

Bulletin

Boehringer Ingelheim Vetmedica, Inc.

TECHNICAL

Impact of Ingelvac® PRRS ATP on performance in commercial finishing pigs with natural exposure to heterologous PRRSV – a field trial evaluation

Controlled experimental studies have demonstrated that modified-live virus (MLV) PRRS vaccine can stimulate a protective immune response that generates significant protection against heterologous PRRSV challenge when pigs are vaccinated at least 4 weeks prior to field virus exposure. In these studies, vaccinated pigs demonstrated a significant reduction in clinical disease, gross and microscopic lung lesions, post-challenge viremia, and improvement in ADG.^{1,2} A relevant question in the field is: “Can modified-live virus PRRS vaccine achieve similar results when applied in the field as those experienced in controlled experimental studies?”

This is a summary of a large field trial designed to evaluate the impact of Ingelvac® PRRS ATP, a modified-live virus PRRS vaccine, for control against heterologous PRRSV in commercial finishing pigs as measured by performance (ADG, F/G, total cull/mortality).

Study Design and Methods:

The study was designed for a large commercial production system that utilizes a 3-site production strategy. The PRRSV status was classified as:

- Site-1 Breeding Herds: PRRS positive and stable; (no evidence of circulating PRRSV and weaning PRRSV negative offspring)
- Site-2 Nurseries: PRRS inactive; (no evidence of PRRS seroconversion at nursery sites, pigs routinely bled at 10wks of age to assess and classify nursery status)
- Site-3 Finishers: PRRS active; (serologic and clinical evidence of PRRSV circulation)

The study was designed with 8 replicate groups of vaccinated pigs and non-vaccinated control pigs in a side-by-side comparison. Each group represented approximately 8,000 pigs in a nursery group. Each vaccinated nursery group was combined with a non-vaccinated nursery group to fill a 16,000 pig finishing site, representing one replicate. The integrity of each treatment group (vaccinates and non-vaccinates) was preserved when transferred to the finishing sites. The study comprised a total of over 128,000 pigs.

Pigs were vaccinated with Ingelvac® PRRS ATP intramuscularly at 7 weeks of age while at the nursery site. Timing of vaccination was targeted to be at least 4 weeks prior to exposure to heterologous field virus at the finishing sites. Production performance data of vaccinates and non-vaccinated controls at the finishing site were recorded and used as measurement criteria to assess the impact of vaccine for control of PRRSV in finishing pigs. Production data used for evaluation in this study included: average daily gain, feed conversion, and percent mortality and culls. As with any field study, the number of replications can be a limiting factor. With limited replicates, this production system was able to achieve 80% confidence of statistical difference for the production data evaluated.

Results:

Economically significant improvements in average daily gain, feed conversion, and percent mortality and culls were achieved in the Ingelvac® PRRS ATP vaccinated pigs compared to the non-vaccinated control pigs (Table 1). Assuming \$45/cwt live hog market and \$120/ton finishing feed costs, the total benefit per pig vaccinated with Ingelvac® PRRS ATP for this trial was \$3.03/pig.

Table 1: Summary of ADG, Feed Conversion, and Percent Mortality and Cull differences between Vaccinated Treatment Groups and Non-vaccinated Control Treatment Groups

Performance parameter	Unit	Difference	Net change	Benefit per pig
Average Daily Gain	lbs/day	+0.05	6 lbs/pig ¹	\$1.54
Feed Conversion	feed/gain	-0.08	18 lbs feed ²	\$0.77
Total Removals (mortality and culls)	percentage	-1.25	800 more pigs marketed ³	\$0.72

¹ adjusted to 120 day feeding period

² adjusted for 225 lbs weight gain

³ standardized to 64,000 head per treatment group

Key Points

- **Appropriately implemented, Ingelvac® PRRS ATP effectively controlled PRRSV in finishing pigs of a large commercial production system.**
- **Production performance benefits from vaccination are an increase in ADG, an improvement in feed conversion, and a reduction in mortality and culls.**
- **Ingelvac® PRRS ATP intervention for control of PRRSV in finishing pigs achieved a benefit of \$3.03/pig.**

Take Home

- **The appropriate implementation of modified-live virus PRRS vaccine for control of PRRS in growing pigs can provide effective control and achieve improved production performance yielding a positive return on investment.**

References:

1. Opriessnig T., Pallares F.J. Nilubol D., Vincent A.L., Thacker E.L., Vaughn E.M., Roof M., Halbur P.G. Genomic homology of ORF 5 gene sequence between modified live vaccines and porcine reproductive and respiratory syndrome virus challenge isolates is not predictive of vaccine efficacy. *Journal of Swine Health and Production*. In Press.
2. Roof M., Vaughn E.M., Burkhart K.M., Faaberg K.S. Efficacy of Modified Live Virus Porcine Reproductive and Respiratory Virus Vaccines Against Heterologous Respiratory Challenge. Proceedings 4th International Symposium on Emerging and Re-emerging Pig Diseases. Pg 117-118. 2003