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Project title: Effect of attenuated PRRSv on short term and long term whole herd productivity

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Assessment of production impact following attenuated PRRS virus vaccination in endemically infected breeding herds

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Introduction

Porcine reproductive and respiratory syndrome virus (PRRSv) continues to cause significantly higher cost of pig production due to reproduction losses and reduced growth performance (Holtkamp et al., 2013). The objective of this study was to describe changes in productivity following PRRS modified-live virus (MLV) vaccination on PRRSv-stable breeding herds adopting a quarterly vaccination program.

This information will provide information to best feed the existing economic models to assist swine veterinarians to take informed decisions regarding the use of PRRSv MLV vaccine as a preventive tool.

Materials/Methods

Study design. Breeding herds without unstable PRRSV or PEDV infection, and that were adopting preventative PRRS vaccination program using a MLV vaccine (PRRS Ingelvac MLV, PRRS Ingelvac ATP, or Fostera PRRS) were enrolled in the study. Five key performance indicators (described below), changes in PRRS status, and vaccination dates were recorded. Significant changes in the production indicators were measured using statistical process control methods.

Production parameters. The following parameters were recorded: number of aborts /week, pre-weaning mortality rate per week, prenatal losses (total born minus born alive per litter) per week, total pigs weaned per week, and wean to first service interval. All parameters were adjusted to per 1,000 sows. Data from participating herds was organized into a single database for SPC analysis in SAS.

Breeding herds and vaccinations. Eight breeding herds adopting quarterly vaccinations for PRRS were enrolled. Herds were followed for a period of 2 years.

Data analysis. SPC analysis was performed using the exponentially weighted moving average (EWMA) method using the PROC MACONTROL of SAS 9.4, as previously described (Linhares et al., 2014). More specifically, we used a sigma of 3.0 and lambda of 0.4. Baseline levels were herd- and production parameter-specific, using a 21 weeks period. Time zero initiated at the week of PRRS vaccination with a PRRS MLV product.

Results and Discussion

The study included 64 herd-vaccinations. The median and interquartile range (25th and 75th percentiles, respectively) between vaccinations were 13.5, and 12 to 15 respectively.

The median (interquartile range) for increased abortions, prenatal losses, preweaning mortality, total pigs weaned/week, and wean to 1st service interval were 0.0 (0.0 to 4.8), 0.0 (0.0, 0.2), 0.0 (0.0, 8.0), 0.0 (0.0-0.0), and 0.0 (0.0, 0.0) respectively.

Under the conditions of this study, mass vaccinating breeding herds for PRRSv using MLV vaccine had little impact on the five production parameters. More research needs to be done with PRRS-naïve farms using MLV vaccination for the first time as an intent to minimize losses following outbreak with wild type PRRSV.

Next steps

Additional statistical analysis are being conducted to assess the statistical significance of the numeric differences that were observed in this study. The final report will be available by March 1, 2018.

Acknowledgements

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References

Holtkamp, D., Kliebenstein, J., Neumann, D., 2013. Assessment of the economic impact of porcine reproductive and respiratory syndrome on United States pork producers. J Swine Health Prod 21, 72-84.

Linhares, D.C., Cano, J.P., Torremorell, M., Morrison, R.B., 2014. Comparison of time to PRRSv-stability and production losses between two exposure programs to control PRRSv in sow herds. Prev Vet Med 116, 111-119.