Diagnostic Forum

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A Quarterly Newsletter from the Indiana Animal Disease Diagnostic Laboratory at Purdue University

In this issue:

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From the Director…….

Winter is at an end, Spring is here and with them some much needed snow and rain! In this issue, we highlight our Molecular Diagnostics Section and provide summaries of articles on Johne's Disease and SIV.

Following 17 years of helping animal owners in Indiana and from around the country, and teaching Veterinary Pathology to aspiring students, Dr. Christine Holland retired at the end of December, 2012. Dr. Holland received her DVM degree and PhD in Veterinary Pathology from Purdue and began working at the ADDL and College of Veterinary Medicine in 1995. The ADDL has been fortunate to have many dedicated people at the lab over the years and we thank Dr. Holland for all of her help.

MEET MOLECULAR

The Molecular Diagnostics Section was established 12 years ago yet is one of the newest areas here at the ADDL. The Molecular Diagnostics Section has been lead by Dr. Pogranichniy since 2012 following the appointment of Dr. Vemulapalli as the Dept. Head of CPB. Dr. Pogranichniy also ably serves Indiana and the ADDL as the Head of the Serology and Virology Sections. The staff utilize only one method, a Polymerase Chain Reaction (PCR) that can detect nucleic acids of many different organisms from submitted samples. By using different types of PCR assays and targeting different viral and bacterial RNA or DNA, as of today they can offer detection of over 46 organisms' nucleic acid.

The Molecular Diagnostics section can deliver results within a short time frame after material is received in the ADDL. If advanced arrangements are made with the laboratory, results can sometimes be provided on the same day. This quick service provided by Molecular Diagnostics can be very helpful to veterinarians and animal owners assisting in decision making on animal treatment or movement. This service is possible because of our outstanding staff working in the ADDL Molecular Diagnostics section pictured at the right.

For more information about the section or testing, please visit https://www.addl.purdue.edu/TestFees/Index.aspx.

Back row: Velina Lindley, Dr. Roman Pogranichniy, Deborah Johnson
Front row: Zach Beck, Andrea Musarra

Congratulations to Dr. Christine Holland, ADDL Veterinary Diagnostic Pathologist who retired December 2012.

Congratulations to Tom Hooper, Heeke Technical Assistant who retired on October 31st after 30 years of service!

THANK YOU FOR YOUR SERVICE !

The '411' About Johne's Disease

By: Dr. Britni Thornburg—Purdue DVM Class of 2011
Edited by: Dr. Peg Miller

Johne's disease, or paratuberculosis, is a chronic wasting disease of ruminants. The term refers to the clinical condition with chronic weight loss and diarrhea. This disease is caused by an acid-fast, gram-positive, intracellular bacterium, *Mycobacterium avium* subspecies *paratuberculosis* (MAP). It is estimated that 22% of U.S. dairy herds and 8% of U.S. beef cow-calf herds are infected with MAP. Young animals seem to be more susceptible than older animals, but a high dose of organisms could also infect older animals. Clinical signs are usually seen in older animals due to the long incubation period. This disease can have devastating economic effects on a farm.

This article provides an overview of *Mycobacterium avium* subspecies *paratuberculosis* or Johne's disease. Topics covered include pathophysiology, clinical signs, diagnostic testing, treatment, and prevention. Diagnostic testing for Johne's disease is difficult because of the long incubation period. Currently available tests, which are compared in this article, include AGID, ELISA, PCR, histopathology, fecal culture, and DNA probe. The "gold standard" test for Johne's disease is the fecal culture, but other available tests may be better or more accurate in certain situations. After reading this article, the practitioner should have the full '411' about Johne's disease.

Full article available at: www.addl.purdue.edu

Swine Influenza Virus Diagnosis and Surveillance in the ADDL

By Dr. Roman Pogranichniy, DVM, Ph.D.

Swine influenza A virus (IAV) was first recognized clinically in pigs in the Mid-western U.S. in summer/ fall of 1918, which coincided with the human influenza pandemic known as the Spanish flu. The etiology of SIV was confirmed by the first isolation of IAV in 1930. Since then IAV has been of significant importance to the swine industry throughout the world.

At the ADDL, we have been conducting diagnoses of swine influenza virus for many years. By using new and advanced diagnostic techniques, we can diagnose several types of the influenza virus in the population rapidly and accurately allowing decisions to be made in the field for treatment or prevention of the disease. Since 2004 The Indiana ADDL has been part of the National Animal Health Laboratory Network, and has participated in different surveillance programs established by USDA/NAHLN. Currently we are doing an anonymous surveillance program for IAV to monitor the influenza virus in the field. This program has the following objectives:

-Monitor genetic evolution of IAV to better understand endemic and emerging influenza virus ecology.

-Make available SIV isolates for research and establish an objective database for genetic analysis of these isolates and related information.

-Select proper isolates for the development of relevant diagnostic reagents, updating diagnostic assays, and vaccine seed stock products.

This influenza surveillance program is supported by the American Association of Swine Veterinarians and many swine veterinarians in Indiana and across the country. Some publications and comments can be found on the AASV website: http://www.aasv.org/shap/issues/v20n6/v20n6advocacy.html

We would like to cite Dr. Snelson (AASV Director of Communications) about the importance of the influenza virus surveillance program in US.

"This experience highlights the importance of United States Department of Agriculture's (USDA's) Swine Influenza A Virus (IAV) Surveillance Program. This voluntary program was implemented to monitor influenza viruses in the US swine herd and provide viral isolates to animal-health and public-health officials for research and vaccine development. The overarching objective of the program is to better protect public and animal health. Analysis of test results can provide some insight into influenza virus activity in swine samples submitted to veterinary diagnostic laboratories."

Since June, 2012 the ADDL has tested more than 305 samples for influenza virus and provided information to NAHLN as part of the anonymous program in Indiana. This included tests by PCR for detection and typing of influenza virus in the samples within 24-72 hours, as well as virus isolation and sequencing of 3 viral genes of the influenza virus.

All testing done in the ADDL as part of the IAV surveillance program is paid for by NAHLN unless the submitting veterinarian requests to be removed from the surveillance program in which case standard fees apply. To date, all samples submitted to the ADDL enrolled in the voluntary USDA IAV surveillance program.

Influenza virus

For more information, visit the USDA website:
http://www.aphis.usda.gov/animal_health/animal_dis_spec/swine/eillance.shtml

BOAH LIFTS PIROPLASMOSIS TESTING REQUIREMENT

The Indiana Board of Animal Health (BOAH) has lifted the testing requirement for equine piroplasmosis (EP) at Indiana race tracks, as of Feb. 1, 2013.

Piroplasmosis testing at the ADDL will no longer be free. Effective Feb. 1, 2013, the fee for all testing for Piroplasmosis will be $7.00 (each for B. caballi and T. equi) in-state, $14.00 each out-of-state.

For more information visit:

http://www.in.gov/boah/2616.htm

NEW JOHNE'S METHOD AND PRICING

Effective February 1, 2013, there is a new real-time polymerase-chain-reaction (PCR) test for Johne's which will replace the old PCR test. The cost of this test will be $35.00 for a single sample and $40.00 for pooled samples.

ADDL Lab Results are available by:

- Email (call ADDL with your email address)
- Fax
- Internet/Web

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