

Food safety first

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Since long before the terrorist attacks of Sept. 11, securing the nation's food supply has been a top priority for people who produce and regulate food. Because most of our food is produced in the open, protecting crops and animals from intentional contamination or infection by a determined person is a constant challenge.

Agro-terrorism is not just a problem for farmers. It poses potential health and economic threats to everyone. Food-borne disease organisms can be used as weapons, and even if they don't kill people, they can exact an economic toll.

Terrorism banks on public fear. We've learned from experience that fear alone of e. coli, salmonella, mad cow disease or anthrax tainting the food supply can undermine public confidence, depress commodity prices and disrupt international trade. It can put a producer of perishable goods out of business; strawberry sales plummeted in 1996 when consumers wrongly assumed that cyclospora on imported raspberries affected strawberries grown in the United States.

The outbreak last year of foot-and-mouth disease in the United Kingdom resulted in the slaughter of 6 million sheep, cows and pigs and had a ripple effect on meat consumption, rural communities and tourism. University of California scientists estimate that intentional or even accidental introduction of the disease in California would cost the state as much as \$13 billion. In addition, state officials would face the public-health dilemma of disposing of thousands of decaying animal carcasses.

Large-scale contamination of this kind is not the only threat to our food supply. Already, an estimated 76 million cases of food-borne disease and 5,000 resulting deaths occur in the United States each year, according to the Centers for Disease Control and Prevention. Food-borne illnesses cost Americans \$23 billion a year in medical costs and economic losses due to absenteeism, with most food poisoning cases traced to improper food handling in the kitchen.

Fortunately, we have the means to improve food security and bolster public confidence. Scientific research can help us understand and control the

ecology of the microbes that inhabit plants and animals. Greater communication among research scientists, health agencies, the agricultural community and others can help safeguard food along the way from the farm to the family dinner table.

The University of California has been solving agricultural and food safety problems since its creation as a land-grant college in 1868. Today, UC's Division of Agriculture and Natural Resources has experts in myriad disciplines -- veterinarians, plant pathologists, microbiologists and toxicologists, to name a few -- who work with farmers, packers and others to prevent contamination of the food supply.

Great progress is being made. It used to take days to culture a sample to determine the pathogen causing a disease. But in the past two years, scientists at the UC-managed Lawrence Livermore and Los Alamos national laboratories have developed rapid detection tests. Now a biological agent can be identified in less than 60 minutes using its DNA, enabling us to prevent disease outbreaks from becoming epidemics. The national laboratories are working with UC scientists, government agencies and the Centers for Disease Control and Prevention to put the tests into widespread use.

In February, Gov. Gray Davis designated \$6 million from the "Buy California" program for the state departments of Food and Agriculture and Health and Human Services, the University of California, and other cooperating agencies to organize the Western Institute for Food Safety and Security. These funds are part of a \$64 million allocation from Congress that the state is using to promote consumption of California-grown agricultural products and support cutting-edge research in low-input agricultural practices, new product development and food safety and security. The partners in the Western Institute will conduct risk assessment studies, develop security and sanitation measures, create rapid diagnostic tests, improve coordination between public health and medical response systems, support food safety education and conduct surveillance of livestock, wildlife and plant health, among other things.

More needs to be done, however. Congress is considering comprehensive bioterrorism legislation that includes stepped-up food safety and agricultural security provisions. Federal support for research and new technologies that will help mitigate threats to agriculture is critical.

At a time when our nation is investing billions of dollars to protect airports, seaports, waterways, bridges and energy infrastructure against terrorist threats, it is important that we also invest in the protection of our food supply. Research universities such as UC and our partners in

agriculture and public health are deeply engaged in these efforts, and we must expand our service in this critical area of responsibility.