

INTRADERMAL VACCINATION (HIPRADERMIC®) WITH UNISTRRAIN® PRRS IN A MASS VACCINATION IN SOWS

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OBJECTIVE

Hipradermic®, a needle-free injection device, has been designed as a new option for the intradermal (ID) vaccination of the MLV UNISTRRAIN® PRRS on swine farms. Intradermal and needle-free vaccination in pigs has been reported to improve animal welfare, to generate an effective immune response and to be easy to administer, amongst other benefits (Chase et al., 2008). The aim of this study was to demonstrate that UNISTRRAIN® PRRS administered using Hipradermic® was as safe and efficacious as when administered via the conventional intramuscular (IM) route in a mass vaccination in sows.

MATERIALS AND METHODS

A PRRS-positive farm with 1,400 sows, following a PRRS mass vaccination, was vaccinated ID with UNISTRRAIN® PRRS using Hipradermic® (0.2 ml/dose). Thirty-four sows from the same farm were vaccinated IM, also with UNISTRRAIN® PRRS (2 ml/dose). The 34 animals vaccinated IM together with 34 animals vaccinated ID were individually identified for evaluation of the vaccine. The PRRSV antibody response was assessed in these animals by ELISA (IDEXX® PRRS x3 and Civtest® Suis PRRS E/S) and viraemia by SYBR Green RT-PCR prior to vaccination and at 28 days post-vaccination (dpv). In addition, local reactions, body temperature and reproductive parameters (born alive and stillborn piglets) were evaluated at individual level. Finally, the reproductive parameters at the first farrowing post-vaccination were compared with the previous data in all sows. Different statistical tests were performed according to the recorded data.

RESULTS

No presence of RNA of PRRSV was detected at 28 dpv in any of the groups (IM and ID). Independently of the ELISA test, the PRRS antibody values at 28 dpv were higher than before PRRS vaccination (t-test, $p < 0.05$) by the different routes, but no significant differences were detected between the ID and IM groups (Figure 1).

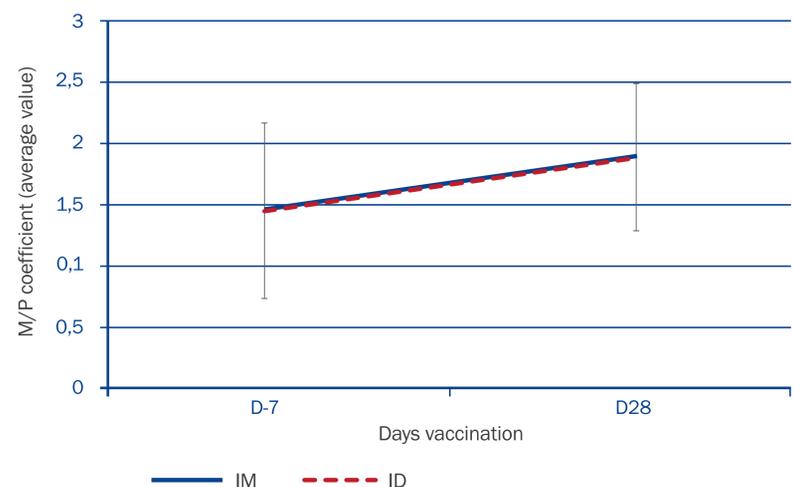


Figure 1. Group means of the M/P coefficient of the PRRSV antibody response in animals vaccinated via the IM or the ID route. The cutoff is set to the M/P ratio of 0.4 (IDEXX PRRS x3).

After ID administration, slight inflammation and/or redness were observed, which resolved within 2 days. No significant increase in temperature at 4 hours post-vaccination or 1 dpv was observed in any of the vaccinated groups (Student's Test, $p > 0.05$). Similar reproductive values were obtained pre- and post-vaccination at individual and farm level, as well as in the comparison between the IM and ID vaccinated animals (Mann Whitney and Friedman Test, $p > 0.05$).

DISCUSSION AND CONCLUSIONS

We compared the immune response and safety of a mass ID vaccination with Hipradermic® against PRRS in sows with vaccination via the conventional IM route. ID vaccination with UNISTRRAIN® PRRS induced similar antibody levels at 28 dpv, which suggests similar immunogenicity of the ID route. Furthermore, ID administration suggests a reduction in tissue lesions as shown by the slight and transient local reactions, whilst safety and reproductive parameters were comparable to the traditional IM route.

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REFERENCES

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