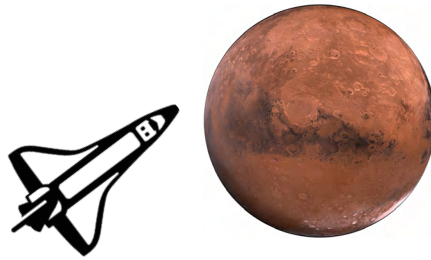


MULTISTATE RESEARCH IMPACTS

Many methods that use heat and chemicals to ensure food safety are not 100% effective and can damage food color, texture, flavor, and nutrients.

University scientists are developing tools and practices that improve food safety and quality.

These advances are important as consumers demand minimally-processed, additive-free food items with longer shelf lives and less potential to cause foodborne illnesses.



Researchers are working on packaged foods with the 5-year shelf life needed for NASA's Mars missions.

UIUC, Iowa State, UK & WSU



Scientists are developing high voltage atmospheric cold plasma technology (*that's a mouthful!*) to sterilize foods without using heat, chemicals, or water. (*that's eco-friendly!*)

Iowa State, Purdue & SDSU



Using nanotechnology, researchers designed tiny carriers that can deliver nutrients and antimicrobials directly into cells.

UIUC, LSU, UMD, UTK, TAMU & VT



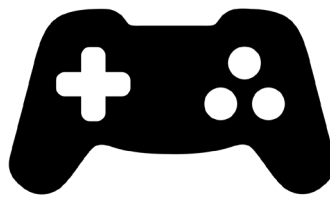
Researchers found that using modified milk protein in high-protein snack bars can prevent them from hardening during storage and extend their shelf life.

Iowa State University



New edible films reduce microbial growth on perishable foods. They also help foods retain moisture and look more appealing.

Oregon State University



Educational video games explore real-world food safety scenarios and make concepts more engaging. Skilled food scientists and workers will protect food safety for future generations.

University of California-Davis



Researchers provided major food companies with microwave technologies that control pathogens in refrigerated and frozen meals.

U.S. Army Natick Soldier Center & WSU



Researchers developed UV and nanoparticle technologies to inactivate allergens in foods like peanuts, shrimp, and wheat. This will help prevent contamination on food processing lines.

UDEL, UFL, UGA, IIT, UMaine & UMN



Researchers developed a method that helps nutrients in milled rice sustain washing, making milled rice more nutritious.

Mississippi State University



Scientists developed FDA-accepted microwave sterilization processes that offer the 3-year shelf life needed for military rations.

U.S. Army Natick Soldier Center & WSU



New technology extracts proteins from catfish heads, skin, and bones for use in tastier, more nutritious imitation crab meat and fish patties. Using parts typically thrown out makes the catfish industry more profitable and sustainable.

Mississippi State University



Researchers set new design standards for frozen microwaveable foods to make sure they cook evenly, minimizing food safety issues.

University of Nebraska



High pressure processing kills bacteria and extends shelf life for products without heat or additives, leaving texture, flavor, and nutrients intact. This process is helping meet demand for minimally processed food.

Ohio State, IIT & UMN



Probiotics can improve digestive health, but are often destroyed by stomach acids before they take effect. Researchers developed new capsules and pretreatments to protect the pills.

LSU & UTK



Extension programs and workshops are improving food safety practices in homes, restaurants, grocery stores, and other food businesses.

UC-Davis, UGA, Iowa State, UMD, UMN, UM, Ohio State, PSU & UW-Madison



Researchers showed that high pressure processing can make raw oysters safer to consume by removing bacteria without damaging the oyster quality.

University of Maine



Researchers found new ways to improve the shelf life and texture of cottage cheese.

University of Idaho



Researchers developed new tools that reduce the amount of oil foods soak up during frying. This makes fried foods less fatty.

UIUC, TTU & VT



Researchers developed an electron beam irradiation method for processing complex-shaped fresh fruits and vegetables, which are easily damaged by traditional sanitation methods that use heat.

Texas A&M University



Researchers found a way to reduce the particle size of salt so it transfers to taste buds more efficiently. This means less salt can be used without affecting taste.

Louisiana State University



Radiation, ethanol vapor, radio frequency, and thermal treatments can reduce *Salmonella* in spices and other low-moisture foods, which are difficult to sanitize with traditional methods.

IIT, MSU, UMN, UNL, TAMU, VT, WSU & others



Simulation modules let students apply critical thinking to complex, real-world food safety situations. Using these modules in food safety education will give students the skills they need to be successful practitioners.

Cornell University

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Learn more: <http://bit.ly/NC-1023-Engineering-for-Food-Safety-and-Quality>

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