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PCV2: Experiences with sow and pig vaccination

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Introduction and history of PCV2 experience

The Pipestone Veterinary Clinic (PVC) is a mixed animal veterinary practice located in the city of Pipestone in southwest Minnesota. PVC has 12 veterinarians, seven of which are engaged almost exclusively in swine veterinary practice. PVC works for swine producers in 5 mid-western states, operates a sow farm management service (the Pipestone System) that manages 130,000 sows for private producer owners, and provides veterinary service to several local boar studs.

PVC first formerly recognized Porcine Circovirus Associated Disease (PCVAD) in 2005. The first cases were sporadic events of increased mortality in the early to mid finishing phase of production. Most cases were isolated events, many occurring in purchased pigs from Canadian or eastern US sources. Many cases were undiagnosed/unreported. At this point in time PVC did recognize PCVAD as a real disease entity, but did not recognize it as a major health issue in the practice.

The spring and summer of 2006 brought with it a significant increase in PCVAD cases. Cases were no longer considered "isolated", but were becoming consistent grow/finish challenges affecting pigs from common sources and finishing locations. Finishing mortality jumped from 2-5% to 6-10% + in many cases. Most pigs were affected from 12-18 weeks of age and unresponsive to antibiotic and other therapy. PVC's collective practice experience was consistent with what was being reported by others in the industry.

Summary of PCV2 vaccine use

PCV2 vaccine was first made available to PVC in late spring of 2006. Several small trials were initiated to test the efficacy of these products on affected herds/flows. Very limited amounts of vaccine were available at this time. Early results were promising.

From the very beginning, it was clear that the demand for vaccine in the practice was greater than the supply. PVC was forced to develop criteria for allocating PCV2 vaccine to clients. The goal was to utilize PCV2 vaccine in a way that was "fair", and in a way that would have the biggest impact on pig health. These criteria included:

- Confirmed PCVAD diagnosis by PVC veterinarian. Diagnosis requirements included:
  - Clinical signs consistent with PCVAD. Doubling of historical finishing mortality.
  - Gross lesions consistent with PCVAD
  - Microscopic lesions consistent with PCVAD, including presence of PCV2 in lesions
- Severity of historical PCVAD from source or site
- Age of pigs at the time of vaccine availability. Eligible pigs were 6 weeks of age or less.

A relatively small amount of PCV2 vaccine has been used at full dose in the practice.

Because of limited supplies and PVC's commitment of immunizing as many pigs as possible, partial dosing of vaccine was initiated early on. Full dose vaccine use was reserved for incoming breeding stock, particularly purchased isowean gilts, and for limited use in sows as a pre-farrow vaccination.

The bulk of vaccine has been used in commercial weaner to finish operations. Three distinct protocols/applications of vaccine have been used, based on vaccine availability and demand.

- PVC's initial recommendations
  - Vaccinate affected flows or sites only
  - Vaccinate pigs 3-6 weeks of age
  - Vaccinate with 1/2 commercial dose of vaccine
  - Use of both 1-dose and 2-dose products
- Demand dramatically outpaced supply in spring 2007. Change in vaccination dosage and procedure was required. PVC recommendations.
  - Vaccinate affected flows or sites only
  - Vaccinate pigs at weaning at the sow farm – primarily 1-dose product used
  - Vaccinate with 1/4 commercial dose rate
- Increase in supply of vaccine late spring and early summer 2007. Still not enough product to give full dose. Current PVC recommendations (at time of this writing).

- Vaccinate affected flows or sites only
- Vaccinate pigs at processing and at weaning on sow farm. 2-dose product used.
- Vaccinate with 1/2 commercial dose rate

PCV2 vaccine results

Sows

PCV2 vaccine was administered to approximately 18,000 sows in the Pipestone System from November, 2006 through January, 2007. There were no measurable changes or improvements in vaccinated sow and litter performance as measured by standard Pig Champ data analysis. Most pigs from vaccinated sows were vaccinated in the nursery so offspring finishing performance from vaccinated sows could not be measured.

1/2 dose post-weaning

Pigs given 1/2 dose of vaccine from 3-6 weeks post-weaning performed very well. In several instances vaccinated and unvaccinated pigs from the same source were placed on the same finishing sites. Out of roughly 10,000 pigs placed under this scenario, vaccinated pigs closed with 2.7 - 5.0% mortality while unvaccinated counterparts finished with 11.4 - 23.7% mortality. Clinical signs in most vaccinated groups were minimal to non-existent.

1/4 dose at weaning

At the time of this writing, pigs given 1/4 dose at weaning have not closed out. Results are preliminary at this time, and mostly clinical observations. It would appear that most groups getting 1/4 dose do not have "complete protection". Both mortality and prevalence of clinically affected pigs are running higher.

1/2 dose given twice pre-weaning

At the time of this writing pigs vaccinated under this protocol are in the early finishing phase. More results will follow.

Discussion

Based on results to date, 1/2 dose of commercial vaccine has provided acceptable improvements in clinical health and mortality when delivered at the appropriate age (less than 6 weeks of age). PVC continues to recommend at least 1/2 of manufacturer dose of vaccine to producers that are clinically challenged with PCV2.

PCV2 vaccination of sows is currently not being recommended. Lack of measurable results in the breeding herd and little or no data to support protection of offspring is cited. Limited vaccine supplies are being conserved for piglet vaccination.

Once sufficient quantities of PCV2 vaccine are available, PVC intends to begin vaccinating with 1 full dose of vaccine. PVC also intends to evaluate efficacy/performance of available products at full vs. partial doses. PCV2 vaccine will most likely become part of the "standard" vaccination protocol for commercial pigs fed in pig dense regions.