

The Chick Papers

A Monthly Newsletter from the Georgia Poultry Laboratory



September 2013

HI-IBV Testing at GPLN: Guidelines for Interpretation by GPLN Staff

Introduction: Conventional Infectious Bronchitis Virus (IBV) serology includes ELISA, which detects antibodies to IBV, regardless of serotype. The HI-IBV test measures antibodies to four specific IBV serotypes. Birds in the field respond to multiple IBV serotypes as they are vaccinated or challenged with circulating field strains, and cross reactivity exists between the serotypes. For example, as birds are exposed to multiple Massachusetts strain vaccinations, their antibodies will cross react to some degree with the Connecticut strain on the HI:IBV test, even if the birds have never been exposed to the latter strain. For this reason, HI:IBV serology interpretation is sometimes difficult.

Timing of the response: The antibody response of the birds peaks 2-3 weeks after exposure or vaccination. For this reason, the first bleeding of birds should be in the acute stage of the disease, when clinical signs such as respiratory distress, egg production drop, wrinkled eggs, etc. first appear, and the second blood sampling should take place 2-3 weeks later. A comparison can then be made between the acute and convalescent HI:IBV titers to determine the birds antibody response to the agent that caused the clinical signs. A single bleeding of adult birds at a given time in their lives gives an indication of the exposure and vaccination to bronchitis prior to the bleeding.

The Assay: IBV has the ability to hemagglutinate red blood cells when treated with neuraminidase. Antibodies produced as result of vaccination or field challenge can inhibit the agglutination process. The HI:IBV assay takes advantage of this inhibition and the test is designed to see how far a serum can be diluted (two fold dilutions) until the inhibition can no longer be observed. The endpoint titer is the highest dilution of observed inhibition. The standard HI:IBV assay carries a maximum dilution of 1024. Birds with titers exceeding 1024 on the standard assay would be reported as 1024. Extended range HI:IBV assays reach maximum titers over 10,000 and are run only by special request. .

When to Use HI:IBV: The HI:IBV test will measure serotype specific antibody levels in birds. Pre-assessment of IBV antibody levels need to be first made using the ELISA. If the flock ELISA:IBV geometric mean titers (GMT) exceed 3,000, the HI:IBV may be useful. Our data suggests insignificant HI:IBV antibody will be determined when the ELISA:IBV GMT is below 3,000. GPLN trends suggest the HI:IBV test can be beneficial in broiler, breeders, and commercial layer flocks, although it is rarely used in broiler breeders.

Comparing Serotype Response: Serotype determination can often be made with a single blood sampling. The question to answer is "how do the four serotype responses compare one to another? The rule of thumb in HI:IBV interpretation is to look for a four fold difference between the GMT of any of the four serotypes to determine the predominate serotype. In the example report, a minimum four fold difference between Mass41 and all the other serotypes is evident. When using acute-convalescent sampling, the same four fold difference should be considered for one serotype between the two samplings.

HI:IBV Use in Broilers: Monitoring broiler flocks with ELISA:IBV is a good approach to identify IBV exposure. Baselines should be established by testing processing age broilers (a few flocks every week) to develop baseline titers. ELISA titers over 3,000, usually indicate a field challenge or the use of live vaccines. In broilers with no challenge, the ELISA titers should be around 2,000–3,000. The HI:IBV test is useful to identify the bronchitis serotype challenge in broilers. Unfortunately, no HI-IBV test currently exists for new circulating strains such as GA07 and GA08.

News From the Tifton Lab:

The Tifton Lab's New Necropsy Facility Complete: Dr. Anderson and the Chick Quality technicians now have a spacious and brand new Necropsy area to do their work. The Necropsy lab is located across the hall from the Receiving area of the main lab. The new Necropsy area has ample space to receive sick birds and baby chicks. There is a great abundance of cabinets to store all supplies needed. A few pieces of equipment (freezer and refrigerator) will make the transition from the old Necropsy facility complete.

Bird Number	Mass41	Conn46	Ark99	Del072
1	1024	1024	1024	1
2	1024	512	64	1
3	128	1*	1	1
4	1024	1	1	1
5	64	32	512	1
6	1024	32	1024	1
7	1024	1024	1024	128
8	128	128	256	1
9	1024	512	1024	32
10	1024	512	256	32
GMT	800	84	137	3

Table 1: Example of HI:IBV Report * titers of "0" are reported as "1" for GMT calculation



MaryKay Hall Processing Baby Chicks

The New Lab Construction:

The building project is going well. We are 25% complete.



Bird's eye view of the new lab steel package



All the steel beams are in place

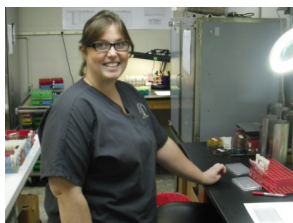


Outside walls are being erected

267 day until we start to move!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

Tours and Visitors:

- **Third Year Veterinary Student Visits the Oakwood Lab:** On Sept. 30, Zeb Duvall toured the Oakwood Laboratory to learn more about the diagnostic side of the poultry industry. Zeb will begin a clinical rotation through the laboratory in April 2014.
- **Lanier Tech Student Rotates Through GPLN:** Nicki Smith is a student of Lanier Technical College's Clinical Laboratory Technology program. She has had the good fortune to complete microbiology clinical rotation in the bacteriology department here in Oakwood, bringing her one step closer to ASCP certification. Nicki expresses many thanks to Kevin Smith and Dr. Zavala for providing such a unique opportunity and to the entire department for making these five weeks a thoroughly fun and enriching experience!



Nicki Smith at Work in Bacteriology

- **UGA Avian Biology Graduate Interns at GPLN:** Grace Ashby has trained at GPLN for a month in all departments. She is gaining some invaluable lab experience while applying for admission into UGA Veterinary school in Fall 2014. Grace has practiced Mycoplasma PCR techniques and participated in field sample collections and multiple necropsies.

- **Vietnamese Group Tours the Oakwood Lab :** A Vietnamese delegation visited with USAPEEC on August 9. They were particularly interested in Salmonella Testing and Avian Influenza epidemiology.

GPLN Employees and Activities:

- **Bacteriology Technician, Melissa Chewning, Receives an Award:** The Continuing Education Center at the University of North GA here in Oakwood offers a variety of management classes. The classes are designed to be diverse to allow a wide range of knowledge from a multiple experienced and successful leaders. Once ten classes have been taken, the equivalent of sixty hours, the Master Certificate in Leadership and Supervision is awarded. Melissa Chewning received the Master Certificate on September 18, 2013. GPLN congratulates her !!!



Melissa Chewning

- **GPLN Executive Director Lectures MAM Students on Avian Influenza:** Sept 27, 2013, As part of the MAM curriculum, the MAM class attended classes on NPIP, GIS and the AI response.
- **Quality Committee Visits Tifton:** On Sept 17, 2013, the Quality Committee visited the Tifton Lab for an internal audit on standard operating procedures, training records and equipment monitoring. The Quality committee performs 4 department audits per year to help improve department function as we strive to meet the requirements of accreditation.



Zeb Duvall, UGA Veterinary Student



Grace Ashby Trains in Necropsy with Dr. Davis



Masters of Avian Medicine Students with Dr. Louise Dufour-Zavala (l-r) TJ Gaydos, Elizabeth Dale, Valerie Goething, Dr. Louise Dufour-Zavala, Grace Ashby, and Sarah Tilley