Sponsors

We thank the following sponsors:

Platinum
Bayer Animal Health
National Pork Board
Pfizer Animal Health

Silver
Boehringer Ingelheim Vetmedica, Inc.

Bronze
Cargill
Merck Animal Health
Novartis Animal Health

Copper
AgStar Financial Services
Elanco Animal Health
IDEXX
Newport Laboratories
PIC USA
PRRS CAP

University of Minnesota Institutional Partners
College of Veterinary Medicine
University of Minnesota Extension
College of Food, Agriculture and Natural Resources Sciences

Formatting
Tina Smith Graphics
www.tinasmithgraphics.com

CD-ROM
David Brown
www.davidhbrown.us

Logo Design
Ruth Cronje, and Jan Swanson;
based on the original design by Dr. Robert Dunlop

Evaluation of PRRS modified-live virus vaccine on viral shedding

Daniel Linhares[1]; Joel Nerem[2]; Montserrat Torremorell[1]; Scott Dee[2]

[1]Swine Disease Eradication Center, University of Minnesota, College of Veterinary Medicine, St. Paul, Minnesota; [2]Pipestone Veterinary Clinic Pipestone, Minnesota

Introduction

There are ongoing efforts to eliminate porcine reproductive and respiratory syndrome virus (PRRSv) from regions in North America. However, a major challenge faced by those efforts is the infection or re-infection of swine herds due to PRRSv area spread particularly in high pig density areas. The objective of this study was to evaluate the effect of PRRS modified-live virus (MLV) vaccine on viral shedding and dynamics of infection in pig populations raised under commercial conditions.

Materials and methods

The study composed of two rooms of 1,000 pigs each in a wean-to-finish barn. Ten percent of pigs of each room were inoculated with a field PRRSv isolate (cut-pattern 1-18-2). Rooms had separate air spaces and strict scientifically validated biosecurity protocols were utilized to avoid transmission of pathogens between rooms. Treatments consisted of a challenged-vaccinated room and a challenged-unvaccinated control group. At 8 and 36 days post inoculation (dpi), all pigs in the challenged-vaccinated group received Ingelvac® PRRS ATP vaccine (Boehringer Ingelheim Vetmedica Inc). Pigs of the challenged-control group were sham-inoculated with saline at the same days. One aerosol sample per day was collected from each room 6 times per week from 0 to 118 dpi and were tested for PRRSv RNA using qPCR assay. Blood and oral fluid samples were collected at 0, 8, 36, 70, 96 and 118 dpi for PRRSv PCR and ELISA. Additionally, tonsil-scraping samples were collected from both groups at 70, 96 and 118 dpi and tested by PCR.

Results

There was no significant difference in the PRRSv infection dynamics measured as duration and magnitude of viremia and seroconversion between groups. However, there was a significant difference in PRRSv shedding between groups. PRRSv was detected in aerosol samples 31 days in the challenged-control group and 17 days in the challenged-vaccinated group ($P = 0.0004$). PRRSv was last detected in the challenged-control group on day 70 while the last PRRSv detection in the challenged-vaccinated group occurred on day 45. At 36 dpi, 6/6 oral fluid samples in the challenged-control group tested PCR-positive and 2/6 tested positive in the challenged-vaccinated group ($P = 0.03$).

Conclusions

Under the conditions of this study, the use of MLV vaccine post infection lead to reduction of PRRSv shedding and dissemination. The cumulative PRRSv-RNA detected in aerosol samples was significantly lower in the challenged-vaccinated population. This group had also significantly less PRRSv-positive oral fluid samples at 36 dpi.

Acknowledgements

This study was funded by University of Minnesota Swine Disease Eradication Center (SDEC), Boehringer Ingelheim Vetmedica and Pipestone Veterinary Clinic.

Daniel Linhares; Joel Nerem; Montserrat Torremorell; Scott Dee