



THE USE OF INGELVAC PRRS - MLV FOR HERD SPECIFIC ELIMINATION OF PRRSV FROM PIGLETS BORN TO A PRRSV-POSITIVE SOW POPULATION

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Introduction

The PRRSV infection within an infected herd depends on the number of immune animals and the presence and number of naive animals that are susceptible to infection. Field virus can spread from infected animals within the herd as well as from animals that are introduced into the herd. Usually suckling piglets lose their maternal antibodies to PRRSV about 3 weeks after birth. Those animals are highly susceptible to PRRSV infections via

- suckling piglets that were born viremic,
- that were infected from sows or
- that were infected in continuous weaning systems.

Thus the highest amount of field virus can be detected in piglets after weaning.

Materials and Methods

To study the efficacy of *Ingelvac PRRS-MLV* in stabilizing a 200 and a 400 sow herd in Germany

- the development of PRRSV vaccine and PRRSV field virus antibody titres,
- the serological herd profile
- the seroconversion in growers and finishers and
- the prevalence of PRRS-vaccine and PRRS field virus were monitored over time.

Differential PRRSV antibody titres were tested in an indirect immunoperoxidase monolayer assay (IPMA) as described previously (1) using the European strain bS01 and *Ingelvac PRRS-MLV* as antigens. A commercially available ELISA (Idexx, Wörstadt, Germany) was used for herd profiling.

PRRS field and vaccine virus was detected and differentiated using reverse transcription and a differential nested PCR. An external PCR was used to amplify PRRSV specific genome fragments in ORF 7 (2). After separation into two aliquots, one sample was submitted to a nested PCR specific for European field strains and the other sample was tested using primers specific for the *Ingelvac PRRS-MLV*, that based on an American strain (3)

PCRs were performed using a non cross contaminating PCR equipment (Roboseq; MWG Biotech AG; Ebersberg, Germany)

Results

In the 200 sow farrow to finisher herd, piglets were vaccinated at 3 weeks of age with 1 dose *Ingelvac PRRS-MLV*. The development of antibody titres to PRRSV field strains and to *Ingelvac PRRS-MLV* were monitored in the vaccinates as well as in the non vaccinated sows of the herd.

The serological data showed the following:

1. Vaccination of piglets with *Ingelvac PRRS MLV* resulted in a decrease of field virus specific IPMA titres from 1 in 80.7 to 1 in 38.9 and an increase of vaccine specific titres from 1 in 41.3 to 1 in 239.5 and a half months post vaccination (mean titres, n=60).
2. Non vaccinated sows that served as controls became seronegative 4 months after starting vaccination, whereas controls to non vaccinated animals remained seropositive with a 7 months interval of waves of infections.

However the sow population again seroconverted, indicating no stabilization of the sow herd. Therefore a regular vaccination of the sow populations with *Ingelvac PRRS-MLV* at 4 month intervals was initiated.

Continuous vaccination of the sow population

1. reduction of anti PRRSV antibody titres to maximum titres of 2+ (scale: negative - 6+)
2. nursery pigs that became seronegative to PRRSV in ELISA and IPMA. These animals stayed seronegative even as grower and finisher pigs.

Based on these experiences sows in an instabile 400 sow multiside production herd with clinical outbreaks of PRRS were vaccinated with *Ingelvac PRRS-MLV* on a herd basis with 4 month intervals. Piglets were weaned at 3 weeks of age and grown offside. The results are shown in Table 1.

Table 1. Serological and PCR herd profile of a 400 sow herd after 18 months of vaccination with *Ingelvac PRRS-MLV*.

Subpopulation (n=10)	Mean classification of the group ^a (n=10)	RT-nPCR field strain	PRRSV vaccine strain
gilts	negative	negative	negative
productive sows	0.6	negative	negative
sows at parturition	1.2	negative	negative
growers	negative	negative	negative
finishers	negative	negative	negative

^a Grouping of the OD-values from negative (p<0.4 OD), 1+ (p<1.0 OD) to 6+ (with 0.5 OD intervals).

Discussion

The data showed that in distinct herds with total herd vaccination (200 sow herd) or with sow vaccination, early weaning and offside nursery (400 sow herd)

1. pigs and sows were shown to become negative to PRRS field and vaccine virus by nested RT-PCR,
2. a stabile production of seronegative pigs from vaccinated sows could be achieved for a minimum period of 18 months.

Conclusion

1. the stabilization of sow herds to PRRSV could only be achieved by continuous vaccination of the pig population with *Ingelvac PRRS MLV*.
2. *Ingelvac PRRS MLV* was shown to reduce European PRRSV field strains from infected populations significantly.
3. No PRRS field virus and no PRRS vaccine virus could be detected in stabilized sow herds using nested RT-PCR.
4. In distinct herds with well control health management and production systems, PRRSV could be eliminated from piglets produced from sows vaccinated with *Ingelvac PRRS-MLV*.

References

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