

# ERADICATION OF PRRS VIRUS IN A BREEDING FARM USING UNISTRAIN® PRRS VACCINATION

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## INTRODUCTION

Porcine reproductive and respiratory syndrome (PRRS) is one of the most important problem in porcine industry causing significant economic loss. The PRRS virus (PRRSV) causes persistent infection in lymphoid tissue which enables evading host immune response and facilitates developing secondary infection. In this case study, we evaluated an eradication strategy using UNISTRAIN® PRRS in PRRS-infected pig farm.

## MATERIALS AND METHODS

A 2-site 1,300-sow breeding farm was PRRSV-free and had a monthly routine program to check the presence of PRRS antibodies and antigen.

In April 2016, stillborn piglets due to PRRSV infection were reported and then confirmed in the lab. In May 2016, average number of weaned piglets per sow decreased until 6.9. There were suspicious that the introduction of PRRSV in the farm could be the feed truck driver as he didn't fulfill properly the biosecurity protocols.

To control and eradicate PRRSV in this farm, gilt acclimatization<sup>1</sup>, herd stabilization, partial depopulation<sup>2</sup>, and test and removal protocols were adopted.

Regarding gilt acclimatization and herd stabilization, UNISTRAIN® PRRS (type-1 PRRS MLV, HIPRA) was used to achieve homogeneous immune status against PRRSV. Based on the results of ORF5 sequencing, this PRRSV strain showed 88.6% homology with Lelystad, 86.16% with Porcilis® PRRS and 85.67% with UNISTRAIN® PRRS. Even though the genetic similarity was lowest, UNISTRAIN® PRRS was selected to homogenize the immune status against PRRSV considering reported safety data and shedding period of vaccine strain.

## RESULTS

### 1. Time to produce PRRSV-negative piglets

Production of PRRS-negative piglets is key to PRRSV eradication. In this farm, McRebel principle was applied in farrowing unit, and it took 127 days after the mass vaccination to produce PRRS-negative piglets. Also, all-in all-out management was strictly implemented together with McRebel rules to reduce the time to produce PRRSV negative piglets.

### 2. Average antibody titer of 3 weeks of age piglets

To confirm the eradication of PRRSV by checking if piglets are seronegative at 3 weeks of age, blood samples were collected every 3 weeks. Antibodies against PRRSV including maternal derived antibodies were not detected 15 months after the first mass vaccination.

### 3. Changes of average number of weaned piglets

During the PRRS outbreak, average number of weaned piglets per sow was decreased until 6.9 in May 2016. After mass vaccination with UNISTRAIN® PRRS, weaning rate improved gradually and it exceeded previous productivity within 4 months.

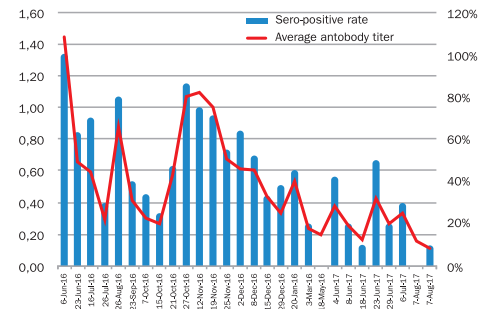


Figure 1. Sero-positive rate (ELISA test against PRRSV antibodies) and average antibody titers during PRRS control in a breeding farm.

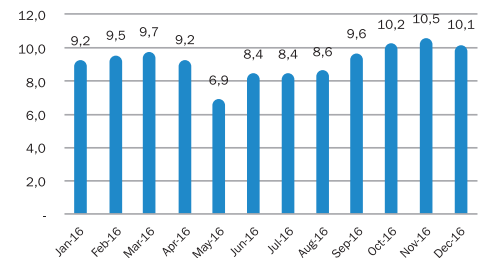


Figure 2. Average number of weaning piglets per sow from January to December in 2016.

### 4. Elimination of PRRSV in the farm

In November 2016, the farm started to produce PRRS-negative weaned piglets and then depopulation of the nursery unit was done (nursery unit emptied for 30 days and cleaning up including slurry pit). Then reintroduction of PRRSV-negative piglets to nursery house was done. The elimination of PRRSV in nursery and growing house was achieved by moving PRRS-negative pigs.

The breeding herd was closed for 26 weeks without introducing gilts. Overall, it took 15 months to make the farm PRRSV negative.

## CONCLUSION

In a breeding farms, eradication of PRRSV is necessary to produce PRRS negative gilts. When PRRSV enters in a breeding farm, UNISTRAIN® PRRS mass vaccination can be a safe and efficacious method to homogenize sow immune status and produce PRRS-negative piglets.

## REFERENCES

1. Dee SA, Joo H, Pijoan C. Controlling the spread of PRRS virus in the breeding herd through management of the gilt pool. *J Swine Health Prod* 1994;3:64–69.
2. Dee S. Control and eradication of porcine reproductive and respiratory syndrome. *Compend Cont Educ Pract Vet* 2000;22: S27–S35.