

Alternatives developed for disinfecting, testing

Companies develop new products and new uses for existing products.

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Recent outbreaks of *E. coli* have led Ag Water Chemical of California, Fresno, to offer a new use for an old product.

Ag Water has been the sole U.S. distributor of AgriTec, an algaecide and bactericide to prevent clogging in irrigation systems, for about 10 years.

Back in 2002, the chemical's manufacturer, Rogers, Ark.-based Earth Science Laboratories Inc., hired then-named NSF International, Ann Arbor, Mich., to test the product for use against *E. coli* and other pathogens. Those tests showed the product could significantly reduce contamination of fruits and vegetables by *E. coli* and other bacteria.

"We always knew it had bactericide properties, but up until this *E. coli* thing came up, we had no reason to believe we could do anything else with it," said Ag Water vice president James Legari. "After the first outbreak with spinach, we started looking at what else we could offer growers."

Legari said AgriTec could be used in above-ground, underground and drip irrigation systems, making field-packed product safer.

Ag Water president Richard Clevenger said the copper-based solution costs slightly more than chlorine treatments but is more effective because it doesn't dissipate.

"We've stayed away from chlorine," Legari said. "If you put enough chlorine into your irrigation system, that chlorinated water ends up in the root system of the plants, and chlorine has a negative affect on the natural biology of the soil. Copper has no negative affect."

Legari said AgriTec also could be used as a packing-house wash for some commodities.

"It's not a silver bullet," he said, "but if water for agricultural use has *E. coli* in it, this is another tool growers can use to offset that risk."

Ag Water isn't the only company trying to put a new spin on an old system to fight *E. coli* and other food-safety risks.

University of Minnesota professor Joellen Feirtag is studying the use of electrochemical activation, a process developed to stop bacteria buildup from clogging oil and gas pipelines.

The system separates the chlorine and sodium ions from a salt and water solution into different chambers. In one chamber, a detergent is created to clean the product. In another, a disinfectant is created to kill bacteria on product and processing surfaces.

According to the university, tests on lettuce, tomatoes and spinach have been encouraging. The process also killed a strain of avian flu and hepatitis A in tests and also



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removed salmonella.

"To me, this is a new technology that is (economical), that works and that is efficient and safe for the environment and people," Feirtag said on the university's Web site. "Through education and new technology, we may be able to reduce outbreaks of *E. coli*. We don't want people to stop eating fruits and vegetables."

Elsewhere, DuPont Co., Wilmington, Del., has introduced a new version of its BAX pathogen test. The U.S. Department of Agriculture adopted the test for beef in 2005, but DuPont said on its Web site that "an increasing number of food processors" had asked if the test could be used to detect *E. coli* in fresh produce. The answer came in mid-December when Health Canada approved the test for use in produce and dairy.

BAX, which can be used to detect *E. coli*, salmonella and listeria, is available in bulk powder or in unit-sized soluble packets.

Finally, Los Angeles-based Eco-Safe Systems USA Inc. is promoting its Eco-Jet Ozone Power Washer. The washer uses a patent-pending ozone water technology to sanitize contact surfaces and product without hot water.

"Processors are spending a lot of money on chemicals and hot water," said Eco-Safe spokesman Neil Vineberg. "With ozone, you don't need the chemicals, and you also save money on energy, so there's a great return on investment."

Vineberg said the product reduces salmonella, *E. coli* and listeria levels and is faster and more effective than chlorine.