** This news release from K-State Research and Extension is available online at https://ksre-learn.com/stored-grain-pests-biosecurity

Released: Oct. 14, 2024

K-State, USDA scientists awarded grant to battle invasive stored grain pests

Khapra beetle and larger grain borer threaten U.S. food supply

By Pat Melgares, K-State Research and Extension news service

MANHATTAN, Kan. – Scientists from Kansas State University and the U.S. Department of Agriculture have launched a project to improve biosecurity against a pair of insects that have battered America's food supply for decades.

K-State professor of entomology Tom Phillips said the university will lead a $799,976 project funded by USDA's National Institute of Food and Agriculture to find ways to mitigate the spread of khapra beetle and the larger grain borer.

The two pests are known as stored product insects, or those that infest grain after harvest, as well as value added foods from grain.

America's battle against the khapra beetle dates to the early 1950s when the government spent $125 million to eradicate the pest in three southwestern states. The larger grain borer has been found crossing the southern border from its normal distribution in south and central America.

"There are very few invasive or quarantine stored product insects," said Rob Morrison, a research entomologist with the USDA's Agriculture Research Service Center for Grain and Animal Health Research in Manhattan.

"However, khapra beetle and larger grain borer are two species that are considered quarantined, or species-of-concern. They are both highly destructive; larger grain borer feeds mostly on corn and cassava, while khapra beetle is much less discriminate."

Morrison noted that as trade increases globally, the number of khapra beetle discoveries also increases. The World Conservation Union lists khapra beetle as one of the world's 100 worst invasive species.

The project being led by K-State aims to upgrade monitoring devices by using automated, remote trapping devices. Researchers also will test novel fumigants for their effectiveness against these two pests, one result of the phase-out of methyl bromide that begin in the late 1980s.

“Methyl bromide was characterized as an ozone-depleting substance (as a result of the 1980s Montreal Protocol),” Phillips said. “The U.S. Environmental Protection Agency has already removed methyl bromide for general use, and it cannot be bought except for quarantine protection.”

He adds: “Because methyl bromide is such an effective, fast-acting fumigant, there is no current alternative that has replaced it. Quarantine is imperative for agricultural biosecurity; these key stored grain pests would greatly hurt our trade of grain and our economy.”

The five-year project began this summer and will continue through 2029. In addition to Phillips and Morrison, key collaborators on the project include Alison Gerken and Deanna Scheff from the USDA lab in Manhattan; and Christos Athanassiou, a professor at the University of Thessaly (Greece).

“We are working on stopping two highly destructive pests from getting into the food supply,” said Morrison, noting that bread, cereals and many foods common to the kitchen pantry could be affected.

“If these pests get into the food supply, it would not only raise our food costs, but would also likely bring hardship to the grain industry by limiting exports, and the resulting devaluation on infested, bulk-stored grains.”

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