The **Reference** in **Prevention** for **Animal Health**

THERMOGRAPHY AS A NEW TOOL FOR THE EVALUATION OF HIPRADERMIC® VACCINATION IN SOWS IN TWO DIFFERENT ANATOMICAL AREAS

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INTRODUCTION

Thermography is a non-contact, non-invasive technique that detects surface heat emitted as infrared radiation[1]. The colours of the images represent different temperatures, highlighting hot and cold spots and showing a map of the thermal distribution. Intradermal injection involves the alteration of homeostasis at the inoculation point[2] which would modify the normal thermal distribution of this area. It was therefore thought that infrared thermography could help to easily visualize the inoculation point when vaccinating with a needle-free intradermal injector such as Hipradermic®[3].
The objective of the present study was to assess thermography as a method of evaluating the inoculation point when vaccinating with the UNISTRAIN® PRRS vaccine in sows using Hipradermic®.

MATERIALS AND METHODS

A total of 130 healthy sows between 20-25 days' gestation from a PRRS-positive commercial farm was selected. Sixty sows were assigned to the V1 group and vaccinated intradermally in the neck area with UNISTRAIN® PRRS using Hipradermic® (0.2 ml/dose), whilst the other 60 animals were assigned to the V2 group, with vaccination performed in the perineum area. Finally, 10 sows were non-vaccinated (NV group), but the device had similar physical contact with the animal to the V group (5 sows were NV1 group and the other 5 were NV2 group in the neck and perineum areas, respectively).
Visual inspection was performed by analyzing the local reactions (inoculation point, papule, inflammation, ulcer and/or scab) previously to vaccination, post-vaccination and 30 min, 4h, 6h and 24h later. For the evaluation of the thermography, the FLIR ONE™ camera for iOS was used at the same times as visual inspection. All the data obtained were processed with FLIR Tools® software.

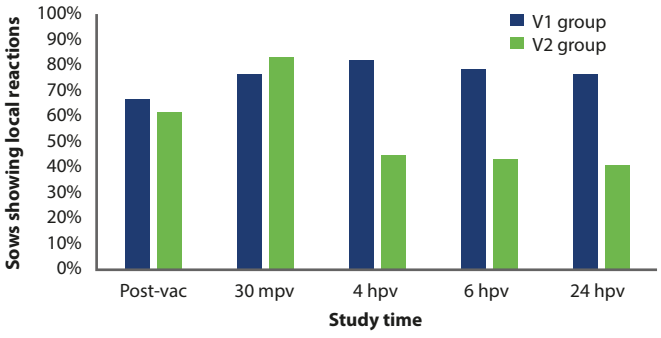

Figure 1. Percentage of animals with local reaction at the inoculation point in the vaccinated groups (V1 and V2) at the different time points studied.

RESULTS

Visual inspection after vaccination allowed the detection of local reactions at the inoculation point in 66.7% and 61.7% sows from groups V1 and V2, respectively, although the highest percentage of vaccinated sows with local reactions was different depending on the anatomical area (Figure 1).
Thermographic photos detected the inoculation point (thermal footprint) in 100% of the vaccinated sows after vaccination, independently of anatomical area (Figure 2). The changes in temperature were based mainly on a reduction of the minimum temperature at the inoculation point for the V1 and V2 groups after inoculation (28.54±2.09 and 27.87±2.27, respectively), whilst the NV1 and NV2 groups did not show this variation (32.71±2.78 and 30.62±1.11, respectively). One hour after vaccination and subsequently, these changes were not significant between groups.

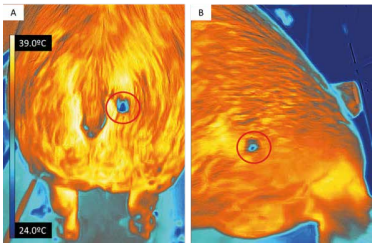

Figure 2. Thermal footprint (inside the circle) in vaccinated sows in the perineum (A) and neck (B) area.

CONCLUSIONS AND DISCUSSION

This study assesses the use of thermography as a method of detection of intradermal inoculation in sows under field conditions. A clear footprint at the inoculation point was detected in all vaccinated sows after the vaccination by intradermal route (Figure 2). Therefore, thermography could be used as an easy alternative method of evaluation of the inoculation point when using the needle-free intradermal injector Hipradermic® in sows, with detection in 100% of vaccinated sows after vaccination.

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This poster in press belongs to approved proceedings to IPVS Congress 2020 to be held in Brasil, which has been postponed due to COVID-19.