

# Penn State Labs Work To Make Food Safer

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now has 20 faculty members and 100 undergraduates. It is one of the largest and best programs in the nation.

Isolated outbreaks of food-borne illnesses and meat that is recalled because of possible contamination send warnings throughout the food industry. In the last several months a massive recall of taco shells was issued because traces of a genetically engineered corn that was approved for animal feed but not human consumption was alleged to have appeared in the shells.

Koushik Seetharaman explained how biotechnology takes a beneficial gene and puts it into a seed such as corn so that less chemicals are needed during the growing season. This puts a new gene into the food, a protein. Although initial findings showed no ill side effects, two major concerns have come to the forefront recently. Is it safe for human consumption and is it environmentally safe?

Some people claimed to have had an allergic reaction to genetically engineered corn. And a few environmentalist groups claimed negative impact on the environment.

According to Seetharam, pollen can drift, depending on the wind, and the genes can potentially combine with plants growing under normal conditions. Once a gene enters a food, it becomes part of it and cannot be removed. "It's a little like gossip," Seetharaman said, of the impossibility of stopping the gene that was initiated.

Tests failed to find any evidence that the genetically engineered food caused food allergy reactions in those that consumed the shells, but their fears caused concern that reactions might not show up until 3-5 years later, when the protein component builds up in the body.

Cornell research had said that the genetically engineered corn was killing butterflies, but other independent studies have not found this correlation.

Technology must be looked at carefully, and with it public education must precede and accompany the utilization of technology. In the past, much of technology was beneficial to farmers, helping them to receive higher yields and better growth. Today technology must consider how it will affect consumers, Seetharam said.

Dana McElroy, department of food science, talked about public perception on food safety and extension's component in educating the public.

Luke Leborde, extension specialist, works with food service and food safety issues. His department examines food processing.

He said that one well-known pizza chain buys more mushroom in the state than any other industry. The chain wants assurance that the mushrooms they order are safe. They want to know about the manure pathogens.

The labs research methods of killing pathogens without lessening the flavor, appearance, and nutrient content of the food.

Ali Demirci said the department of ag and biological engineering is working with low-heat sterilization of foods. Although heat kills microorganisms, not all food can be heated.

Infrared processing, irradiation, and electroheating are some of the methods researched.

Many consumers view irradiation as a new process, but Catherine Cutter, department of food sciences, said that irradiation has been around for more than 100 years. In 1896, scientists discovered that uranium is radioactive and within a few years determined that the y-rays could destroy bacteria in food. FDA has approved the process for some food additives but not all food. During the 1960s-1970s, a big thrust to implement this method was spearheaded by NASA in order to keep food safe in space for long periods of time.

During the last 10 years, much research is being done with irradiation and the meat industry. The method has proven effective to kill pathogens, but a higher cost is attached to the product because food must be shipped to one of five or six food irradiation facilities in the U.S. The food then needs to be repackaged off-site and shipped back for distribution.

Several large meat packaging companies are supposedly planning to purchase irradiation equipment soon in the hopes of cutting the extra charges of

shipping and handling.

Irradiation will reduce and in some circumstances eliminate pathogenic microorganisms

such as salmonella, E.coli, staphylococcus aureus, listeria monocytogenes, campylobacter

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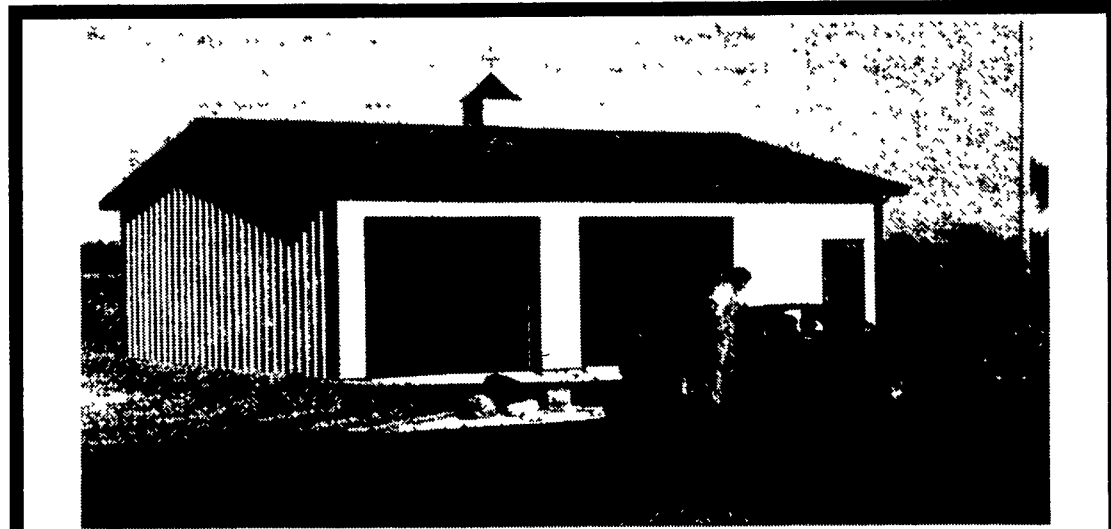
Dana McElroy recommends that consumers with question on food safety, storage, and preparation check the Penn State Food Safety Website <http://foodsafety.cas.psu.edu>.



All Demirci explains that several methods to destroy microorganisms are needed to ensure a safe food supply.



Participants discuss the use of sensors used by Joseph Irudayaraj to determine food quality, microbial detection, and contaminant determination.



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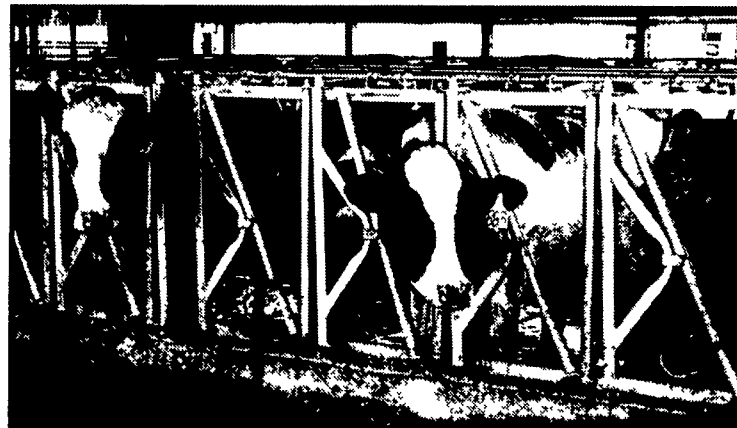
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