

THE CHICK PAPERS

Georgia Poultry Laboratory Network's Monthly Newsletter



USE OF SEROLOGY IN POULTRY DIAGNOSTICS

By Len Chappell, Dr. Kathleen Sary, and Dr. Louise Dufour-Zavala

Getting blood samples from birds is quick and easy. Serological tests turn around quickly and are relatively inexpensive.

But can we use serology to diagnose poultry disease? A few talking points.

1. FALSE NEGATIVE RESULT can occur if the sample is taken early at the onset of exposure:

There is a delay (latent period) between the introduction of the pathogen in a flock and the production of antibodies by the bird in response to the exposure. If the blood collection is occurring during the same period as the pathogen introduction in a flock, the serology test may indicate a negative result from the absence of antibodies for birds that have been recently challenged. This result constitutes a "false negative" and a positive flock will be discovered later at the next scheduled sampling time.

2. FALSE POSITIVE RESULT can occur with very sensitive antibody tests:

High sensitivity screening tests are very useful to detect flocks with disease exposure, especially for diseases of high consequences or likely to spread such as Mycoplasma. Occasionally "false positives" are detected with some poultry antibody test kits due to the nature of the test. As an example, cross-reaction such as for pullets after vaccination with inactivated vaccines may present few positive reactors on Mycoplasma serology testing. Reactors must be confirmed by additional testing: an antigen detection test by PCR or a confirmatory serological test with high specificity (HI, AGID, etc.) or both. Serology should not be used as a standalone diagnosis test for disease diagnosis.

3. ACUTE and CONVALESCENT SEROLOGY:

When antigen detection is not readily available, collecting blood from birds in the acute phase of the disease, and repeat the sample collection three (3) weeks later is very helpful in getting evidence that the birds were exposed to the disease agent. It does not prove that the agent caused the disease, however, it provides strong evidence that the flock was exposed to the agent in a timeline compatible with the disease event.

4. HISTORICAL SEROLOGY:

Dealing with large animal populations, serology testing becomes very useful when looking at historical exposure to disease. The recent introduction of aMPV in Georgia is a good example. Saved sera from flocks submitted before January 2024 (historical samples) were tested for aMPV and the flocks did not show concluding evidence of exposure, while serum from flocks received after January 2024 did present seroconversion to suggest that the virus started circulating in the chicken population.



Happy Retirement



Donna Jones, a longtime employee of GPLN for 18 years, retired at the end of May. We enjoyed celebrating her and sharing memories from years past. Wishing you all the best camping spots and time with family!



Muhammad Farooq, PhD. candidate and Kelsey O'Dowd, PhD. from University of Calgary visited the lab after attending the International Avian Respiratory Disease Conference in Athens, GA.



We toured members of the National Food & Protein Distributors Association after their meeting at the lab.



We were excited to show the lab to members of the South African Department of Agriculture, Land Reform and Rural Development (DALRRD) and Border Management Authority when they with the NPIP national office and USAPEEC at the lab.



Elanco setup a 3-day workshop for vets from 8 Latin American countries that was hosted at GPLN. We enjoyed hosting and touring the group around the lab during their workshop.

