Incident Report: Averting Disaster

Krystal Gabert, Editor

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Last year's plant safety and food contamination incidents dominated the news and shocked food processors into action. We review the biggest disasters of 2011 and determine what could have been done differently to better protect workers and consumers.

Food safety and plant safety should be two of the biggest concerns for food manufacturers. Protecting the public is important, but so is protecting food manufacturing workers. Failure to do either can not only bring great physical harm to those unlucky enough to be affected by unsafe business practices, but it can also bring great legal liability to operations that flout general safety practices.

Some of last year's biggest food processing disasters can be attributed to grave neglect. Others, though, can be described only as fluke accidents that could have been difficult to predict. What all have in common, however, is that each incident was preventable.

In the aftermath of these disasters, food manufacturers can take away important lessons about what other manufacturers did wrong, and what they themselves can do better.

The Jensen Farms Listeria outbreak that began late last summer and carried into the fall was the deadliest outbreak of any foodborne illness in 25 years, according to the Center for Disease Control and Prevention (CDC). At least 116 people were sickened, and 23 died as a result of the prolific Listeria contamination.

An FDA investigation turned up multiple potential causes of the contamination, and while the agency identified the facility's unsanitary conditions as the "root cause" of the outbreak, the exact origins of the contamination may never be fully known. The FDA pinpointed several conditions that led to the outbreak. The agency reported:

- There could have been low level sporadic Listeria monocytogenes in the field where the cantaloupe were grown, which could have been introduced into the packing facility.
- A truck used to haul culled cantaloupe to a cattle operation was parked adjacent to the packing facility and could have introduced contamination into the facility.
- The packing facility's design allowed water to pool on the floor near equipment and employee walkways.
- The packing facility floor was constructed in a manner that made it difficult to clean.
- The packing equipment was not easily cleaned and sanitized; washing and drying equipment used for cantaloupe packing was previously used for postharvest handling of another raw agricultural commodity.
- There was no pre-cooling step to remove field heat from the cantaloupes before cold storage. As the cantaloupes cooled there may have been condensation that promoted the growth of Listeria monocytogenes.

All of these conditions are easily avoidable, and the existence of all five in a processing facility suggests a culture of food safety neglect. It is, then, rather surprising that Primus Labs — an independent auditing company — gave the facility a "superior" rating mere days before the Listeria outbreak became public. Such a rating preceding a large outbreak is not unprecedented. Auditors cannot report on day-to-day conditions at a facility, but can only pass along information regarding the conditions on the day of the audit visit.

Antimicrobial tests are readily available and allow fruit packers (and other

manufacturers) to self-audit by performing sample tests before fruit leaves the facility. This kind of testing not only provides a real-time “progress report” for fruit packers, but it also serves to expedite the recall process if a positive test is found.

In order to prevent the need for such a recall, it is imperative for food manufacturers packaging fresh fruit to follow the recommendations for washing, drying and processing as laid out by the FDA. Such specialized equipment is readily available to processors, and could prevent the need for an expensive recall, not to mention the public health threat that a Listeria outbreak can cause.

On October 10, 2011, the FDA sent a warning letter to Jensen Farms, noting the death and illness linked to the farm’s outbreak and threatening further action if Jensen Farms refused to make changes to ensure the safety of its products. In addition to highlighting the facility’s “poor sanitary practices,” the letter made three specific recommendations for improving food safety at Jensen Farms.

- Using packing equipment designed to facilitate cleaning and sanitation of melon contact surfaces and constructed of materials that may be easily cleaned and sanitized.
- Validating and verifying that melon wetting and brushing operations are not a potential source of melon contamination or cross-contamination.
- Cooling and cold storing melons as soon as possible after harvest because delays in cooling when melons with netted rinds (such as cantaloupe) are wet from washing operations may allow for multiplication of human pathogens on the rind surface.

If followed, the FDA recommendations should help safeguard the food supply from another recall of this magnitude.

Shortly before the Jensen Farms outbreak stole the food safety spotlight, a meat giant was facing contamination troubles of its own. On August 4, 2011, Cargill announced one of the largest meat recalls in U.S. history; the company was recalling 36 million pounds of ground turkey after a CDC investigation pinpointed the company as the source of a salmonella contamination that would eventually sicken at least 119 people and kill one.

The facility was likely processing tainted meat as early as February of that year, and illnesses were reported starting in March. The company, along with regulators, offered little in the way of explanation for how such contamination could have gone undetected for nearly half a year, as consumers continued to get sick.

Making matters even worse, the salmonella strain identified in the Cargill contamination was Salmonella Heidelberg, which is largely resistant to antibiotic treatment. The day after the recall was announced, the Center for Science in the Public Interest said in a press statement, “The Center for Science in the Public Interest petitioned the U.S. Department of Agriculture in May to declare this and three other strains that have caused outbreaks and recalls as ‘adulterants’ under the law. That would trigger new testing for those strains and make it less likely that contaminated products reach consumers.”

Just over a month later, Cargill’s Springdale plant again recalled ground turkey confirmed to be contaminated by Salmonella Heidelberg. The facility again closed its doors for a deep clean.
Salmonella contamination is especially difficult in poultry products. Because salmonella contamination is so common in poultry, the USDA allows small levels to exist in foods, and consumers are warned to cook poultry thoroughly. When antibiotic-resistant strains like Salmonella Heidelberg are present, however, the danger to consumers is greater.

Increased cleanliness standards in plants are always advisable in preventing salmonella contamination. Because of the relative commonness — and acceptability — of salmonella, however, additional methods are necessary to protect the supply chain from adulterated products.

Supply chain management tools can help processors track incoming ingredients and outgoing product and every step along the process. When contamination is discovered, meat processors can use the tools built into supply chain applications to identify possible sources of contamination and to identify lot numbers of finished goods that present the risk of contamination.

By combining this kind of tool with careful HACCP planning and heightened sanitation standards, meat processors can combine prevention with containment to create a safe system to avoid outbreaks like the one at Cargill.

On the heels of the Cargill recall, National Beef Packaging Company recalled 60,000 pounds of ground beef for possible E. coli contamination, impacting some of the largest grocers in the country. In a news release announcing the recall, National Beef announced that, “The problem was discovered as a result of routine microbial testing conducted by the Ohio Department of Agriculture at a state-inspected facility that had purchased these products for further processing. A traceback investigation revealed that the slaughter facility, National Beef Packing Co. products were the sole source for the positive product sample.”

A combination of preemptive microbiological testing and plant sanitation procedures could have helped to prevent or mitigate this disaster.

Though the amount of product recalled was much smaller than in the cases of either Cargill or Jensen Farms, and no illnesses were reported in connection with the outbreak, the impact of the National Beef recall was primarily damaging to the meat industry itself. Coming only days after Cargill’s ground turkey recall, reports of this E. coli contamination served to undercut consumer confidence in the safety of the meat supply.

If there is a bright spot that exists in this story, it is that quick work by the facility and by state regulators meant that microbiological tests were able to detect E. coli in time for product to be pulled from shelves before any illness could occur. Proper supply chain management is imperative for this kind of quick action.

Food safety lapses aren’t the only disasters to strike the food processing industry. Last October, six workers were killed when an explosion ripped through a grain elevator in eastern Kansas. The official OSHA investigation was expected to take about six months to complete, and in April 2012, the company was fined $406,000 and cited for various workplace safety violations.

In a news release announcing the fine, U.S. Secretary of Labor Hilda L. Solis said that “The deaths of these six workers could have been prevented had the grain elevator’s operators addressed hazards that are well known in this industry. Bartlett Grain’s disregard for the law led to a catastrophic accident and heartbreaking tragedy for the workers who were injured or killed, their families and the agricultural community.”

Dr. David Michaels, Assistant Secretary of Labor for Occupational Safety and Health has said that “OSHA standards save lives, but only if companies comply with them. Bartlett Grain has shown what happens when basic safety standards are ignored, and this agency simply will not tolerate needless loss of life.”

OSHA cited Bartlett Grain with various “serious” violations, which were primarily related to lax training and procedural standards. In addition, the agency noted five “willful” violations, which were:

- When the workplace hazard assessment determined that hazards necessitating the use of personal protective equipment were present or likely to be present, the employer did not select and require the use of types of personal protective equipment that [would] protect the employees from the identified hazards.
- Fugitive grain dust accumulations were not removed whenever they exceeded 1/8” at priority housekeeping areas, pursuant to the housekeeping program.
- The use of compressed air to blow dust from ledges, walls and other areas was permitted when machinery that presented an ignition source in the areas was not shut down.
- Inside bucket elevator(s) were jogged to free choked leg(s).
- Equipment was not approved for the class of the location [or] for the ignitable or combustible properties of the specific gas, vapor, dust or fiber that [was] present.

Had Bartlett Grain chosen to abide by existing safety standards, and had its employees been properly trained to recognize dangerous situations, this tragic loss of life could have been avoided.

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