to control the PRRS and Salmonella co-infections began in spring 2006. Onset of PRRS exposure had been occurring in late nursery. To allow for adequate onset of immunity, piglets were vaccinated at weaning (~21 days of age) with a modified live PRRS vaccine (Ingelvac® PRRS MLV, Boehringer Ingelheim Vetmedica, St. Joseph, MO), and an avirulent live Salmonella vaccine (Enterisol® SC-54, BIVI). Piglet PCV2 vaccination (Ingelvac® CircoFLEX™, BIVI) was implemented at 6 weeks of age upon vaccine availability. Statistical process control methods were used to assess the impact on finishing mortality.

Results

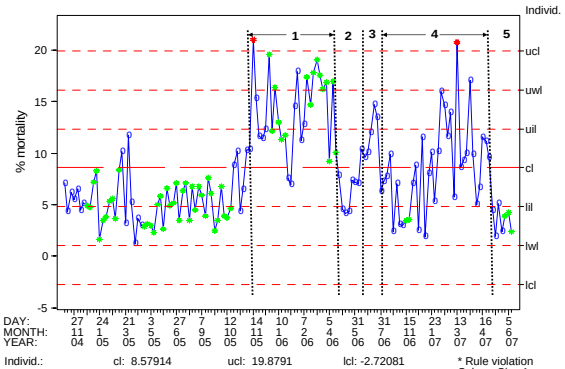
Average percent finishing mortality decreased significantly following implementation of PRRS and *Salmonella* vaccination. Mortality decreased from 13.9% during the four month PCVAD baseline period (Figure 1, period 1, range=7-21%) to 5.9% during the initial period of piglet vaccination (period 2, range=4.1-7.9%). When weanling piglets were confirmed to be viremic with wild-type PRRS field virus, PRRS vaccination was stopped for a brief period while the nursery was depopulated and average % finishing mortality increased to 11% (period 3, range=7.0-14.6%). Average percent finishing mortality decreased to 8.6% when the nursery was repopulated and properly timed PRRS vaccination was resumed (period 4, range=2.4-20.7%; mortality spikes in the latter half of period 4 due to swine influenza). When PCV2 piglet vaccination began, average % finishing mortality decreased significantly further to 3.5% (period 5, range=2-5%; Figure 2).

Figure 1. Percent finishing mortality - Period 1 used for control limit calculation to demonstrate signals in subsequent periods.



1.PCVAD diagnosed. 2.PRRS & Salmonella vaccination initiated. 3.PRRS confirmed at sow farm, PRRS vaccination stopped. 4.First pigs post-nursery depopulation and re-implementation of PRRS vaccination. 5.PCV2 vaccination initiated.

Figure 2. Percent finishing mortality – Period 4 used for control limit calculation to demonstrate signals in the subsequent period.



Conclusions

Controlling PRRS and Salmonella co-infections with vaccination significantly reduced mortality in the absence of PCV2 vaccination. Controlling PCV2 infection directly with PCV2 vaccination decreased mortality significantly further to levels at or below the pre-PCVAD period.