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Food safety: a matter of fact

The safety of our food supply, along with its quality, nutritional value and reasonable pricing, is of paramount importance to the continued success of agriculture in California.

During this century, myriad government actions and improved production, processing and marketing technologies have significantly enhanced food safety and quality. The University of California's Agricultural Experiment Station and Cooperative Extension play major roles in helping and informing the consumer in each of these areas. While our researchers pioneer new food technologies, the University should ensure that these technologies promote food safety.

Evidence suggests that public distrust of the food supply persists nationwide. According to the Food Marketing Institute, only 15% of the shopping public has complete confidence in the safety of the food in our nation's supermarkets. This lack of confidence is heightened by at least three factors: 1) new technologies, whether processing technologies such as irradiation to kill microbes and enhance shelf-life or production technologies such as genetic engineering to improve food quality; 2) the use, and infrequent misuse, of synthetic pesticides to improve food production; 3) and a perceived lack of total control, or choice, by consumers over production and processing of their foods.

In spite of public perceptions, our most vexing and dangerous food safety concerns continue to be microorganisms such as bacteria, viruses, molds, and parasites. They cause stomach cramps, vomiting, diarrhea and other flu-like symptoms in an estimated 70 million people in the United States each year. Microorganisms are also involved in the deaths of thousands of people annually. The hardest hit are the very young, the immune compromised and the very old.

Our researchers are seeking improved processing and storage methods to reduce the health threat posed by pathogenic and toxigenic microorganisms. Approaches include continual improvements in thermal and aseptic processing of foods and new monitoring techniques. Food irradiation is another proven technique for eliminating many harmful microorganisms on the surface of fresh fruit and vegetables, but it has failed to achieve widespread public acceptance.

The increasing demand for fresh, unprocessed foods that contain little or no preservatives is a trend which calls for a stronger educational effort on our part. Such foods may be more susceptible to contamination by microbes.

We also face an educational challenge in the food industry. Approximately 77% of the food contamination cases originate in restaurants, cafeterias, catering services, and other food service operations. Because of turnover, many food service workers are not well trained in basic sanitation.

Although educational and research efforts to minimize microbial contamination are our top food safety priorities, we must also address other problems and issues.

Eighty percent of the shopping public, for example, perceive pesticide residues as a serious health hazard. This perception is

reinforced by reports of pesticide misuse or abuse and, in the case of Alar on apples, misinformation. Most of our foods are relatively free from pesticide residues. When pesticides are detected, they are usually well below allowable regulatory limits.

Fortunately, we can begin to address the pesticide perception in a positive way by pointing out our research accomplishments that greatly reduce the volume of pesticides used in agriculture today. These include successful development and implementation of integrated pest management techniques that incorporate biological and cultural practices into pest management programs, sustainable agriculture practices that reduce reliance on synthetic pesticides, and developments in biotechnology that create plants requiring fewer pesticides.

The University devotes substantial staff time and research dollars to developing pesticide alternatives. Other food safety problems that deserve our attention include determining the prevalence and effects of excessive amounts of lead, mercury and other environmental contaminants in some foods. Such problems are usually limited to a specific area or type of food. In addition, the use of antibiotics and therapeutics in the production of animal foods is being carefully monitored to avoid residues.

We also must be aware of the nutritional implications of food safety and not let fears about food safety overcome the nutritional benefits from eating a variety of foods, especially fruits and vegetables, as advocated by the National Academy of Sciences. The need for public information and education is a common thread linking all aspects of food safety.

To improve the educational effort, we established the FoodSafe Program within the UC Davis College of Agricultural and Environmental Sciences, to facilitate and strengthen food safety research, education and information programs. The FoodSafe program will be a clearinghouse for food safety information, monitor research data, and organize symposia and short courses on safety and risk. The program also will develop research projects focusing on chemical and microbiological contamination of food, risk communication, consumer behavior and related topics.

The existing network of Cooperative Extension specialists, home economists and advisors effectively conduct food safety research and educational programs at the county level. The FoodSafe Program will work closely with these professionals and also will interact with the mass media to provide accurate consumer information on food safety.

These programs are important to everyone and are a critical part of our mission to serve all Californians. The programs deserve the public investment required to make them as useful as possible. All Californians need sound research-based information to fuel public policy discussion and individual decisions on the many complex problems and issues covered by the food safety umbrella.