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Detoxifying the Dinner Table

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Detoxifying the dinner table

As deployed soldiers are aware, danger is a possibility on foreign soil. Thanks to a partnership with the U.S. Department of Defense, though, Kansas State University researchers are helping to ensure threats stay clear in one area: the dinner table.

In 2005 the U.S. Army Natick Soldier Research Development and Engineering Center partnered with K-State to study how to better protect American troops from the possibility of food-based threats.

“We’re working to validate some rapid diagnostic protocols and equipment that will allow soldiers in the field to be able to assess whether or not their food rations are safe to eat,” said Dick Oberst, professor of diagnostic medicine/pathobiology at K-State.

At K-State’s Biosecurity Research Institute, or BRI, Oberst is leading the first study on certain bacteria classified as biosafety level 3, or BSL-3, and the first study using select agents.

Select agents are pathogens or biological toxins that have the potential to pose a severe threat to the public health and safety. In this case, the agents are listed as BSL-3, classifying them as serious or potentially

lethal by the Centers for Disease Control and Prevention.

Many select agents could be found in foods from either intentional or unintentional contamination actions during the food production process or prior to consumption, Oberst said.

“That’s why this information is especially important to the soldiers. A lot of the fresh produce and consumable food that they obtain in foreign countries is locally grown or processed,” Oberst said.

“Because of this, our goal is to validate some of the fast test methods that the Army might use in order to see how effective they are when it comes to testing for various types of select agents in different foods,” he said.

The first agents studied were toxins classified as biosafety level 2, or BSL-2, posing a moderate hazard to the researchers. Eventually the Natick Soldier Research Development and Engineering Center wanted to validate the test methods against more dangerous pathogens.

In the spring of 2010 K-State was approved by the Centers for Disease Control

and Prevention and the United States Department of Agriculture to begin working with some select agents in the BRI.

Although research in BSL-3 biocontainment has been going on for only a few months, Oberst said working within the BRI’s high-level containment labs will allow for an unprecedented level of investigation. He and other researchers will eventually be able to use technology and equipment in the BRI to go through the entire production process of foods in order to spot the exact point of contamination and to intervene with appropriate documentation methods.

Ultimately once this can be done, Oberst said it would allow food producers to not only know when a food is most susceptible to contamination in the production cycle, but would lead to information for developing diagnostic protocols and procedures to handle contamination of select agents.

“That’s really what our long-term goal is,” Oberst said, “to not only develop the best diagnostic approaches and countermeasures for the soldiers abroad, but also for civilian food safety.”

By Greg Tammen, Communications and Marketing