



Patty Scharko, faculty member at the Livestock Disease Diagnostic Center and extension veterinarian

LIVESTOCK DISEASE DIAGNOSTIC CENTER

Keeping Kentucky's Animals Healthy

by Laura Skillman

The equine and livestock industries are hallmarks of Kentucky agriculture, steeped in tradition and bringing in billions of dollars of agricultural revenue. For both reasons, it's important to keep Kentucky's animals healthy. That's a role scientists at the UK Livestock Disease Diagnostic Center (LDDC) take to heart. Its veterinary specialists work with farmers and veterinarians across Kentucky to improve animal health and find solutions to problems.

Finding the Cause

LDDC scientists use the same techniques and methods as other researchers but turn them around, said Lenn Harrison, director.

"In research you start at a certain point and move forward to observe what's happening," he said. "We are always working in reverse. When something happens, we have to work backwards to explain and understand why it has taken place."

Many times diagnostic labs such as the LDDC are among the first to identify disease outbreaks.

That was the case in 2001, when Mare Reproductive Loss Syndrome (MRLS) caused many mares in the state to lose their foals. Through the work of the LDDC, other UK scientists, and private veterinarians, the factors contributing to MRLS were identified, and MRLS foal losses have not been experienced recently.

The center also plays an important role in helping the livestock industry understand why certain animal health regimens are important. For example, 15 years ago, blackleg, a rapidly fatal bacterial disease, was causing problems in the state's cattle operations.

"There was a huge misunderstanding on when and how to properly vaccinate for this preventable disease," Harrison said.

Today, blackleg pops up with less frequency, thanks to LDDC scientists working with veterinarians to educate producers about it.

The LDDC, built in 1971 near UK's Coldstream Research Park, has grown substantially over the years. It is in the midst of its third renovation and upgrade, necessary to ensure it maintains its national accreditation. Efforts are under way to secure funding for the second phase of this upgrade.

"LDDC's mission to protect the state's animal health is of high importance to the College of Agriculture," said Nancy Cox, associate dean for research and director of the Kentucky Agricultural Experiment Station.

"In recent years we have engaged in extensive planning with stakeholders about their needs for the lab, and we have instituted many changes to enhance the service and facilities," she said.

"We are proud of the progress so far and have aggressive plans to continue the enhancements; we are trying hard to achieve full accreditation status for the lab."

"I think the lab is a much-needed facility that has been severely underfunded," said Paris cattleman Jason Sandefur '96. "Getting the funding and staffing is vital."

Sandefur, who graduated from the College with a double major in animal sciences and agricultural economics, is a member of the LDDC's advisory committee.

There are 70 employees at the LDDC, including 12 in faculty positions. Employees work in areas including microbiology, serology, virology, toxicology, molecular biology, pathology, necropsy, histopathology, clinical pathology, and epidemiology.





Lenn Harrison,
director of the LDDC

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Sandefur says the relationship between farmer, veterinarian, and lab are critical to a successful livestock industry for the state. He cites the LDDC's testing for Johne's Disease (a contagious intestinal infection) and of animals persistently infected with bovine viral diarrhea as positive efforts in aiding the state's cattle industry.

He said a quick turnaround time for results will be especially important as national animal identification and export verification programs go into effect.

"As we get more progressive with our feeder cattle marketing,

with the lab here we can do things that will give us a market advantage," he said.

A Busy Place

In 2005, the facility had about 60,000 cases, which included nearly 150,000 animals ranging from horses and cattle, to cats and dogs, to reptiles and even a zoo animal. Cases may involve an individual animal or an entire herd.

The equine industry makes up about half of the workload, with cattle making up another 30 percent.

"A great deal of our work is done on live animals," Harrison said. "For example, a cow or a horse is sick and a nasal swab may be taken, then we get the swab to test," he said. "Or we may get a blood sample."

Necropsies—postmortem examinations—are performed at the facility and are an important diagnostic tool, he said. But the goal is to eliminate losses by detection of disease and intervention.

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Perhaps one of the most recognizable LDDC faculty members is Patty Scharko, who in her

role as extension veterinarian spends many days educating farmers on animal health.

Scharko said she gets a feel for what's happening in animal health through the meetings she attends, but information generated from samples coming into the lab is what she uses to educate the public. For those samples, the lab is dependent on producers and veterinarians.

"Our relationship with the producer and veterinarian is important because without them bringing animals to the lab, we can only make assumptions about what's happening," she said.

Scharko's work once was focused primarily on cattle, but the state's growing goat industry is also becoming a part of her activities, she said.

"Because several (goat) cases have come in (with copper toxicity and parasites) I'm more attuned to the industry and in providing more educational programs," she said. "I got more involved as we saw the case load increase at the lab."

Helping Others

The LDDC is also called on to test and monitor for diseases that are not yet problems but could be one day, such as bovine spongiform encephalopathy (BSE) and avian flu. To date avian flu has not been found in the United States, and no cases of BSE have been found in Kentucky. The center also provides support for the state veterinarian during disease outbreaks. For example, when equine neurologic herpes was diagnosed in late 2005, the barn housing the horses was quarantined, and LDDC scientists began testing to ensure that all infected animals were identified as early as possible. One month later, a final set of negative tests by the LDDC allowed the quarantine to be lifted.

"The lab has been an important sentinel for detection of the herpes virus, running samples that are essential for the state veterinarian to determine whether to admit race horses from other states," Cox said.

"This example and many others demonstrate how the laboratory services of the LDDC are key to the success of the Kentucky horse industry and animal agriculture in general," she said. ♦

Real-Time Equine Disease Surveillance Program Planned by LDDC

by Holly Wiemers

The Livestock Disease Diagnostic Center (LDDC) has teamed up with the Breathitt Veterinary Center in Hopkinsville and the state veterinarian's office to better respond to disease outbreaks in Kentucky's horse industry by building a new information technology system.

It will be the first fully functional and integrated animal health information system in the state, and it will be able to provide the most current and comprehensive information possible.

Once this monitoring system is in place (current projection is July 2007), the two laboratories and the state veterinarian's office will be able to seamlessly share data in near real-time fashion with key stakeholders. These groups include the Maxwell H. Gluck Equine Research Center, veterinarians across Kentucky, horse breed associations, and horse racing and performance organizations.

"This is a huge leap forward for agriculture in Kentucky," explained Craig Carter, LDDC epidemiologist. "The complete integration and ongoing analysis of animal health information is the only effective means of preparing for and dealing with endemic and emerging diseases."

Carter said that early detection can help prevent the spread of a disease and limit the impact that it has on the equine industry, which can be massive.

For example, during the 2001-2002 breeding season, when Mare Reproductive Loss Syndrome (MRLS) hit Central Kentucky particularly hard, an estimated 30 percent of the 2001 Thoroughbred foal crop was lost, and the state suffered an economic impact of approximately \$336 million (from losses in all horse breeds).

The new system won't just collect and statistically analyze animal health data in the field, but also will offer near real-time collection of information on the weather, soil, toxic plants, the environment, and insects. Other useful data might include over-the-counter sales of veterinary products, carcass volumes at rendering plants, and animal health observations at the farm level.

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Craig Carter