



## Accredited Veterinarian Newsletter

NYS Dept of Agriculture & Markets, Division of Animal Industry

Winter 2011

Dec'11-Jan'12

### The Ever Changing Face of Influenza

by Dr. Dwight Bruno, DAI

With the flu season upon us, it is important to focus on our interaction with veterinary patients, most notably; birds, swine, and ferrets (although dogs, horses and marine mammals have been in the news, recently). Influenza virus is constantly 'reinventing itself' resulting in the formation of antigenic variants. One means by which influenza virus (type A) can change is through a process known as antigenic shift; the mixing of antigens (hemagglutinin & neuraminidase by virus in a susceptible host) usually from waterfowl, another is antigenic drift (types A and B); antigenic changes (by mutation) which results in a virus that "cannot be inhibited well by antibodies against previous strains..."<sup>1</sup>.

The result of influenza virus undergoing antigenic change can be dramatic, including the development of influenza pandemics (and pan-epizootics). Since it takes time to prepare sufficient vaccine to protect against an antigenic variant, people or animals could be placed at increased risk of becoming infected; recent examples include influenza in swine (H1N1, 2009 human to swine<sup>2</sup>) and birds (H5N1, bird to human). Given the diverse nature of veterinary medicine, we are in a position to play a pivotal role in identifying potential sources of infection and controlling the spread of influenza virus.

#### Influenza virus control steps for the veterinary community

In addition to highlighting straight forward public health implications, such as exposure of coworkers and the public to influenza virus, it's important to make clients aware (while avoiding undue alarm) that people can infect animals and vice versa. Steps that can be taken within the veterinary arena (including clients) to help minimize the spread of influenza virus, or the chances of an antigenic variant developing, include:

- recognizing the potential for influenza transmission/infection in veterinary patients and between people and animals
- staying alert to signs of influenza virus infection, report unusual illness (numbers, clinical signs)
- not exposing people or animals if you are experiencing signs that are compatible with influenza virus infection
- vaccination
- emphasizing bio-security practices, such as proper hand washing and other site appropriate bio-security measures (agricultural settings, companion animal scenarios...etc)
- taking steps to prevent wild birds from entering barns (swine, horse, or bird barns)
- client education

<sup>1</sup>Treanor, J.: NEJM 2004; 350 218-220; Perspective

<sup>2</sup>Miller, M.: Pork Magazine, 'It's Flu Season Again' October 16, 2011 pages 16-17



#### *Inside this issue:*

Red Maple Poisoning	2
Bovine TB Vigilance	2-3
ID Tags to Producers	3
Cervid Mortalities	4
<i>S. Dublin</i> Cases Rising?	5
NYS Fair Investigation	6
Residue Reminders	7



If you are requesting accredited vet supplies, please fax or mail your requests into the DAI office. We still accept phone orders but faxed or mailed orders will enable us to serve you more efficiently. Thank you for your cooperation!

Fax: 518-485-0839

The Division of Animal Industry has a new web address. Please bookmark us at: [www.agriculture.ny.gov/AI/AIHome.html](http://www.agriculture.ny.gov/AI/AIHome.html). All NYS Dept of Agriculture and Markets employees have new email addresses. New email addresses look like: [firstname.lastname@agriculture.ny.gov](mailto:firstname.lastname@agriculture.ny.gov) Please update your address book.



## Investigating Red Maple Poisoning

by Karan Agrawal and Dr. Karyn Bischoff, NYSVDL/AHDC



Red maple (*Acer rubrum*) is a well-known cause of hemolysis in horses and some other species. A recent study at the New York State Veterinary Diagnostic Laboratory (NYSVDL), part of the Animal Health Diagnostic Center (AHDC) at the Cornell College of Veterinary Medicine, has determined that pyrogallol is the most likely cause of oxidative damage to erythrocytes in red maple poisoning, leading to methemoglobinemia and hemolysis.

However, red maple leaves actually contain little or no pyrogallol. Through incubation of red maple leaves with gastrointestinal contents and disrupted hepatocytes, we determined that gallic acid and gallotannins, which are found in high concentrations in red maple leaves, are converted to the potent oxidant pyrogallol in the intestinal tract. This occurs most consistently in the ileum, but variable conversion by hepatic enzymes was also documented. We were able to determine that conversion of gallic acid to pyrogallol in the ileum was caused by the intestinal microflora, most specifically *Enterobacter cloacae* and *Klebsiella pneumoniae*.

Based on these findings, we hypothesize that the metabolism of gallotannins and gallic acid in red maple leaves to pyrogallol by *E. cloacae* and *K. pneumoniae*, and subsequent absorption of pyrogallol into the bloodstream, leads to methemoglobin formation and the hemolysis seen in clinical red maple toxicosis. However, this syndrome is not limited to red maple. Initial results suggest that other species of maple including silver maple (*A. saccharinum*) and sugar maple (*A. saccharum*) also contain the gallotannins and gallic acid that can be metabolized to pyrogallol, albeit in smaller concentrations.

To further investigate clinical red maple toxicosis and confirm our proposed pathway, we request that veterinarians submit samples of whole blood, gastrointestinal contents, and liver from cases of suspect maple poisoning to the attention of Dr. Bischoff. No fee is associated with this testing, but results will be made available to the submitting veterinarian. Dr. Bischoff can be reached at [klb72@cornell.edu](mailto:klb72@cornell.edu). For additional information on sample submission and other testing, see the toxicology section website at <http://ahdc.vet.cornell.edu/sects/Toxic>.

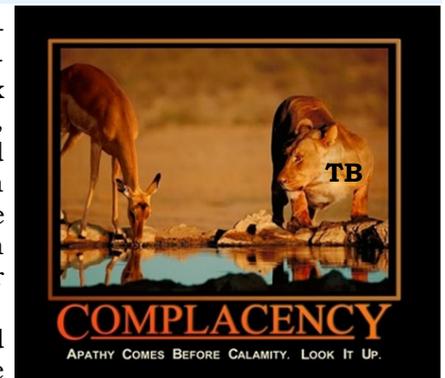
## Bovine TB: Still A Threat—Don't Become Complacent!

By Dr. Todd Johnson, USDA-APHIS-VS

**Why is Bovine TB Still a Threat?** Bovine TB remains an insidious disease that continues to spread quietly to susceptible herds around the country evading detection and the goal of eradication. Over the past year, six states have discovered new infected cattle herds. Depending on the region, spill-over from Mexican cattle imports, captive cervid herds and wild cervid populations have all contributed to the ongoing spread of infection. Here in New York, the last case of *M. bovis* occurred just two years ago in a captive deer herd in Columbia County. Most recently, an infected beef herd in South Dakota has resulted in traces to five eastern region states for investigation.

**TB Testing Still a Challenge** Unfortunately, the tests available for herd TB testing have not changed much over the years that would improve testing accuracy in terms of improved sensitivity or specificity. While there is hope for and progress in the development of a serologic antibody based test on the horizon, a replacement for intradermal skin testing is not yet available. Currently, the Caudal Fold Test (CFT) for cattle and Single Cervical Test (SCT) for cervidae remain the best and most practical methods for screening herds for TB. However, as fewer herds are being routinely tested, and as veterinarians have become more complacent with TB testing, our ability to detect infected herds has been diminished. As long as the threat of TB remains, veterinarians must remain vigilant with the proper application of CFT and SCT testing and the reporting of test responders.

**Testing Expectations** Veterinarians should be reminded that performance standards have been created to evaluate an individual veterinarian's reporting of caudal fold test responders in cattle. The performance standard is based on the assumption that there is expected to be at least 1% responders in a normal unaffected cattle herd. Therefore, when a veterinarian has completed a certain number of tests, a certain minimum



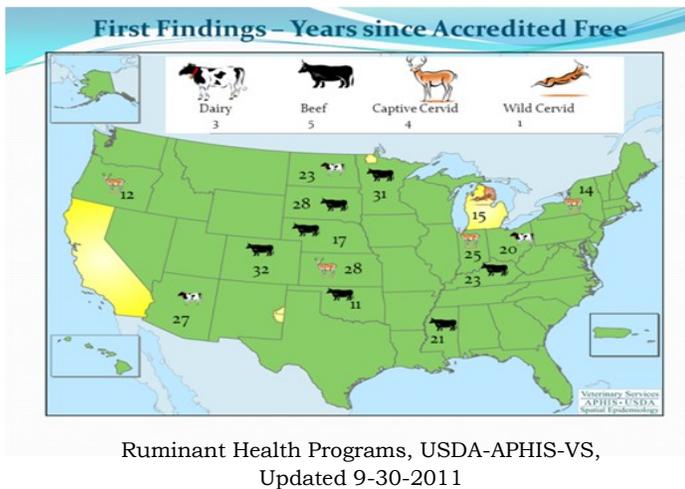
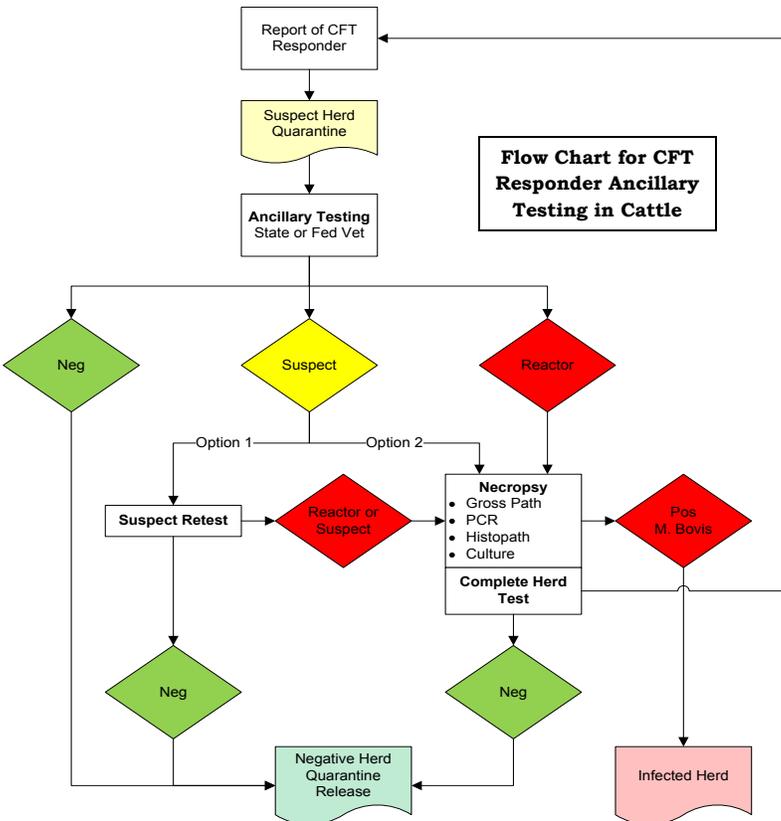
Continued on pg 3



## Bovine TB (continued from pg 2)

number of responders are expected to be reported.

Officially, any size reaction or swelling at the injection site 72 +/- 6hr is considered suspect and reportable. Suspect CFT responders should be reported to the office of the New York State Veterinarian at the NYS Dept. of Ag and Markets, Division of Animal Industry. Call 518-457-3502.



**REMINDER: We have seen a few vets using needles other than 26 gauge- 3/8" and syringes >1cc for TB testing of cattle and cervids. This is not correct! It is your responsibility to be sure that you have the appropriate needle size and syringe for TB testing. Failure to use the proper equipment may result in the invalidation of the TB test and the loss of accreditation privileges.**

## New ID Tag for Livestock Producers

by Dr. George Merrill, DAI

On March 15, 2011 VS Memorandum 578.12, was issued. While this document doesn't make the use of NUES tags (National Uniform Eartagging System) mandatory for cattle and bison it does outline new standards for their distribution and use. This excludes sheep and goats which fall under the National Scrapie Eradication Program.

The biggest change resulting from VS Memorandum 578.12 is that livestock **producers** may now obtain their own official NUES metal ear tags from the Division of Animal Industry (DAI) at no charge. These tags start with a '21P.' They are not to be redistributed or shared with any other producers or used at any other location. Lost or stolen tags are to be reported to the DAI. Producers are responsible for purchasing the HASCO ear tagging pliers that are needed to apply these tags.

**Accredited veterinarians** have obtained official NUES eartags from DAI for many years. The silver brite tag series currently being shipped to veterinarians starts with '21D'. These tags should never be left with producers. Veterinarians are to use these tags for "official use only". This includes disease control program activities and official animal identification for interstate movement if another official tag is not already present in the animal when it is presented for veterinary inspection before issuing a CVI. **It is not acceptable to add an additional ear tag to an animal instead of reading a currently placed official ear tag.** The exception would be when placing an official calfhood vaccination tag (orange tag) in an animal which already has one official metal tag at the time of vaccination. Please call the DAI (518-457-3502) if you have any questions about official identification or ear tags. We will be happy to help you.

## Sudden Cervid Mortalities

by DAI field vet & Dr. McCracken

**Background** A deer farmer called the Division of Animal Industry in late August to report sudden, high mortality in his closed herd. The state field veterinarian assigned to the area, who is also a Foreign Animal Disease Diagnostician (FADD), was sent to the farm to investigate. Upon arrival at the farm, the FADD found approximately 65 dead deer (*Fig. 1*) on the property, accounting for 20% of the herd. The FADD interviewed the farmer and learned the following information. For the past several years (5+), the herd had been fed a relatively consistent diet made up of mixed grass green chop, mixed grass haylage and brewer's grain along with natural spring water. Beginning in July 2011, the farm had obtained a carbohydrate-based commodity product. This corn-based product was fed free-choice and appeared to cause no issues for the herd. The owner noticed that the deer preferred it to the forage and pasture. Three days before the call to DAI, the farmer switched to a rice-based commodity product (*Fig. 2*) from the same company on a free-choice basis. As with the corn product, he noticed the more aggressive, older animals tended to eat more rice than pasture and forage. One day before the phone call to DAI (two days after starting the rice product), deer began dying. At first, the farmer thought it was due to fighting over the feed but once he saw a lack of trauma and increase in mortalities, he called DAI. He stopped feeding the rice on the same day. Most of the deaths were the larger, more aggressive animals in the herd.



*Fig. 1 - Deaths in < 48 hrs*



*Fig. 2—Rice*

### **Field Findings, Clinical Impressions & Laboratory Summation**

After compiling a herd history and establishing the course of events, the FADD saw animals that were down, profoundly lethargic and dead. A field necropsy was performed on an adult buck that had recently expired. Rice grains were noted throughout the rumen, and abomasum (*Fig. 3*). Blood was drawn from a moribund, adult female. Tissues (fixed and fresh) from the buck and blood from the female were submitted to the AHDC at Cornell and commodity (rice) was submitted to the NYS Department of Agriculture and Markets' Food Laboratory.



*Fig. 3 Rumen Abomasum - note undigested rice*

Given the herd history and clinical presentation, it was felt that an infectious disease was probably not the cause of the signs and losses seen in this herd, specifically:

- The only animals to die, or show signs of illness, consumed rice.
- The time frame between consumption of rice, to development of signs and death, was rapid (less than 48 hours).
- The rate at which new cases developed, quickly dropped to zero after the rice was taken away.
- No significant sickness or death was reported in this herd, or in neighboring herds (wild or domesticated), prior to, or after, this event.
- Few, if any, infectious diseases are likely to cause the signs noted in this case, for this species.

Historical, clinical and laboratory findings support a diagnosis of acute rumen acidosis (due to carbohydrate overload) resulting in metabolic-cardiovascular collapse. No evidence of an infectious disease etiology was reported by the laboratory. A clinically insignificant level of fumonisin was identified in one of the rice samples submitted to the NYS Food Laboratory.

### **Comments**

Although an infectious disease was not identified as causing the losses seen in this herd, and a cursory review of the situation pretty much pointed towards 'nutritional mismanagement', there are scenarios, and threats, that make a follow up investigation necessary. It is especially important to report cases in which there is high mortality, high morbidity, or if a private veterinarian deems appropriate, an unusual clinical presentation, to a State or Federal veterinarian. Veterinarians with advanced training (foreign / exotic animal disease diagnostics) are available to assist private practitioners in such cases. A scenario, as described here, could well have had nefarious roots; criminal activity or terrorism, to name a few. Also, errors occur in the manufacturing and storage of feed, in which case, an event such as occurred in this herd could have been the reflection of a much broader threat.



## Getting a Good Rabies/BSE/TSE Sample—Free Handbooks Available

by Mary Stephens, AHT, USDA



Sooner or later, you will have the need to submit tissue from livestock showing neurologic signs for rabies testing. Most practitioners are familiar with the sampling and submission procedures. What many don't know is that most of those samples are subsequently tested by USDA-Veterinary Services for transmissible spongiform encephalopathies (TSEs). Your help is needed to be sure all interested parties are able to get valid test results from the samples submitted.



In addition to cerebellum and brain stem, the obex is required for TSE testing. Fortunately, it's not necessary to open the cranium in order to remove an adequate sample (recognizable, walnut-size piece) of the necessary CNS tissue, as the hindbrain is accessible through the foramen magnum. An appropriate brain stem sample includes obex, with minimal contamination or postmortem decomposition. Sample collectors should submit samples that have may have questionable testability and allow laboratory technicians to decide if tissue integrity precludes testing.

If the rabies test results are negative, USDA-Veterinary Services submits bovine samples for BSE and ovine and caprine samples for scrapie testing. The obex must be submitted for this test. The USDA-Veterinary Services requires the age in years, the breed, color and any ID for animals submitted for TSE testing.

To assist you with submission of tissues from livestock showing neurologic signs, a rabies/TSE sampling book is available for practitioners including color photos and a sampling tool. This book is available free of charge from USDA-Veterinary Services by calling Mary at (518) 528-5669.



## *S. enterica* serovar *dublin* Incidence in Northeast Cattle

by Drs. David Smith & Melanie Hemenway

New York and other northeastern states are seeing more cases of *Salmonella dublin*. Unlike other Salmonellosis, *S. dublin* usually presents as a respiratory illness primarily in young dairy and veal calves (few days to 6 months of age). There is high mortality in affected calves. Other clinical presentations include septicemia, abortions in pregnant mature cows/heifers, and/or diarrhea. *S. dublin* is of particular concern due to the ability to create a carrier state and its antibiotic resistance profile. Recent *S. dublin* cases seen in NY show susceptibility to fluoroquinolones, aminoglycosides, trimethoprim/sulfamethoxazole, and Draxxin® which makes for limited therapy options in food animals. *S. dublin* is also a human health concern; pregnant women and immune compromised persons should avoid contact with sick calves.



Rapid diagnosis helps prevent Salmonellosis from becoming endemic in a herd. We recommend tissue samples and swabs in respiratory outbreaks with high mortality rates. If *S. dublin* is found, environmental clean-up and exceptional management practices need to be implemented. These include clean maternity pens, prompt removal of calves from dams, clean colostrum management, milk and feed utensil sanitation, appropriate ventilation. Reduce stress by providing clean, comfortable housing and proper nutrition. Feeding raw milk to calves should be avoided.

In response to the apparent increase in frequency, the NY State Veterinary Diagnostic Lab is investigating the possibility of importing a new *Salmonella* test kit from Europe, which may prove useful for determining herd prevalence for *S. dublin*.

Prevention is probably the best strategy when it comes to *Salmonella dublin*. Standard disinfection and biosecurity practices such as maintaining a closed herd, raising calves and heifers in an "all-in, all-out" management system, isolating new herd additions and maintaining good pest control will go a long way toward reducing risk. Always tend to sick animals last, preferably with dedicated equipment.



To protect worker health and farm family health, hand-washing and other standard hygiene practices need to be emphasized. Raw milk consumption should be discouraged, not only because of the possibility of *Salmonella*, but also *Listeria*, *E. coli* and Q-fever. A very good article to refer to your clients can be found here:

<http://www.dairyherd.com/dairy-herd/features/Are-you-gambling-with-your-herds-health-133072743.html>



## Disease Investigation @ NYS Fair

by Dr. James Gray , DAI Field Staff Supervisor

A four month old Holstein heifer was presented at the New York State Fair with significant oral lesions. The raised, red, circular, ulcerated lesions were present on the muzzle, lips and gingiva. There were no intact vesicles noted and no coronary band lesions. The animal was not febrile and there was no excess salivation. The lesions were noted during routine inspection after being unloaded off the trailer and prior to entering the exhibition building. It was immediately placed under quarantine as a potential foreign animal disease (FAD) risk. Five asymptomatic animals (owned by other producers), shipped on the same trailer with the suspect animal, were also quarantined. A quarantine area was established near the edge of the fairgrounds and was secured by fair and Division of Animal Industry personnel. Inspection of other livestock was able to continue.



Actual heifer presented for exhibition at NYS Fair. The trucker thought it was "sunburn."

Samples were collected by a Foreign Animal Disease Diagnostician (FADD) and submitted to the USDA-APHIS' Foreign Animal Disease Diagnostic Lab (FADDL) at Plum Island and the NYS Veterinary Diagnostic Lab at Cornell University. Since Cornell is a National Animal Health Lab Network (NAHLN) laboratory approved to run preliminary Foot and Mouth Disease (FMD) PCR tests with regulatory approval, samples were sent there in addition to FADDL-Plum Island for confirmatory testing. Within 4-5 hrs, the preliminary PCR test for FMD was negative and based on that result, the epidemiological investigation and clinical presentation, the decision was made to allow the contact animals to enter the fair. The affected animal was removed from the fairgrounds and returned to the home farm. Follow up visits to the heifer's farm confirmed a normal recovery.

Within 12 hours, confirmatory testing conducted at FADDL ruled out FMD, vesicular stomatitis, bluetongue and epizootic hemorrhagic disease. The heifer tested positive for bovine popular stomatitis which was consistent with the clinical presentation.

The CVI for this animal was properly issued on June 28, 2011. The fair regulations for exhibition animals allowed for inspection as early as May 1, 2011. This case points out several things. First, the importance of reminding your clients to carefully check their animals prior to taking them to the fair since there can be a significant time gap between inspection for CVI issuance and going to a fair. If they have any doubt about the animal's health, they should hold the animal back or have the animal reexamined. Even the most cursory exam of this animal should have raised a red flag. Second, the trucker also learned a valuable lesson to more carefully check the animals before accepting them for shipment. Third, the need to be vigilant for infectious diseases, both foreign and domestic, at common gathering places like county and state fairs. While the 'checking in' process may seem lengthy and tedious at our state and county fairs in NYS, our

department is looking out for the best interests of your clients and the livestock industry. Had this been a true foreign animal disease, we would have stopped it before it exposing many other animals in the exhibition barns. Without the animal inspections, we could have had a much different scenario on our hands. Lastly, it points out the value of having our NYS Veterinary Diagnostic Lab approved under NAHLN to run preliminary tests for diseases such as FMD. We were able to make decisions about what to do with the index case and the potentially exposed animals relatively quickly and with a high degree of confidence.



What common biosecurity practice is lacking?

**In FY 2011, the Division of Animal Industry completed 18 Foreign Animal Disease Investigations. Investigations took place in all areas of the state and involved cattle, horses, poultry, llamas, sheep, deer, and dogs. Fortunately none of the investigations resulted in the discovery of a foreign animal disease.**



## Chemical (Drug) Residue Avoidance in Food Producing Animals

by Dr. Dwight Bruno, DAI

Given the importance of food safety issues and FDA's expectation that veterinarians (private and public), producers, food processors and the pharmaceutical industry play a decisive role in helping to assure that food supplies are safe and wholesome, extra focus is being placed on chemical residue violations (usually antibiotics) found in livestock and livestock products destined for the human food market. Complicating our efforts is the fact that new drugs are constantly being introduced to the market, drug use regulations change, and can be cumbersome to interpret. Solid lines of communication need to be maintained between industry, colleges, extension and regulatory authorities (State and Federal). Over the past 6 months, private practitioner groups, DAI and FDA have held informational meetings throughout NYS. As a follow up to recent meetings, we will try to alert veterinarians and others in the livestock industry, of new and upcoming drug residue avoidance information. If you have particular concerns, or wish to make suggestions on how we can assist in getting the word about chemical residue avoidance out, let us know. A good place to start is to familiarize yourself with the basics of responsible drug use in food producing animals, such as:

**AMDUCA** <http://www.fda.gov/AnimalVeterinary/GuidanceComplianceEnforcement/ActsRulesRegulations/ucm085377.htm>

### The key components and conditions of AMDUCA are as follows

(Source: FDAVeterinarianNewsletter/ucm100268.htm)

- Veterinarian-Client-Patient Relationship (VCPR)
- General Conditions for Extra-Label Use Under AMDUCA
  - Conditions for Extra-Label Use in Food Animals
    - Compounding Under AMDUCA
    - Prohibitions Under AMDUCA



\*\*\*\*\*On January 4, 2012, the Food and Drug Administration's (FDA) Center for Veterinary Medicine (CVM) issued an order prohibiting certain uses of the cephalosporin class of antimicrobial drugs in food-producing animals; it is currently scheduled to take effect April 5, 2012. The comment period ends March 6, 2012. For more information see: [http://www.fda.gov/AnimalVeterinary/NewsEvents/CVMUpdates/ucm054434.htm#\\_TwVC5u4\\_IgA.mailto](http://www.fda.gov/AnimalVeterinary/NewsEvents/CVMUpdates/ucm054434.htm#_TwVC5u4_IgA.mailto)

## AHDC: EIA Test Changes effective January 2012

Beginning January 2012, the AHDC will switch the EIA testing format from the AGID to the ELISA as the default test. The AGID test will be maintained as a test option for 1) export testing where ELISA is not approved; 2) samples that have been received by the laboratory >5 days after collection; 3) samples with anticoagulants; 4) AGID test requests received on electronic submission forms. We are requesting that all other forms either have the ELISA option selected or have the test format unselected. The cost for both the ELISA and AGID will also be harmonized to \$7.50/test.



Cornell University  
Animal Health Diagnostic Center

## Vet Med Loan Repayment Program Continues!

By Dr. David Smith

The VMLRP helps qualified veterinarians offset part of their educational debt in return for their service in certain high-priority veterinary shortage situations. USDA may repay up to \$25,000 of a veterinarian's student loan debt per year if the veterinarian commits to at least three years to provide veterinary services in a designated veterinary shortage area. The State Veterinarian's office is responsible for designating areas in NY that are underserved by food animal veterinarians. If you are aware of parts of New York that are underserved and could use a veterinarian who spends at least 30% of his or her professional efforts on food animals, please contact Dr. Dave Smith at [david.smith@agriculture.ny.gov](mailto:david.smith@agriculture.ny.gov)

Dr. Courtney L. McCracken, Editor

[vetaccred@agriculture.ny.gov](mailto:vetaccred@agriculture.ny.gov)

518-457-3502