



# PARALLEL, RANDOMISED FIELD EFFICACY, AND RETURN-ON-INVESTMENT STUDY OF A NEXT-GENERATION PRRSV2-MLV VACCINE COMPARED TO A CONVENTIONAL PRRSV1-MLV VACCINE IN A PRRSV1+2 ENDEMIC HERD

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## Introduction and Objectives

Porcine reproductive and respiratory syndrome virus (PRRSV) is a major challenge in global swine production. A next-generation PRRSV modified live virus (MLV) vaccine, developed by Synthetic Attenuated Virus Engineering (Coleman et al., 2008). Via targeted attenuation by codon pair deoptimization, a significantly reduced speed of NSP1 translation is achieved. The subsequent reduced viral replication and immune deviation is indicated to provide very high efficacy, cross-protective capacity, and safety (Suh et al., 2026; Park et al., 2021). This study aimed to compare the effectiveness of the CPD-PRRSV2-MLV with a conventional PRRSV1-MLV in reducing production losses and improving economic outcomes from vaccination at 2 weeks of age (woa) till slaughter under field conditions.

## Materials and methods

The trial was conducted on a 2,000-sow, 3-site production system in Thailand with a history of both PRRSV1 and PRRSV2 infections. PRRSV status was confirmed by longitudinal serum PCR; attempts on sequencing the field strain was unsuccessful. Piglets were assigned randomly into two groups housed in separate barns with similar management. The CPD-MLV group (n=935) received a CPD-lineage 5 PRRSV2-MLV (Persoporc™, Ceva, France), while the Con-MLV group (n=929) received the conventional PRRSV1-MLV, already used at the farm, at 2 woa. Growth performance, mortality, and economic data were collected during nursery and finishing phases. Economic return was calculated using Gompertz standardization and current local prices. Number of dead and culled pigs were analysed using Fisher's exact test.

## Results and Discussion

During nurseries, mortality was 0.22% vs. 1.08% (p<0.05), and average daily growth (ADG) was 507 vs. 458 g/day, feed-conversion-ratio (FCR) was 1.40 vs 1.42 for the CPD-MLV and Con-MLV groups, respectively. During the finishing phase, mortality was 1.80% vs. 2.79% (p<0.05), and ADG was 782 vs. 768 g/day, FCR was 2.50 vs 2.48. Economic analysis revealed higher net profit per pig (54.4€ vs. 46.1€), of 8.3€ in favor of the CPD-MLV group (Table 1).

Under endemic PRRSV1+2 conditions, the CPD-MLV vaccine demonstrated to be a superior alternative to a traditional MLV vaccine, shown on health, production, and economic outcomes.

## Conclusion

These findings support the value of the next-generation CPD-MLV vaccine in PRRSV1+2 control programs, offering additional benefits for herd health, animal welfare, and profitability.

## References

1. Coleman, JR *et al.*, 2008. Virus attenuation by Genome-Scale Changes in Codon Pair Bias. *Science* 320, 1784-1787.
2. Park C *et al.*, 2021. Intradermal co-inoculation of codon pair deoptimization (CPD)-attenuated chimeric porcine reproductive and respiratory syndrome virus (PRRSV) with Toll like receptor (TLR) agonists enhanced the protective effects in pigs against heterologous challenge. *Vet. Microbiol.* 256, 109048.
3. Suh J *et al.*, 2025. Reproductive efficacy of a modified-live porcine reproductive and respiratory syndrome vaccine against Korean PRRSV-2 challenge in sows. *Front. Vet. Sci.* 12:1747817.

Vaccine group	n	Nursery phase			Finishing phase			Wean-finish
		Mortality (%)	ADG (g/d)	FCR (kg/kg)	Mortality (%)	ADG (g/d)	FCR (kg/kg)	Δ+profit/pig
<b>Persoporc CPD MLV</b>	935	0.22	507	1.40	1.80	782	2.48	<b>8.32 €</b>
<b>Traditional PRRSV1 MLV</b>	929	1.08	458	1.42	2.79	768	2.50	na

Table 1 Improvements and profits following piglet vaccinated at 2woa with the next-generation PRRSV2 vaccine compared to a traditional PRRSV1 based MLV vaccine in a PRRSV1+2 endemic farm