

Comparing Circovirus Vaccine Efficacy

Swine veterinarian Joe Connor found that all three circovirus vaccines performed well in recent trials.

Most hog operations with porcine circovirus type 2 (PCV2) also have a multitude of co-infections, namely porcine reproductive and respiratory syndrome (PRRS), swine influenza virus (SIV) and Mycoplasmal pneumonia. But clearly, PCV2 alone can dramatically impact mortality, morbidity, percentage marketed and average daily gain.

By Joe Vansickle
Senior Editor

Joe Connor, DVM, co-owner of Carthage (IL) Veterinary Service, Ltd., estimates that the federally approved circovirus vaccines provide a return on investment (ROI) of 6:1 to 8:1 in herds with co-infections, based on Kansas State research.



Joe Connor, DVM

He presented results of a wean-to-finish trial at a World Pork Expo seminar, sponsored by Fort Dodge Animal Health, in a herd naturally infected with

PCV2, but free of PRRS and SIV and stable for mycoplasma. The PCV2 vaccines yielded a 3:1 ROI.

“When it comes to cutting costs, circovirus vaccines are way down the list because response to infection is huge,” Connor comments. “There is a tremendous improvement in performance. Vaccines capture a lot of pounds and provide a return that is quite high compared to other interventions.”

Vaccine Trials

The 141-day trial ran from November 2007 to March 2008. A total of

1,200 weaned pigs were fed out in a typical, totally slotted, tunnel-ventilated, wean-to-finish barn featuring 40 pens, 30 pigs/pen at 7.5 sq. ft./pig.

The barn had a history of PCV2 infections; mortality six months ago was 27%.

The six treatment groups were:

- Suvaxyn PCV2 One Dose (Fort Dodge Animal Health) given at 3 weeks of age;

- Suvaxyn PCV2 One Dose administered at 5 weeks of age;

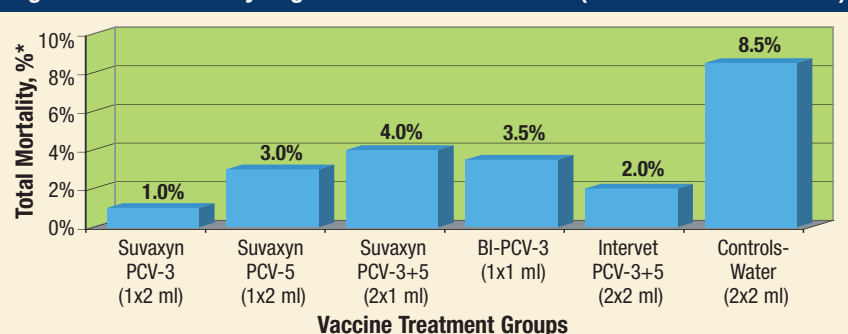
- Suvaxyn PCV2 One Dose given as a split dose at 3 and 5 weeks of age;

- Ingelvac CircoFLEX (Boehringer Ingelheim Vetmedica, Inc.) given at 3 weeks of age;

- Circumvent PCV (Intervet), a two-dose vaccine, administered at 3 and 5 weeks of age; and

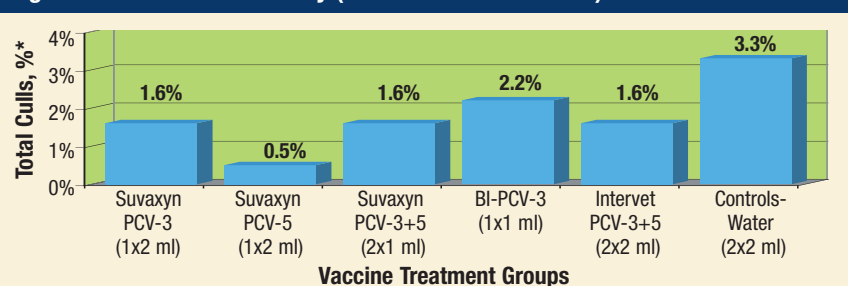
- Control pigs given sterile water

Figure 1. Total Mortality Regardless of Cause of Death (Circovirus Vaccine Trial)



*Statistically significant difference between each vaccinated group and controls ($P < 0.02$), but no statistically significant difference between each vaccinated group
Source: Data compiled by Joe Connor, DVM, Carthage Veterinary Service, Ltd., Carthage, IL.

Figure 2. Total Culls/Morbidity (Circovirus Vaccine Trial)



* Statistically significant difference compared to the controls ($P < 0.05$)
Cull = Final Weight < 200 lb.
Source: Data compiled by Joe Connor, DVM, Carthage Veterinary Service, Ltd., Carthage, IL.

injections at 3 and 5 weeks of age.

Twenty-five percent of the pigs that were randomly tested by serology at seven different intervals to determine antibody response and polymerase chain reaction (PCR) tests were analyzed for the age of pig infected with PCV2, length of PCV2 viremia (infection in the blood) and the PCV2 strain.

Performance Results

Connor says all three vaccines showed nearly equal efficacy “in mitigating clinical signs, but also reducing the amount of virus present and reducing the duration of shedding of the virus.”

Figure 1 illustrates what Connor refers to as the “clustering effect” of vaccinated pigs vs. control group pigs for

impact on mortality. Suvaxyn One Dose given at 3 weeks of age led the pack with 1.0% mortality, followed by Intervet’s Circumvent PCV with 2.0% mortality.

For morbidity rates, based on total pigs culled that were under 200 lb. (Figure 2), vaccine results were again similar. Suvaxyn’s One Dose given at 5 weeks of age led with 0.5% morbidity.

All five groups of vaccinates showed marked results in finishing close to 95% of pigs on test, compared with 88% of control pigs.

The serological summary indicated an excellent response to vaccination. PCRs indicated excellent natural PCV2 virus infection in controls and much more rapid clearing of the virus in vaccinated pigs. The differential PCR tests

indicated that both PCV2a and PCV2b strains were present with PCV2b the most prevalent strain.

Connor stresses that as good as the vaccines are in beating down PCVAD (porcine circovirus-associated disease), the industry is challenged in keeping PCV2 out of the building environment to prevent reinfection. He says sanitation and hygiene and all-in, all-out pig flows should still be the hallmark of biosecurity programs.

Some pigs clear the virus relatively slowly, leaving “seeders” to contaminate facilities for the next group.

PCV2-viremic pigs can increase difficulty of disease control because the hardy virus can be shed and easily live in barns/farms and transport trucks. **NHF**

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