

Influence of Ingelvac® PRRS MLV vaccination on variability of S/P values serology in a breeding herd



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INTRODUCTION

PRRS modified live vaccine plays an important role in controlling Porcine Reproductive and Respiratory disease. Serology is a readily available monitoring tool to assess PRRS exposure dynamics in herds under a PRRS stabilization program. This paper describes SP value variation over 5 years in a farrow to finish farm applying Ingelvac® PRRS MLV (Boehringer Ingelheim, St. Joseph, MO, USA) as a primary tool to achieve stabilization.

MATERIALS AND METHODS

The study was conducted in a 13-year old, single-site farm with 1500 sows \ located in east China. In 2006, this farm suffered an outbreak with highly-pathogenic PRRSV (HP-PRRSV). The main symptoms were abortions and high mortality in suckling and nursery pigs. Weaned piglets per sow per year declined in 2008 to 16, and nursery pigs were clinically unstable. In February 2009, Ingelvac® PRRS MLV was implemented in a whole herd approach to control the virus. The breeding herd was mass vaccinated every three months while piglets were vaccinated at 14 days of age. One hundred blood samples, annually distributed among and 20 each from partities 1-2, 3-4, 5 and 6+, respectively, were collected and serum tested by IDEXX PRRS ELISA (IDEXX Laboratories, Westbrook, ME, USA) at the Anhui Agricultural University. These S/P values were analyzed at the beginning of MLV implementation in 2009 and during the control program (2010-2014) during the summer season annually. The analysis was performed with MINITAB 16.2.3 (State College PA USA), SP values using BoxPlot chart and Kruskal-Wallis analysis. Descriptive statistics of performance values was also performed.

RESULTS

Figure 1 demonstrates a clear reduction of variability of SP values at each sampling point. As indicated by the interquartile range and minimum/maximum points. The interquartile range declined from 1.14 to 0.60. The median S/P value was also statistically significant reduced over this time from 1.84 to 0.61 (Table 1). The reduction in S/P variation was associated with productivity improvements associated with improved PRRSV control (e.g. 3.1 more PSY and reduced growing mortality from 4.3% to 1.5%). These improvements were achieved in spite of outbreaks fo Porcine Epidemic Diarrhea (PED) and Aujeszky's disease in 2011 – 2012.

Figure 1: Mean value and variation of S/P value of the herd from 2009 to 2014

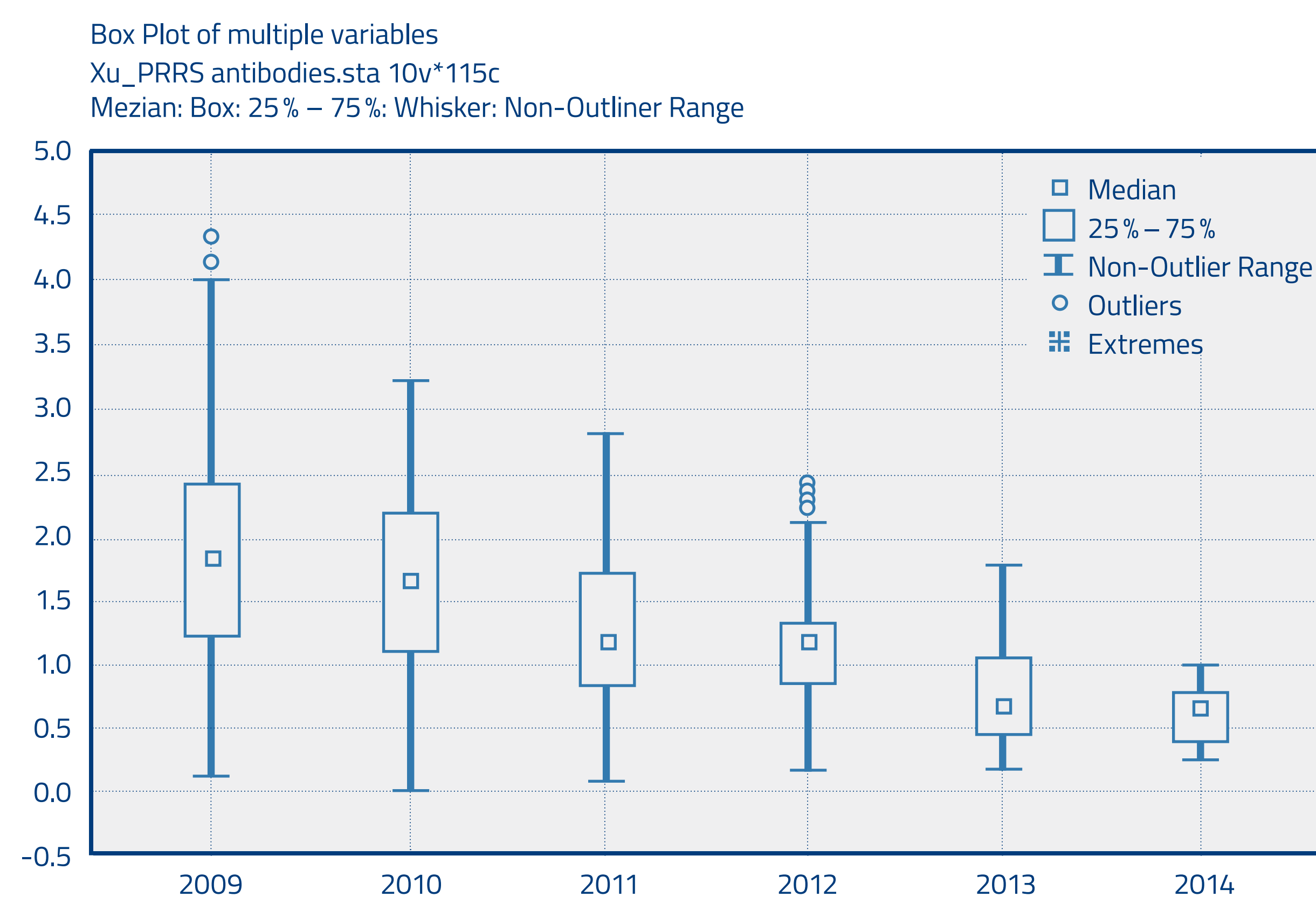


Table 1: Values of S / P ratio and Performance

	2009	2010	2011	2012	2013	2014
% Positive	99%	94%	92%	97%	78%	75.7%
SP value Median	1,841a	1,661a	1,162b	1,174b	0,713c	0,606
Standard Deviation	0.919	0.727	0.628	0.436	0.377	
InterQuartile Range	1.141	1.133	0.946	0.518	0.600	
Weaned pigs per sow	22.5	23.7	24.6	24.3	25.1	25.6
Growing Mortality	4.3%	3.1%	2.2%	2.4%	1.8%	1.5%

DISCUSSION

Breeding herd stability can be defined as a cessation of PRRS virus circulation in the breeding herd. This is an important milestone in a PRRS control program. Considering that IDEXX PRRS ELISA measures serologic response to exposure, the reduction in both the median value and variation in the S/P ratio can be interpreted as a reduction of circulation-exposure to the resident virus and reflects a successful stabilization process. This farm has been using Ingelvac® PRRS MLV since 2009 to successfully control PRRSV and improve performance. A BoxPlot analysis is an innovative and practical way to utilize serologic results to evaluate stability in vaccinating breeding herds.

REFERENCES

1. Angulo J. EUROPRRS proceedings. 2012.

