

# EVALUATION OF THREE ELISAs FOR DETECTING SERUM ANTIBODIES AGAINST *Mycoplasma hyopneumoniae*

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## INTRODUCTION

*Mycoplasma hyopneumoniae* (*Mhyo*) is an important component of the so called Porcine Respiratory Disease Complex (PRDC). *Mhyo* infection in pigs is usually monitored through serology. In this study, we compared three ELISAs developed to detect antibodies to *Mhyo* in swine serum. The main objectives of this study were to differentiate serum antibody profiles of four groups of animals: non-challenged/vaccinated, challenged/vaccinated, challenged/non-vaccinated and non-challenged/non-vaccinated animals.

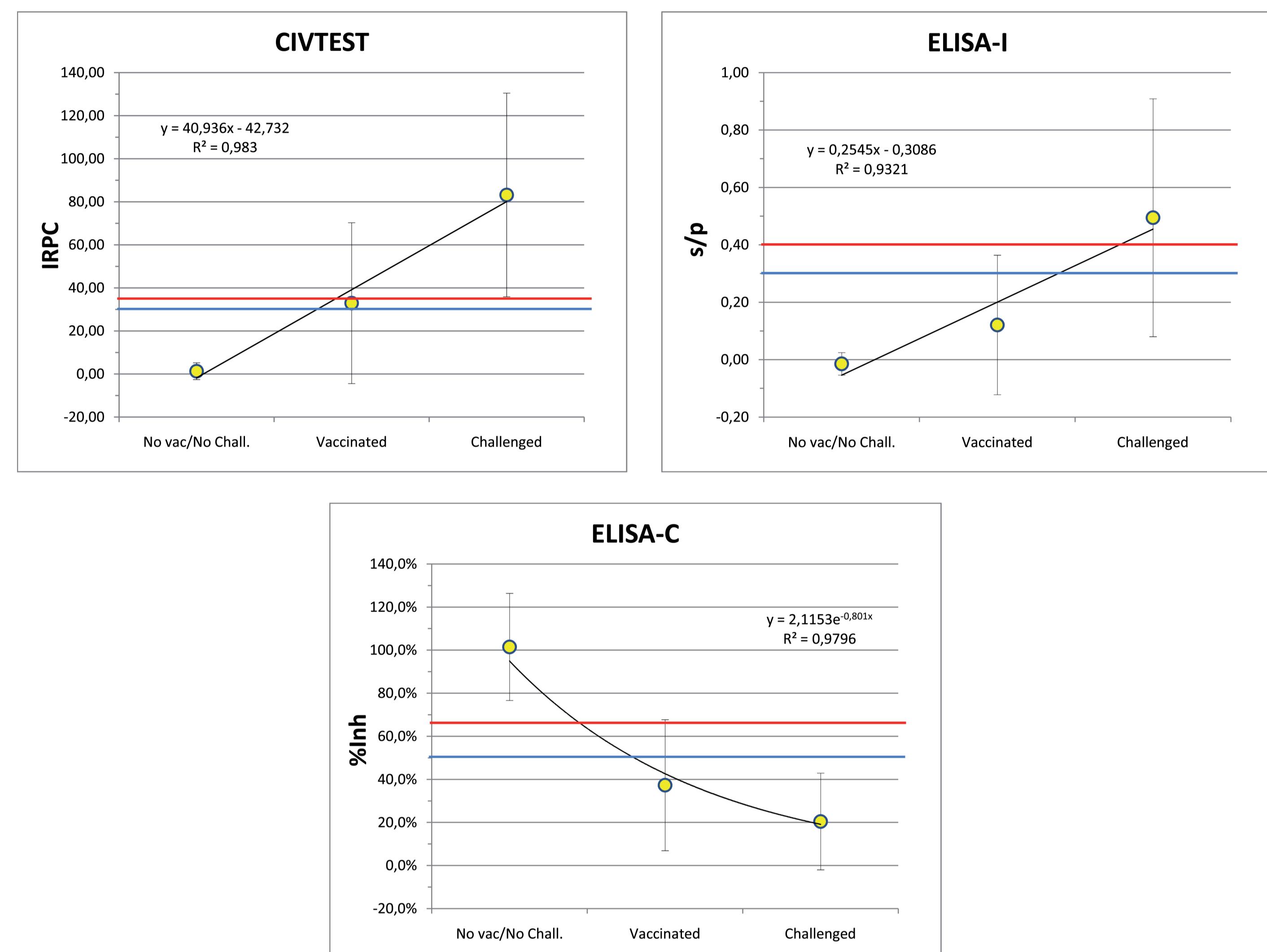
## MATERIALS AND METHODS

Seventy young piglets (10-day-old) serologically negative to *Mhyo* were divided into 7 groups of 10 animals each. Groups 1-5 were vaccinated with 5 different commercial vaccines against enzootic pneumonia on D0, and D21, and subsequently challenged on D70 with *Mhyo* strain 3371. Groups 6 and 7 were used as non-vaccinated/challenged and non-vaccinated/non-challenged control groups, respectively. Blood samples were taken from all animals at D0, D21, D42, D70 and D98. All samples were tested using the CIVTEST® SUIS MHYO ELISA kit, a commercial indirect ELISA (ELISA-I), and a commercial competition ELISA based on a monoclonal antibody against the p74 (ELISA-C).

## RESULTS

All the kits showed good performance in the analysis of specificity (100%). In regard to sensitivity, it varies depending on the type of sample analyzed: ELISA-C detected more positive samples from vaccinated animals (72.2%), followed by CIVTEST® (41.67%) and the ELISA-I (14.81%). No differences in sensitivity were observed between ELISA-C and the CIVTEST® (87.5% in both cases) in the samples from challenged animals (vaccinated and non-vaccinated); ELISA-I was less sensitive (50%) (Figure 1). All three kits showed some common performance characteristics: they displayed maximum sensitivity at D42 after two doses of vaccine and sensitivity diminishes at D70. Also, sensitivity was lower when dealing with only challenged samples; in this case, CIVTEST® and ELISA-C displayed the same sensitivity (33.3%) and detected all samples from vaccinated/challenged animals (100%); ELISA-I was the less sensitive (0% and 61.54%, respectively).

**Figure 1.** Quantitative representation of the *Mhyo* ELISA serology using three commercial kits. The results are shown as a mean (central point) and standard deviation (vertical bars).



**Table 1.** Kappa values obtained in the different comparisons.

Comparison	All	Vacc.	Chall.
CIVTEST® vs ELISA-C	0.7	0.4	1.0
CIVTEST® vs ELISA-I	0.54	0.39	0.25
ELISA-C vs ELISA-I	0.34	0.12	0.25

## CONCLUSIONS AND DISCUSSION

The most similar kits were the CIVTEST® and the ELISA-C because both of them have a high sensitivity (Table 1). CIVTEST® has better performance differentiating quantitatively samples from vaccinated animals and samples from vaccinated/challenged animals. The high sensitivity of the ELISA-C when detecting vaccination seems to make this test have more problems when distinguishing between samples from vaccinated animals and samples from vaccinated/challenged animals (Figure 1).

## BIBLIOGRAPHY

1. Ameri-Mahabadi, Mehrdad et al: 2005, J Vet Diagn Invest 17:61-65.
2. Earlandson, KR et al: 2005, Journal of Swine Health and Production 198:203.