

## Notes From the Director

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### Did You Know??

The only two animals that can see behind itself without turning it's head are the rabbit and the parrot.

The animal responsible for the most human deaths world-wide is the mosquito.

A cow's only sweat glands are in its nose.

Taken from: <http://www.freakyanimals.com/facts001.shtml>

**New Laboratory Information System:** The installation and testing of the new Laboratory Information Management System (LIMS) is progressing well. Our colleagues at the ISU Veterinary Diagnostic Laboratory have been very supportive in the tedious process of adapting their LIMS system to our laboratory operations. The support from the ISU College of Veterinary Medicine, as well as support from the U.S.D.A.'s National Animal Health Laboratory Network (NAHLN), have saved Nebraska taxpayers a considerable amount of money in the process of updating our LIMS. We do expect transition to occur in the third quarter of 2009. We will keep everyone abreast of the changes. There will be some exciting options for reporting available, including web access to results and timely service announcements.

**Tuberculosis in Nebraska:** As you well know, tuberculosis has been identified in Nebraska cattle. Good updates are available through the UNL extension page and the web pages of the Nebraska Department of Agriculture. These are very good websites to provide up-to-date information.

<http://vetext.unl.edu/>

<http://www.agr.state.ne.us/media/media.htm>

**Surveillance Testing:** The USDA NAHLN and the Nebraska Department of Public Health continue to support multiple surveillance testing programs for West Nile Virus infection of birds, avian influenza, classic swine fever, pseudorabies, scrapie, and chronic wasting disease in Nebraska. Surveillance for swine influenza will begin very soon. Please contact the diagnostic laboratory for information on these programs.

- - - submitted by D. Scott McVey, DVM, PhD,  
Director, Veterinary Diagnostic Center

## DEATH BY HEAT OR DEATH BY POISON?

We received several calls during the heat wave that occurred the week of June 22, 2009, about acute deaths thought to be caused by hyperthermia, but with the animal owner claiming that the animals were poisoned. The purpose of this article is to provide recommendations about how to handle cases of suspected deaths by hyperthermia with counterclaims of death by poisoning.

Diagnoses of the cause of acute deaths of animals during heat waves are usually complicated by no history or indication of illness prior to the discovery of dead animals and the rapid decomposition of the carcass. The claim that the dead animals were poisoned further complicates the case.

It may not be possible to narrow toxicological etiologies to a few classes of poisons because of the paucity of available information to do so. If tissues are severely decomposed, then histopathological results will be not available to help narrow the differential diagnosis.

The time interval between observations of the healthy animals and dead animals may help limit toxicological etiologies. Assuming a toxicosis did occur, a very short time interval after exposure strongly suggests the animals were exposed to a very toxic chemical or to an unusually large dose of a less toxic chemical. A longer time interval suggests the exposure was to a less toxic chemical.

Poisons that could cause very rapid deaths after exposure include organophosphate or carbamate insecticides, strychnine, and nitrate-fertilizer contaminated water. Water deprivation/sodium ion toxicosis could also be considered.

Poisons that usually cause deaths less rapidly include antifreeze (ethylene glycol), anticoagulant rodenticides, forage-borne nitrate, cyanogenic forages, non-protein nitrogen, and heavy metals. However, an unusually large dose of most any chemical might cause death much more rapidly than what is considered usual.

Sometimes, the imagination of the owner can complicate matters even more, i.e., when a horse owner claimed that his animal died because it had been poisoned by insulin administered to it by a neighbor. Although that case did not include hyperthermia as a cause of death, it illustrates how a claim of exposure to an unusual substance can complicate the case even more.

We are often asked if a poison in body tissues remains present as the carcass decomposes. Such questions are difficult to answer because so many factors could affect the stability of a poison in a carcass, the nature of the lability of the chemical, the temperature of the carcass, and the time between death and specimen preservation. Additionally, products of decomposition, like cyanide and ammonia, may come and go during the course of decomposition even though the animal was not exposed to such chemicals. So the preservation of any specimens collected for toxicological analysis is important.

Preserve collected specimens by freezing them to a temperature of  $-20^{\circ}\text{C}$  or lower as soon as possible after collections. Freezing them onsite is preferable, but if that is not possible, keep them chilled and freeze them as soon as possible. If whole blood can be collected, preserve it by chilling; do not freeze it to avoid hemolyzing it even more than it probably already is.

Ideally, the following specimens should be collected for toxicological analysis: brain, half; stomach/rumen contents; urine; liver; kidney; eye globes or ocular fluids; suspected feed, water or other source of the poison. The condition of the carcass will dictate how many and how much of any tissue may be available.

It is better to ship specimens by a means that will keep frozen specimens frozen and chilled specimens chilled the entire time the specimens are in transit. Shipping using a guaranteed overnight delivery minimizes the risk that specimens will thaw or warm up too much.

Analyses that should be conducted will vary significantly from case to case. Usually, what analyses can be conducted are limited by either of two things: the cost of the analytical services and the availability of suitable specimens. Ruling out the poisons listed above that can cause acute death could cost as much as \$200 and require 250 g of tissue. Adding any of the poisons that usually cause less rapid deaths will add to the cost and may require additional specimens. Contact a diagnostic toxicologist for assistance in determining the best approach for a specific case and its circumstances.

For further information on heat stress, please go to the following Website: <http://vetext.unl.edu/>

- - submitted by: M.P. Carlson, PhD, Diagnostic Toxicologist/Analytical Chemist

## UPDATES FROM VIROLOGY

### **Electronic EIA Testing:**

The electronic EIA system is working very well. We currently have several clients submitting samples electronically and would like to repeat the pertinent information for those of you who may have missed it and would like to sign up.

You must first obtain Level 2 Access (eAuthentication Account) through the USDA.

To learn about and apply for an eAuthentication Account go to:

<http://www.eauth.egov.usda.gov/>

Once you have an eAuthentication account, this service is free through the VSPS (Veterinary Services Process Streamlining) website (<https://vsps.aphis.usda.gov/vsps/>). You then will be able to submit a digital picture of the horses being tested and your profile information will automatically be entered. You will receive the official report through the website where it can be printed for owners and for your records. Through this same website, you will also be able to write health papers. We would be happy to help you with this process, or call the Federal Veterinarian's Office at 434-2300.

### **Swine Influenza Surveillance:**

The virology lab will shortly begin surveillance testing for SIV H1N1 (the new strain circulating throughout the world in human populations) through the USDA's "2009 H1N1 Flu Outbreak Virus Surveillance Plan". We will update you with details as we receive them

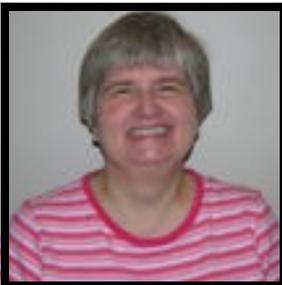
- - - ssubmitted by Judi Galeota, Virology Supervisor

## MEET OUR EMPLOYEES



*Liping Xie*

Liping Xie has been employed at the Veterinary Diagnostic Center for the past ten years. Liping is a Research Technologist in the Virology lab. Liping is from Dalian of China. She graduated from China Medial University with an MD degree. Liping's hobbies and interests include cooking, eating and gardening. Liping also enjoys spending time with her daughters. Liping's other interests include Janpanese culture where she has learned ikebana (Japanese art of flower arrangement) and chado (a Japanese tea ceremony). Liping and her husband lived in Tokyo, Japan before moving to the United States. Liping loves living and working here in the Unites States and we are glad to have her as part of our team!



*Pat Haahr*

Pat Haahr is employed in the Diagnostic Center Front Office as an accounting clerk. Pat is the cheery person you speak with if you have questions about your invoices or account. She has worked for the VDC for the past 11 years.

Pat's hobbies include reading, crafts and collecting rabbit figurines.

Pat is from Marcus, Iowa. Pat and her husband reside in Lincoln, Nebraska.

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The Nebraska Veterinary Diagnostic Center is accredited by the American Association of Veterinary Laboratory Diagnosticians

All regulatory testing for export is done in compliance with the code of federal regulations and technicians performing the test have been tested annually by the USDA through the National Veterinary Services Laboratories check-testing program. Additional assays within the lab regarding toxicology, microbiology and parasitology are assessed annually by check testing through the Veterinary Laboratory Association. Positive and negative control samples are included in all serologic and toxicologic testing protocols that require them.

Ancillary testing is reviewed by a single case coordinator who assures that test results are in agreement and any unusual test results are investigated to ensure that standard operating procedures are followed and that results can be replicated. Standard operating procedures are on file in each of the laboratories and available for inspection. A copy of our Quality Manual is available upon request.

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