

'It was a challenge of epic proportions. ... We needed partners'

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And there was a lot of media. Unable to pin down the cause, the USDA was urging stores across the country to stop selling fresh spinach in the wake of an E. coli outbreak that would be blamed for at least 276 illnesses and three deaths, according to the U.S. Centers for Disease Control and Prevention.

"I was listed in the book, and reporters started calling my house," said Pezzini, then the board chairman of the Grower-Shipper Association of Central California. "There was so much speculation and rumor going around. I stepped forward and started meeting with the press. I took them out to a field."

Bogart, the GSA's president, was at a meeting in Washington, D.C., when news of the outbreak hit. He started calling other grower organizations for help, and the GSA's headquarters in Salinas became an information clearinghouse for the industry's response.

"This was basically Ground Zero," said Bogart, who started with the GSA as a staff attorney in 1980. "The nation — the world — was right here. CNN trucks, national news. It was a challenge of epic proportions. ... We needed partners."

One of the people he called was Western Growers president Tom Nassif, who immediately began talks with then-state Food and Agriculture Secretary A.G. Kawamura about setting up an industry-supported marketing order that would establish standards for growing and handling greens.

Within months, they created the Leafy Greens Marketing Agreement, a marketing order that set strict food safety standards for farms and processors and became a model for the Food Safety Modernization Act's new Produce Safety Rule. Known by the initials LGMA, the agreement established the gold standard for handling produce.

By July 2007, LGMA auditors were traveling around the state to inspect operations, and Canada and Mexico had passed laws requiring that any leafy greens imported from California be subject to the program.

"We heard the state government might be putting something together that would bring in a lot of people from outside" agriculture, Nassif said. "We said, 'Let's solve our own problems rather than having the Legislature and outside groups try to solve them.'"

A model program

As the LGMA marks its 10-year anniversary this year, even the staunchest food safety advocates recognize the high bar it set for food industries. Jaydee Hanson, senior policy analyst for the Washington, D.C.-based Center for Food Safety, said industry-imposed best practices have



Tim Hearden/Capital Press

Kevin Tottino, value-added production manager for the Castroville-based Ocean Mist Farms, checks spinach that is about to be cleaned at the company's processing facility on Feb. 21. The 10-year-old Leafy Greens Marketing Agreement imposes measures for preventing food-borne illnesses from fresh spinach and other leafy greens.



Tom Nassif

played a key role in minimizing the scope of tainted-food outbreaks when they do occur.

"No industry wants to have all of its members tainted, so the faster you can find out where the problem is and get it handled, the better," Hanson said.

Now LGMA representatives are in talks with the federal government to get companies that participate in its program recognized as being in full compliance with the FSMA Produce Safety Rule, which takes effect for most produce early next year.

The marketing order has an ally in California Department of Food and Agriculture Secretary Karen Ross, a former USDA official who said last year that its rigorous farm-audit process already meets federal standards.

Ross' office will be in charge of bringing about 23,000 farms statewide into compliance with the FSMA.

"I'm very proud of what the industry did by sitting down and partnering with the government," Ross said in a videotaped interview posted on the LGMA's website. "I'm sometimes overwhelmed by (growers') commitment to the rigor of the program."

The FDA considered many existing public and private standards, including the LGMA, as it developed the Produce Safety Rule, agency spokesman Jason Strachman-Miller said in an email. Talks are centered on aligning the LGMA's guidelines with the rule, he said.

"It is FDA's understanding that several groups are working to align the requirements in their programs with the requirements in the Produce Safety Rule," he said. "To the extent that these standards meet or exceed rule requirements, operations following these standards are likely to be well positioned to be in compliance."

LGMA standards

Funded by handler as-



Scott Horsfall

essments, the LGMA — whose formal title is the California Leafy Green Products Handler Marketing Agreement

— now performs between 300 and 400 grower audits a year, chief executive officer Scott Horsfall said. While its membership is limited to California, it has a sister program in Arizona that is nearly identical.

The LGMA applies not only to spinach but to various kinds of lettuce, escarole, endive, spring mix, cabbage, kale, arugula and chard. The leafy greens can be harvested mechanically or by hand and are almost always consumed uncooked, according to the organization's guidelines.

The group's rules govern production, packing, processing, distribution and handling of leafy greens. Each member operation must have a written compliance plan that covers water, soil amendments, environmental factors, work practices and field sanitation, and each grower and handler must designate an individual responsible for the operation's food safety program.

Under environmental factors, for instance, the grower must perform a risk assessment in the field before planting and harvest, checking for animal hazards or other potential sources of human pathogens, according to the guidelines. The grower also considers neighboring land uses and how the field may have been used in the past.

In spinach fields, for example, soil sampling and analysis should also determine levels of cadmium, a naturally occurring — and potentially toxic — metal that spinach is particularly susceptible to. Results of the sampling should guide mitigation, which the University of California Cooperative Extension advises could include applications of zinc or organic elements or modifying soil acidity.

"We hung very specific standards in each of those



James Bogart

areas," said Horsfall, who was hired in May 2007. "That means, 'Here's the water standard, here's how you test for it, here's what you do if you have a spike, here's what you do if you inadvertently use water that doesn't meet the standard.'"

The issue of field standards came up during a press conference after the 2006 outbreak, Nassif recalled.

"It was telling that the particular reporters who were there asked us, 'How can you in any way assure this won't happen again when you grow outside in the dirt?'" Nassif said. "Our answer was we couldn't, but we could take every precaution to make sure that (food safety measures were) done."

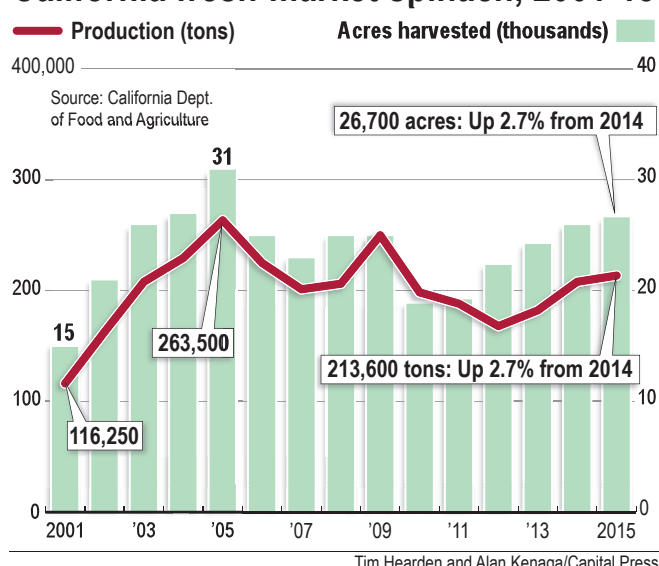
Game changer

The FDA issued its first advisory for safely growing fresh fruits and vegetables in 1998, and operations were following them "in varying degrees" before 2006, Pezzini said. Initial discussions of setting up a marketing order for leafy greens received a lukewarm response from producers, industry insiders said.

But that all changed in September 2006, when E. coli linked to San Benito County ranchland leased to a spinach grower was found in uncooked spinach in 26 states. A final FDA report in 2007 stated the precise cause of the contamination was unknown, but it cited the presence of wild pigs on the ranch and the proximity of irrigation wells and surface waterways that could be contaminated by animal feces as probable factors.

Spinach had been gaining in popularity before the outbreak, driven by health-consciousness among Americans. Fresh-market spinach acres in California more than doubled, from 15,000 in 2001 to 31,000 in 2005, according to the Cdfa. The statewide crop value of fresh spinach had reached as high as \$187.7 million in 2004, up from \$75.8

California fresh-market spinach, 2001-15



Tim Hearden and Alan Kenagal/Capital Press

million in 2001, the Cdfa reported.

Damage was done

But although the government announced in early October 2006 that it was safe to eat most spinach, the damage was done.

"If you're a spinach grower, you're out of business," Pezzini said, noting that, fortunately, Ocean Mist Farms was diversified enough — growing artichokes, cauliflower and other greens — to weather the storm. "We do grow a lot of spinach."

The outbreak sent shockwaves through other industries in the Salinas Valley, too — including the iconic strawberry industry, where voluntary guidelines had been in place since 1998.

"There was a lot of discussion back then because we rotate ground with those folks," said Carolyn O'Donnell, spokeswoman for the California Strawberry Commission. "It really made us re-examine the program. We really looked at a whole risk assessment, including ... the places that strawberries are most vulnerable and what growers can do about it."

Since 2006, no major food-borne illness outbreaks have been linked to California fresh leafy greens, although in 2011, Thousand Oaks, Calif.-based Dole Fresh Vegetables voluntarily recalled salad bags sold on the East Coast and in the Midwest after a bag in Ohio tested positive for listeria monocytogenes, according to the FDA.

LGMA's beginning

In February 2007, the LGMA was formally created during a meeting in Sacramento, and Pezzini was elected chairman. At first, about 80 percent of the state's spinach growers signed up, then when Canada made membership a requirement of shipping there, nearly all of the rest joined, Pezzini said.

"When I first started, it was politically charged," he said. "It was really kind of a spectacle for a while. ... It was a leap of faith (for producers) because nobody knew what the standards were going to be."

The LGMA spent the next several months developing

guidelines and sending auditors to farms for "practice audits," Pezzini said. The actual audits began that summer.

The program's emphasis has evolved over the years, Horsfall said. While the early years were spent developing and refining the audits, the LGMA has focused lately on "helping people comply" by offering affordable training sessions for harvest crews and others, he said.

After the Food Safety Modernization Act was signed by then-President Barack Obama on Jan. 4, 2011, the marketing order provided farm tours to FDA officials, who've "seen how we operate and seen how our compliance program works," Horsfall said.

Talks now are centered around bridging any "gaps" in the requirements of the two programs and having the FDA recognize LGMA compliance so growers aren't forced to undergo a second set of audits and paperwork, Horsfall said.

"We're still working with them," he said of FDA officials. "The compliance date for the produce rule isn't for another year."

Industry recovers

Meanwhile, the spinach industry has been slowly regaining its pre-2006 momentum in terms of acreage and value. In 2015, 26,700 acres of fresh-market spinach statewide generated \$189.7 million, up from \$151.6 million just two years earlier, according to the Cdfa.

Spinach was grown on 13,919 acres in Monterey County in 2015, down from 16,937 a decade earlier, according to crop reports from the county agricultural commissioner's office.

Those who were involved in the creation of the LGMA hope the commodity will fully rebound within a few years, buoyed by renewed consumer trust. And they believe the high-profile outbreak and its aftermath helped bring a "culture" of food safety to farms.

"I think whether we all realized it or not at the time, this has become a landmark event in the produce industry," Pezzini said. "It changed the culture on the farm. It's literally changed the way the industry operates, I think for the good."

'We need to have technology that's proven' Full supply of water availability anticipated

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the cost would quickly drop to as low as \$500,000 as the technology developed.

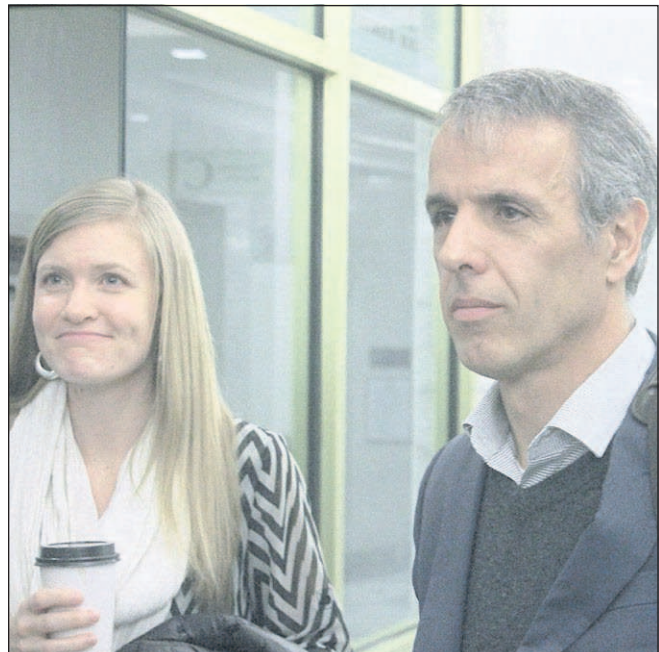
Gordon said dairies and banks are reluctant to invest in something that's never been done before.

"If they knew it would work, I think those boys would line up," he said. "We need to have technology that's proven."

Two years ago, Senate capital budget chairman Jim Honeyford, R-Sunnyside, set aside \$5 million for low-interest loans to dairies willing to try new ways to handle manure. There have been no takers.

Honeyford said that he was interested in funding Janicki's technology, though he said he did not want to run afoul of the state Constitution's ban on gifting public funds to a private business. He said he would be concerned about what would happen eventually to the state-funded equipment.

"If everything pans out, it's



Don Jenkins/Capital Press

Janicki Bioenergy CEO Peter Janicki and the company's president, Sara VanTassel, stand in a hallway after a meeting with the House Agriculture and Natural Resources Committee March 14 in Olympia. Janicki says public funding will spur the development of technology that would distill cow manure into dry fertilizer and clean water, a boon for dairies trying to prevent polluted runoff.

going to be a valuable product. How do you dispose of it? That's my concern," Hon-

eyford said. "If it works like he says it does, it's a whole game changer for the dairies."

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He flew over the basin in an airplane March 13 to gain a better feel for how much water will reach the reservoir this year.

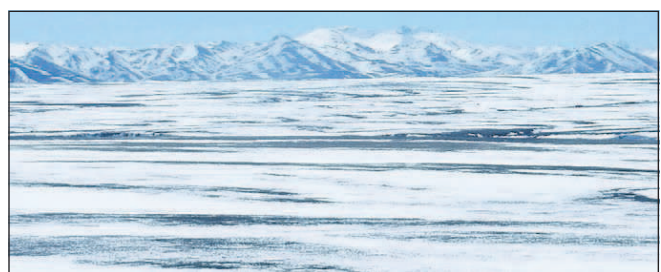
A lot of the low-elevation snow has already melted and reached the reservoir but there is still quite a bit of snow in the medium to upper elevations, Chamberlin said.

"Everything looks really positive," said Oregon farmer Bruce Corn, a member of the OID's board of directors.

The reservoir, which has the capacity to hold 715,000 acre-feet of water for irrigation, was 79 percent full with 563,000 acre-feet as of March 13, according to the U.S. Bureau of Reclamation.

A little bit of water is being released from the dam right now for flood control efforts and the OID board will soon have to decide whether to release even more, Chamberlin said.

Total runoff from the basin this year is projected to be 146 percent of average, said Brian



Courtesy Owyhee Irrigation District

This picture of snowpack in the Owyhee River basin was taken from an airplane March 13. The basin received snowpack levels well above normal this year and as a result, the Owyhee Reservoir is expected to fill for the first time since 2017.

Sauer, water operations manager for the bureau's middle Snake River field office.

"We anticipate a full supply of water availability on the Owyhee Project this year," he said.

The bureau forecasts a total of 1.08 million acre-feet of water will flow into the reservoir from January through June. About 300,000 acre-feet has already reached the reservoir so that means another 783,000 acre-feet is still to come.

By comparison, the reservoir received 531,000 acre-feet of runoff all of last year,

190,000 acre-feet in 2015 and 175,000 acre-feet in 2014.

The allotment for Owyhee Project irrigators was slashed significantly from 2013-2015 because of drought conditions.

The project has significantly limited allotments a couple of times in the past but never that many years in a row, Corn said.

The current water supply situation looks great compared with those drought years but the project is really just getting back to typical levels, he said.

"This is really more of a normal scenario," he said.