



Without a trace

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At the beginning of 2008, the produce industry was working to address shortcomings in its capacity to track produce through the supply chain and trace it back in the event of product recalls. Mandatory compliance with the one-step-up, one-step-back mandate of the Bioterrorism Act of 2002 had been in effect for just over a year, but the FDA wasn't kicking in doors to go through anyone's records.

United Fresh, the Produce Marketing Association, and the Canadian PMA had met on January 9, 2008 to begin establishing an action plan to implement recommendations culled from a years-long best practices examination. They would meet twice more, on February 22 and April 11, to mull practical challenges such as data storage and timelines.

But by the time the Initiative was meeting on April 11 in Boston, consumers in New Mexico and Texas had probably already purchased and begun eating something that would infect them with Salmonella Saintpaul. Within three months, nearly 1,000 people in 40 states, the District of Columbia, and Canada would be affected and the produce industry and the FDA would be under fire from a frustrated public and an angry Congress.

And we still wouldn't have any idea what caused the outbreak.

Paying for our shortcomings

No one knows yet how hard the outbreak will hit the \$1.3 billion market for fresh tomatoes—the first product implicated by the FDA investigation, but the months of inconclusiveness mean that growers, shippers, and retailers discarded perfectly good fruit.

The impact was clear by the June 12 Produce Traceability Initiative meeting in Chicago, according to Gary Fleming, PMA's vice president of industry technology and standards. "To open the meeting, one of our participants said they'd had to pull tomatoes from all 1,200 stores. And it was probably needless."

Compounding the problem was the FDA's method of drawing up a safe list of areas known not to have been harvesting tomatoes at the time illnesses were reported. Although a sound way to isolate areas cleared of suspicion, it had the effect of excluding even operators whose traceability standards may have been able to prove their product safe.

"We can't ship romas," says Bryant Ambelang, chief marketing officer of Desert Glory, growers of NatureSweet tomatoes, "even though our product is 100 percent traceable." Desert Glory, based in San Antonio, TX, has five farms in Mexico, and though it grows and distributes primarily cherry and grape tomatoes—varieties never implicated in the Salmonella outbreak—Ambelang says that even the company's romas could have been cleared because Desert Glory's complete vertical integration means that product can be quickly traced back through the entire supply chain down to the greenhouse a tomato came from.

Whole-system traceability is more difficult in parts of the industry not as vertically integrated as Desert Glory, and that's what the Produce Traceability Initiative is addressing. It's also part of what's hampered FDA investigators from being able to isolate why people are still getting sick.

"What we've seen time and again," says David Gombas, senior vice president, food safety and technology for Washington, D.C.-based United Fresh, "is that the produce industry simply has too many different kinds of traceability that don't talk to each other."

Cross-referencing the information captured at various links in the supply chain—much of it stored in proprietary systems—can render good information useless. "There's no Rosetta Stone out there to translate all these different incoming technologies into one database," says Gombas.

Worse, some records aren't even kept in electronic databases, but only in paper form on purchase orders or invoices. Paper records satisfy the Bioterrorism Act's recordkeeping requirements, but cross referencing that data is labor-intensive and invites mistakes, one of the FDA's main complaints about their investigative task. Another is lack of consistent terminology.

"Tomatoes are the most complex and challenging that we've encountered in all of our outbreak situations in terms of traceback," says Sherri McGarry, FDA Center for Food Safety and Applied Nutrition emergency coordinator. "Sometimes I see ship dates, sometimes I don't. Sometimes it's called a vine-ripe when it comes in and a greenhouse when it leaves." In one instance, she says, "By the time a tomato got to a store it was a 'red round bulk.' It had never been called that in any of the other records."

Tackling the challenge

"There are a lot of companies in this industry who think they have traceability solved," says PMA's Fleming. "There are vendors who say 'We can track from farm to fork,' but that's not reality. It's marketing. There's not a single one of them that can actually do that unless the consumer opts to take a label off a piece of fruit and stick it on the refrigerator until they're sure they're not going to get sick."

That's because, he says, even if a consumer knows where a suspect product came from, tracking too often stops at a distribution center's shipping dock. If they don't capture case-level information for each store they ship to, then those stores won't have the relevant

information to react to a consumer or regulatory query about the receiving time and origin of what they're selling.

The solution, according to the Produce Traceability Initiative, lies in assigning case-level identifiers at harvest that remain in place until the point of sale, regardless of how long the supply chain or whether cases are mixed on pallets. The Initiative has settled on the GS1 System of standards because of its popularity in the industry worldwide.

The process begins with a GS1-issued Company Prefix, which growers must obtain if they wish to maintain their own brands, or use a shipper's Company Prefix if not. The Initiative has made available a "GTIN Assignment Strategy" to assist in assigning relevant 14-digit Global Trade Identification Numbers at the case level.

Shippers, packers, and handlers are responsible for maintaining the integrity of the information through capturing and storing GTINs, lot numbers, and packer harvest dates. While most of this information may be captured already, displaying and recording it according to GS1 standards is designed to eliminate the information "dead ends" encountered when cross referencing various internal traceability systems.

Retailers, says PMA's Fleming, should be able to record when a particular case arrived, as well as its lot number and packer harvest date. "If they can capture just that information," he says, "that's the majority of what's needed for whole-chain traceability."

Nuts and bolts

Moving to whole-chain traceability will entail new costs across the industry, as well as some changes to processes and culture. The extent of these costs and changes at each point of the supply chain will depend upon current technological capacity and operating procedures, as well as the specific needs of the users.

Watson, CA-based Driscoll's began this year to use HarvestMark, a unit-level traceability solution offered by Redwood City, CA YottaMark, to track its berries. YottaMark president and CEO Scott Carr says Driscoll's decision to implement unit-level traceability was influenced both by food safety concerns as well as a desire to offer consumers more access to information about the berries they buy. Ease of implementation was key.

"It really had to have no impact on the productivity of the harvest in order to be acceptable to all their growers," says Carr. For Driscoll's, that meant no technology in the field, so YottaMark arranged for pre-labeling of the empty clamshells that were brought into fields to be filled.

YottaMark hosts and connects the information its clients must record, and the clients decide how to use it based on their business model. "HarvestMark gives the shipper the ability to create different views into the information. So their own people might know everything about a case, including packaging, pedigree, and harvest data." They can decide how much information to reveal to distributors, retailers, consumers, and regulators, as well as how it's presented.

HarvestMark's PLU stickers for individual tomatoes, currently in packing and scanning tests, contain GTIN, lot number, and harvest date information encoded on a scannable data matrix. The stickers should be on shelves this fall.

By the time the consumer is exposed to the information, whether at an in-store kiosk or on the Internet, says Carr, "A grower can put the farmer in the kitchen and share information about growing practices, sustainability practices, or whether they're promoting locally grown produce. They can also offer quality surveys or information about other kinds of promotions." Carr does not wish to publish pricing for HarvestMark, but says it costs "a fraction of a cent"

per thousand codes used based on a sliding scale, and says the company provides three footprints of in-store kiosks, the smallest the size of a register-area PIN pad, to retailers.

At distribution centers, RFID may be an option for capturing information on outgoing pallets without necessitating a line-of-sight scanning process for each case. Mohinder Sikka, CEO of Sunnyvale, CA-based Sensitel, Inc., a technology and service provider focusing on safety and shrinkage in supply chains, says turn-key RFID systems run from \$3,500 to \$5,000 per door that a distribution wishes to monitor.

At the retail level, says PMA's Fleming, the same type of scanning that's happening at the cash register can be implemented in the back room. "Smaller retailers that don't have scanning systems probably face bigger up-front investments," he says.

Kingsville, Ontario-based Helmut Leili, a business intelligence consultant and RFID/track and trace specialist, says retailers should embrace better traceability in part because of the increased metrics it provides for process measurement and improvement. And although trust issues are involved, it's also easier to form partnerships with vendors when both parties can access the same information.

Leili describes one retail client who blamed poor quality leaf lettuce on a vendor until an inspection of newly-implemented tracing systems revealed that his own inventory practices were leading to several wasted days before items were shelved. "He was embarrassed at first, but then he said 'Alright, how do we fix this?'" Besides the retailer improving inventory handling, the vendor was able to use the information to better coordinate shipping schedules to accommodate times he knew product wasn't needed yet. "Tracking and traceability are not your enemies," advises Leili. "They should be seen with absolute relish as an opportunity."

As for Desert Glory and other vertically integrated companies whose systems are not GS1-compatible, they may be left to lobby the FDA on their own. Desert Glory's Bryant Ambelang would like to see the regulatory agency adopt a fast-track program along the lines of the one used by U.S. Customs and Border Protection to allow pre-qualification of growers meeting safety and traceability standards. "Let's allow the FDA to create the standards that need to be met," he says, "and then allow the growers to meet them and market their product as such."

Gary Fleming, the PMA's representative to the Produce Traceability Initiative, disagrees. "There was a unanimous vote," he says, "not even a consensus, but a unanimous vote," that GS1 standards should be used. He says retailers who've invested in GS1 standards for packaged goods should not be expected to invest in something else for perishables.

The Initiative is awaiting feedback from committee members on implementation timelines and Fleming says there's no consensus on whether they wish to see their recommendations mandated by the government. But, he says, the Salmonella outbreak has the FDA hoping the industry moves faster.

"Although this is going to cost us money as an industry," says Fleming, "it has to be done. If we don't do it, we'll continue to have weeks go by before we know where a bad product is in our system, so doing nothing is not an option—not for consumers and not for the industry."

"If we don't do something," warns Fleming. "It's inevitable that the government will."

What went wrong?

Here are a few ways inadequate traceability stymied the FDA's Salmonella Saintpaul investigation:

- Paper records: It wasn't just the time involved compared to electronic databases. Something as simple as bad handwriting can break a chain of information.

- Lack of consistent identifiers from farm to point of sale: The FDA doesn't want to get ahead of the industry to say what those identifiers should look like, but right now there's no single piece of information that uniformly follows a case from the farm to the store shelf.
- Inconsistent terminology: The FDA was relying on tomato variety names—often cooked up for marketing purposes—that often changed during the fruit's journey down the supply chain.

To learn more: Canadian Produce Marketing Association: www.cpma.ca; Driscoll's: www.driscolls.com; Produce Marketing Association: www.pma.com; Sensitel: www.sensitel.com; United Fresh: www.unitedfresh.org; Desert Glory: www.naturesweettomatoes.com; YottaMark: www.yottamark.com; Grow My Profits: www.growmyprofits.com/trackandtrace