PRRS antibody ELISA response in serum of piglets after PRRS MLV vaccination

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INTRODUCTION

Veterinary practitioners in the Netherlands often try to use PRRS antibody titers as a tool for compliance of modified-live (MLV) PRRS vaccination in piglets, or to show PRRS field virus infection in piglets regardless of previous PRRS MLV vaccination.

The objective of this field study was to evaluate results of PRRS antibody testing in the serum end of nursery, at 5 – 7 weeks after PRRS MLV vaccination.

MATERIALS AND METHODS

In six commercial Dutch sow herds, piglets were PRRS MLV vaccinated (PRRSFLEX EU®) at 3 – 5 weeks of age. At 5 – 7 weeks after vaccination, when the piglets were 9 – 10 weeks of age, at each farm piglets were bled and the samples tested for PRRS IgG antibodies (IDEXX PRRS X3 Ab Test ELISA)[3].

RESULTS

Figure 1: PRRS S / P ELISA of piglets at different farms at 5 – 7 weeks after PRRS MLV vaccination

At five farms (farm A – E) 30 samples were tested, in one farm (farm F) 14 samples were tested. The percentage of antibody positive samples per farm (S/P ratios above 0.4) varied between 50 and 97 %

The average S/P ratio per farm varied between 1,00 and 2,29. The Standard deviation of the S/P ratio per farm varied between 0,67 and 1,18.

CONCLUSION AND DISCUSSION

In every farm the percentage of ELISA positive samples was below 100 %, one farm had 50 % of so called 'non-responders' (negative samples). IgG antibodies indicate infection, not protection[1]. As PRRS protective immunity is based upon neutralizing antibodies and/or cellular immunity, finding IgG 'non-responders' cannot be regarded as proof of lack of immunity.

Remarkable is the variation (standard deviation) in S/P ratios per farm and between farms. This makes drawing conclusions on the average S/P ratios questionable. This will be even more difficult when testing a low number of samples per batch, e.g. to test 5 – 10 samples per batch, as the variation will have a strong at random effect on the results.

ELISA kits are useful for the detection of antibodies against either genotype of PRRSV[2], but cannot discriminate antibodies against vaccine virus from field virus. So no conclusions can be drawn on that.

We conclude that the use of a commonly used PRRS antibody ELISA kit does not provide any information on how to answer the following questions:

a) have the piglets been properly PRRS MLV vaccinated and
b) is there proof of PRRS field virus infection in PRRS MLV vaccinated piglets.

REFERENCES

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