

Vaccination with PRRS type 2 strain against high pathogenic type 1 virus in growing pigs in Korea



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INTRODUCTION

In South Korea, type 2 PRRSV has evolved continuously and has been subsequently characterized into at least four lineages, ever since the infection by this PRRSV genotype was first described in 1993¹. Recently, it was revealed that type 1 PRRSV to be not only widely distributed in South Korea but also divided into three genetic clusters based on phylogenetic analysis². Martínez-Lobo et al.³ demonstrated that pigs infected with the type 2 PRRSV strain showed more severe respiratory clinical signs and macro- and microscopic lung lesions than pigs inoculated with the type 1 PRRSV strain. In Korea, since initially reported of type 1 PRRSV and some pathogenicity but highly pathogenic type 1 strain has not been reported in South Korea^{4,5}. Recently, relatively high mortality case with type 1 virus was identified⁶. This case report is the consequences of the vaccination of PRRS type 2 MLV against this highly pathogenic PRRS type 1.

MATERIALS AND METHODS

The case farm was a two-site production system (i.e., a farrow-to-grower unit with 400 sows and a grower-to finish unit: moving 80 days old to growing unit: most of Korean 2-site farm is similar moving age) in central region of South Korea. The grower-to-finish unit was located 10 km east of the sow herd. The sow farm was historically free of PRRSV and PRRSV vaccine had not been used in both units. In October 2014, the grower-to-finish unit experienced an outbreak of acute respiratory disease in the growing pigs. The onset of the disease was observed at about 3 weeks after the arrival of the pigs with severe respiratory signs including high fever (41 – 42 °C), dyspnea, coughing, and emaciation. When the mortality rate reached 22 %, florfenicol and marbofloxacin administered. Although mortality rate was a little bit decreased, clinical signs were still observed in most pigs. Laboratory test confirmed that the single infection of PRRSV type 1 and there was no other respiratory causative agent (PCV2, CSF, App, Pm etc.).

The first batch of pigs were vaccinated with Ingelvac® PRRS MLV in November 4th 2014, 3 weeks after placement in the grow finisher. The following 6 batches, which had 2 weeks interval, were vaccinated on the date of arrival.

RESULTS

The average mortality rate in 2014 was 12 %. It had declined by intensive medication, but mortality rate was rising again since the second half of 2014.

After vaccination the mortality rate and clinical symptoms dramatically improved. The average mortality of the vaccination group was 2.02 %.

Table 1: Mortality rate of each group

	Non-Vx (2014)	3 wks after arrival	Vx					
			On the date of arrival					
Batch	1 – 10	8	1	2	3	4	5	6
No. of pigs	3400	320	320	321	322	333	325	318
Mortality (%)	12	6.9	1.8	1.5	1.8	0.9	2.4	3.7

DISCUSSION AND CONCLUSION

In this study, it is concluded that a Type 2 strain based modified live vaccine could reduce the impact of the highly pathogenic PRRS wild type 1 virus. This is consistent with other researchers' findings^{7,8,9}.

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