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# Comparative efficacy of various PCV2 and *Mycoplasma hyopneumoniae* vaccination protocols under commercial field conditions

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Dakota Superior Sow Farm, a 3200 sow farrow to wean facility located near Pipestone, MN had a history of PCVAD and Mycoplasma. The ownership had decided to combine a half dose of RespiSure One (Pfizer Animal Health) with a full dose of Circumvent PCV2 (Inter vet-Schering/Plough Animal Health) at processing (4-5 days of age) and weaning (17-22 days of age) to try and control these two diseases. The system is PRRSv positive, but stable (producing PRRS PCR negative weaned pigs) and *Mycoplasma hyopneumoniae* positive, with Mycoplasma pneumonia occurring at some finishing sites. The off site finishers had consistently suffered PCVAD losses, until a vaccination program was initiated. The PCVAD losses occurred exclusively in finishing units, with the onset of clinical expression starting at ~12-13 weeks of age and peak of mortality at ~16-17 weeks of age. The mortality rate in finishing had been approximately 10-15% prior to vaccination being implemented. No reproductive or nursery problems have been reported. Since starting the vaccination program, mortalities and clinical signs had been reduced in the finishers. Owners and management were interested in determining if using a single dose vaccination program with CircoFLEX mixed with MycoFLEX (both from Boehringer Ingelheim Vetmedica Inc.), would be statistically different from their current two dose vaccination program. They also wanted to measure the effectiveness of a split dose program of using one half dose of CircoFLEX and MycoFLEX at processing and at weaning in comparison to their current protocol.

The study was conducted at the Dakota Superior Sow Farm and at the Windy Ridge Anderson site, a conventional 2 stage nursery-finisher facility located near Garretson,

South Dakota. Pigs were housed in commercial barns typical of industry standards seen today. Vaccinations, tagging and the first two weighings occurred at the Dakota Superior Sow Farm. Pigs were moved at weaning to a 3 barn facility called the Anderson site. The nursery was depopulated from previous groups of pigs prior to experimental pigs entering the site. Pigs were first housed in a power ventilated 2 room nursery for 40 days. From day 40-day to day 150 pigs were housed in two finishing barns. The finishing barns were curtain-sided total confinement facilities with totally slatted cement flooring and ventilated deep pits.

Pigs were allocated to treatment group based upon sow parity information. Approximately 400 pigs were assigned to each treatment group. The sow data was blocked by parity and randomized into five treatment groups. Pigs were double ear tagged at processing and randomized by pen placement in nurseries and finishers with all five treatment groups represented in each pen. Final weighing occurred as close as possible to first pigs being sold to market. Wean to finish final weight performance and nursery exit weight to finish final weight performance was evaluated along with mortality, culls and viremia. (Table 1)

No relevant differences were observed between treatment groups during the nursery phase. Clinical PCVAD was observed in the finishing barns and was confirmed by diagnostics. Viral loads at 16 and 22 weeks of age were statistically lower than controls for groups 1 and 4 pigs, but were not different between these two groups. Clinical and serological results revealed that the pigs did not have a significant *Mycoplasma hyopneumoniae* challenge, and

**Table 1:**

Group	Treatment
1	Full dose CircoFLEX-MycoFLEX at weaning
2	Full dose CircoFLEX-MycoFLEX at 5 days of age
3	Half dose CircoFLEX-MycoFLEX at 5 days of age and weaning
4	Full dose Circumvent-Half dose RespiSure One at 5 days of age and weaning
5	Controls (no vaccine)

so comparisons between the *Mycoplasma* fractions of the vaccines used could not be made. (Table 2)

## Conclusions/Discussion

- CircoFLEX-MycoFLEX administered at 5 days of age was not statistically different than controls
- All other vaccination programs (Groups 1,3, and 4) produced better rate of gain and cull results than controls
- CircoFLEX-MycoFLEX at weaning (Group 1) was the only group that was statistically different than controls for all three performance parameters evaluated (gain, mortality and culls)..
- Comparative efficacy of *M. hyo* could not be measured, but remains an important consideration in choosing a circovirus/mycoplasma vaccination protocol.

**Table 2:**

Group	Average daily gain*	Mortality%**	Cull %***
1	1.59 <sup>a</sup>	1.3 <sup>a</sup>	5.7 <sup>a</sup>
2	1.50 <sup>b</sup>	3.8 <sup>b</sup>	12.2 <sup>b</sup>
3	1.64 <sup>a</sup>	3.0 <sup>ab</sup>	3.7 <sup>a</sup>
4	1.63 <sup>a</sup>	5.1 <sup>b</sup>	4.6 <sup>a</sup>
5	1.45 <sup>b</sup>	3.7 <sup>b</sup>	15.3 <sup>b</sup>

\* Values in columns with different letters are significantly different at  $P < 0.0001$ .

\*\* Values in columns with different letters are significantly different at  $P = 0.02$ .

\*\*\* Values in columns with different letters are significantly different at  $P < 0.0001$ .

