KANSAS STATE UNIVERSITY

Disease Vector Biology Research and Surveillance

Problem/Issue Statement

Vectors, including insects and ticks, can transmit infectious disease pathogens among humans or between animals and humans. Diseases spread by vectors such as mosquitoes are a serious public and animal health problem. Vectors of livestock result in significant economic loss from expenditures incurred for their control, disease treatment, loss in productivity, and mortality.

K-State is actively working to advance biodefense by providing training for federal, state, and local public health professionals in disease vector biology, surveillance, and control through workshops and advanced degree programs. K-State's research programs generate basic and applied knowledge, aiding in the development of innovative technologies for controlling key arthropods (biting midges, mosquitoes, flies, and ticks) using microbes, insect growth regulators, RNA-incorporated/impregnated baits), and disruptors of vector physiology. In partnership with state and federal agencies, K-State is investigating pathogen infection and its impacts on vector biology, behavior, and competence to further stabilize food animal production systems.

Request Description

Additional resources in the amount of $2.4 million are needed to support positions and associated training areas, as well as the facilities necessary to fully integrate research, teaching, and Extension to support diverse collaborations with commercial, private, and government sectors to mitigate the impacts of arthropod-borne pathogens on animals. With additional resources, K-State can effectively and safely research invasive species and communicate current and emerging threats through Extension professionals throughout the state to implement a comprehensive vector surveillance program at the local, state, and regional levels.

Request Goals and Expected Outcomes

More specialized training of the future workforce in vector biology requires research in tick virus transmission, which currently does not exist at K-State, NBAF, or ARS. The integration of research and teaching can only be accomplished within an academic unit like Entomology, which would help build a globally competitive undergraduate program with a focus on animal health. However, the department currently lacks a facility capable of rearing exotic and endemic species of concern for use in research and training opportunities. The department currently has space adjacent to a newly established core facility that will house scientists from NBAF and K-State, but rearing of key arthropods is not feasible due to improper power supply, unreliable HVAC systems, and corroded water supplies. Although this is somewhat expected for a building constructed in 1923, the lack of modern infrastructure limits our ability to effectively investigate diseases and vectors impacting humans globally.

Community Project Funding Request

Kansas Livestock Association

Appropriations Subcommittee

Homeland Security
Agriculture, Rural Development, Food and Drug Administration, and Related Agencies

Request Type

Funding Request ☒ Bill Language Request ☐