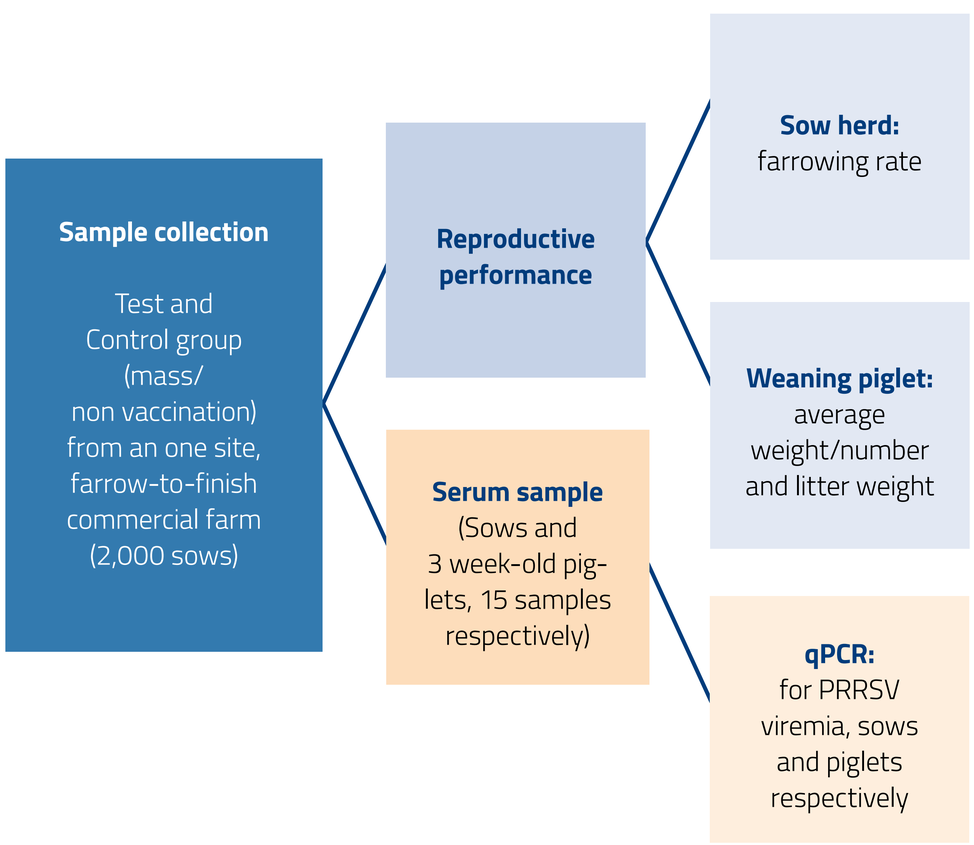
Evaluate the efficacy of PRRS MLV mass vaccination on sow herd in a PRRS unstable farm in Taiwan

H.C. Kuo[1], D.Y. Lo[1], K.C. Chen[1], C.H. Cheng[2], Y.H. Yiu[2]
[1]Department of Veterinary Medicine National Chiayi University; [2] Boehringer Ingelheim Taiwan Limited

INTRODUCTION

Porcine reproductive and respiratory syndrome virus (PRRSV) is ubiquitous in most swine producing countries in the world. The economic impact of PRRS on breeding herd are reproductive disorders, including abortion, stillborn, increased neonatal mortality, reduced number of weaned pigs per sow. Therefore, breeding herd stability defined as the absence of vertical transmission of virus and producing PRRSV negative weaned piglets as a result.[1]
The purpose of this study was to evaluate the efficacy of using PRRS modified live virus vaccine on endemically infected sow herd by reducing the proportion of detecting infected sows and piglets, simultaneously improving the reproductive performance.

MATERIALS AND METHODS



Trial conducted in a PRRS unstable farm on the basis of diagnostic examination last 6 months, with reproductive disorders as low farrowing rate (76.7 %), and 25 % PRRSV viremia both in sow and weaned pig.
Closure of sow herd, and mass exposure with PRRS modified live virus vaccine (Ingelvac® PRRS MLV vaccine) since 2015 July, once per 4 months, sampling from sow and weaning piglet monthly for 9 months.

Quantification of serum PRRSV
Real-time RT-PCR was performed with PRRSV-NA Detection System (GeneReach Biotechnology).
Reactions were performed according to the manufacturer's instructions using a StepOnePlusTM Real-Time PCR Systems (ABI, Foster City, CA).

RESULTS

Reproductive performance improvement observed in average farrowing rate (83.25 % to 78.16 %) ($p < 0.05$), as well as average weight (5.36 kg to 5.06 kg), average number (9.87 to 8.8) ($p < 0.05$), and litter weight (52.9 kg to 44.53 kg) of weaning piglets.

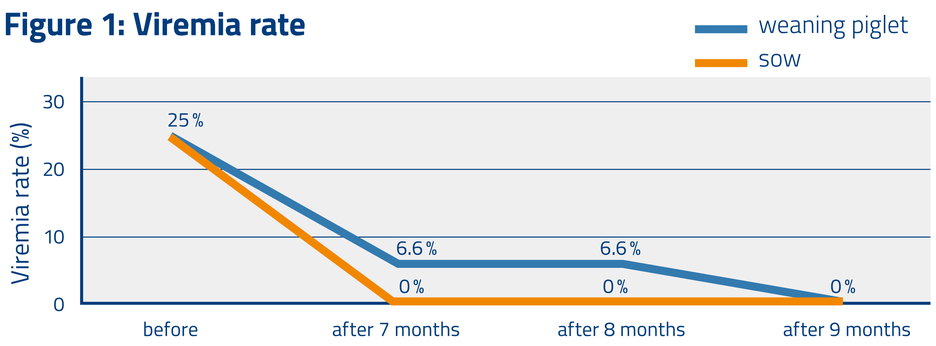
Stability of sow herd:
After 7 and 9 months mass vaccination, the proportion of viremia revealed negative in sow and weaned piglet respectively.

Table 1

	Test	Control
Average farrowing rate	83.25*	78.16
Average weight at 4 week-old	5.36 kg (n = 148)	5.06 kg (n = 132)
Average piglets at 4 week-old	9.87*	8.8
Litter weight at 4 week-old	52.9 kg	44.53 kg

The result of reproductive performance, difference between test group (mass vaccination) and control group (non vaccination) revealed statistically different improvement in farrowing rate and average number of weaned piglets (*$p < 0.05$). Furthermore, increase of average weight and litter weight at weaning piglets is obvious.

Figure 1: Viremia rate



All serum samples of sow and 3 week-old piglet collected before and after mass vaccination.
After 7 months mass vaccination, remarkable improvement in sow herd stability, revealed stable as producing PRRSV negative weaned piglets eventually after 9 months.

DISCUSSION AND CONCLUSION

Under the conditions of this study, utilization of modified live PRRSV vaccine mass vaccination to control an endemically infected sow herd reduced the risk of PRRSV shedding and eliminated subpopulations. Furthermore, the obvious effect of reproductive performance on farrowing rate and weaned piglets offers direct economic benefit.

REFERENCES

1. *Dee SA, Philips RE. Use of polymerase chain reaction (PCR) to detect vertical transmission of porcine reproductive and respiratory syndrome virus (PRRSV) in piglets from gilt litters. Swine Health and Prod 1999; 7(5): 237 – 239.*