

Efficacy of vaccination of Ingelvac® PRRS MLV in pigs in Japanese farrow-to-finish farm

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Introduction

Porcine Reproductive and Respiratory Syndrome (PRRS) virus is the most problematic swine disease worldwide. PRRS causes reproductive failure in breeding herds and respiratory disease in piglets. This disease was first reported in the U.S.A in 1987 and has been reported in many different countries. In Japan, PRRS was first reported in 1989. It has now spread throughout the country, causing enormous economic damage estimated at 2.8 billion JPY (US\$ 250 million) per year in Japan¹. In this study, improvement of post weaning mortality and average daily gain (ADG) were evaluated by using of Ingelvac® PRRS MLV (Boehringer Ingelheim Vetmedica Japan Co., Ltd.) in a Japanese farm.

Materials and Methods

This study was performed in a farrow-to-finish, 350 sow farm in Japan. It was confirmed by ELISA test that pigs were seropositive to PRRS virus at 3 to 10 weeks of age at nursery in Mar 2015. Thereafter, infection timing of PRRSv was changed later. Briefly, pigs from weaning to end of nursery showed seronegative and pigs at 90 days of age in finisher showed seropositive in Sep 2015 and Feb 2016 (Table 1).

To improve pig performance in finisher, vaccination of Ingelvac® PRRS MLV at weaning has been started from Aug 2016. Four groups, vac group 1 (n=368), 2 (n=677), 3 (n=353) and 4 (n=354) were included in this study. Data in 2015 (n=9,030) and 2016 (n=7810) were used as control without PRRS vaccination. Post-weaning mortality and average daily gain (ADG) were compared between vaccine and control groups. Mortality data were analyzed statistically by Fisher's exact test. All statistical analyses were performed by Minitab® 17.1.0.

Results

It was demonstrated that pigs from weaning at nursery could avoid exposure from PRRS virus by ELISA test at least since Sep 2015.

Three vaccine groups showed significant decrease of post-weaning mortality and four vaccine groups showed improvement of ADG compared to 2015 and 2016 without PRRS vaccine.

Table 1: Results of PRRS ELISA

| Age | Mar 2015 | Sep 2015 | Feb 2016 |
|----------|----------|----------|----------|
| 30 days | 3/4 | 0/4 | 0/4 |
| 60 days | 4/4 | 0/4 | 0/4 |
| 90 days | 4/4 | 1/4 | 4/4 |
| 120 days | 4/4 | 4/4 | 4/4 |

ELISA positive pigs / tested pigs

Table 2: Performances of finishing pigs

| | 2015 | 2016 | 2017 | | | |
|-----------------------|-------------|-------------|-------|--------|-------|--------|
| | neg. cont.1 | neg. cont.2 | vac1 | vac 2 | vac 3 | vac 4 |
| PRRS vac | - | - | + | + | + | + |
| n | 9,303 | 7,810 | 368 | 677 | 353 | 354 |
| Post weaning mort (%) | 4.26 | 3.39 | 2.17* | 1.92** | 2.55 | 0.85** |
| ADG (g/day) | 652.7 | 662.5 | 755.9 | 718.1 | 733.2 | 725.5 |

* Significant difference vs 2015 ($p < 0.05$)

**Significant difference vs 2015 and 2016 ($p < 0.01$)

Discussion

Study groups which received PRRS vaccine at weaning showed improvement of post-weaning mortality and ADG. It was shown that vaccination of Ingelvac® PRRS MLV to pigs around weaning was effective to make growth performance better. The key of succession of PRRS vaccination is that confirming by monitoring that there is no vertical/horizontal transmission of PRRS virus before weaning and when the field exposure of PRRS virus was occurred.

References

1. Yamane et al. (2009) Proc. Jpn. Pig Vet. Soc. 55. 33–37.