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IMPORTANCE OF ANALYZING PRODUCTION DATA TO FIND RIGHT TIMING TO CHANGE PRRS VACCINE

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INTRODUCTION

In 2015 and early 2016, reproductive disorders associated with PRRSV were detected on a farrow-to-finish farm (1,500 sows) located in Korea. At that time, the breeding herd was vaccinated with a live attenuated PRRSV2 vaccine. The aim of this study was to retrospectively assess (from 2015 to 2017) the efficacy of different commercial PRRS vaccines in controlling reproductive disorders on a farm affected by PRRSV1 and PRRSV2.

MATERIALS AND METHODS

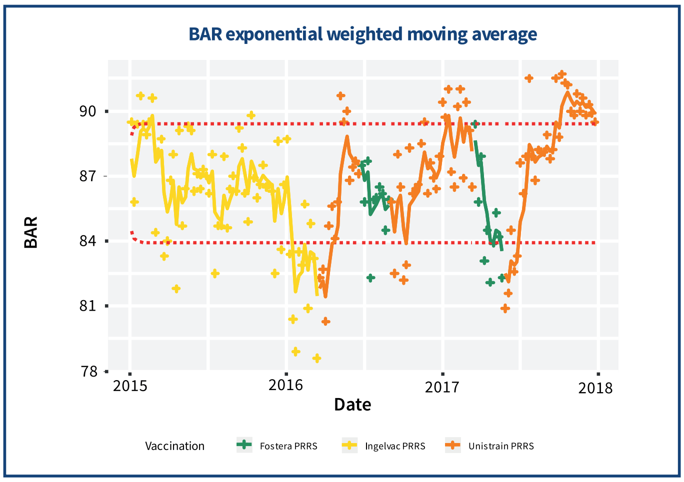
Due to recurrent reproductive disorders associated with PRRS, in May 2016 it was decided to switch to UNISTRAIN® PRRS (PRRSV1 vaccine). Between 2015 and 2017, different commercial vaccines were used (Table1). Born alive ratio (BAR) and weaned piglets ratio (WPR) from 2015 to 2017 were considered the key performance indicators and were analyzed and used to generate a Statistical Process Control Chart by R statistics. Limits were set at 3σ. Moreover, the ANOVA test was used to compare the time series between the periodic revaccination.

RESULTS

The moving average of BAR and WPR ranged between 84-90% for almost the whole of 2015. At the beginning of 2016, clinical problems associated with PRRS caused a significant decrease in BAR and WPR. After the application of UNISTRAIN® PRRS, reproductive parameters were brought to in-control levels and circulation of PRRSV was not detected. However, each time that UNISTRAIN® PRRS was replaced by the PRRSV2 vaccine, reproductive parameters significantly decreased out of the in-control limits and circulation of PRRSV2 was detected again. Notably, circulation of PRRSV1 was not detected any more during the study period. In fact, the performance of UNISTRAIN® PRRS was significantly associated with higher BAR ($p<0.001$) and higher WPR ($p<0.001$) than both the other vaccines.

Table 1. PRRS diagnosis by RT-PCR (PRRSV2 and PRRSV1) and vaccine used.

Date	PRRS diagnostic				Vaccine
	Suckling piglet	*45 days old*	*70 days old*	*120 days old*	
15 Nov	PRRSV1 (+) PRRSV2 (+)	PRRSV1 (+) PRRSV2 (+)	PRRSV1 (+) PRRSV2 (+)	(-)	PRRSV2 vaccine 1
16 Mar	PRRSV1 (+) PRRSV2 (+)	PRRSV1 (+) PRRSV2 (+)	(-)	(-)	PRRSV2 vaccine 1
16 May	(-)	PRRSV2 (+)	(-)	(-)	UNISTRAIN® PRRS
16 Jun	(-)	(-)	(-)	PRRSV2 (+)	PRRSV2 vaccine 2
16 Sep	PRRSV2 (+)	PRRSV2 (+)	PRRSV2 (+)	(-)	UNISTRAIN® PRRS
16 Dec	(-)	(-)	(-)	(-)	UNISTRAIN® PRRS
17 Mar	(-)	(-)	(-)	(-)	PRRSV2 vaccine 2
15 May	(-)	PRRSV2 (+)	PRRSV2 (+)	(-)	UNISTRAIN® PRRS
17 Sep	(-)	(-)	(-)	PRRSV2 (+)	UNISTRAIN® PRRS



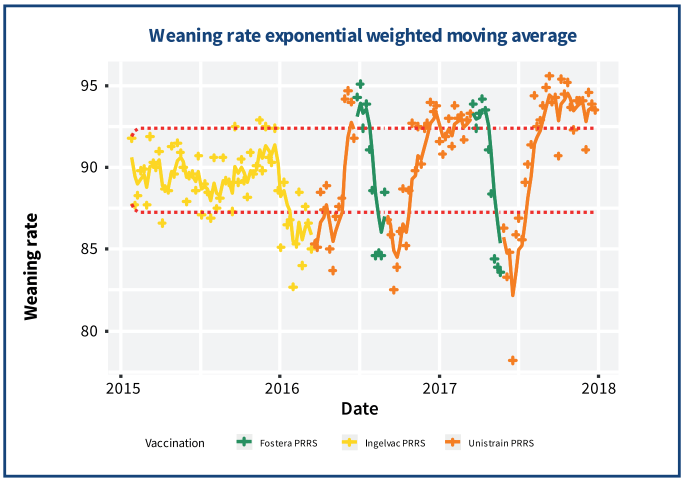


Figure 1. SPC chart of the 2015-2017 data. Results are represented as moving average of BAR (A) and WPR (B). Red lines represent the upper and lower limits of the in-control values. The yellow line represents the period when the PRRSV2 vaccine 1 was used, the orange line UNISTRAIN® PRRS and the green line PRRSV2 vaccine 2.

CONCLUSIONS

UNISTRAIN® PRRS contributed to the control of PRRSV1 and PRRSV2 in terms of improvement of reproductive performance and reduction of PRRSV circulation on the farm.

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