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# FOOD SAFETY IN FOOD SECURITY AND FOOD TRADE

## Case Study: Guatemalan Raspberries and *Cyclospora*

LINDA CALVIN, LUIS FLORES, AND WILLIAM FOSTER

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**T**he Guatemalan raspberry industry began exporting to the United States in the late 1980s, filling a market niche in the spring and fall when supplies were low. By 1996, Guatemalan raspberry exports were increasing rapidly, up 113 percent from the previous season. That spring and early summer, the U.S. Centers for Disease Control and Prevention (CDC) and Health Canada received reports of more than 1,465 cases of food-borne illness from *Cyclospora*, a protozoan parasite. Although no one died, the large number of cases generated substantial adverse publicity. Initially, investigators linked the outbreak to California strawberries, but they finally decided that it was associated with Guatemalan raspberries. This case study reviews the efforts to resolve this food safety problem. It is a cautionary tale about the serious impact a food safety outbreak can have on a promising industry.

By the time raspberries were identified as the most likely source of contamination, the Guatemalan spring season was over, so the United States took no immediate regulatory action. The U.S. Food and Drug Administration (FDA) and the CDC sent a team of investigators to Guatemala to observe growing conditions. Because *Cyclospora* was relatively unknown and had never before been associated with raspberries, no one knew which farms or berries were contaminated, how they became contaminated, or how to solve the problem. The Guatemalan Berry Commission (GBC), a growers' organization, responded slowly to the outbreak. Growers came to no consensus on whether there was a problem and were reluctant to accept the FDA's assertion that the contaminated product came from Guatemala, since the claim was based on epidemiology alone with no physical proof. (In fact, the FDA did not find physical evidence of *Cyclospora* contamination on Guatemalan raspberries until 2000.) Microbial contamination is often low level and sporadic, which makes it difficult to detect. And with perishable produce there is rarely anything left to test by the time an investigation begins. Some growers suspected that the problem was really a trade barrier to protect the U.S. industry from Guatemalan competition. Lack of scientific information compounded the industry's problems in formulating a response.

By 1997, the GBC had developed a system to characterize a farm's risk potential: only low-risk farms could export in the spring season. However, the plan had no enforcement mechanism and no traceback system. That spring another large outbreak of food-borne illness in the United States and Canada implicated Guatemalan raspberries. After consulting with the FDA, the GBC voluntarily stopped exporting raspberries to the United States in May 1997.

After a second season of contamination problems, both the GBC and the government of Guatemala realized that more

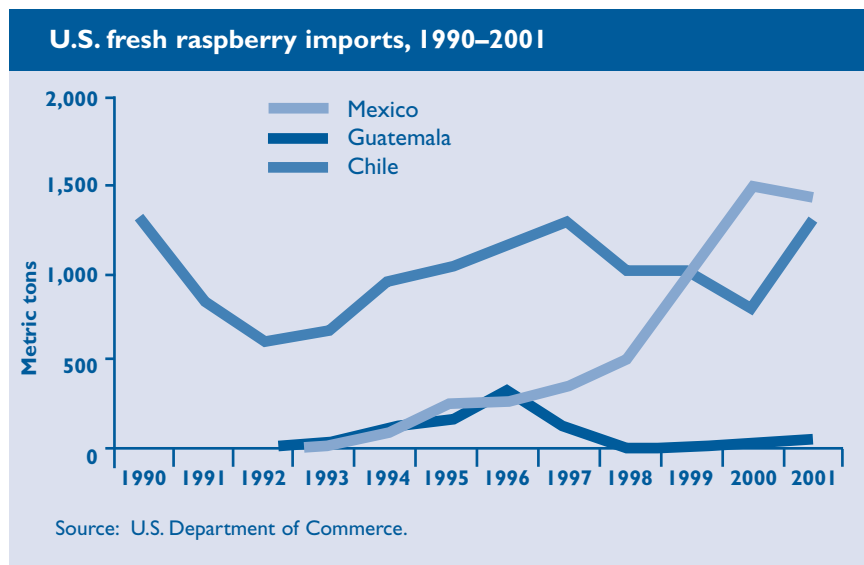
stringent controls and enforcement were required. In November 1997, the Guatemalan government created a commission with enforcement power to lead the effort to improve food safety. But in December, the FDA, not yet convinced the problem was resolved, issued an import alert, denying all Guatemalan raspberries entry into the United States. An import alert for a specific product from an entire country, rather than from specific firms, was an unusual response, and one used only after all other means of resolving the problem were exhausted. With good traceback, the FDA might have been able to target just those growers with a problem, but in this case the FDA could not identify the problem farms. An import alert without physical evidence was also highly unusual at that time. Since 1997, however, the FDA has become less reluctant to deny imports on epidemiological evidence alone.

Many organizations helped the Guatemalans solve the *Cyclospora* problem. The FDA, CDC, Health Canada, and the Canadian Food Inspection Agency all provided advice and technical assistance. The GBC also sought help from the Food Marketing Institute in Washington, D.C., which represents U.S. retail buyers.

In 1999, three years after the first outbreak, the United States allowed entry of raspberries produced under the Model Plan of Excellence (MPE), a mandatory joint program of the GBC and the government of Guatemala. The MPE requires export growers to comply with a detailed program of food safety practices and to pass frequent inspections by the Integral Program for Agricultural and Environmental Protection, a Guatemalan public-private organization, as well as undergo FDA audits. A code is applied to each container of raspberries, which allows it to be traced back to an individual grower. With traceback, the export authority of any firm associated with a food safety problem can be revoked. Based on traceback, the FDA concluded that several outbreaks due to *Cyclospora* contamination in the United States in 1999 were not associated with Guatemalan berries. In 2000 there were two outbreaks traced back to one Guatemalan farm, which was removed from the MPE program. No outbreaks have been associated with Guatemalan raspberries since 2000. To help meet the cost of the MPE program and public relations work, the GBC charges producers a fee per box of exported berries.

The MPE has been a technical but not an economic success for the raspberry industry. Although the MPE is arguably the strictest industry-wide program for raspberry production in the hemisphere, the Guatemalan industry has shrunk dramatically. In 1996, before the contamination problem began, the number of raspberry growers was estimated to be 85; by 2002, only 3 remained. In 2001, Guatemalan raspberry exports

to the United States were only 16 percent of the 1996 level (see figure). For many growers, the decision to leave the industry was based on losses incurred as foreign demand collapsed and export markets closed, rather than on the costs of implementing the MPE.



While Guatemala worked to increase food safety, other competitors, such as Mexico, made inroads into its U.S. market. Prior to the 1996 outbreaks, the size and growth of Guatemalan and Mexican exports to the United States were similar. Today Mexico supplies about half of U.S. raspberry imports. It has been difficult for the Guatemalan industry to recover from the negative publicity. With back-to-back outbreaks in 1996 and 1997, many buyers decided to purchase raspberries elsewhere.

The problem with raspberries also adversely affected other products such as blackberries, with 2001 exports only 52 percent of their 1996 level. In addition to food safety as a possible reason for shrinking exports, blackberry growers faced decreased demand because retailers prefer to buy a mix of berry products. When Guatemala could only provide blackberries, many buyers purchased from other regions. Nonberry products suffered only temporary decreases in demand.

Looking at the raspberry industry alone, the costs of developing and running the MPE program seem to exceed the benefits. At first no one had any idea of how costly it would be to resolve the contamination and reputation problems. But

some believe that Guatemala really had no choice: it had to deal with *Cyclospora*. For example, if Guatemalan officials had determined that raspberries posed a great risk and banned exports, doubt about the extent of the problem might have affected demand for the rest of Guatemala's agricultural export

industry. But the scientific knowledge and institutional framework developed through the MPE program is a public good that also benefits other producer groups. Some growers use the MPE food safety recommendations voluntarily but with only monthly inspections. For raspberries, the almost-daily field and warehouse inspections during the export season are the most expensive part of the program and are thought to be too costly to replicate for industries with no history of contamination. Grower organizations for mangoes and several types of vegetables encourage their members to comply voluntarily. Thus when looking at the entire Guatemalan agricultural export industry, the benefits of MPE appear much larger and may perhaps exceed the costs.

The Guatemalan problem with *Cyclospora* was a critical event in the produce industry. Producers everywhere noted the devastating impact a food safety problem could have on an entire industry and learned important lessons:

(1) delay in addressing such a problem may adversely affect an industry's exports and reputation; (2) the FDA may make decisions on trade restrictions based on epidemiological evidence alone without physical evidence; (3) improved traceback allows trade restrictions to be targeted at individuals with contamination problems and not at the entire industry; and (4) strong grower organizations can improve an industry's ability to deal with food safety outbreaks. When the California strawberry industry was initially and incorrectly implicated in the 1996 outbreak, Guatemalan growers saw the California Strawberry Commission respond quickly and strongly to the negative publicity. The GBC learned from that experience and has significantly improved its ability to deal with such a situation, should one occur in the future. ■

**For further reading see L. Calvin, W. Foster, L. Solorzano, J. D. Mooney, L. Flores, and V. Barrios, "Response to a Food Safety Problem in Produce: A Case Study of a Cyclosporiasis Outbreak," in *Global Food Trade and Consumer Demand for Quality*, ed. B. Krissoff, M. Bohman, and J. Caswell (New York: Kluwer Academic/Plenum, 2002).**

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