

## FOOD SECURITY



# Foiling Foodborne Illness, from Farm to Plate

*The Centers for Disease Control and Prevention estimates that every year 48 million Americans get sick and 3,000 die from foodborne illness. Threat emerge at every step of the food chain: on the farm, during processing and dining at home or away. Land-grant universities are saving lives and preventing illnesses through training, education and research.*

### SUCCESSFUL EXAMPLES INCLUDE:

- Across the United States, land-grant universities are training farmers in food safety techniques. In **Connecticut**, Extension offered 12 food safety programs to more than 400 produce farmers, meat and poultry processors and consumers. Farmers learned how to comply with the 2016 Food Safety and Modernization Act and how to prepare for a Good Agricultural Practices audit. Processors learned new concepts and how to write food safety plans. Similar efforts in **Missouri** reached 50 growers in four states who, after training, reported that they wrote farm food safety plans, created a food safety record-keeping process and implemented new ways to transport produce.
- Before a bowl of clam chowder is placed before a diner, specially trained seafood handlers will have been working behind the scenes to eliminate any contaminants that could cause illness, such as salmonella or listeria. Training programs offered by **Rhode Island** and **Connecticut** Extension experts reach 75 to 100 seafood processors and regulators each year. Once trained, participants write site-specific plans to keep their seafood products safe, applying HACCP (Hazard Analysis and Critical Control Points) principles.

### BLOCKING AFLATOXIN AT THE GENE LEVEL

Aflatoxin, the most potent carcinogen in nature, contaminates about 25% of the global food supply. It can cause environmental damage, yield loss and human illness in the form of liver cancer. Traditional treatments focus on killing fungi that produce the toxin, but that approach also harms crops. To avoid the side effects, **Wisconsin** researchers are working at the genetic level to prevent aflatoxin from developing in the first place. They have produced fungi missing a regulatory gene that is responsible for developing spores and the production of aflatoxin. With this information, the researchers are now exploring ways to target this gene with treatments and avoid the harsh impacts on crops caused by other methods.

### YOU CAN CAN SAFE

More people are turning—or returning—to home canning and food preservation as a way to save money and have more control over how their food is produced. Land-grant universities are teaching new canners about proper food preservation techniques. Consumers who use outdated recipes or inaccurate methods are at risk for causing botulism, a serious illness that may result in death. **Missouri** Extension experts

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helped 428 food preservers succeed with safety workshops. They covered pressure canning, boiling water bath and steam canning, salsas, pickling, sweet spreads, and dehydration and freezing. In a follow-up survey, every participant said they understood the importance of using up-to-date, research-tested recipes and methods.

### ARTISAN CHEESE, PLEASE

**Connecticut** researchers collected more than 400 samples from the operations of small-scale cheese producers to eval-

uate and identify the presence of pathogenic bacteria. Test results identified several potential problem areas on surfaces that could result in serious sickness in humans. The researchers developed science-based interventions to prevent food safety threats, such as antimicrobial dip treatments, coating applications and acidification-based brine treatment protocols. They provided one-on-one technical assistance and training to the cheese producers, and follow-up tests demonstrated elimination of pathogens. Results of the study contributed to the American Cheese Society's Code of Best Practices.

### ABOUT LANDGRANTIMPACTS.ORG

The Land-Grant University System is a uniquely American institution, and has operated successfully for more than a century. The [landgrantimpacts.org](http://landgrantimpacts.org) website documents and demonstrates the collective and individual impacts of the national system of joint teaching, research, and extension institutions.

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