Seriological evaluation of two different schemes of mass herd vaccination using modified live vaccine (MLV) in a PRRSV control program

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Introduction and Objective:

Porcine reproductive and respiratory syndrome virus (PRRSV) produces reproductive and respiratory disease in sows and pigs(1), Herd mass vaccination has demonstrated to be an effective tool to stabilize the sow herd; therefore improving reproductive efficiency and allowing the production of naïve pigs at weaning (2,3).

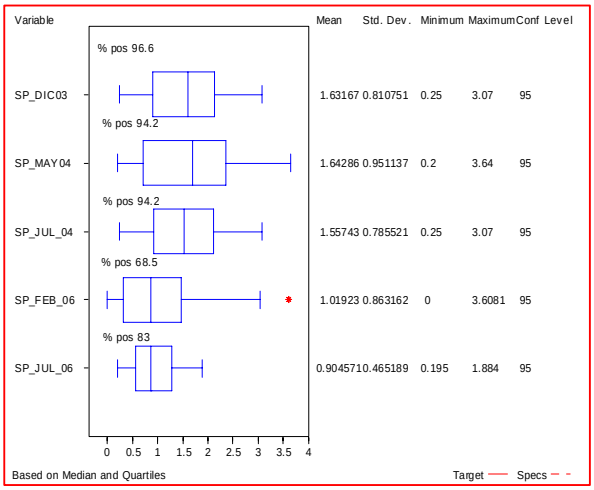
The objective of this study was to monitoring the serological response on two different schemes of mass herd vaccination with Modified Live Vaccine (Ingelvac® PRRS MLV).

Material and Methods

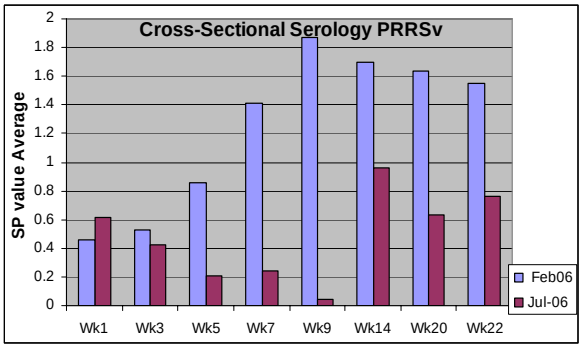
The study was conducted in a 1200-sow farrow to finish herd in the state of Sonora, in the north-western part of Mexico. In 2004, bi-annual mass vaccination against PRRSV was started on the herd using PRRS MLV vaccine (Boehringer Ingelheim Vetmedica, St. Joseph, Mo, USA). In February of 2006, in an attempt to reinforcement the PRRS virus herd stabilization and the reduction of the variation of serological S:P values , a new mass vaccination program using PLE + PRRS (ReproCyc®PRRS-PLE, Boehringer Ingelheim Vetmedica, St. Joseph, USA) was added every 6 months to the existing program. Therefore mass vaccination of the herd was done every three months. Serologic profiles of the sow herd (n=60) were performed in 2003 before the vaccination process began, in 2004 and 2006. In the growing pigs, the serological evaluation was done before and 5 months after the new vaccination strategy was implemented. A cross sectional profile was performed by sampling five pigs of 1, 3, 5, 7, 9, 14, 20 and 22 weeks of age. Serum samples were analyzed by IDEXX ELISA 2XR test (HerdChek PRRS ELISA; IDEXX Laboratories, Westbrook, Maine). Titters were expressed as sample: positive (S:P) ratios, with values ε0.4 considered positive.

Results

The serological profile changes of the sow herd are presented on graph 1. The box plot (*NWA Quality Analyst 5.2)* analysis shows the variation of S:P values in time before and after the vaccination strategy change. Graph 2 shows the cross sectional serological profile changes of growing pigs before and after the vaccination change.



Graph 1. Box plot analysis of the sow herd's serological profiles changes from December 2003 to July 2006.



Graph 2. Cross sectional serological profile of growing pigs in February 2006 and July 2006, 5 months after new vaccination strategy

Discussion and Conclusions

The evaluation of different serological profiles in the sow herd show an important reduction of standard deviation in S:P values after of the reinforce of the herd mass vaccinations from every 6 months to every 3 months. Effective herd stabilization can be corroborated by the negative ELISA results in the nursery pigs throughout the 70 days stage (graph 2). The results of this study show the efficacy of mass herd vaccination to stabilize the sow herd and to production of naïve weaned pigs, allowing a better assessment of control tools of PRRSV in growing pigs. The monitoring evaluation of the variation of SP values by standard deviation proposed in this study could be a practical and effective tool for practitioners in field to determinate and monitoring the PRRS virus stability in sow herd.

References

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