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Serological Pitfalls When Measuring For Swine Pathogens

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Serological testing by swine practitioners has increased substantially in the last several years. A major factor that has contributed to the widespread use of serology has been the introduction of fast, cost-effective, and accurate tests. As practitioners, we tend to view the serological testing as being accurate, forgetting that a certain test may have certain ranges in sensitivity and specificity, some tests are dependent upon the skills of the technician, or known cross-reactions with the test just to name a few.

In order to keep their customers informed concerning the breeding stock they are receiving, veterinarians for breeding stock companies are constantly looking for an accurate way to measure the health of the animals and/or semen that are for sale. Most of us are familiar with many of the serological tests that are available, and many of them have become so familiar that we trust the results as a gold standard on which to make decisions. After having used many of these tests in repeated settings, it is apparent that rather than a gold standard, these tests may be at best a tool.

This paper will focus on three situations involving swine pathogens where the serological test resulted in information that could have resulted in wrong decisions being made. These case studies should encourage veterinarians to raise their skepticism over serological results—especially in cases where the clinical signs would not support the serological diagnosis.

Case #1 – TGE vs. PRCV differential

Serological results shown here will explain how unpredictable this test can be on different groups of animals, on the same animals over time, and even on the same serum sample from one blood draw.

Case #2 – Mycoplasma hyopneumonia

Sequential bleedings of pigs show some pigs to be positive one week and negative the next two consecutive weeks. If you only bleed the first week, are you making decisions based on incorrect analysis?

Case #3 – Vesicular Stomatitis

Using a laboratory for testing that is not common for that lab can be a traumatic experience. Making sure that the lab is capable isn't enough—you need to also have assurance of reliability.