Five Years Under NY's Cider Pasteurization Law

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In the fall of 2004, more than 300 people were sickened in an outbreak of E. coli in Peru, New York. This cider-related incident led the NY Apple Association to push the state Legislature to pass the country's first mandatory cider pasteurization law.

The law became effective in January 2006, but producers were given a year to get equipment ready to be in compliance by January 2007.

The cider industry in New York has now been operating under these rules for five years, enough time to offer a window into how broad food safety regulations affect small processors and farmers.

First, a bit of background on raw juices. The practice of using "drops," apples that have fallen from the tree and are harvested from the ground, had been common in cider-making before it was understood that dangerous bacteria like E. coli could survive in acidic juices. The low pH of apple and even orange juice was once assumed to protect against the presence or growth of pathogens.

Then, in 1996, E. coli-tainted, unpasteurized Odwalla apple juice caused one death and 66 illnesses, including 14 cases of the potentially lethal complication that attacks the kidneys -- hemolytic uremic syndrome. By 1999, the U.S. Food and Drug Administration required labels on raw fruit and vegetable juices, warning that the product was not pasteurized and could contain bacteria that could be harmful, especially to children, the elderly or people with weakened immune systems.

The FDA continued to consider requiring pasteurization but stopped short of that, and in 2005 published guidance to help processors achieve a mandatory 5-log reduction of pathogens in juices.

These requirements for Hazard Analysis and Critical Control Point (HACCP) systems to identify food safety hazards and reduce pathogens did not, however, extend to all producers. The warning label remained sufficient for cider producers selling directly to customers. New York's legislation was the first and only to mandate pasteurization for all apple cider made in the state.

"For our board of directors at the time it was a unanimous decision, and a fairly easy one, to support mandatory pasteurization. We felt that our industry would be otherwise too vulnerable if an outbreak were to occur from unpasteurized cider. It would injure our industry and cost us consumer confidence and sales," said Peter Gregg, spokesman for the New York Apple Association.

New York has 700 apple growers and about 200 cider makers, according to the New York State Apple Association. The state's Department of Agriculture & Markets has different figures, however, and currently counts only 120 licensed cider producers.

Apple growers know well the damage food safety concerns can do to sales. The 1989 Alar scare dampened demand for apples and apple juice for years.

Still, this did not make the industry-driven move to mandate pasteurization universally popular. Small producers, such as Jim Perry of Perry's Orchards, thought that purchasing equipment for either pasteurization or ultraviolet treatment would be too expensive. Prices for small ultraviolet processing units range from $10-15,000. Small pasteurization units can cost $30,0000.

Perry started a petition against the proposal. Although he received editorial support for his stance from The Bennington Banner, a newspaper across the border in Vermont, his efforts against the mandate were unsuccessful.

Opponents also claimed that taste and nutrition would be negatively impacted by pasteurization, but the cost of compliance was the main reason farmers stopped making cider after the legislation passed.

Stetkar Orchards in Saratoga Springs was one of those.

After the farm could no longer market unpasteurized cider -- a very popular item at its small store on site -- its income dropped drastically, said Justin Clough, who took over the farm from his grandparents.

Clough said five of the farm's 115 acres are orchards. While the family still retails apples, squash and pumpkins, Clough is looking for another way to sell apples that will provide income comparable to what the cider brought in without a significant investment in equipment.

For others, the investment was worth it.

"When the FDA first initiated pasteurization requirements, we were among the first to decide that (in) the cost-benefit analysis, we had to move into pasteurization," said Mark Nicholson of Red Jacket Orchards, a fruit farm of 600-acres, half of which is devoted to apples. "Our legislature voted on the side of protecting the consumer, and had enough support in the industry to do that. I think that's what legislators are paid to balance, the economic question versus the public safety."

Red Jacket handles fruit in a recently built 23,000 square-foot processing facility, and produces about a million gallons of juice a year. An early adopter of flash pasteurization, the company had long been pasteurizing by the time of the mandate, Nicholson said. At the same time, he acknowledges that cost is a barrier.

"We started as small producers," noted Nicholson, who runs a third-generation operation. "On the grand scheme of things we're on the smaller side, so we understand that any additional cost and legislation is a challenge for small producers. But at the same time, when you're talking about something as dangerous as foodborne pathogens that are risks in our products, then it just seems hard to me to comprehend not making the investment to guarantee that the product is safe."

Michigan, another state that ranks high in cider production, decided to educate, rather than legislate, after the 2004 outbreak in New York. Jim Koan of Almar Orchards in Flushing recalls the era.

"I was already pasteurizing, but I was concerned that small volume people couldn't afford the pasteurizer," said Koan, who helped form the Cider Makers Guild to give voice to small-scale producers. "We need to get a lot of different styles of cider, and a lot of that beverage out there for people to sample. We need all those ambassadors out there making cider and selling it at farmers markets and roadside stands, we can't afford to lose any cider makers. They're all good for the apple industry."

As New York considered a mandate, members of the Cider Makers Guild, the Michigan Department of Agriculture, Michigan State University, and the Michigan Apple Association considered their options.

"What everybody in the group ended up saying was, there's no silver bullet to this," said Denise Donohue, director of the Michigan Apple Association. Pasteurization, she said, would not have remedied all the problems that led to the outbreak in Peru, where apples were stored outside prior to pressing, and birds were flying in and out of the area where empty bottles were being held.

"We wanted something much more comprehensive," said Donohue.

The industry already had, in the late 1990s, put together a Cider Safety Task Force, which worked with the Michigan Department of Agrigulture and came up with Good Manufacturing Practices to address safety in cider. The 2004 outbreak in New York inspired the Cider Safety Task Force to meet again to update and strengthen their GMPs.

"There're 50 different points that when Michigan Department of Agriculture goes into license and inspect the cider mill they're looking for all of those things," explained Donohue.

Michigan added another layer of cider safety through education. The goal of that program is to educate cider makers on the risks, so that they understand what good sanitary operating techniques are, and put those in practice.

"Every cider mill must have one employee who has been through a certified food safety program," said Donohue. "Servsafe would work, and a lot of counties and universities were already teaching that, but we also offered our own cider-specific training, and that training is good for five years. When the Michigan Department of Agriculture inspector comes they need to see the certificate that says you've completed a food safety program."

Michigan's cider record is very clean. While one case of E.coli infection was linked to cider about a decade ago, there has not been a cider-related outbreak of foodborne illness.

New York's approach is more focused on technology. Cider processors are inspected once a year by the state's Department of Agriculture and Markets, and pasteurization is required for cider sold onsite and off. After the outbreak in 2004, the New York Apple Association sought the help of food microbiologist Randy Worobo, who works at Cornell University and its Geneva Experiment Station.

Worobo came to Cornell University in 1997 and began working on technology to help the apple industry shortly thereafter.

"New York has the largest number of cider producers in the United States," said Worobo. "It represented a big issue in terms of the economic viability for the cider industry in NY as well as the apple industry, so I started investigating less expensive but as effective technologies."

By 2005, it was determined that ultraviolet treatment could achieve the necessary 5-log reduction for cider pathogens E. coli and cryptosporidium. Worobo recommended UV treatment to the Apple Association, which in turn requested the legislation.

"It was an industry-driven regulation," Worobo said, "So I think it shows a proactive approach to the safety and the viability of their industry as a whole, and I give them credit."

What the different approaches taken by Michigan and New York mean to the cider industry is difficult to determine, given that there is discrepancy between the numbers of producers recorded by the industry associations and the state licensing agencies. The states combine cider sellers with other juice makers, so there is no way to separate out cider-specific numbers.

In 2005, there were 120 licensed cider makers in Michigan, and now there are 113. In 2005, there were 181 cider producers in New York, as opposed to 120 licensed cider processors in 2011. However, the New York Apple Association says that number is too low, and counts 200 producers in its database.

If there has been a decline, New York state Department of Agriculture and Markets spokeswoman Jessica Ziehm suggested that the pressure from trying to meet the 2004 federal HACCP juice guidance and the effect of the state mandate could both be responsible.