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KSU

Protecting the U.S. livestock industry

Researchers working at Kansas State University's Biosecurity Research Institute are combating an insect-transmitted disease that can be fatal to some animals, threatening the nation's agriculture economy.

They are investigating the biological relationships among exotic bluetongue virus, insects that transmit the virus and infected ruminant animals, which are grazing animals like sheep, goats and cattle. The researchers include Barbara Drolet, a research microbiologist with the Arthropod-Borne Animal Diseases Research Unit, or ABADRU, a unit of the U.S. Department of Agriculture's Agricultural Research Service, and a team from ABADRU. All of the researchers are also adjunct faculty members in diagnostic medicine and pathobiology at Kansas State University.

ABADRU studies livestock diseases to ensure safe agriculture products and to help sustain the agricultural economy. The USDA moved the unit from Laramie, Wyo., to Manhattan, Kan., in 2010 in part because the government researchers could conduct studies at the Biosecurity Research Institute. The move confirmed Manhattan as the international center for food safety and animal health research.

"The Biosecurity Research Institute plays a vital role in allowing researchers to safely study diseases that threaten livestock, crops and ultimately human health," said Ron Trewyn, vice president for research at Kansas State University. "Outside agencies have turned to the Biosecurity Research Institute for its unique capabilities. Other academic institutions, along with government and industry scientists, know that they can collaborate with Kansas State University, home to some of the world's leading experts in animal and plant diseases and in food safety and security."

Researchers are studying how exotic bluetongue virus interacts with insects and animals at the institute. The facility provides isolated and secure high containment labs and allows scientists to safely study all three components of arthropod-borne livestock diseases: the viruses, the insects that transmit them and the animals they infect.

The research provides a better understanding of the genetic and immunological factors that make animals susceptible to the disease.

Bluetongue virus can kill sheep and other ruminant animals. Midges, which are small biting flies, spread the disease when they bite an infected animal and pass it to another animal.

About 26 bluetongue viruses exist, and the disease is found everywhere in the world except Antarctica. More outbreaks are expected as temperatures continue to increase throughout the world. Bluetongue virus is a constant threat to America's livestock.

"Although this disease does not affect humans, an outbreak would have a catastrophic effect on our economy and trade with other countries," Drolet said. "This research will help protect farmers and their animals."

The name — bluetongue virus — derives from the fact that in severe cases, swelling in the head and neck can cut off circulation to the tongue, turning it blue.

ABADRU researchers include Lee Cohnstaedt, Scott D. McVey, Dana Nayduch, Mark Ruder and William Wilson. They are collaborating with Kansas State University and Colorado State University.

By Trevor Davis, Communications and Marketing