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COMPARISON OF THE FIELD EFFICACY OF PRRSV1 AND PRRSV2 COMMERCIAL PORCINE REPRODUCTIVE AND RESPIRATORY SYNDROME VIRUS VACCINES AGAINST PRRSV2 IN TAIWAN

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INTRODUCTION

Various Modified Live Virus (MLV) vaccines are commercially available, and several studies have shown not only good efficacy of MLV vaccines against challenge with homologous strains but also partial protection against challenge with heterologous strains, whereas others have found poor cross-protection[1]. Genomic homology between the PRRS MLV vaccine and the infecting strain in terms of the ORF5 gene sequence is not a good predictor of vaccine efficacy[2]. The purpose of this study was to compare the efficacy of using 2 commercial PRRS MLV vaccines containing PRRSV1 and PRRSV2 strains in a Taiwanese pig farm endemically infected with PRRSV2.

MATERIALS AND METHODS

The trial was conducted in a PRRSV2 infected unstable farm in Taiwan with a PRRS outbreak registered in August 2017 which resulted in severe losses: 25% (200/800) sow herd mortality and respiratory symptoms in nursery pigs.

Whole herd vaccination with PRRSV2 and PRRSV1 (UNISTRAIN® PRRS, HIPRA) vaccines [group A (700 sows) and group B (700 sows) respectively] was performed, following a mass vaccination program 4 times/year after basic vaccination.

Group A also involved 6,510 piglets vaccinated at one week of age with PRRSV-2 vaccine, from January to June 2018. Group B, also involved 7,093 piglets vaccinated at one week of age with UNISTRAIN® PRRS from July to December 2018.

Vaccine efficacy in the PRRS control was evaluated on the basis of these criteria: Viremia-positive rate in weaned piglets, reproductive performance (average weaned piglets and farrowing rate) and survival rate of nursery pigs.

RESULTS

Sow herd PRRSV stability (production of non-viremic piglets at weaning age) was achieved in group B after 3 months of PRRSV1 sow mass vaccination (Table 1). However, in group A, the piglet´s viremic rate at weaning age was 93.3% after 6 months of PRRSV2 sow mass vaccination. The average weaned piglets after 6 months of mass vaccination was higher in group B (9.35) than in group A (8.52). The survival rate for nursery pigs in group B was higher (94.1%) than in group A (81.49%) (Figure 1).

CONCLUSIONS

In the same production system, the heterologous protection conferred by UNISTRAIN® PRRS (PRRSV1 vaccine) against PRRSV2 infection was more effective compared with the outcome achieved with the previous PRRSV2 vaccine, showing a significant improvement in productivity as a result of increases in the farrowing rate, average weaned piglet rate, survival rate during the nursery period and time to achieve sow herd stability.

Table 1. Sow herd stability, growth and reproductive performance results in group A and group B. Amv: after sow mass vaccination.

	Group A (PRRSV2 vaccine)	Group B (UNISTRAIN® PRRS)
Growth performance	Survival rate during nursery period (%)	
	81.49	94.1
Reproductive performance	Average weaned piglets	
	8.52	9.35
	Farrowing rate (%)	
	71.3	77.6
Stability of sow herd	93.3% viremic piglets at weaning (6 months amv)	0% viremic piglets at weaning (3 months amv)

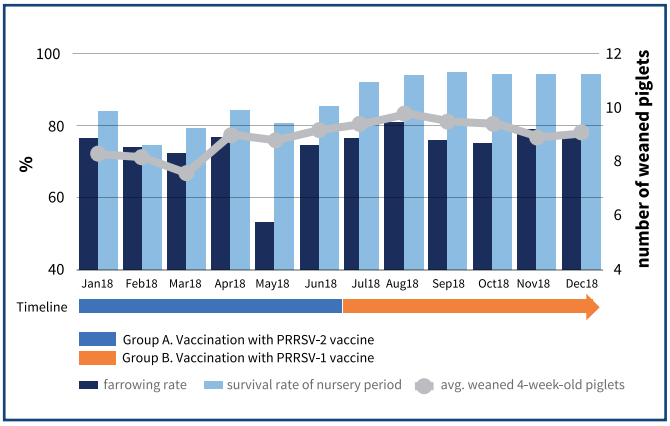

Figure 1. Changes in reproductive and growth performance in group A and group B.

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