

PRRS IN FOCUS

VETPROOF® PORCINE REPRODUCTIVE AND RESPIRATORY SYNDROME VIRUS (PRRSv) qPCR KIT

Porcine Reproductive and Respiratory Syndrome virus (PRRSv) remains one of the most prevalent and economically important pathogens affecting swine populations.

Accurate, sensitive, easy-to-use assays are crucial in the management of PRRS as the genetic diversity and complexity of PRRSv are still causing increasing challenges for the swine industry such as the emergence of the highly pathogenic genotype II strain in Asia, high losses in Mexico and the Rosalia strain in Spain.

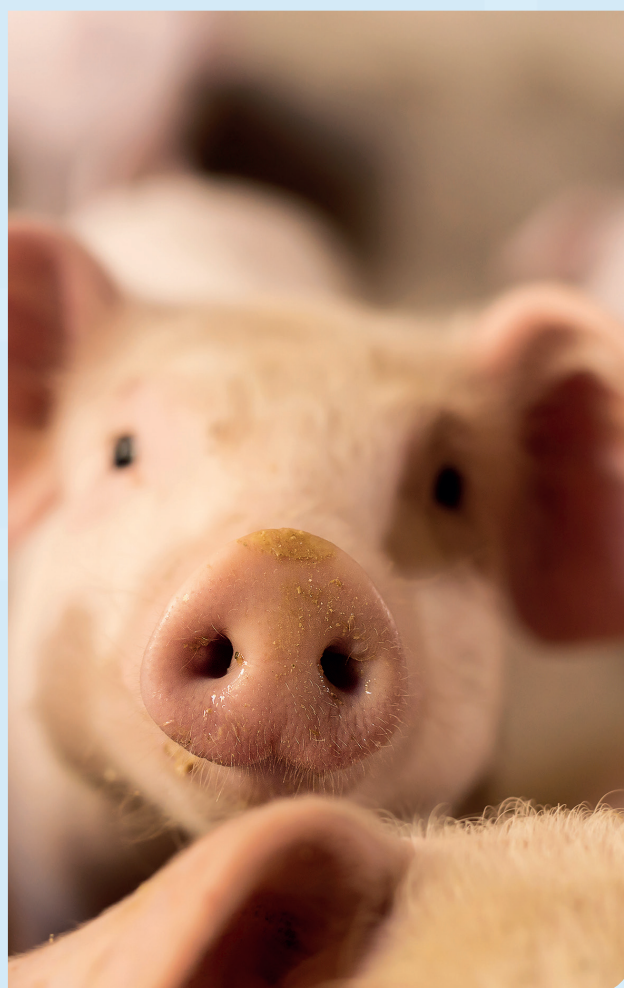
BioChek launched the new **vetproof®** PRRSv qPCR Kit earlier this year, in June, to address these issues.

The new **vetproof®** PRRSv qPCR Kit is designed to solve diagnostic problems and offers the following advantages:

- Excellent strain coverage and reliable detection and differentiation between PRRSV Type I (EU), PRRSv Type II (NA), and subtype HP (highly pathogenic NA strains).
- Suitable for all relevant matrices.
- Great sensitivity and a low limit of detection (10 copies per reaction) allow for high-throughput screening in pools of up to 10 serum samples.

Proper monitoring of PRRSv in conventional herds can greatly decrease the production losses associated with the disease.

Under-standing the status of the herd, infection timepoints, optimal vaccination moment and vaccination success allows the veterinarian to implement the best suited PRRS prevention strategy.



UNDERSTANDING THE VALUE THAT BIOCHEK'S PRRS XR ANTIBODY ELISA ADDS TO YOUR TEST RESULTS COMPARED TO FREQUENTLY USED PRRS ELISA

BioChek PRRS XR (=eXtended dynamic Range) Antibody ELISA clearly differentiates between low, moderate and high titres, giving users a better picture of the PRRS status in all production groups.

When comparing the BioChek PRRS XR Antibody ELISA with another frequently used PRRS ELISA the added value of the extended range becomes clear. The detection of the antibody response is rapid and well defined and as is seen in the field cases described below.

Suspected field virus contact in a PRRS stable population.

BioChek PRRS XR Antibody ELISA responds earlier and more defined to a field virus contact, confirmed by PCR (typed as field virus strain), at the end of the nursery phase.

The difference in sow titres and in titres of the infected groups are notable and would allow the veterinarian to formulate an appropriate intervention plan. The other ELISA indicates a much higher antibody level in the sow population, suggestive of an recent infection, compared to BioChek PRRS XR Antibody ELISA although PCR confirms no active infection at this stage. The other ELISA profile also indicates a late infection at the end of finishing while the PCR results shows a clear increase in Cq value. Field infections are detected, and an estimation of the infection moment is possible with BioChek PRRS XR Antibody ELISA.

PCR including typing was performed to check and confirm the conclusion from of the serological profiles.

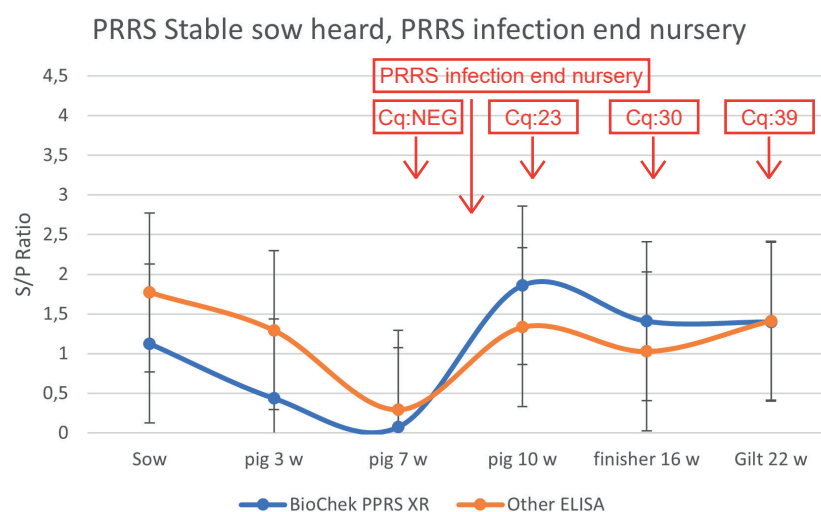


Fig 1. Suspected field virus contact in a PRRS stable population

Vaccination of piglets at 3 weeks of age with no field virus contact.

BioChek PRRS XR Antibody ELISA detects the antibodies formed against the vaccination rapidly and decreases over time in the absence of field virus contact as expected. The other ELISA detects the vaccination much later which would suggest poor vaccination response and a later field virus contact which is not reflected in the confirmatory PCR result (typed as vaccine strain) and not reflective of the situation on the farm.

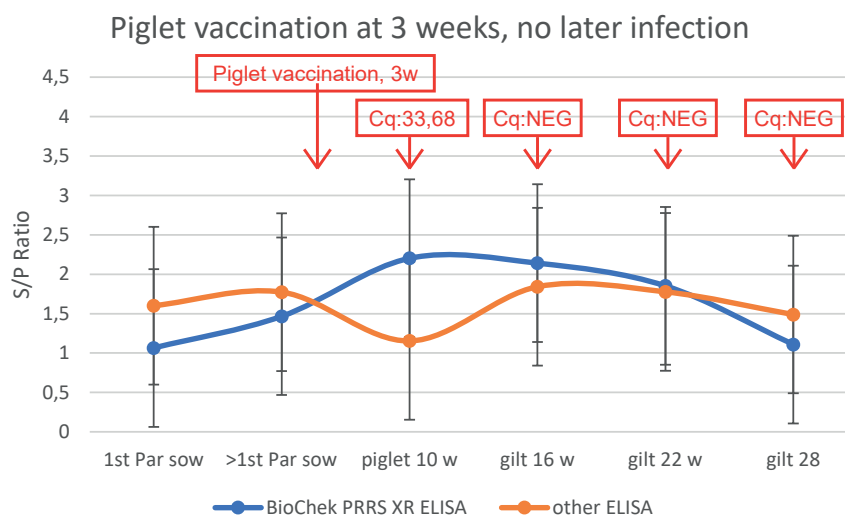


Fig 2. Vaccination of piglets at 3 weeks of age with no field virus contact

Vaccinated piglets/gilts with suspected field infection.

In the case below BioChek PRRS XR Antibody ELISA detects the increase in antibodies formed against the vaccination at 3 weeks, and a clear increase (boostering) in titres after the field virus contact. Once the infection clears, as confirmed by the PCR (typed as field virus strain) the titre levels start to decrease as expected. The other ELISA detects the vaccination but shows lower titres and does not detect the antibodies formed against the field virus until much later. The titres increase despite no infection present as confirmed by the PCR at 28 weeks.

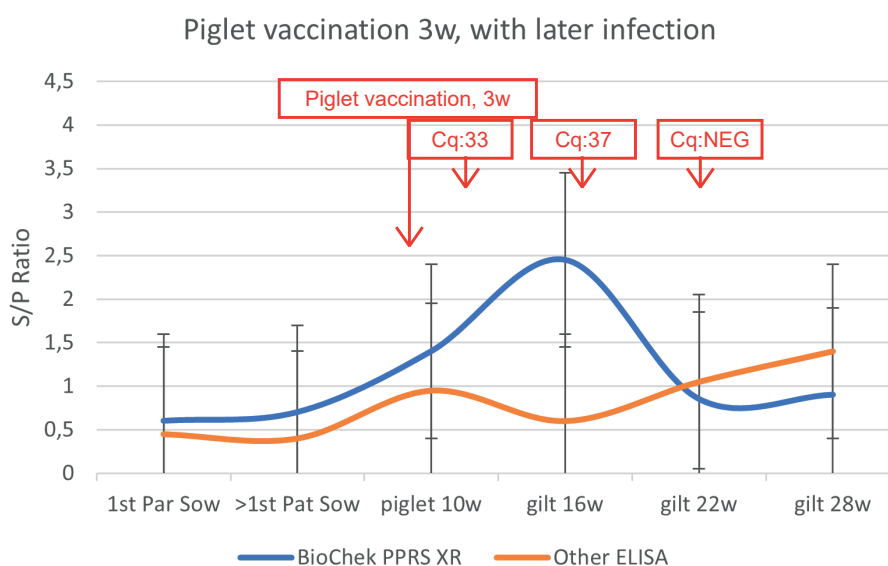


Fig 3. Vaccinated piglets/gilts with suspected field infection

Investigation of PPRS stable herd without active infection.

BioChek PPRS XR Antibody ELISA detected low levels of antibodies with decreases over time as expected. The other ELISA indicated high sow tires which does not reflect the actual situation of a PPRS stable sow herd.

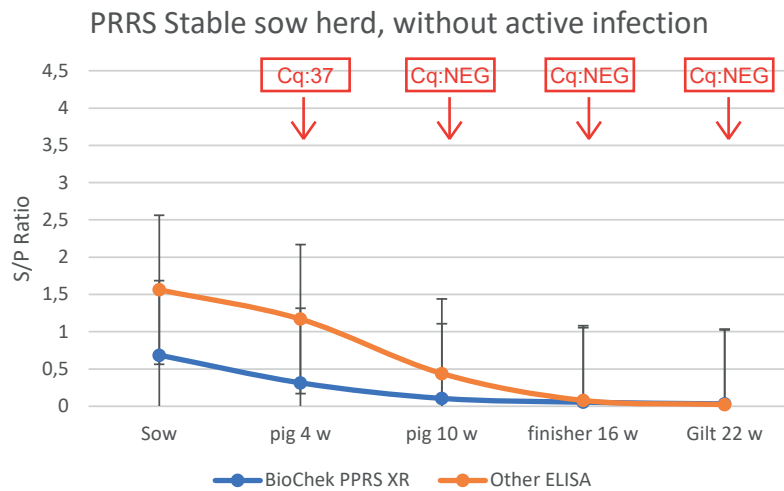


Fig 4. Investigation of PPRS stable herd without active infection

End point titration of a high positive PPRS sample (Fig5)

BioChek PPRS XR Antibody ELISA shows distinct differentiation between low, medium and High positive samples enabling the user to detect infection, estimate infection moment and allow for proper vaccination success monitoring vs the flatter curve demonstrated by the other ELISA.

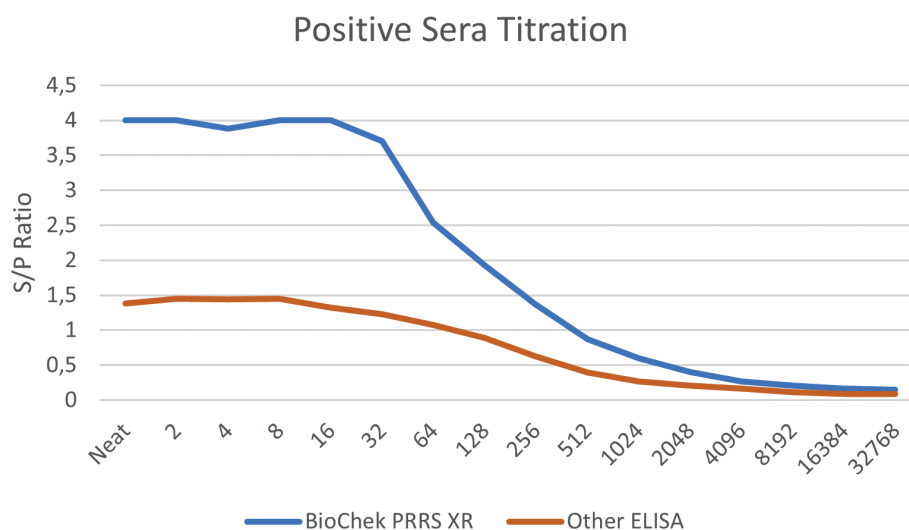


Fig 5. End point titration of a high positive PPRS sample

From the field cases explained above, taking the clinical findings and PCR results into consideration, it is apparent that the BioChek PRRS XR Antibody ELISA has excellent sensitivity and specificity and gives results that reflects the real situation accurately in different scenarios typically encountered on the conventional farm. Compared to other PRRS ELISA the extended range of BioChek PRRS XR Antibody ELISA is of great value to the veterinarian in assessing the moment of infection, timing of vaccination and monitoring of vaccination success which avoids incorrect conclusions regarding the disease status when the pigs are marketed.

The excellent specificity (DSp >99%) also makes BioChek PRRS XR Antibody ELISA a useful tool to monitor the infection status on SPF farms as shown in Fig 6.

Country	# samples	%
Russia	600	99,7
Poland	140	99,3
Canada	46	100
Mexico	208	99,9
USA	498	99,6
Average		99,7

Fig 6. Specificity Results

With the launch of the new **vetproof**® PRRSv qPCR Kit, BioChek now offers all the diagnostic tools to assist you with your PRRS approach: ranging from virus detection, viral extraction solutions, serology, software to simplify your workflow, biosecurity verification tools, and an easy-to-understand dashboard - adding value to test results.

Following the launch of the new **vetproof**® PRRSv qPCR Kit in June, Victor Geurts, Head of Swine Business, presented a poster related to PRRS at the IPVS last June: "Assessment of a Possible Relation Between Hygiene Protocols Measured by Bioluminescence and the Viral Load: An Orientational Study" whereby the possible relation between the amount of ATP- measured and the viral load of PRRSv was investigated, using VetAssure™ Swabs.

Victor further presented to a large, very interested audience on the topic of PRRS at the LVI Congreso Nacional AMVEC (Asociación Mexicana de Veterinarios Especialistas en Cerdos A.C) in July, sharing outcomes of PRRS and Mycoplasma hyophneumiae ELISA testing.

