

Repetitive MycoFLEX® vaccination results in Antibody seroconversion



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INTRODUCTION

Detection of antibodies is a valuable tool to detect presence of disease. However, with the use of concurrent vaccines, the effect of these vaccines on the antibody response should be taken in account with the interpretation. On a *Mycoplasma hyopneumoniae* (Mhyo) negative breeding farm producing F1 breeding gilts, the vaccination protocol for the F1-gilts changed from single dose Mhyo vaccination (at 21 days of age) to a double dose mycoplasma vaccination (at 21 days of age and a booster at 6 months of age; with MycoFLEX®, Boehringer Ingelheim). The involved animals showed seroconversion after the second vaccination, without any clinical symptoms of a Mhyo outbreak. Also, in the herd of origin (grand parent animals) no signs of a changed Mhyo status were observed, and these animals remained seronegative (never vaccinated). The objective of this study was to assess the effect of multiple dosing of MF and how this will influence the test outcome of commercial Mhyo antibody tests.

MATERIALS AND METHODS

In total 31 pigs were followed longitudinal, with in total three treatment groups of 10: CON (not vaccinated; #10), MF2 (vaccinated at 21 and 112 days age; #11), MF 3 (vaccinated at 21, 112 and 152 days of age; #10). Pigs were bled at the age of 112 days (91 days post first vaccination), 152 (40 days post second vaccination) and 194 days (42 days post third vaccination). Pigs were comingled and group housed together. Serum was submitted to the Dutch Animal Health service (GD Deventer) for Mhyo antibody testing (indirect Elisa; Idexx; S/P ratio's; and second confirmation by blocking Elisa).

RESULTS

At the age of 112 days (91 days after first vaccination for MF2 and MF3) all pigs remained seronegative for the Indirect Elisa although there was significant different between CON and MF2/3 (-0.02 vs 0.06 $p < 0.01$). This changed after the second vaccination at the age of 152 days (40 days after the second vaccination; CON #0 pos, S/P-ratio 0.02; MF2 #5 pos, S/P-ratio 0.44; MF3 #9 pos, S/P-ratio 0.68; $p < 0.001$) and for the confirmation test (CON #1; MF2 #10, MF 3 #10). After the third vaccination a further rise in antibodies was seen in the MF3 group (CON S/P-ratio 0.16; MF2 S/P-ratio 0.38; MF3 S/P-ratio 0.83 $p < 0.001$). Box and whisker plots of the Elisa results are shown in Figure 1.

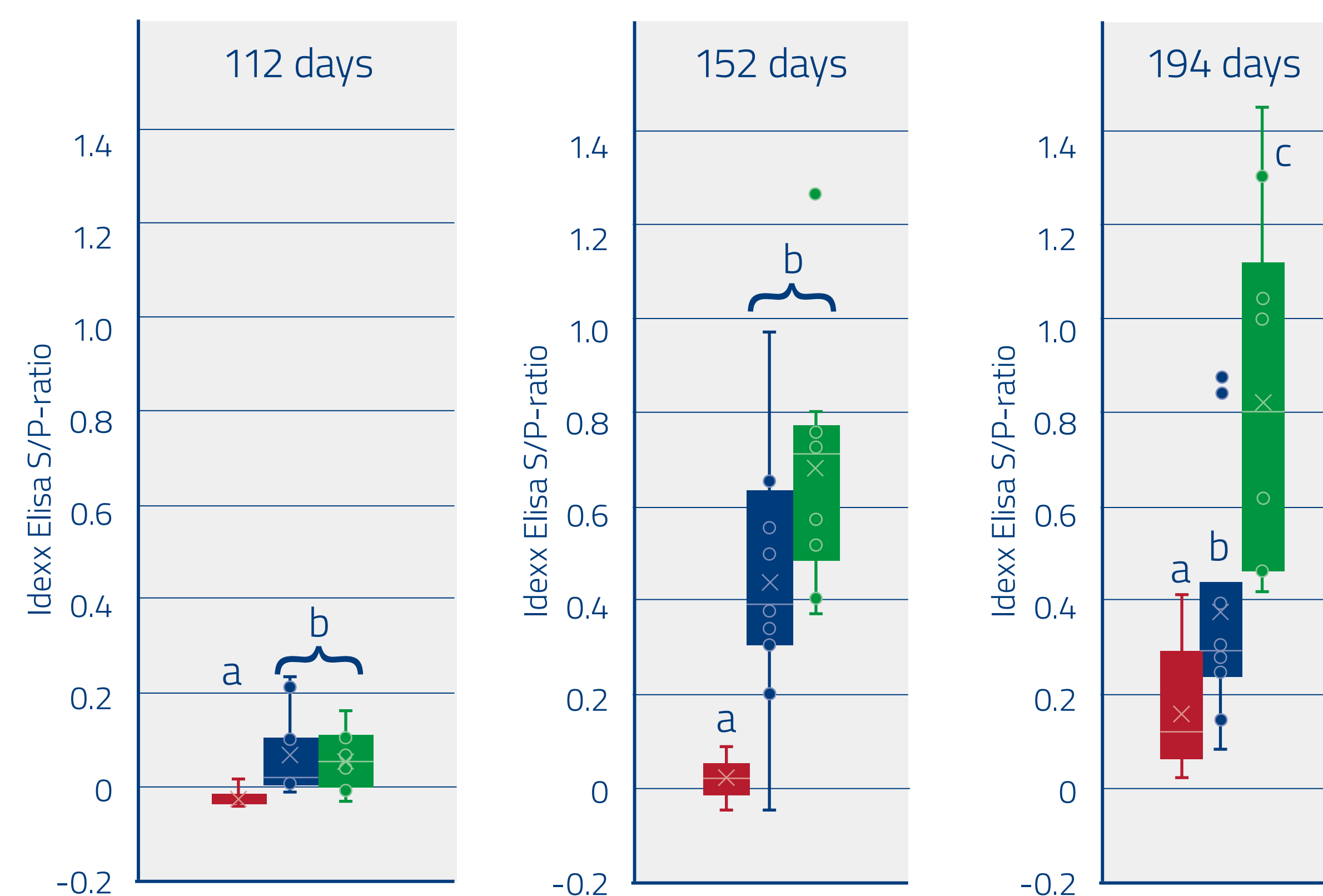


Figure 1. Indirect Elisa results (Idexx) S/P-ratio of the 3 treatment groups. CON (red); MF2 (blue) and MF3 (green) at the respective age of the animals. Different letters mark a significant difference ($P < 0.01$)

DISCUSSION

MF vaccination led to a small antibody response after the first vaccination. Although this effect was significant, it does not lead to positive samples based on the current cut off specifications. After multiple repetitive doses MF, there is a clear dose response effect, leading to positive samples in as well the standard Elisa as for the confirmation test. This effect must be taken in account when the health status of a Mhyo-free SPF herd is assessed when monitoring multiple MF vaccinated animals. This second vaccination response could be used as a vaccination compliance marker, however further research is needed to validate this on commercial farms with field exposure to Mhyo.

CONCLUSION

Single administration does not lead to a positive antibody outcome based on the current cut off values of the commercial tests. Multiple administration of MF shows a dose response effect, leading to an increase of antibodies as measured by the S/P-ratio's values and above the cut off values.