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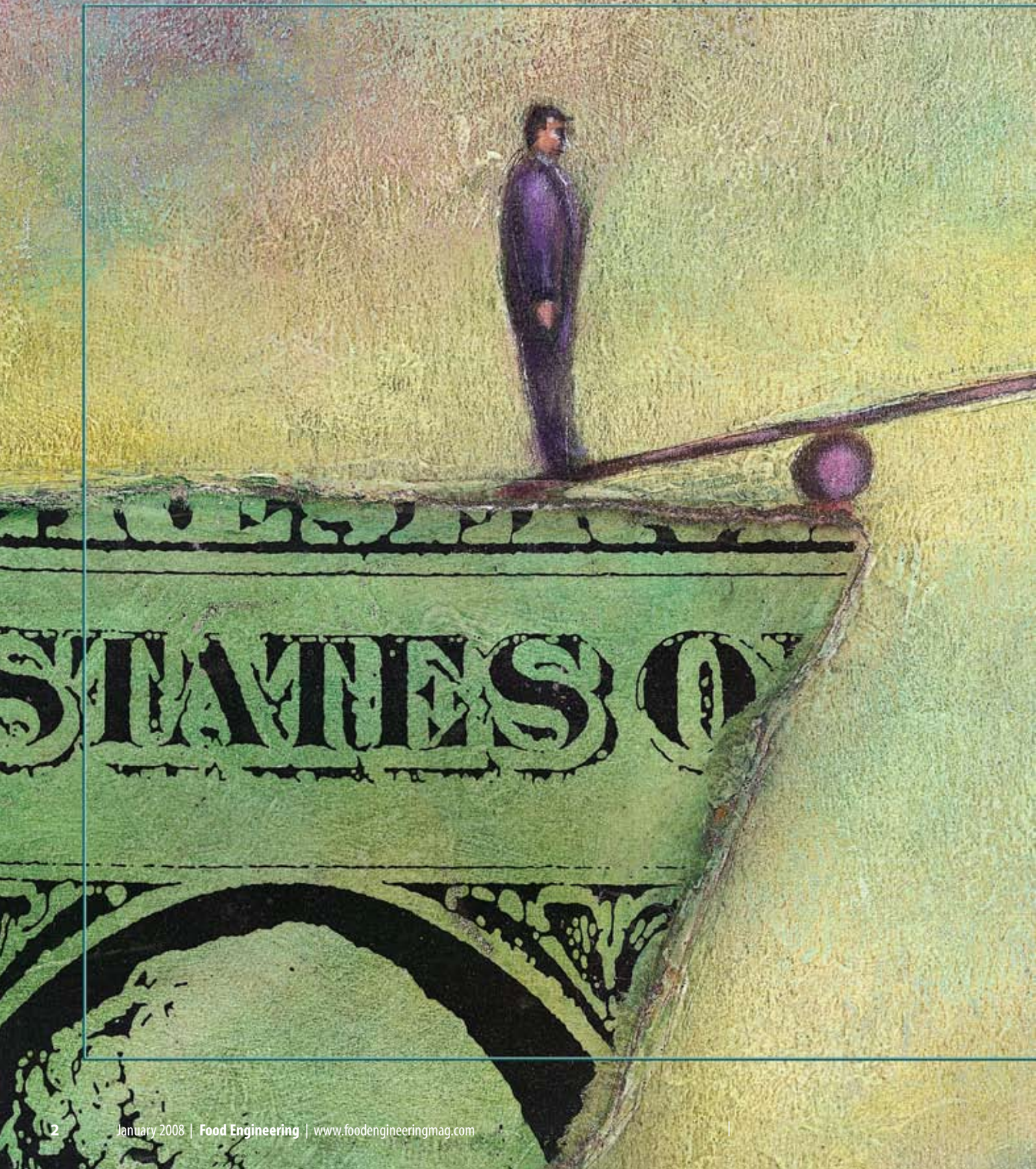
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Food Safety Crisis of Confidence

Have we
reached the
tipping point?

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Food's Crisis



of Confidence



Have we reached the *tipping point*?

After 2007's procession of food-safety recalls, are consumers saying "Ho-hum" or "Uh-oh"?

■ **Kevin T. Higgins, Senior Editor**

It's becoming a bad habit, an unwelcome seasonal rite: As the calendar turned to autumn the last two years, farmers harvested their crops, and retailers cleared their shelves in major food recalls.

Packaged spinach tainted with *E. coli* 0157:H7 in September 2006 was soon followed by food-borne illnesses at Taco Bell restaurants in November. Was it the lettuce? The green onions? No one really knows, but the double-barreled blast of bad publicity and public suspicion depressed sales. In the case of spinach, "sales are down 30% from last fall's recall; they'll never recover," consultant Rudy Westervelt maintained at last year's Food Automation & Manufacturing Conference. Taco Bell parent Yum Brands Inc. put lost profitability in 2006's fourth quarter at \$20 million. "While we anticipate

that Taco Bell will fully recover from this issue by the middle of 2007," the corporation's 10-K noted, "recoveries of this type vary in duration and could take longer."

Poison pet food and *Clostridium botulinum* in canned food were the warm-up acts for 2007's main event: *E. coli* 0157:H7 in hamburger linked to Topps Meat Co. The troubled New Jersey grinder was guilty of many process-control errors, but the most egregious may have been the mixing of fresh and frozen raw materials. The initial 331,582-lb. hamburger recall mushroomed to 21.7 million lbs., an entire year's production. A week later, the 67-year-old company was out of business.

Topps' stunning collapse may have been quickly forgotten, but a cascade of recalls followed (see sidebar on [page 94](#)). Frozen as well as fresh foods

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Meat companies like Chicago's Cherry Meat Packers have a leg up on other grinders because of its involvement in the school lunch program, which requires SPC as part of best practices in food safety.

were implicated in poisonings that cost manufacturers tens of millions of dollars in destroyed product alone. ConAgra's initial line of defense for Salmonella illnesses tied to its frozen pot pies was that those hospitalized failed to apply sufficient heat to kill the undeclared pathogen culture in their precooked meals. ConAgra's CEO later made a public apology, but the damage was done. The company's direct costs for the recall were \$30 million. Loss of future sales remains anybody's guess.

The billion dollar question remains: Will collective amnesia turn the latest bad run into a short-term depression, or will consumers vote with their

pocketbooks and hold the affected brands—or the industry as a whole—accountable? Are people numbed by the recalls or mad as hell?

In 1906, Upton Sinclair's *The Jungle* caused a public uproar and provoked a Presidential investigation that resulted in passage of the Pure Food and Drug Act and the Meat Inspection Act, which led to creation of the Food and Drug Administration and US Department of Agriculture. The regulatory solution was supported by food companies that recognized the threat posed to the still-young prepared foods business by unsafe products.

A hundred years later, there are some parallels. Public confidence has

been rattled, though there is no consensus whether it is a temporary blip or a permanent shift. Though the R word sticks in their throats, trading partners and even some food company representatives advocate giving the FDA greater regulatory authority. And consumer groups are demanding a seat at the food-safety table, a role in recommending best practices to lower public-health risks.

Massive recalls, some driven by companies eager to err on the side of prudence, served as a backdrop to a symposium on best practices in food safety on Halloween. Organized by three consumer advocacy organizations, the forum drew together food manufacturers, retailers and regulators to discuss technologies and procedures companies can use to minimize health risks. Statistical process control (SPC), more rigorous track and trace programs and interventions such as steam vacuuming in livestock slaughter and ozone treatment for a variety of foods were discussed. As Craig Wilson, vice president-food safety & quality assurance at Costco, noted, consumers are "shell-shocked" by the recent wave of safety events. The industry must improve its safety record to maintain good faith.

Save us from ourselves

Pro-regulatory voices were somewhat muted at the Halloween symposium held in Washington, DC. FMI, the supermarket trade group, wasn't so reserved in its post-Thanksgiving call to extend mandatory recall authority to the FDA and USDA. More surprisingly, the Grocery Manufacturers Association seconded the motion in Congressional testimony in early December.

With recalls involving E. coli in beef at a record pace, mainstream supermarkets are feeling the heat. "The unprecedented number of high-profile recalls taking place over the past 18 months is a significant contributor" to a decline in public confidence in prepared food's safety, FMI CEO Tim Hammonds said in a prepared statement.

Confidence already was drooping when FMI conducted its annual U.S. Grocery Shopper Trends 2007 survey in late January. The proportion of shoppers indicating they were somewhat doubtful of the safety of food in grocery stores doubled to 32% from the previous year. The two-thirds who remained confident about safety was the lowest ratio in 18 years. More troubling, subsequent monthly surveys indicated confidence “crawled up a little bit, but it is still down significantly,” reports Anne-Marie Roerink, FMI research director.

She contrasts the slow rebound to the World Trade Center terrorist attacks in 2001. Within three months, confidence levels among air travelers had rebounded to pre-9/11 levels, Roerink says. “As a researcher, I was surprised how much longer food-safety concerns lingered” into 2007.

Customer satisfaction with food companies declined in the third quarter, as measured by the American Customer Satisfaction Index (ACSI), though director Claes Fornell attributes it to higher prices. “A food recall is a pretty serious matter,” and one of the biggest satisfaction hits was taken by Kraft, which grappled with a chocolate recall, notes Fornell, a business professor at University of Michigan. But other factors were at play with Kraft and Sara Lee, another firm suffering satisfaction loss.

“For the most part, people are buying and consuming the products of mainstream food companies, though there may be a group who are opting for organic and specialty foods,” he adds.

Others believe the continued strong growth at green grocers like Whole Foods and Trader Joe’s and at quality-focused chains like Wegmans and Costco are driven by lost faith in mainstream products. Barely a blip 10 years ago, organic foods still are picking up steam. Sales grew 22% in 2006 to \$17 billion, the Organic Trade Association reports, about 2.5% of the market, compared to 0.8% in 1997. Whether



Kerry Pozulp of Cherry Meat Packers studies a histogram generated by the company's SPC program. The company uses the system to monitor microbial loads in ground beef and head off safety issues before they become a serious concern.

their focus is organic, natural or higher quality, part of what these retailers sell is food safety. And sales are very good.

Many of the best practices discussed at the DC forum were remedial steps for pathogen control in specific operations. One of the broader methodologies was SPC, a common practice in canning for decades but a discipline experiencing a rocky transition to fresh foods. Statistics intimidate plant personnel, and companies approach SPC with trepidation. Even the largest food companies wrestle with SPC deployment. Tyson Foods' Rick Roop told the gathering, “I try to call it process control,” leaving the math unmentioned. Still, staff buy-in remains a challenge. “This is a practice that has been very difficult to get across to a lot of our team members because it scares them,” the senior vice president of quality assurance said.

Finding the comfort zone

A supply-chain success story for SPC is the school lunch program, which is administered by the USDA's Agricultural Marketing Service (AMS). Long

a dumping ground for substandard ground beef and other commodities, the lunch program was putting one of the most vulnerable population segments at risk. Mandating better safety protocols went beyond AMS's charter, but managers saw an opportunity to leverage their purchasing power to force slaughterhouses, deboning operations and grinders to incorporate SPC to better monitor microbial loads in beef. Sampling by program participants and independent labs such as Silliker helps validate processes are in control, though quality experts emphasize that sampling is a poor substitute for best practices and effective monitoring of a process.

Cherry Meat Packers Inc. is one of the grinders in the AMS program. Brothers Keith and Kerry Pozulp run the family business out of space purchased 57 years ago on the south side of Chicago, a few blocks west of the Union Stockyards that were the backdrop for *The Jungle*. “Initially, SPC scares you,” allows Kerry Pozulp. “Now, it's second nature.” At AMS's recommendation, Cherry Meat installed SPC

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software from Northwest Analytical, Portland, OR, and Pozulp received basic training. “Once it’s set up, it’s just a matter of putting in the numbers and pressing a button,” he says.

The real power of the AMS program is the information sharing it imposes on a closed loop of suppliers. Microbial tests for E. coli 0157:H7, salmonella, generic E. coli, coliforms and a standard plate count are conducted at each link in the chain, and results are posted on an intranet. Pozulp not only knows the condition of deboned meat arriving from his suppliers but conditions from all the program’s participants. “If my supplier sells to nine grinders, I see test results from all of them,” he says.

Lot samples are taken from arriving beef, and finished goods are tested. But the results are best regarded as an early warning system: If plate counts go up while product is in the plant, immediate action needs to be taken, before loads reach the danger level. A positive result for any pathogen would mean a day’s lost production. An elevated standard plate count would suggest temperatures weren’t being controlled, a piece of equipment was dirty, or some GMP or SSOP was not being followed. SPC doesn’t tell Pozulp what the problem is, only that it’s time to locate and address a process deviation.

“Steve Olsen and the rest of the AMS staff took a risk with SPC,” which also

Even after washing in chlorinated water, fresh grapes are susceptible to mold formation and discoloration (left). Ozonated water, on the other hand, extends shelf life and maintains green stems that grocers demand (right). Source: Novazone Inc.

monitors fat content in school hamburgers, Pozulp says. “Adding specs and tests made the meat more expensive at first. Now the price has come down, and the school lunch program is getting better product than anyone.”

Tyson and other meat processors will get a chance to get comfortable with SPC: Based on the quality improvements in the school lunch program, FSIS is poised to require adoption by mainstream processors.

When the AMS program was taking shape a few years ago, John Surak trained personnel in SPC. A food scientist and former professor of applied economics and statistics at Clemson University, Surak now serves as an industry consultant with an emphasis on food safety. He was a US representative on the committee that developed ISO 22000, the international food-safety standard.

Tools like SPC and ISO 22000 provide auditable results, a scorecard of performance, Surak explains. To be useful, “management has to learn to trust the process,” he says. It begins with a flow diagram that details “how things really are working, not how I

think they’re working. That allows you to understand what causes variation and the actions you need to take to remove those causes.”

Speakers at the best practices symposium dwelled on steam vacuums and other interventions. Technology is fine as long as it’s working; the point of SPC is to validate that it is working, Surak says. “Is the steam vacuum running at the right temperature and pressure? How do you control flow rate and maintain the unit? SPC provides management with the reports it needs to assure everything is working right and to trigger action before deviations become problems.”

Hi-ho, silver

No gathering of food-safety experts is complete without the caution, “There’s no silver bullet,” and the bromide was invoked a few times at the best practices symposium. But steel bullets in the form of technology and management systems in the form of GMPs, HACCP, supplier quality programs and SSOPs can go a long way toward improving food safety.

“Every time you improve quality, you always increase the safety of food from a microbial standpoint,” notes Costco’s Wilson. A quality tool he advocates is X-ray inspection. “It’s the right thing to do, and it’s quite effective,” he says. “We drive that home every day with our suppliers.”

Three years ago, Wilson sent a letter to the club's suppliers, urging them to install X-ray units. At the time, the technology was used sparingly. Today, 10-20% of detection units sold are X-ray, guesses Bob Ries, product manager-metal and X-ray system process instruments at Thermo Fisher Scientific Inc., Minneapolis. "Metal detectors still dominate, but you're starting to see a shift." X-ray often is being used in conjunction with metal detectors as a final check.

Food companies usually relegate metal and X-ray detection to quality assurance status, but Ries insists they should be viewed as part of a multiple-hurdle approach to keeping contaminants out of packaged products. "We hear about a contaminant's recall every month, and probably several others occur that no one hears about," he says. One involving glass particles in jars and jellies sold in a warehouse store was sniffed out with the help of X-rays.

Best practices for recalls, particularly those involving leafy greens and produce, is a top priority among grocers, Danny Wegman told the DC safety symposium. The CEO of Rochester, NY-based Wegmans Food Markets chairs FMI's Food Safety Task Force. He emphasized the need for compromise and flexibility by supply chain partners to create a unified system.

When a recall is necessary, "it's always better to dial down to the lot level than to recall everything," points out Wilson. Costco developed an in-house tracking system to recall potentially dangerous products that have passed the checkout scanners in its stores. Instead of a general announcement about a suspect product, the retailer is able to use e-mails, phone calls and other communications to reach customers who actually have the product. "We can make up to 5,000 telephone calls an hour, if necessary," he boasts.

Targeted recalls should be even easier for a manufacturer to execute. CDC Software is upgrading its track and trace program to interface with

a database of e-mail accounts of customers and suppliers. But selling safety as a part of an automation platform has proven difficult. Many automation firms thought the track and trace requirements of the Bioterrorism Act of 2002 would push food and beverage companies still reliant on paper records (the situation at Topps) to automate plant data-collection systems. It didn't happen, and some vendors have abandoned that emphasis, promoting instead the ROI from higher throughput, better scheduling and continuous-improvement reporting.

Automation expert Craig Nelson is a consultant to the FDA on regulatory compliance. He speaks with authority when he says, "you don't hear about enforcement of the Bioterrorism Act's

track and trace requirements." Still, helping dairies and other food manufacturers recall products quickly was top of mind when he devised code for Vigilistics software two years ago. Emphasizing those capabilities was a marketing dud. "Nearly every sale we've had is because of the asset utilization benefits," says the founder and chief technology officer of the Mission Viejo, CA firm. "Track and trace is like buying fire insurance;" Demonstrating ROI is impossible without a crisis.

CDC's Beth Berndt concurs. "I honestly believe being efficient and not in control from a safety standpoint are mutually exclusive," but safety systems have yet to join productivity in companies' profitability calculations. "Track and trace still is viewed as the icing on

Autumn's recall roll call

Like a tag team of negative news, the pathogens in food spotlight shifted from the produce sector in fall 2006 to red meat in the fall of 2007. Beginning with Topps Meat Co.'s September recall of 21.7 million lbs. of beef patties due to E. coli 0157:H7, a recall that quickly led to liquidation for the 67-year-old firm, the American public witnessed a procession of high-profile recalls. Among the headline grabbers:

- On Oct. 3, Kraft Foods reported possible Salmonella contamination in Baker's Premium White Chocolate Baking Squares produced over four days at a Canadian facility. The following day, Campbell Soup Co. recalled 72,300 cans of Chunky Baked Potato with Cheddar & Bacon soup because of chunks of hard plastic in some cans.
- On Oct. 11, ConAgra Foods Inc. recalled Banquet brand and private-label pot pies because of salmonella concerns. Although problems appeared to be isolated in products produced over two weeks in the company's Marshall, MO facility, ConAgra recalled all of plant output, regardless of production date.
- On Nov. 2, General Mills recalled 414,000 cases of Totino's and Jeno's frozen pizzas produced at the company's Wellston, OH plant. Contaminated pepperoni was suspected in 21 E. coli 0157:H7 poisonings beginning July 20.
- On Nov. 3, Cargill Meat Solutions recalled more than 1 million lbs. of ground beef produced at its Wyalusing, PA plant because of pathogenic E. coli concerns. A positive test from a sample of Oct. 8's production resulted in the recall of ground beef produced over a four-day period.
- On Nov. 26, Green Bay, WI-based American Foods Group recalled 96,000 lbs. of ground beef produced Oct. 10 and distributed to retailers in seven states. Two cases of possible E. coli-caused illnesses uncovered by the Illinois Department of Health sparked the recall.

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the cake,” she allows. It needs to be seen as a best practice for food safety. “Food companies do quantity really well,” says Berndt. “Traceability compliance and best practices are built into the software.”

Nelson is involved in a pilot program to assign standardized lot numbers to food products to enhance supply-chain traceability. If such a system had been in place during the 2006 spinach recall, “they could have found the commonality in the contaminated products and traced it to a farm in Salinas, CA,” he says. To overcome manufacturer sensitivity to sharing product information, the lot numbers would not include any proprietary data. “The precedent has been set in the banking industry,” he points out, where personal financial information is safeguarded, even when an individual accesses cash at an ATM half a world away.

Consultant Westervelt deployed Vigilistics’ system while managing a Kroger dairy in California. A product-contamination disaster was short-circuited when the program flagged a CIP interruption that could have resulted in caustic cleaner going to fillers. The program averted “a huge liability,” he said, but those types of safety threats are control issues, and better control defies a cost-benefit calculation.

Chemical-free interventions

Kim Gorton, president of seafood importer and distributor Slade Gorton & Co., outlined some of the interventions used in her industry segment at the best practices symposium. She lamented the lack of best-practices information sharing and suggested safety improvements are unlikely without greater outside pressure, either from retailers or regulators.

Gorton also endorsed ozone treatment, saying “it’s been incredibly effective in killing 99.8% of all bacteria” in fresh and frozen fish. Her firm is urging its global suppliers to incorporate the technology as a best practice.



An Anritsu technician holds a 2-lb. package of dinner franks and a 0.7mm fragment of stainless steel that was detected by an X-ray machine, which generated a “no go” message on the display screen. High-speed image processing and increased focus on food safety are winning an expanding role for X-ray inspection.

Seafood processors were green-lighted on ozone for direct-food contact years before the rest of the industry. That’s because the US Commerce Department oversees seafood. It’s a regulatory quirk that’s allowed inspectors to experiment with food safety initiatives, according to Steve Wilson, chief quality officer for the department’s Seafood Inspection Program.

“It’s a voluntary, fee-for-service inspection program, so we’ll try something new to see if it works,” said Wilson. “We do full systems analysis, including food safety, while AMS shies away from safety and sticks with process systems.” Long before the FDA lifted ozone prohibitions, fish companies were using the intervention. “We’ve annoyed the FDA for years,” Wilson laughs.

The greening of retail is driving some of the expanding use of ozone gas and ozonated water. To meet the specifications of Tesco, the British supermarket giant that recently set up shop in the Southwest, produce supplier Orchard View Farms made the switch from chlorine to ozone.

“Chlorine is cheap, and consumers want good, cheap food that is safe,” Brenda Thomas, CEO of The Dalles, OR-based company says in explaining conventional practices in cherry processing. “Ozone is not standard practice yet, but we’d still use it even if we didn’t sell to Tesco. We consider it safer than chlorine for our workers.”

It’s a best practice that lowers overall cost, insists David Cope, president and CEO for Novazone Inc., a Livermore, CA firm that engineers ozone delivery systems. Chlorine turns the stems of cherries brown after several hours, forcing processors to dump tens of thousands of chilled water and replenish their tanks. The economics of ozone and filtration systems are beginning to catch up with the status quo. In the meantime, companies like Novazone are focusing on the health issues surrounding chlorine in promoting ozone as a best practice. “It was no accident that a natural food firm was involved in E. coli in spinach,” says Cope. “The collision between food safety and the desire to cut chemical use demands alternative technologies.”

An echo of the pet-food recalls can be found in the chlorine debate. Veterinarians traced fatal kidney failures in pets to crystals formed when melamine combined with cyanuric acid in contaminated Chinese gluten. The USDA is studying compounds formed when chlorine combines with organic material in water, such as the suspected carcinogen tri halo methane.

Chemical contamination, even trace amounts, is poised to become a food safety issue. Pepsico CEO Indra Nooyi, speaking at a New Delhi business conference in December 2006, promised Indian consumers that “a breakthrough, science-based method to reliably and consistently measure low levels of pesticide residues in finished soft drinks” would soon be deployed in that market. The analytical method, developed in cooperation with Coca-Cola Co., is being validated by AOAC International, the Association of Official Agricultural Chemists.

Cope’s firm recently donated an ozone system to the Center for Food Safety at the University of Georgia to study the efficacy of ozone to disinfect packaging materials, among other things. Coincidentally, the center’s director, Michael



Cherries move through a bath of ozonated water at Orchard View Farms in The Dalles, OR. Working with green grocers like Costco and Tesco motivated the company to switch to an ozone system. Source: Novazone Inc.

Doyle, participated in the DC best practices symposium. The difficulty with best practices, he reflected, is that “not all food companies are equally committed to food safety.” In the absence of regulation, raising best practices across the board will be a daunting challenge.

At a minimum, the public expects a good-faith effort to improve safety. Nancy Donley, one of the organizers of the DC symposium, believes a new spirit of cooperation is emerging. “Best practices have always been defined by the industry itself,” says Donley. “We want to sit at the table and incorporate a different set of eyes.” Cooperation instead of confrontation may mend 21st century fences, much like the dramatic changes in the 20th century. ♦

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End-of-line X-ray inspection, supported by metal detectors upstream, are becoming more common in food plants. Source: Thermo Fisher Scientific.



<http://www.gkservices.com/food-safety/>