

Clean system

By KATHY COATNEY

THE produce industry and California in particular have become the spotlighted center of food safety attention.

"We've seen over the last several years a lot of focus on food and water safety, and quality. Traditionally, food safety has been achieved through the use of chemicals like chlorine or fungicides," says David Cope, CEO of Purfresh, a Fremont company that has built a worldwide food safety business.

Product lineup

Purfresh products include:

■ **Purfresh Wash** dissolves ozone into water and is used as a spray bar disinfectant rinse. The solution kills pathogens and controls foodborne and waterborne microorganisms.

■ **Purfresh Cold Storage** supplements cold storage rooms with a steady, low dose of activated oxygen that is safe for workers and commodities. This system kills airborne and surface microorganisms and consumes ethylene produced by ripening. After oxidizing microorganisms, it reverts to pure oxygen, leaving no residue while maintaining taste and texture. It also controls the ripening process to extend storage and shelf life. Finally, it reduces microorganisms like *E. coli*, *listeria* and *salmonella*.

■ **Purfresh Transport** is designed to easily attach and detach from refrigerated shipping containers. It reduces decay and controls ripening while enhancing food safety and quality. It also kills airborne and surface microorganisms, and destroys ethylene to prevent premature ripening.

The challenge for growershippers has been once the product is shipped, they

SCIENTIFIC TOOLS: The Purfresh lab in Fremont features food safety equipment and Intellipur software that tracks produce shipped anywhere in the world.



Key Points

- Purfresh offers three products to enhance food safety.
- EU, Asia have new rules for fungicides on shipped produce.
- Purfresh Transport works on shipping containers.

lose control, Cope says. With Purfresh Transport, shipping is no longer a mystery.

"It works very well so that buyers reduce their losses, have safer foods and longer shelf life — not only at retail, but shelf life at home for the consumer," Cope says.

Chemical reduction

New requirements in the European Union and Asia call for reduced presence of residual fungicides on produce shipped into those countries.

Broetje Orchards, Prescott, Wash., installed Purfresh Wash on their organic line specifically to meet these criteria.

"We're also using it in our



FOOD SAFETY INNOVATOR: David Cope, Purfresh CEO, Fremont, explains how Purfresh products work. One component sprays a disinfectant rinse. The system also uses an ozone treatment to keep produce safe during storage and transportation.

rinse water on our organic line," says Ron Appleby, operations manager.

Bill Wilber, president of Oceanside Produce in Oceanside, uses the Purfresh Wash and Purfresh Cold Storage systems. "We're using it [Purfresh Wash] in our dump tank," Wilber says.

Oceanside is a vine-ripe operation, and the fruit is only in the dump tank a few seconds. "The bigger items and particles come off in the dump tank; then [the fruit] goes up the rollers

and into a spray bar of Purfresh [Wash]," Wilber says.

They went to Purfresh Wash for a higher degree of cleaning. "We've had everything come through extremely clean, so we have no negative feedback," he says. "This year we did go ahead and also put Purfresh Cold Storage in the cold rooms, so again, one more final step of a purifying process."

He adds, "For us, it is more about the cleaning and purification part."

Coatney is a Corning writer.



INDUSTRY NUMBERS:

Fruit and vegetable cases make up a fraction of the 76 million illnesses and 5,000 deaths from food poisoning in the U.S. each year. Meanwhile, imports of food, some from countries without strict controls, have doubled since 2002 to more than 9 million shipments.

Bubble barrier steers migrating salmon



SAFE ROUTE: These piles and equipment help keep Chinook salmon and steelhead on a safer, more direct path to the ocean.

By LEN RICHARDSON

PRELIMINARY results show that an experimental, non-physical fish barrier is helping keep young Chinook salmon and steelhead on a more direct path to the ocean and away from agricultural diversion and pumping plants.

The Department of Water Resources is piloting a "bubble curtain" barrier project that combines acoustics and a strobe-lit sheet of bubbles to create an underwater wall of light and sound at frequen-

Key Points

- Non-physical bubble barrier protects migrating salmon.
- Action came before new federal ruling that blames Delta pumps.
- A "bubble curtain" is being used instead of a rock barrier.

cies that repel juvenile Chinook salmon.

This action came before federal biologists and hydrologists concluded that current water pumping operations under the federal Central Valley Project and the California State Water Project should be changed to



LOCATION: The "bubble curtain" barrier is located where Old River diverges from the San Joaquin River, near the city of Lathrop.

ensure survival of winter and spring-run Chinook salmon, Central Valley steelhead, the southern population of North American green sturgeon and Southern Resident killer whales, which rely on Chinook salmon runs for food.

Results from three of seven planned releases of hatchery juvenile Chinook salmon implanted with acoustic tags indicate the barrier has increased the number of fish staying in the San Joaquin River to continue their migration to San Francisco Bay and the ocean. Past studies have shown that

salmon kept in the main stream of the San Joaquin River have better survival than those that move into the central Delta through Old River.

Results from the four remaining releases, scheduled through late May, are not yet known.

The bubble curtain is being tested instead of a rock barrier that had been installed each spring in previous years.

This project is a part of the Vernalis Adaptive Management Plan, a federal and state multi-agency experimental program initiated in 2000.