

# INTRADERMAL VACCINATION WITH UNISTRRAIN® PRRS IN GILTS REDUCES VIRAEMIA AND VERTICAL/HORIZONTAL TRANSMISSION AFTER A HETEROLOGOUS CHALLENGE

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## INTRODUCTION

The aim of this study was to demonstrate that UNISTRRAIN® PRRS applied by the intradermal route (ID) with a Hipradermic® device in gilts controlled viraemia and vertical/horizontal transmission after heterologous PRRSV challenge.

## MATERIAL & METHODS

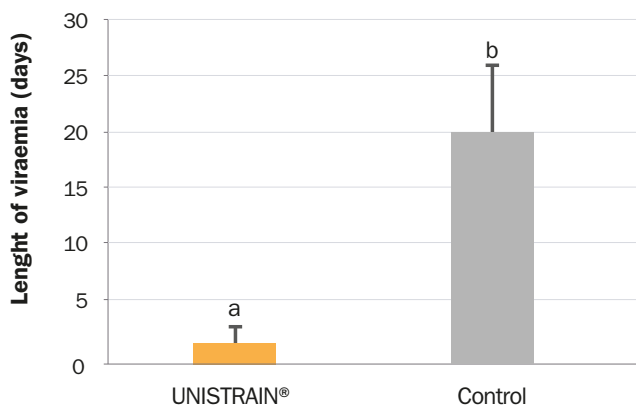
Sixteen gilts, clinically healthy and free from virus and antibodies against PRRS, were randomly assigned to two different groups. One group was vaccinated intradermally with UNISTRRAIN® PRRS (0.2 ml/dose;  $10^{3.5}$  CCID<sub>50</sub>/animal) 4 weeks before artificial insemination (AI). Animals in the non-vaccinated group received 0.2 ml of PBS (ID). At 90 days of gestation, all the gilts were challenged by intranasal route with a heterologous pathogenic strain of genotype I PRRSV (Italian strain; 89% ORF5 homology;  $10^{5.4}$  CCID<sub>50</sub>/gilt). Serum samples, nasal swabs and dead piglet tissues were analyzed by RT-PCR to determine the evolution of viraemia.

## RESULTS

No clinical signs were observed resulting from the intradermal administration of UNISTRRAIN® PRRS in gilts 4 weeks before AI.

Vaccination statistically reduced the length of viraemia ( $0.9 \pm 2.5$  days vs  $20.6 \pm 5.5$  days) induced by the heterologous strain in gilts. In the vaccinated group, a statistically significant ( $p < 0.05$ ) reduction in the number of viraemic gilts was also observed (12.5% vs 100%).

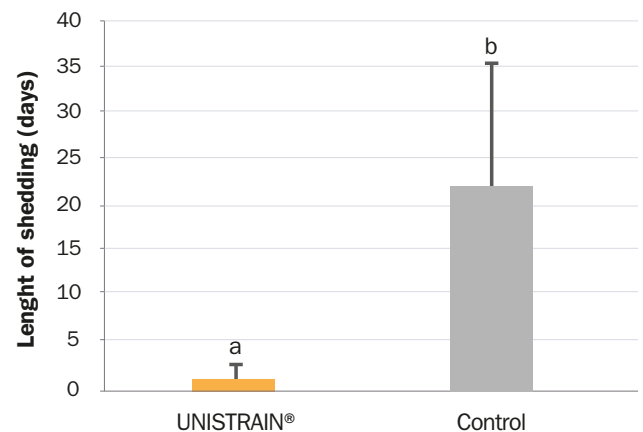
**Figure 1.** Length of viraemia after challenge.



Different superscript letters indicate statistically significant differences ( $p < 0.05$ ) among groups.

Vaccination with UNISTRRAIN® PRRS resulted in a statistical reduction in the nasal shedding period ( $0.9 \pm 2.5$  days vs  $22.3 \pm 13.0$  days), decreasing the possibility of horizontal transmission during lactation.

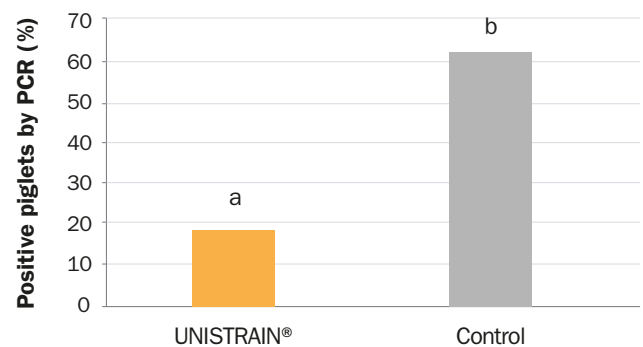
**Figure 2.** Length of nasal shedding after challenge.



Different superscript letters indicate statistically significant differences ( $p < 0.05$ ) among groups.

Furthermore, vaccination reduced vertical transmission in the piglets that died during the study (18.5% of dead piglets were positive for PRRSV in UNISTRRAIN group vs 61.9% in the non-vaccinated group).

**Figure 3.** Vertical transmission after challenge.



Different superscript letters indicate statistically significant differences ( $p < 0.05$ ) among groups.

## DISCUSSION

The results obtained allow us to conclude that vaccination of gilts with UNISTRRAIN® PRRS ID using a Hipradermic® device enabled the gilts to clear the virus and reduced its vertical and horizontal transmission to piglets. UNISTRRAIN® PRRS, when administered via the ID route, is a safe and useful tool to reduce the transmission of PRRS virus within and between pig populations.