

## PRRSv in the Literature

### Vaccination with a genotype 1 modified live vaccine against porcine reproductive and respiratory syndrome virus significantly reduces viremia, viral shedding and transmission of the virus in a quasi-natural experimental model

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#### Abstract

The present study assessed the efficacy of vaccination against genotype 1 porcine reproductive and respiratory syndrome virus (PRRSV) in terms of reduction of the transmission. Ninety-eight 3-week-old piglets were divided in two groups: V (n = 40) and NV (n = 58) that were housed separately. V animals were vaccinated with a commercial genotype 1 PRRSV vaccine while NV were kept as controls. On day 35 post-vaccination, 14 NV pigs were separated and inoculated intranasally with 2 ml of a heterologous genotype 1 PRRSV isolate (“seeder” pigs, SP). The other V and NV animals were distributed in groups of 5 pigs each. Two days later, one SP was introduced into each pen to expose V and NV to PRRSV. Sentinel pigs were allocated in adjacent pens. Follow-up was of 21 days. All NV (30/30) became viremic after contact with SP while only 53% of V pigs were detected so (21/40, p < 0.05). Vaccination shortened viremia (12.2 ± 4 versus 3.7 ± 3.4 days in NV and V pigs, respectively, p < 0.01). The 50% survival time for becoming infected (Kaplan–Meier) for V was 21 days (CI95% = 14.1–27.9) compared to 7 days (CI95% = 5.2–8.7) for NV animals (p < 0.01). These differences were reflected in the R value as well: 2.78 (CI95% = 2.13–3.43) for NV and 0.53 (CI95% = 0.19–0.76) for V pigs (p < 0.05). All sentinel pigs (10/10) in pens adjacent to NV + SP pens got infected compared to 1/4 sentinel pigs allocated contiguous to a V + SP pen. These data show that vaccination of piglets significantly decrease parameters related to PRRSV transmission.

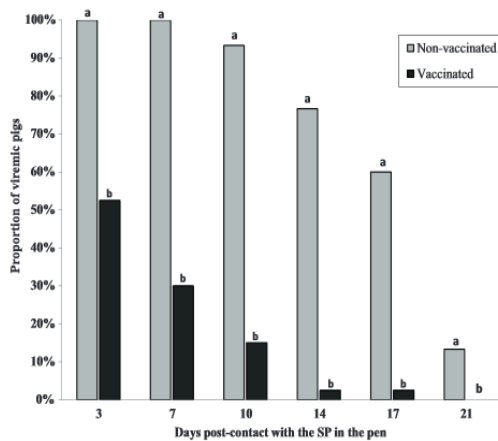


Figure 3. Proportion of viremic pigs distributed by days of sampling after exposure to SP animals. The number of positive animals by qRT-PCR at each sampling day was compared between V and NV pigs by the  $\chi^2$ -test. Different letters indicate statistically significant differences (p<0.05) between treatment groups.

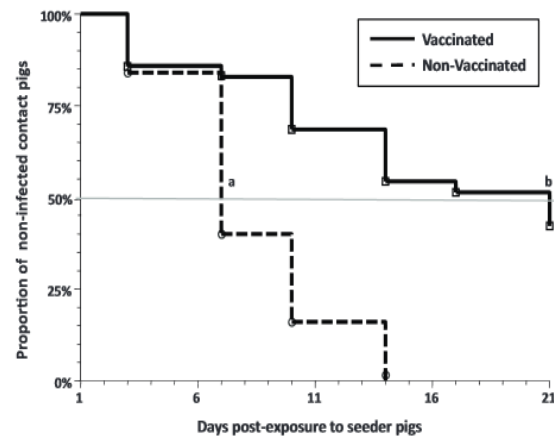


Figure 4. Graphic depiction of the Kaplan-Meier 50% survival analysis or V (dark line) and NV (dark dotted line) pigs. This test indicated the period of time needed to reach the 50% of infected pigs in each treatment group. As indicated in the figure, the mean 50% survival time for V was 21 days compared to 7 days for NV animals. Different letters in the graph indicate statistically significant differences between groups (p<0.01), calculated by Kruskal-Wallis test.

*Editor's comment: This study highlights the potential for mass vaccination with a modified live vaccine to have a significant impact for PRRSV area regional control programs. The study only uses homologous sequences for vaccine choice and inoculation, which does not fully represent the heterologous nature of in-field PRRSV exposures. Despite this limitation, the authors succeed in illustrating the effects that vaccination can have on duration of viremia as well as transmission rate. As the authors suggest, this information more precisely characterizes not only the benefit to the vaccinated herd through reduced/delayed transmission, but it also suggests a benefit to neighbors' herds.*

#### Manuscript citation

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