

Plan Automation sees growing demand for X-ray machines for food producers

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Mat Bédard, Vice President of X-ray Reclaim, at the company's facilities in Bolton, Ont., on July 4.
YADER GUZMAN/THE GLOBE AND MAIL

In a refrigerated warehouse in Bolton, Ont., Plan Automation is X-raying millions of kilograms of food annually from producers who suspect shards of inedible materials have accidentally made their way into their products.

In 2021, the 15-year-old company launched a service to X-ray processed food and weed out products contaminated with pieces of glass, metal or rubber, said vice-president Mat Bédard, one of the firm's two co-owners. That branch, X-Ray Reclaim, has seen its revenue and sales double every year since, and is the only one in Canada to offer emergency X-ray services to isolate contaminated products and keep companies from having to throw out perfectly safe, good food, Mr. Bédard said.

"We did \$80-million of product last year – \$80-million of product that, if we didn't exist, went straight to the landfill," he said.

Contamination incidents occur every day in Canada when malfunctioning equipment or human error allow pieces of machinery or other contaminants to end up inside packaged foods. The standard response when a company finds a missing bolt or shard of glass in a product after hours of non-stop production is to throw away the entire batch out of an abundance of caution.



A block of cheese that was rejected after setting off the sensors on the X-ray machines. The item is labeled and either destroyed or sent back to the manufacturer.
YADER GUZMAN/THE GLOBE AND MAIL

Across Canada, the amount of food lost to the risk of contamination every year is largely unknown and unregulated. Jackie Green, a food safety consultant and industry expert, says that, other than for insurance purposes, there's no reason why companies would track how much food they lose to such concerns.

But a report by food rescue charity Second Harvest says that 43 per cent, or 4.82 million tonnes, of food loss and waste during processing and manufacturing in Canada is avoidable. That's nearly \$21-billion worth of food.

"So much of this waste occurring at that processing and manufacturing level is something that the vast majority of people don't see, and it's kind of out of sight, out of mind," said Winston Rosser, vice-president of food rescue operations at Second Harvest.

Increasingly, X-ray technology is being used to ensure food is safe to eat. Often replacing or used in addition to metal detectors, X-rays can detect non-metal contaminants such as stones, bones or plastic.

Some large grocery chains such as Costco have even made the introduction of X-ray technology mandatory. In food safety audit expectations released by Costco in 2022, the company said almost all its manufacturer suppliers had to have an X-ray detection device installed by April, 2023. Mr. Bédard said that deadline was later revised to 2028, owing to industry feedback.

Ms. Green said the push to make X-rays more commonplace comes largely from manufacturers themselves, who could face thousands of dollars in lawsuit costs if a customer were to bite into a contaminated product. "It's just at the beginning stages, I would say, because it is expensive technology. But it is well worth it," she said.



A team of workers operate an X-ray machine at the X-ray Reclaim facility in Bolton, Ont.



Blocks of cheese are sent through the X-ray machine for inspection. The company is also capable of operating remotely, sending X-ray machines where they are needed.

On a Thursday morning at X-Ray Reclaim's facility, about an hour northwest of Toronto, workers are running huge blocks of cheese and canned pet food through the company's third-generation X-ray machines. While most X-ray machines in use today are the less expensive and less precise first-generation models, X-Ray Reclaim's are based on the same technology in medical CT scans and can detect contaminants as small as a fifth of a millimetre in size.

On the hunt for pieces of ceramic, employees unload the seven pallets of cheese blocks they received early that morning onto a conveyor belt to be scanned. With 4,000 pounds of cheese per pallet, Mr. Bédard said, the load will take about four hours to complete before being hurriedly shipped back to its producer well ahead of its best-before date.

Nearby, about six workers run 144 pet food cans per minute through another X-ray machine, searching for a clip the manufacturer found had gone missing.

Once the cheese and pet food orders are complete, the company will turn its attention back to the shipment of 1.1 million chocolate bars it received a few days earlier, some of which have been contaminated with pieces of metal. At 50 chocolate bars per machine per minute, Mr. Bédard said, it will take more than a week of non-stop work to scan them all, even after increasing the number of shifts.

Plan Automation owns about \$3-million worth of inspection systems, including 10 third-generation X-ray machines, five first-generation machines and 11 metal detectors. Companies can choose to send their contaminated loads to the Bolton facility or can request that the company come to them; in that case, Mr. Bédard said, a technician will run the manufacturer's product through one of X-Ray Reclaim's machines on site.

Similar to the X-ray machines used at an airport security checkpoint, Mr. Bédard said the machines his company uses are a cabinet type that's safe for daily use and does not irradiate the food that passes through it. The machines don't generate enough power to pose a safety risk and, as added protection, feature stainless steel shielding to ensure radiation emissions remain minimal, he added.

Mr. Bédard said reclamation is important because it keeps more than 10 per cent of food out of landfills: It also prevents the packaging from being thrown out – packaging that would all have to be defaced, costing time and money.

"You can't just get a container and, say, dump all these chocolate bars in the container and then throw those on the dump, because people will scale the fence and go to the dump to try to pick food. You've got to destroy it, you've got to make it unusable and you have to make it so it cannot be recognized," he said.

Ms. Green said services such as X-Ray Reclaim's are likely to expand in the future, as more companies realize the cost-saving benefits of opting for reclamation instead of a recall or rubbish bin.

"It's not just the product that you're losing. You're losing all the man-hours of production as well," she said.

Of the thousands of food producers in Canada, Mr. Bédard said, his company has worked with less than 10 per cent of them so far. He's eager to see more companies expand into reclamation, because the environmental cost of maintaining the status quo is simply too high.

"I'm not saying that we're the solution to what's going on there, but we're definitely part of the solution," he said.