IMPROVED GROWING PIG PERFORMANCE IN A LARGE PRODUCTION SYSTEM APPLYING AN INTENSIVE MANAGEMENT AND VACCINATION PROTOCOL

DALE POLSON¹, R.B. BAKER², REID PHILIPS¹, BRIAN HOTZE²
¹Boehringer Ingelheim Vetmedica, St. Joseph, Missouri USA
²Iowa State University, Ames, Iowa USA
dale.polson@boehringer-ingelheim.com

Introduction
A multi-faceted intensive system-wide PRRS virus management project was designed and executed within a large commercial production system in the USA. We report here the growing pig performance impact of that intervention plan.

Materials and Methods
Where possible, growing pig flows were single sourced, and 10 nursery barns receiving pigs from 12 sow farms were depopulated. However, due to the physical structure of the system two large wean-to-finish sites could not be depopulated and co-mingling pigs at weaning from subsets of three, three and seven (13) of the 22 sow farms could not be avoided.

Pigs were flowed through the system all in / all out at the barn (airspace) level but, due to the physical structure of the system, all sites were limited to continuous flow operation.

Except for the PRRS-naïve boar stud, and observing appropriate vaccine slaughter withdrawal requirements, the entire populations at all breeding animal sites and growing pig sites were mass vaccinated with a commercially available modified-live PRRS vaccine at approximately day 0 and day 30 of the project. After day 30, growing pigs were routinely vaccinated at 7 and 37 days after weaning thereafter. All breeding herds and developer gilts were mass vaccinated again on day 90. After day 90 all breeding herds were vaccinated every 3 months and all naïve replacement gilts were vaccinated twice 30 days apart prior to breeding herd entry.

Beginning at approximately 150 days after the initial day 0 mass vaccinations and approximately 90 days after initiation of regular growing pig double vaccination, growing pig barn hospital pens were targeted for sampling at roughly 60 day intervals. Four hospital pen pigs were sampled per barn and these samples were pooled. A PRRS PCR test was then run on the pooled sample. ORF5 sequencing was conducted on multiple PCR-positive pools from each site and flow by blinded personnel at the testing laboratory.

Commercially available software (Minitab 14 for Windows) was used for statistical analyses.

Results
Weaning to market survival rates for closeout groups following the intervention increased 4.86% – from a mean of 87.49% to 92.35% – with less variation post-intervention – from a standard deviation of 3.57% to 2.19% (Figure 1) – when compared to pre-intervention groups. Average Daily Gain (ADG) also increased post-intervention for nursery pigs by 50.1 grams/pig/day and finishing pigs by 84.3 grams/pig/day (Figure 2).

Figure 1: Xbar chart of the growing pig proportion marketed of pigs weaned over 22 x 8 week periods prior to [1] and 10 x 8 week periods following [2] implementation of a PRRS intervention plan.

Figure 2: Xbar chart of finishing group close-out average daily gain before/after the process change.

Discussion
The combination of initial intensive mass vaccination with ongoing intensive vaccination system-wide, and, where possible, nursery depopulation, single sourcing of weaned pigs and barn-level all in / all out pig flow appears to have contributed to a significant increases in pig survival from weaning to market as well as improved average daily gain for both nursery and finishing pigs. Further, the proportion of wild-type field virus sequences significantly decreased (p<0.05) during the third seven month period following the initial mass vaccinations; and there was a significant shift (p<0.05) in the predominant wild-type PRRS viruses found.

The combination of initial intensive mass vaccination with ongoing intensive vaccination system-wide, and, where possible, nursery depopulation, single sourcing of weaned pigs and barn-level all in / all out pig flow appears to have contributed to a significant reduction in the proportion of wild-type field virus as well as significant improvements in pig performance.

References
Zar J.; Biostatistical Analysis, 4th Ed; p564 (1999)