

EVOLUTION OVER TIME OF THE PRRS VIRAL LOAD AFTER VACCINATION IN A FATTENING UNIT INFECTED WITH A HIGHLY VIRULENT STRAIN

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BACKGROUND & OBJECTIVES

The emergence of the “Rosalia” strain and its variants has significantly worsened the impact of PRRSV in Spain, particularly in high-density pig production areas with limited biosecurity.¹ This study aimed to evaluate the effectiveness of piglet vaccination in reducing PRRSV viral load and improving productive parameters under field conditions following early infection with a highly virulent strain.

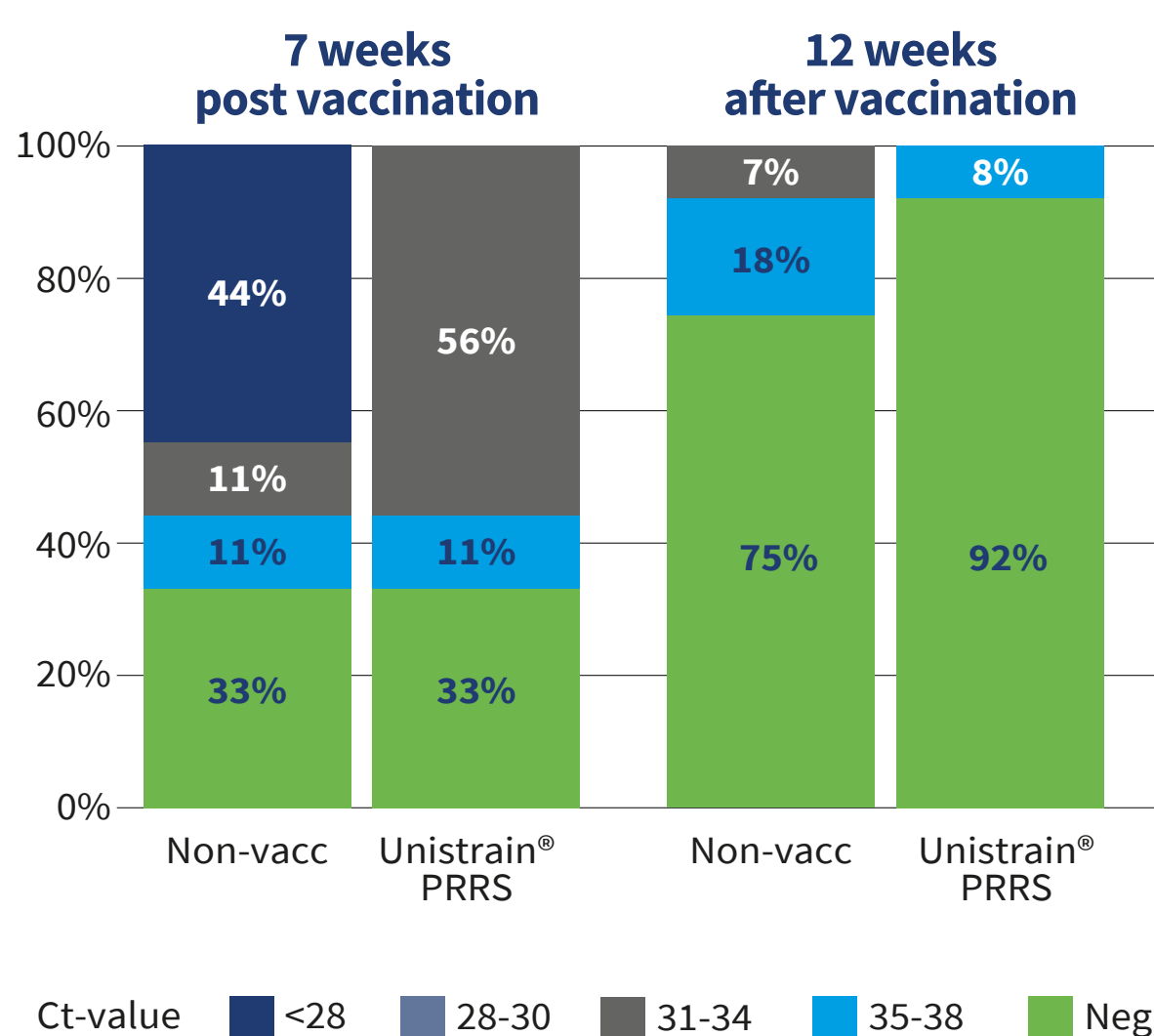
MATERIAL & METHODS

Two groups of 650 future breeding sows (Group 1 – unvaccinated; Group 2 – vaccinated with Unistrain® PRRS at 9 weeks of age) were introduced into a fattening unit one week apart. Both groups tested positive at 7 weeks of age for a highly virulent PRRSV strain (96% homology with the Rosalia strain). The viral load was analysed using oral fluids at vaccination, 7 and 12 weeks post-vaccination (wpv), and in individual sera (N=36 per group) at 1, 3, 7 and 12 wpv. The productive difference of both scenarios was assessed on the basis of average number of days of stay, ADG (gr/day), FCR and % mortality in the fattening phase. A logistic regression model was used to assess the association with positivity, while an ordinal regression model was applied to analyze viral load levels.

RESULTS

At **7 wpv**, 44% of serum pools from the unvaccinated group (G1) showed high viral loads (Ct <28), while no pools in the vaccinated group (G2) had Ct <30 (p = 0.33). Fig 1.

At **12 wpv**, oral fluids showed significantly lower positivity in G2 (8%) compared to G1 (25%) (p = 0.009). Fig 1. Serum positivity was also lower in G2 (3%) vs. G1 (9%) for samples with Ct <28 (p = 0.27). to 9% in G1, with Cts <28 (p=0.27). Fig 1.



Productivity outcomes favored the vaccinated group by 14.5 days fewer in fattening, +7 g/day improvement in ADG, FCR improved by 0.130 points and 1.70% lower mortality.

Table 1. Productive difference between vaccinated and non-vaccinated animals.

	CONTROL	UNISTRRAIN® PRRS	
	Shed 1	Shed 2	Difference
Average days of stay in fatt unit	120	106	14,54
ADWG (g)	950	1023	74
FCR (Corrected at 100 kg LW)	2,43	2,30	0,130
Mortality (%)	3,5	1,8	1,70

DISCUSSION & CONCLUSION

Vaccination with UNISTRRAIN® PRRS led to a notable reduction in viral load over time, particularly in oral fluids. While some differences were not statistically significant in serum, the trends and productive performance indicators clearly favored vaccination. These results support UNISTRRAIN® PRRS as a tool to reduce viral load earlier than the unvaccinated group which helps to return to normality quicker.

REFERENCES

1. Martín-Valls GE *et al.* Introduction of a PRRSV-1 strain of increased virulence in a pig production structure in Spain: virus evolution and impact on production. *Porcine Health Manag.* 2023 Jan 3;9(1):1. doi: 10.1186/s40813-022-00298-3. PMID: 36597152; PMCID: PMC9811746.