

# Illinois Department of Agriculture Animal Disease Laboratory

## Laboratory Notes

March 1, 2013

### Meet the Staff

James E Benson, DVM, MS, PhD, joined the laboratory as a veterinary pathologist in January 1999 after completing an advanced degree program and residency in veterinary pathology at Iowa State University. Dr Benson is a 1974 graduate of the University of Illinois College of Veterinary Medicine and was in mixed animal practice for 21 years prior to leaving for graduate school. His experience brings a wealth of practical knowledge to the laboratory.

Dr Benson is married to Mary Benson, who is a physician assistant in Abingdon, IL. They have four children and eight grandchildren.

### Laboratory Tests

Serology- The IDOA ADL has begun offering a number of new serologic tests.

- Equine Infectious Anemia, both ELISA and AGID tests
- Anaplasmosis, cELISA test
- Bluetongue, both cELISA and AGID tests
- Bovine leukemia, both cELISA and AGID tests

All tests require 0.5 ml of good quality serum.

We are no longer offering the card test for canine brucellosis as the manufacturer of the test kits has discontinued production of the materials for the test. Samples received for canine brucellosis testing will be forwarded for testing.

Pathology- While not a new test, ear notches intended for immunohistochemical (IHC) demonstration of animals persistently infected with bovine virus diarrhea still seem to generate some confusion for the practitioner. The cELISA test for fresh ear notches is no longer offered by the Animal Disease Laboratory, and fresh ear notches would be appropriate only when requesting polymerase chain-reaction testing for BVD (\$35 per test). Ear notches for the immunohistochemical test for BVD (\$3.50 per test) should be submitted in a suitable amount of 10% neutral-buffered formalin, preferably in 10-12 ml blood tubes. These tubes facilitate handling and trimming of the specimens at the laboratory. Ear notches should be sufficiently large to allow us to retrim

the specimens if necessary. A ½" V-notch is ideal. We routinely retrim positive samples to confirm the identity of positive animals.

From the samples we receive, it appears that some producers are taking their own samples for testing, which is fine for diagnostic purposes. They often still need a little guidance on numbering, fixing, and storage of the samples.

Meat testing- The laboratory assumed the meat testing responsibilities that were previously done at the Centralia laboratory. We are using completely new testing methods that include both polymerase chain-reaction (PCR) testing and advanced culture techniques to demonstrate *Salmonellae*, *Listeria monocytogenes*, and *Escherichia coli* O157:H7 and non-O157 shigatoxin-producing *E coli* in ground beef, trimmings, and ready-to-eat meat products.

### Shipping

We have noticed a number of submissions using the US Postal Service taking an inordinate time to arrive at the laboratory, especially from practices in southern Illinois, although northwestern Illinois practices have occasionally suffered from such delays. We have seen shipments taking from 7-10 days by either First Class or Priority mail. We are distressed by these delays, but unfortunately have no control over shipping times.

Unfortunately, fresh tissues in transit for this length of time are generally unsuitable for testing. Even serum can be compromised by prolonged shipping times, especially in the warm months of the year. Immunohistochemistry for porcine reproductive and respiratory virus immunohistochemistry may not be valid if the sample has been in formalin longer than 72 hours.

While it is more difficult for us to determine shipping times for United Parcel Service, Spee Dee Delivery, and Federal Express, as they do not generally specify the shipping date on the package, only rarely have we received noticeably rotten tissues from these shipping companies.

If you have had problems with inordinate shipping times with a particular carrier, it may be wise to try others available in your area. Sample sub-

missions represent a great deal of time and effort on your behalf and shipping should not be allowed to compromise your work.

### Rabies Testing

The laboratory tests several hundred samples yearly for rabies. Most of our rabies submissions are decapitated heads from dogs and cats. It is important that heads for rabies testing are treated properly for optimum testing as most rabies testing involves human exposures.

Heads are most easily removed by decapitating at the atlanto-occipital joint. They should be chilled before shipping by refrigerating overnight or placing in a freezer for 1-3 hours (depending on size). Avoid freezing specimens intended for rabies testing as freezing makes the brain soft and more difficult to sample properly as well as delaying results while the tissues thaw. Standard rabies testing protocols require us to take samples of brainstem, cerebellum, and hippocampus with its associated portion of brainstem. Specimens where these anatomic locations cannot be sampled must be reported as "inconclusive."

It is entirely acceptable to submit brains that you have removed at your clinic. (It is much cheaper to ship a brain than a horse's head!) It is useful to pack such brains in a plastic bag and then, with appropriate padding, in protective container, such as a small coffee can or cottage cheese container. Brains in sandwich bags placed between two freezer packs arrive as brain pancakes, making identification of the desired sample sites difficult. Be sure to submit brainstem, cerebellum, and cerebrum. If histopathology is desired, one-half of the brain can be placed in a container with formalin.

Properly chilled specimens should be shipped with enough coolant to maintain them in their chilled state. The amount of coolant necessary depends upon the expected ambient temperature, the expected shipping time, and the size of the head. Be sure to enclose the head in a leak-proof container as leaking shipments are not only dangerous for anyone handling them, but it is illegal to ship

# Laboratory Notes

specimens in a manner that would allow materials to leak.

It is important to fill out the necessary paperwork as everything requested is needed to contact those that submit the samples as well as those who may have been exposed.

## Laboratory Forms

Laboratory forms are periodically updated and new forms are posted on the Illinois Department of Agriculture website: *agr.state.il.us*. Once you are there, click on Animal Health and Welfare on the left side of the page and then click on Animal Laboratory Services. Forms are near the bottom of the page. Both the general submission form and the serology test request form are there and can be filled out on-line and printed at your office for inclusion in your shipping container.

## Forms and Ear Tags

Forms and ear tags that were once ordered from the Springfield Serology Laboratory are now available from the Animal Disease Laboratory. A new requirement is that most forms and eartags must be assigned to a particular veterinarian and NOT just to a practice. Veterinarians should use only those tags and forms assigned to them.

Below is a partial list of eartags and forms available at the Animal Disease Laboratory. Items with an asterisk must be assigned to a particular veterinarian.

- \*Back tag report, 4-52A
- \*Brucellosis test record, 4-22, 4-33A
- \*Brucellosis vaccination record, 4-26
- \*Eartag, bovine brucellosis
- \*Eartag, bovine ID
- \*Eartag, swine ID
- \*EIA test record, 10-11
- Flock Selecting and Testing Report
- \*Health certificate, livestock, M120
- \*Health certificate, small animal
- \*Movement permit, 1-27
- \*Quarantine record, C-37
- \*Tuberculosis test record, 6-22

The Animal Disease Laboratory also has PPD for tuberculosis testing and pullorum antigen for pullorum testing in poultry. Pullorum antigen must be paid for in advance and requests for pullorum antigen must be approved by the department.

A shipping charge will be imposed for all forms and antigens.

## Regulatory serology

In order for the Animal Disease Laboratory to process requests for regulatory serology (pseudorabies, brucellosis, Johne's disease), the serology form MUST be signed by a licensed, federally accredited veterinarian. This requirement extends to all testing for interstate sale, exhibition, export, import retests, qualification, certification, and recertification. All animals are required to be officially identified on the form.

Official identification for purebred swine may be one of the following: 1. an official ear tag, 2. breed-specific ear notches IF they are recorded in a purebred registry, 3. tattoos officially recorded in a purebred registry, or 4. ear tags bearing an official premises identification number in conjunction with a producer's identification number so as to create a unique ID number for the animal.

Crossbred swine must have an official ear tag or an ear tag bearing an official premises identification number.

Cattle must be identified using USDA-approved official identifiers that are embossed with the US shield. Registry tattoos are acceptable for purebred cattle.

A complete description and drawing of all markings is acceptable for horses.

## Electron Microscope

The electron microscope that we have used for years to identify viral particles in diarrheic fecal samples has finally broken beyond repair. It lasted about 31 years, which was a good run for such an instrument. Electron microscopes are very expensive to purchase, own, and repair and we are currently unable to replace the instrument. Most diagnostic laboratories have long since abandoned electron microscopy of fecal samples as a diagnostic tool as the requests for such testing have waned in favor of other methods. We are no longer able to perform electron microscopy for the detection of viral particles in diarrheic fecal samples.

We are actively searching for alternative methods of confirming viral diarrheas in diarrheic feces and intestinal contents of pigs and calves.

We still have the capability for histologic examination to detect lesions of viral diarrhea, immunohistochemical testing of fixed tissues for virus antigens, and fluorescent antibody tests on fresh tissues for evidence of viral diarrhea in animals that have died.

## Toxicology

Because of the closure of the Centralia Laboratory, the Animal Disease Laboratory no longer offers water testing. There are a variety of commercial and governmental alternatives for water testing. Local health departments sometimes offer the service and can refer you to an appropriate lab. For a long list, Google "water testing illinois."

Toxicological testing will be referred to another veterinary diagnostic laboratory. We regret the loss of in-state toxicologic testing. We will do our best to provide you with needed toxicology services.

## Laboratory Calendar

Please be aware that, along with all other state agencies, the diagnostic laboratory is closed on the following days.

- New Year's Day
- Martin Luther King Day
- Lincoln's Birthday
- Washington's Birthday
- Memorial Day
- Independence Day
- Labor Day
- Columbus Day
- General Election Day
- Veteran's Day
- Thanksgiving and the day after
- Christmas Day

As always, submissions can be left at the lab on holidays by placing them in the night depository on the north east side of the building, which has outside access. This night depository door is always available should you or a client desire to deliver submissions after hours, on weekends, or on holidays.

## Questions and Guidance

Laboratory personnel are always happy to provide guidance on sample collection, preparation, and submission. Don't hesitate to call (309 344-2451) for information or advice. We look forward to assisting you in any way we can.