

Use of a killed PRRS vaccine as a complement to a PRRS modified live vaccine to achieve a PRRS stable status on a positive highly pathogenic PRRSV1 farm in Spain

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Introduction

On farms that are endemically infected with PRRS, modified live vaccines (MLV) are the first choice for immunological stimulation of animals, so any vaccination programme must include them. PRRS killed vaccines (KV) represent a booster of immunity against PRRS and are used as a complement to a previous vaccination with a MLV. The combination of MLV and KV has several benefits, namely an increase in neutralizing antibodies and cell-mediated immunity responses (1) and a remarkable improvement in the PRRSV status in breeding herds. A farm with stable PRRSV status is the key to achieve better reproductive parameters, and being able to get an increase of 1.28 weaned piglets per sow per year if PRRS stability is maintained for a one-year period (2). The objectives of this trial were to evaluate the efficacy of sow's revaccination with SUIPRAVAC[®] PRRS (VP-046 KV, HIPRA) in reducing PRRS viraemia and its effect on reproductive parameters in a farm in Spain.

Materials and methods

The study was conducted on a swine farm of 226 sows located in Spain (Tona, Barcelona) which was managed by a weekly farrowing system. Sows were vaccinated against PRRS with a MLV by blanket administration every 4 months. Piglets were not vaccinated against PRRS. The recruited farm was having reproductive disorders caused by a highly pathogenic Type 1 PRRS strain called Rosalia (3). Breeder sows at 45 days of gestation were recruited for this study. The latest vaccination against PRRS was administered 3 months before the study start (October 2021). The recruited sows were distributed in 2 groups. At 60 days of gestation, group 1 (n=14) was vaccinated with SUIPRAVAC[®] PRRS and group 2 (n=15) was vaccinated with PLACEBO. Once farrowed, the reproductive performances were recorded. The PRRS viraemia was monitored in the farrowed piglets during the first week after farrow (0 weeks) and at 3 weeks post-farrow with RT-qPCR. For this purpose, blood samples were collected from 58 piglets from sows in group 1 and 61 piglets from sows in group 2.

Results

Regarding reproductive performance, the percentage of stillborn piglets per litter was higher in group 2 (12,09%) versus those obtained in group 1 (6,28%), but the difference was not statistically significant (Figure 1). Despite this, the difference between both groups were 48,06% stillborn piglets less in sows from group 1 than in group 2. Regarding piglet's viraemia, between 8.20% (0 weeks) and 8.33% (3 weeks) of piglets were positive in group 2 while all piglets remained negative in group 1. The strain identified was a wild PRRS virus, specifically Rosalia strain. The difference between groups were statistically significant (Figure 2).

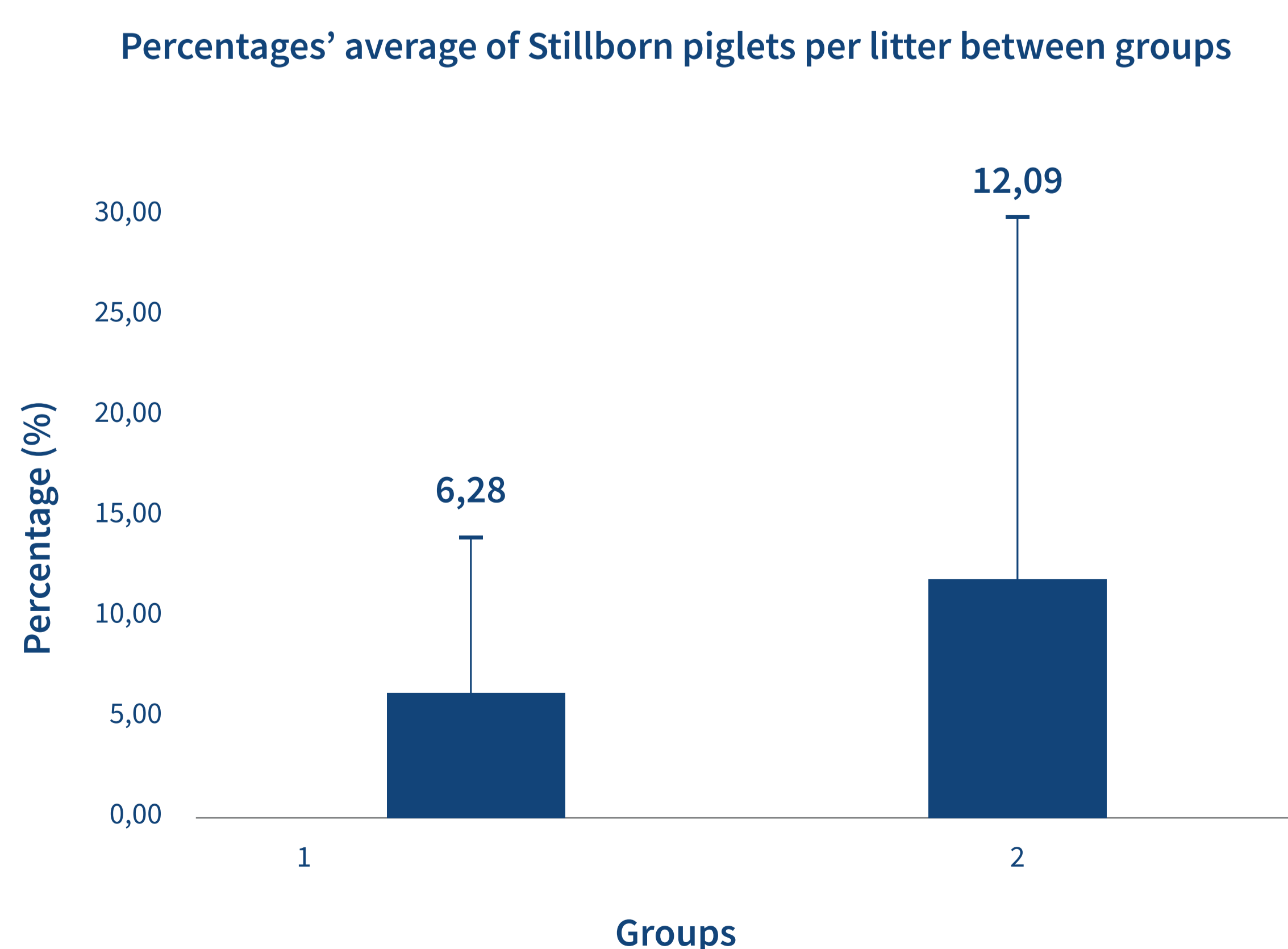


Figure 1. Reproductive performances of sows. Results are represented as average and standard deviation of the percentage of stillborn piglets per litter (Mann-Whitney Test, p>0,05).

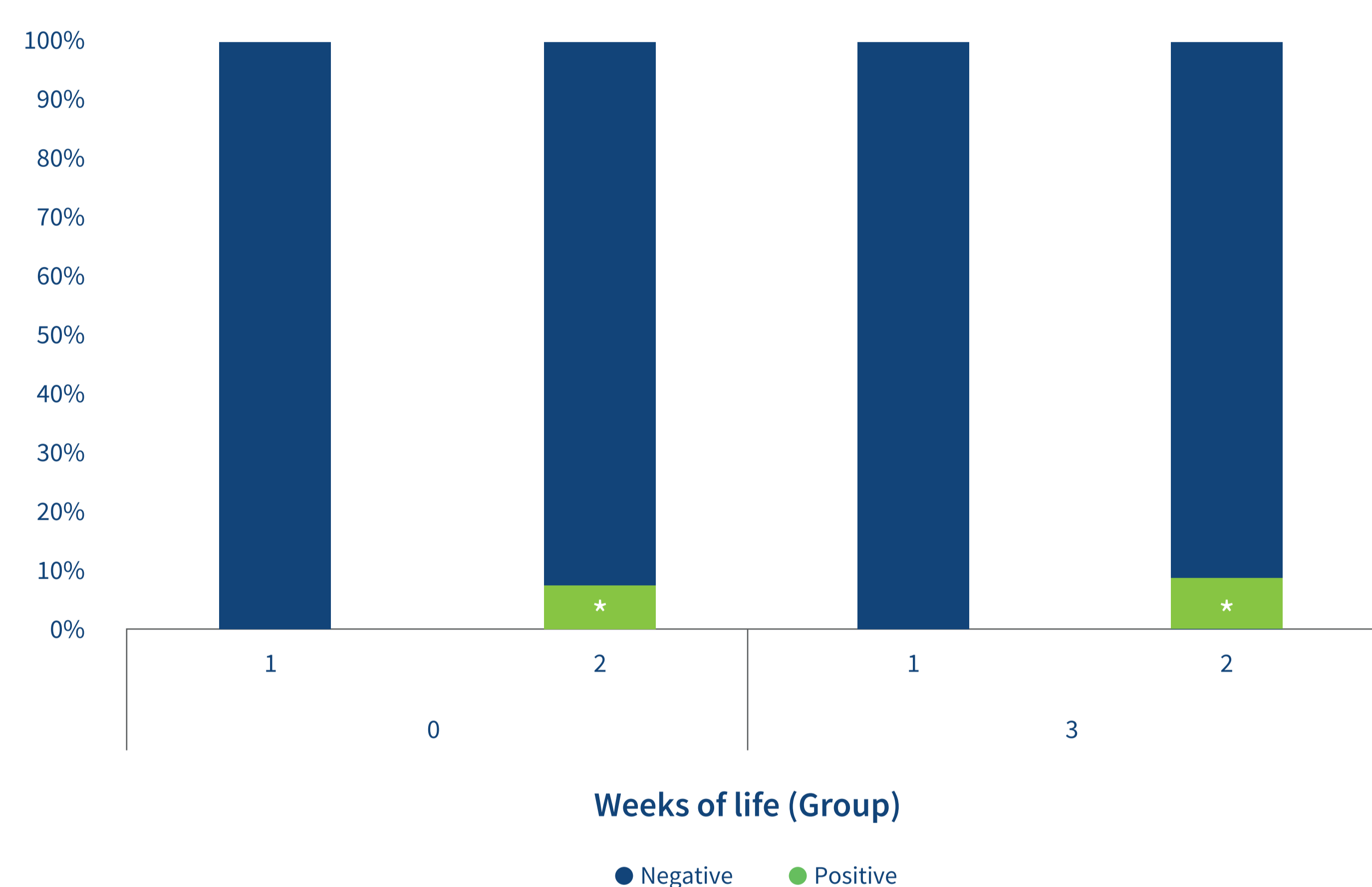


Figure 2. Viraemia of PRRS in piglets. Results are represented as percentage of positive and negative piglets. Asterisks indicate a statistically significant difference between group (Fisher exact test 1 side; p>0.05).

Discussion and conclusion

The trial demonstrated that SUIPRAVAC[®] PRRS reduced significantly the viraemia in piglets during the lactation phase and produced 48.06% of stillborn piglets less than the control group in a positive Rosalia strain farm

References

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