HIPRA

Vaccination with an inactivated vaccine against abortion during the latest month of pregnancy do not jeopardize the reproductive performances of ewes

Santiago de Santa Pau Agramunt[1]; Isabel Barril[2]; Massimiliano Baratelli[2]; Pablo Núñez[2]; Miguel Ángel Sanz[2]

1 Sociedad Cooperativa De Ganaderos San Simón y San Judas (Tauste, Spain)
2 Laboratorios Hipra S.A (Amer, Spain)

Introduction

Abortion caused by *Chlamydia abortus* and *Salmonella* Abortusovis are an important cause of economic losses in ewes. The disease is usually presented during the late pregnancy period and thus vaccination is generally recommended before mating. Despite this, vaccines are used sometimes in field as emergency measure in face of outbreaks and this might imply to vaccinate during the latest month of pregnancy.

One of the mayor concerns of this last-minute solutions is its safety. The present study pretended to evaluate the safety of the administration of an inactivated vaccine during the latest pregnancy period.

Materials and methods

Pregnant and synchronized ewes were recruited for the study and allocated into 5 groups. Group 1 (n=18) was vaccinated with an inactivated vaccine (INMEVA®) at respectively 5 and 2 weeks before lambing (wbl); group 3 (n=10) and group 4 (n=10) were vaccinated at 2 wbl with a single dose of 2 ml and 4 ml of the vaccine, respectively. The vaccine was not indicated to be administered during the latest month of pregnancy and thus at 2 wbl. Groups 2 (n=10) and 5 (n=9) were injected with 2 doses of PBS (2 ml each) at respectively 5 and 2 wbl and a single dose at 2 wbl.

The reaction at the site of injection, systemic and the rectal temperatures were monitored before the administration of each dose of the vaccine, 4 and 24 hours later. The reproductive performances of the ewes were recorded.

Results

Results showed that vaccination with any of the tested plans did not produce any visible local or systemic reaction. A temporal increase of rectal temperature was observed 24 hours after vaccination which recover back 24 hours later.

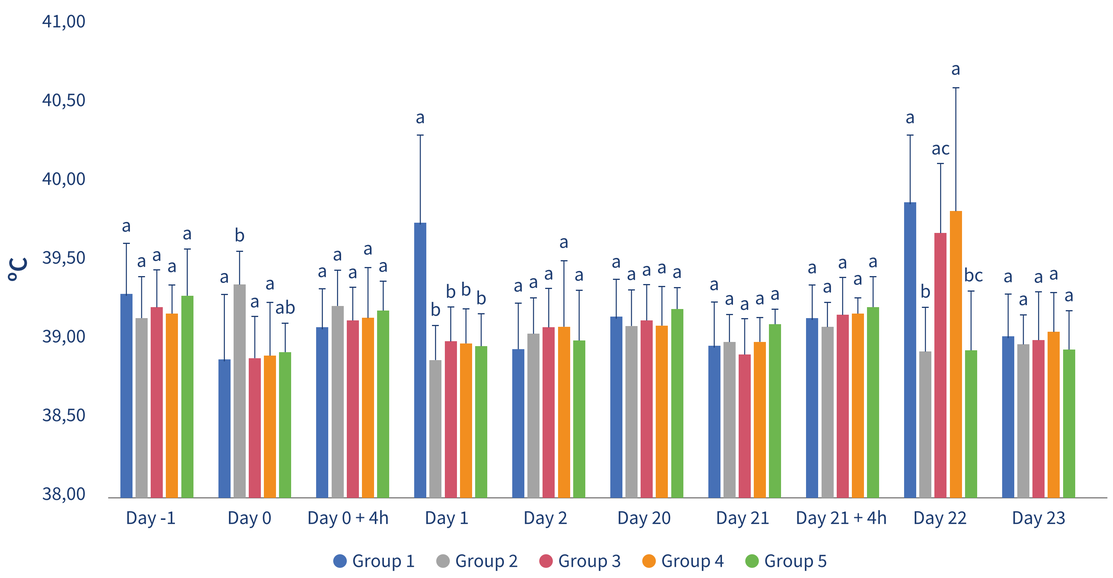

Fig 1. Rectal temperatures of ewes. Results are represented as average and standard deviation. Different letters indicate a statistically significant difference (Kruskal-Wallis test, $p<0.05$).

This increase was observed in all vaccination plans and at each dose administered; on average the increase was between 0,76ºC and 0,9ºC.

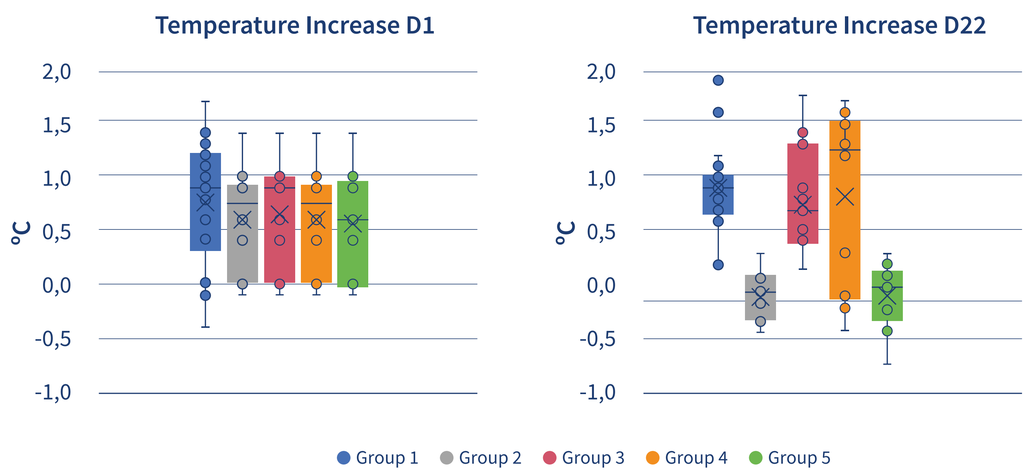

Fig2. Rectal temperature increases. This has been calculated as the difference between the rectal temperature before and after 4 hours from the vaccination. Results are represented as average and standard deviation. Different letters indicate a statistically significant difference (Kruskal-Wallis test, $p<0.05$).

An ewe aborted in group 4 and 5 and another one delivered a stillborn lamb in group 2. Beside this, some ewes of group 1 and 4 did not lamb, but no foetal expulsion was observed. It is likely these ewes showed foetal mortality during mid-pregnancy which resulted in resorption of the foetus.

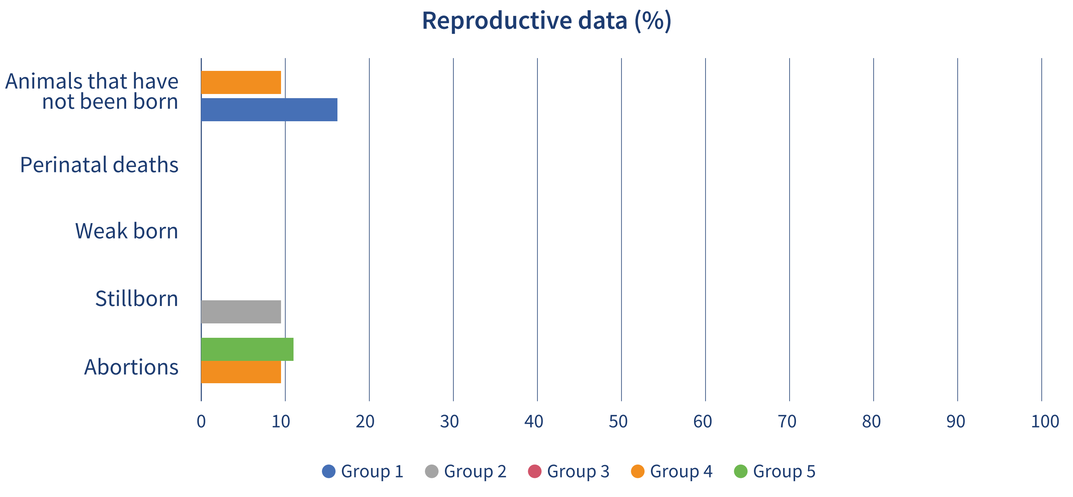

Fig 3. Reproductive disorders observed during the study. Results are represented as percentage over the total of lambed animals.

Conclusions

The studied vaccine did not produce any abnormal local, general or temperature adverse reactions compared to the indicated in the manufacturer's instructions and previous studies[1]. The reproductive disorders observed during the study were not due to vaccination as presented also in control group.
In conclusion, the inactivated vaccine (INMEVA®) does not compromise ewe health or reproductive performances when administered during the latest month of pregnancy; therefore, it is a safe solution to control abortion storms caused by *Chlamydia abortus* and *Salmonella* Abortusovis in ewes.

References

1. Montbrau C, Fontseca M, March R, Sitja M, Benavides J, Ortega N, Caro MR, Salinas J. Evaluation of the Efficacy of a New Commercially Available Inactivated Vaccine Against Ovine Enzootic Abortion. Front Vet Sci. 2020 Sep 4;7:593