

# EFFICACY OF A PRRSV1 MLV VACCINE WHEN APPLIED INTRADERMALLY IN 2-WEEK-OLD PIGLETS UNDER FIELD CONDITIONS

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## INTRODUCTION

The economic losses of PRRSv in growing animals are caused by the decrease of average daily weight gain, mortality rate, feed conversion rate and antibiotic consumption. PRRSv piglet vaccination during lactation provides benefits to control the disease from a virological and clinical point of view. Intradermal (ID) administration using needle-free devices has proved to improve the efficacy of vaccines, showing a stronger antibody and cell-mediated immunity (CMI) responses compared to the intramuscular (IM) vaccination<sup>1,2</sup>. Moreover it reduces the spreading of viraemic diseases such as PRRSv and causes less stress and pain for the animals.

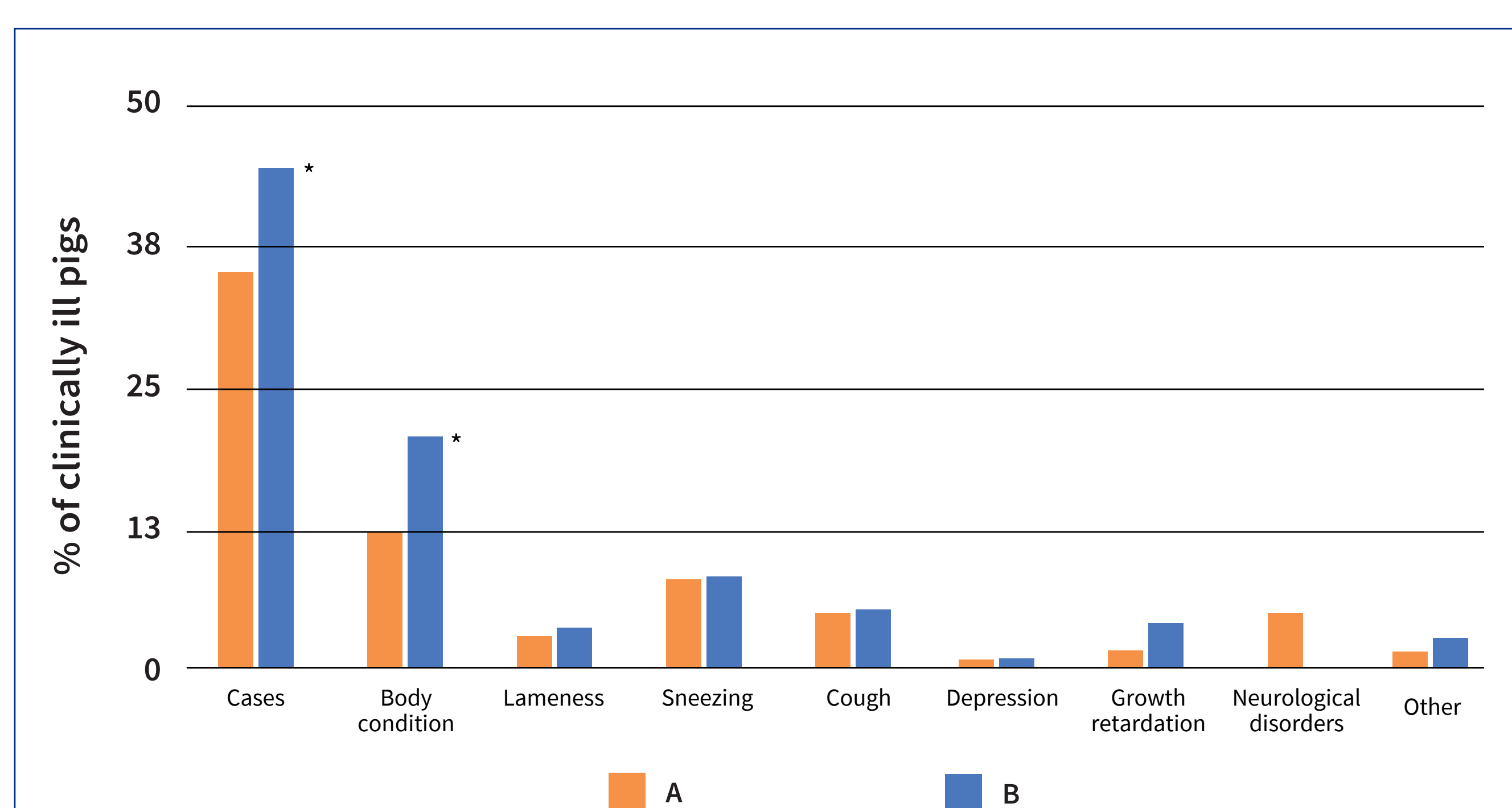
The aim of this study was to demonstrate that a PRRSv1 vaccine (UNISTRAIN® PRRS, HIPRA) administered at 2 weeks of age (woa) by ID route can aid in the control of the PRRSv infections in the early nursery phase in European pig farms.

## MATERIALS AND METHODS

663 piglets from a farrow-to-finish European farm suffering losses associated with PRRSv were selected. The animals were distributed in two different groups; Group A (N=322) was vaccinated at 2 woa with UNISTRAIN® PRRS intradermally with Hipradermic®, whereas Group B (N=341) remained no vaccinated. Vaccinated and non-vaccinated pigs were housed separately in different rooms. Clinical signs and mortality were recorded weekly until the entrance in the fattening unit (10 woa). Blood samples were collected from 12 randomly selected pigs per batch at 2, 6, 8 and 10 woa for measuring total antibodies against PRRSv and the presence of the virus. Statistic comparison was performed using Mann-Whitney U, Kruskal-Wallis and the Chi-square tests.

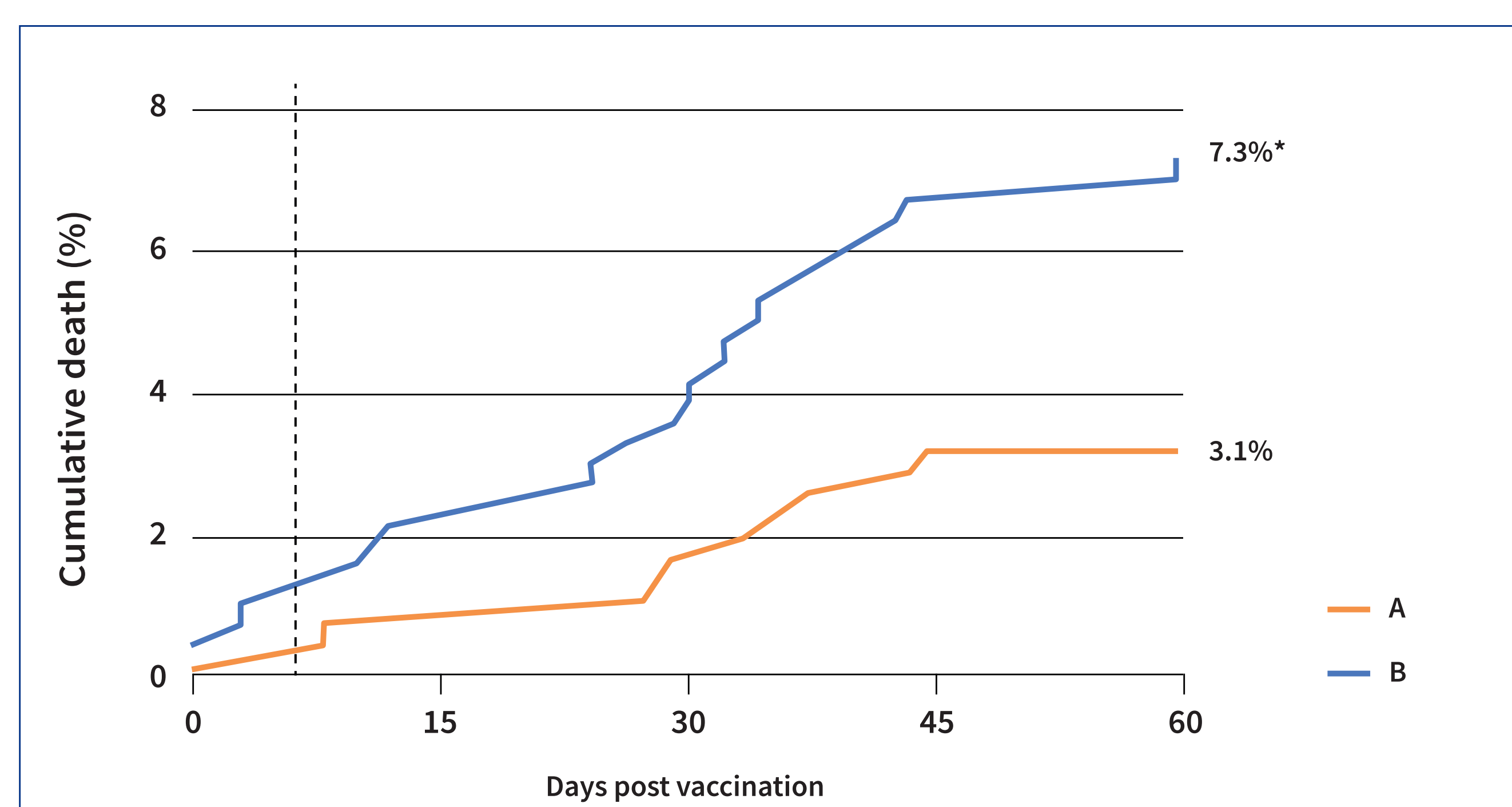
## RESULTS

Statistical differences were found between groups regarding the presence of clinical signs, showing Group A less total cases of clinically ill pigs compared to group B ( $p<0.01$ ) (Fig 1).



**Figure 1.** Dynamics of reporting cases of pigs showing clinical signs. The first column shows total cases and the rest of the columns show clinical signs types. Asterisks indicate statistically significant differences ( $p<0.05$ ).

Mortality observed after the expected onset of immunity (30 days post vaccination) and during the entire study was higher in group B (7.3%) compared to group A (3.1%) (Fig 2). Antibody levels and viraemia level until the exit of the nursery phase didn't show statistically significant differences between groups.



**Figure 2.** Dynamics of the cumulative mortality during the study. The slashed line represents the movement from lactation to the nursery phase. Asterisk indicates statistically significant differences ( $p<0.05$ ).

## CONCLUSIONS

UNISTRAIN® PRRS administered in piglets at 2 weeks of age by intradermal route with Hipradermic® device in presence of maternally-derived antibodies against PRRSv has demonstrated to reduce the number of clinically ill pigs and mortality rate until the end of the nursery phase in an unstable farm.

## REFERENCES

1. Martelli *et al.* Protection and immune response in pigs intradermally vaccinated against porcine reproductive and respiratory syndrome (PRRS) and subsequently exposed to a heterologous European (Italian cluster) field strain. *Vaccine*. 2007;25:3400-8.
2. Nilubol *et al.* Immune response, IL-10 and protective efficacy against a single HP-PRRSV challenge or in conjunction with PRRSV1 of pigs intradermally and intramuscularly vaccinated with modified live PRRSV1. *ESPHM Utrecht* 2019.