

Software 'terror-proofs' U.S. food

By LEN RICHARDSON

LIKE Johnny Appleseed of yore, the Food and Drug Administration is scattering food-defense computer programs across the U.S. so the country's million or so food processors can better secure their food against possible contamination by terrorists.

A team from Sandia National Laboratories, a National Nuclear Security Administration laboratory with facilities in Livermore and New Mexico, led the effort to computerize the FDA program so it can be distributed as widely as possible.

The downloadable program, called CARVER + Shock, provides a series of interactive questions. Food-processing employees can learn it in a few hours. The program helps companies determine vulnerabilities along their food-processing chain. It also warns of the attractiveness of each production step to an invader.

"People who used the initial test said it was easy to use and fun," says David Acheson, FDA assistant commissioner for food protection. "You build flow charts by dragging icons onto the screen."

The point is to enable companies that may be unskilled in risk assessments to make evaluations on their own.

How it works

CARVER was originally developed by the U.S. military to determine which targets would be most attractive to an adversary. Its current use, computerized under the supervision of Sandia researchers, applies this method to food production from the target's point of view.

"In warfare, the military must attack the jugular of its opponent," says principal investigator Phil Pohl. "Here, we ask the same tough questions, but to identify the food-supply jugular and protect it."

Specifically, the CARVER questions follow its acronym to ask how critical, accessible, recognizable and vulnerable each part of any food process is, as well



PHOTO BY RANDY MONTOYA

STRAWBERRY SECURITY: Sandia researcher Susan Carson checks out a computerized program designed to help protect the U.S. food supply from terrorists.

Key Points

- Computer program warns of the appeal of each food-processing step to an invader.
- CARVER + Shock software identifies the food-supply jugular and helps protect it.
- "Shock" feature rates how strongly the public would respond to an attack.

as the physical effect of an unwanted intervention and how long it would take to recover from it.

"Shock" rates the degree to which a specific attack on the food chain would raise public apprehension.

"An attack on a baby-food plant

would produce more emotional shock than one on a frozen pizza plant," says Sandia researcher Susan Carson, who worked on software that helped develop the questions needed for a one-size-fits-all program. "We factor that in."

Expanding use

The conversion from interview questions to questions asked by computer began with Carson and Pohl shadowing FDA staff at meetings with industry personnel.

Former Sandia employee Regina Hunter and her son, Madison Link, through their Albuquerque, N.M.-based company Ducks in a Row, also took part

in some interviews and then, with Pohl and Carson, put together the design interface.

Robert Browitt of Albuquerque-based Archtrave Software put the questions into code. "Sandians have brilliant ideas, and I implement them into a usable professional product," he says.

Access for terrorists?

Could CARVER's questions — "more than a hundred, less than 200," says Carson — be useful to terrorist groups in determining where to attack?

"The software [by itself] is not a checklist," says Sandia manager Jeff Danneels. "It won't tell you where vulnerabilities in a process are. The companies who use it will have to control access to their results. But the only way many stay in business has always been to keep products proprietary and secret. They'll have to do the same here."

The food-defense project began in response to the federal Bioterrorism Act of 2002, which said the industry should be prepared to defend against any contingency. In response, the FDA increased its work with the food industry to find overlooked vulnerabilities.

"This is the best thing to come out of Washington in a long time," says David Fish, plant manager of Breedlove Dehydrated Foods, Lubbock, Texas. "We're all aware of vulnerabilities in our food chain, even if it's unintentional, like *E. coli* on spinach that killed several people and sickened hundreds."

"This is the only quantifiable tool I know of for the food industry," says Frank Busta, director of the National Center for Food Protection and Defense, a federally funded consortium of six universities. "I don't know if it's the be-all-to-end-all. What's important — to refine it into a better and better instrument. This is the first computerized step."

Acheson says the FDA is working on a marketing plan to increase awareness of the program, which is now available online at www.cfsan.fda.gov/~dms/vltcarv.html. Learn about other FDA efforts in food safety at www.cfsan.fda.gov/fooddefense.

Oxygen trick cuts organic costs

A cheap treatment using oxygen could allow organic produce longer storage and thus cut the price, reports *Chemistry & Industry* magazine. The Volcani Center, Israel, has devised a weeklong pretreatment with low levels of oxygen at 20 degrees C to prevent scald, an injury from prolonged cold storage.

State meat processor recalls 75,000 pounds of beef

California processor United Food Group recalled 75,000 pounds of ground-beef products in Arizona, California, Idaho, Montana, Nevada, North Dakota, Oregon, Utah, Washington and Wyoming. The beef may be tainted with *E. coli*, USDA says.

Tyson drops antibiotic chickens

Poultry products from Tyson Foods will no longer be sourced from birds fed antibiotics, reports *Food Navigator*. The

move is aimed to tap demand for more "natural" foods. Tyson fresh poultry products will be packaged as "raised without antibiotics."

Plants recognize their 'siblings'

McMaster University in Canada has determined that plants are competitive when they share a pot with "strangers" of the same species, but they are helpful when potted with "siblings." The ability to recognize and favor kin is common in animals, but this is the first time it has been shown in plants.

Locally grown, fresh foods experience booming market

Sales of fresh and locally grown foods have shot up in recent years, driven by factors such as food-safety fears, claims a new report by market research firm Packaged Facts. The report, "Local and Fresh Foods in the U.S.," forecasts sales to reach \$5 billion in 2007, up from \$4 billion in 2002.

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