

The Challenges and Advantages of Farm-to-Fork Traceability

By [James Andrews](#) | May 13, 2013



Take a moment to consider some of the foods found in a supermarket: eggs, tomatoes, coffee — maybe even chocolate chip peppermint brownie ice cream. Now, try to imagine all the steps and processes that food went through to get all the way to those shelves.

While the ice cream likely went through more processes than, say, the tomatoes, most food items found in a supermarket likely underwent a multitude of steps and passed through several hands before ultimately reaching their destination. The decision of food suppliers to record those steps could make a significant difference in the impact those products have on public health in the event of an outbreak or recall.

But when it comes to food, the variety of traceability systems in the marketplace nearly parallels the number of ingredients in a pint of that chocolate chip peppermint brownie ice cream. Not only do most competitors use different systems and technology, most firms along the same supply chain — from farm to processing plant to retailer — record and translate their data in different ways.

Picture a pile of tomatoes in the produce section. Farms supply tomatoes to a distributor, who gives them a product code before passing them onto a retailer who may give them a different identifying code. Go find a can of diced tomatoes in another aisle and the number of changed hands and identification codes may have doubled. Find a jar of salsa — the ingredients, codes and suppliers compound exponentially.

Now, throw a *Salmonella* outbreak into the mix. Hundreds of people around the country report illnesses and face interviews with investigators asking them to recall several weeks of meal histories.

At first, interviews seem to point to tomatoes as the most likely source — maybe a lot of the victims ate salsa — and so investigators begin tracing back through the tomato supply chain in search of the contamination. Eventually, however, the investigation into tomatoes dries up, and it only later becomes apparent that the outbreak was instead likely caused by contaminated jalapeño peppers.

That's what happened across 43 states in the spring of 2008, and while investigators were tracing back through tomato supply chains, the jalapeños were granted more time to sicken additional consumers, according to Christopher Waldrop, director of the Food Policy Institute at the Consumer Federation of America. Investigators might have ruled out tomatoes and moved on to jalapeños faster if suppliers had implemented better functioning traceability systems, saving more people from illness, Waldrop said.

“If you work quickly, you can save lives,” said Jennifer McEntire, Ph.D., senior director of the Food and Import Safety Practice at Leavitt Partners.

McEntire served as lead author of [a report](#) published by the Institute of Food Technologists (IFT) and commissioned by the U.S. Food and Drug Administration which details pilot projects for improving tracing through the food system. That report, in part, looked at a number of well-researched outbreaks to perform a cost-benefit analysis of using traceability systems.

If the duration of tracebacks during outbreak investigations could be reduced by half — or even a quarter — through the use of effective traceability systems, the impact of outbreaks could be significantly reduced, McEntire said. The money saved on healthcare alone would have reached into millions of dollars in some of the outbreaks IFT studied — and that's not to mention the damage caused to industry when investigations persist in the spotlight and the public loses trust in a food product.

The FDA asked IFT to compose that report to better inform rules on traceability to be proposed as part of the Food Safety Modernization Act (FSMA), signed into law in 2011. While the FDA has released detailed proposals for some rules in the FSMA, the current section on traceability is still relatively open-ended, McEntire said.

Thus far, the FDA has suggested that it will require producers of “high-risk foods” to implement traceability programs, though no one has yet established what counts as a high-risk food. Given that there are a wide variety of traceability systems available to food makers, McEntire said it is highly unlikely that the FDA would endorse any particular traceability technology.

“I assume FDA will come out with an objective-based requirement: ‘Here is what you need to be able to do. Here are the data that need to be captured. Here's the format you need to share it in,’” McEntire said.

The first goal should be to make sure producers and distributors are working with the same information and everyone knows what information they need to have, McEntire said. Data as simple as names, locations, and lot numbers can get muddled as product switches hands on the way to the supermarket, and everyone prioritizes information differently.

One of the biggest challenges for traceability systems, both McEntire and Waldrop agreed, is that they require human input at every link in the supply chain to function effectively. But traceability can require a lot of paperwork, and data may be subject to human error — assuming companies can find the resources and interest to have someone record it in the first place.

Companies view traceability as an additional cost, McEntire said, and so few of them adopt traceability systems for the sake of having traceability in the event of an outbreak. It's better sold as a tool to improve supply chain efficiency and accuracy.

“Traceability is best positioned as a byproduct,” McEntire said. “Companies want to have it for other reasons, like improved record-keeping, inventory purposes, a better grasp of suppliers in order to gauge quality. That's how you build traceability — sneaking it in on the side.”

Until the FDA makes its formal proposal on FSMA traceability rules, both IFT and the Consumer Federation of America are encouraging the agency to reconsider requiring all foods to have some sort of traceability — not just those deemed “high-risk.”

That's mainly for two reasons, Waldrop said.

First, food once thought to be low-risk could become high-risk. Cucumbers, for example, were never connected to a foodborne illness outbreak until last month. The second reason is that some producers would be making both low-risk and high-risk foods, meaning that their facilities could theoretically be operating under two different record-keeping rules.

For now, though, Waldrop expressed a hope that the FDA would soon form a more clear impression of its plans for traceability requirements.

“FDA needs to articulate its traceback information needs so that everyone has a better sense of the information they should be collecting,” Waldrop said. “If FDA could provide that, it would help push this issue along and address concerns about what information they're collecting and not collecting.”

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