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The case for instilling a food safety culture in your business

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Originally part of a PMA Fresh Connections: Australia-New Zealand session entitled '*What it takes to instill a food safety culture in your business*' by Doug Powell, Thursday 13 June 2013, Sydney

Listeria in Cantaloupe, Colorado 2011

- 33 dead
- 146 sickened
- Producers blame auditors, auditors blame government
- Producers lose, consumers lose



Salmonella in mangoes

- 121 sick U.S.
- 25 hospitalized
- 22 sick Canada



Salmonella in cantaloupe, 2012

- 3 dead
- 270 sick
- 78 hospitalized



<http://www.cdc.gov/salmonella/typhimurium-cantaloupe-08-12/index.html>

<http://barfblog.foodsafety.ksu.edu/blog/155929/12/08/28/2-dead-178-sick-are-consumers-responsible-salmonella-field-or-packing-shed-fda->

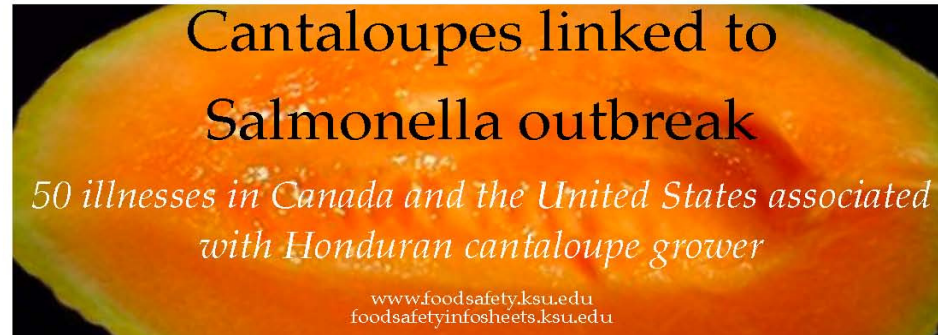
Cantaloupe: Not worth the risk

“We’ re done. No more cantaloupe. We will let someone else raise the cantaloupe. We have already towed the equipment out of the building. It’ s not worth the liability.”

– Jimmy Burch, co-owner of Burch Farms, Aug. 30/12



A table of cantaloupe-related outbreaks is available at <http://bites.ksu.edu/cantaloupe-related-outbreaks>



On March 22, 2008 the U.S. Food and Drug Administration advised consumers not to eat cantaloupes from a Honduran grower because they were contaminated with *Salmonella* Litchfield. The outbreak has so far caused over 50 illnesses in 16 states, and at least nine in Canada. Warnings and recalls related to cantaloupes are common, as they are always in the top 5 list of fruits and vegetables for outbreaks. This is largely due to their growing conditions and the potential to support the growth of bacteria.

As research has shown a potential for bacteria to be pushed into the meat of the cantaloupe during slicing, many authorities recommend washing the cantaloupe before cutting. However, due to the roughness of the rind, it is very difficult to wash away much of the bacteria. Using a scrub brush under running water (especially at the cut point) can reduce the risk of *Salmonella*.



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What you can do:



- Make sure you refrigerate cantaloupes as soon as they have been sliced up. Bacteria such as *Salmonella*, can grow nicely on the orange meat of the fruit at room temperature.
- If you wash the outside of the cantaloupe, vigorously use a scrub brush under running water to remove any easy-to-get to bacteria (and try not to splash the water all around the kitchen).
- Don't wash many cantaloupes at once by soaking in a sink. This could lead to *Salmonella* transfer from one fruit to another.



E. coli O157 in Romaine lettuce, Dec. 2011, Missouri

- 60 people sick in 10 states
- publicly linked to salad bars at Schnucks
- possibly grown in California
- limited availability of risk information



<http://bites.ksu.edu/leafy-greens-related-outbreaks>

<http://www.barfblog.com/blog/151817/11/12/07/60-sick-e-coli-o157-10-states-it-was-romaine-lettuce-grown-california-served-sc>

E. coli O157 outbreak on strawberries in Oregon

- 1 dead 14 sick
- Deer droppings caused outbreak
- Six samples from Jaquith Strawberry Farm in Washington County tested positive for the *E. coli* O157:H7 strain that sickened 15 people and killed one in Oregon
- The positive tests probably indicate that several or perhaps many of the deer around Jaquith's property carry O157:H7



E. coli O157:H7 in walnuts, Canada

- April 4/11, Canadian Food Inspection Agency said people were sick but wouldn't say how many
- Walnuts imported from California and imported by Amira Enterprises of St. Laurent, Quebec named as the suspected source
- Later on April 4/11, Public Health Agency of Canada says 13 sick



E. coli O157:H7 in hazelnuts

- Majority produced in Oregon
- Salmonella found in 2009
- 13 sickened with E. coli O157:H7 in 2011
- Develop good handling management practices
- Educate growers processors
- No evidence of follow-up, verification, food safety assistance



Fruit compote juice linked to *E. coli* O157 outbreak at festival in Winnipeg

Food handlers should be careful not to contaminate ready-to-eat or drink products

What you can do:

- Wash and dry hands using soap, potable water and paper towels prior to handling foods.

- When storing food in coolers or fridges, keep ready-to-consume products covered and above items like raw meat that might drip.



37 illnesses and 18 hospitalizations linked to outbreak

A fruit juice is the most likely culprit in sickening visitors to a Winnipeg (Canada) festival in August 2010. The majority of illnesses were associated with a Russian combination platter served at Folklorama, an annual heritage celebration. The Russian platter contained borscht (beet soup), meatballs, a rice dish, and the compote juice. The focus narrowed to the juice as ill patrons reported eating both a vegetarian and non-vegetarian dish, with the juice as the only common food.

The compote juice was prepared by adding washed, unpeeled apples, blueberries and

blackberries to boiling water. Once boiled for five to 10 minutes, the juice was decanted into large plastic pails. The juice was then refrigerated until served cold.



Juices have been linked to outbreaks in the past

- E. coli* O157 contaminated Odwalla brand juices linked to 66 illnesses in 1996
- Salmonella* contaminated Orchid Island Juice Company brands linked to 15 illnesses in 2005
- In 2006, Bolthouse Farms carrot juice was the source of 6 botulism illnesses including a death

Post-boiling contamination likely



As fruits were washed and boiled as part of the juice-making process it's likely that juice was contaminated either by a staff member or through cross-contamination in the fridge. Health officials believe that ground beef, which was also being handled and prepared at the site, was the most likely source of contamination.



E. coli O157:H7, Odwalla juice, 1996

- 64 sick, 16-month-old died from E. coli O157:H7 in fresh Odwalla juice
- numerous juices with unpasteurized apple cider base
- good risk communication, lousy risk management
- US Army had rejected Odwalla as a supplier in Jan. 1996
- unpasteurized juices were not routinely tested for E. coli because industry experts agreed that the acid level in the apple juice was sufficient to kill the pathogen; this was either gross negligence or a lie
- moved to flash pasteurization of all juices



E. Coli O157:H7, lettuce, California, 1996

- lettuce greens -- radicchio, frisee arugula – harvested, rinsed, packaged into premix salads at Fancy Cutt Farms Inc., California
- 61 people sick, E. coli O157:H7 in eastern U.S.; 35% hospitalized
- 3-year-old Connecticut girl HUS, damaged vision
- cattle pen next to salad washing area
- routes of contamination were all around



E. Coli O157:H7, lettuce, California, 1996

- lettuce grown in fields where cattle grazed in winter
- no handwashing facilities
- failed to chlorinate wash water from well, physically lower than cattle barn
- despite failings, company continued to operate
- "Why haven't I been closed down? Why haven't I been sued?
It's very simple. We were cleared of it."

Fancy Cutt president, Robert Chavez

Fresh Produce



Fresh fruits and vegetables are raw agricultural commodities that are often consumed without being subjected to a microbiologically lethal step

- Four Important Sources of Pathogens in Primary Production Environments:

- Soil
- Water
- Farm Workers
- Domestic and Feral Animals

Risks Associated with Fresh Produce



- **Healthy eating guidelines recommend fresh fruits and veggies;**
- **Changing food systems; wider distribution, outbreaks affect more people.**
- **Changing consumer preferences: Increased consumption of raw or minimally processed products. “Natural Foods”**
- **Changing Microorganisms; adaptation to stress and the environment, small infectious dose.**

Soil as a Source of Enteric Pathogens

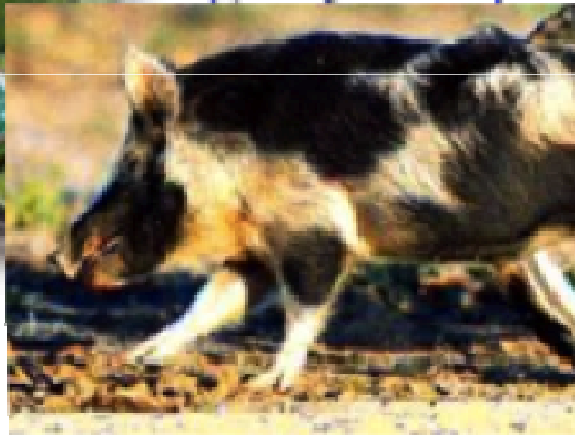
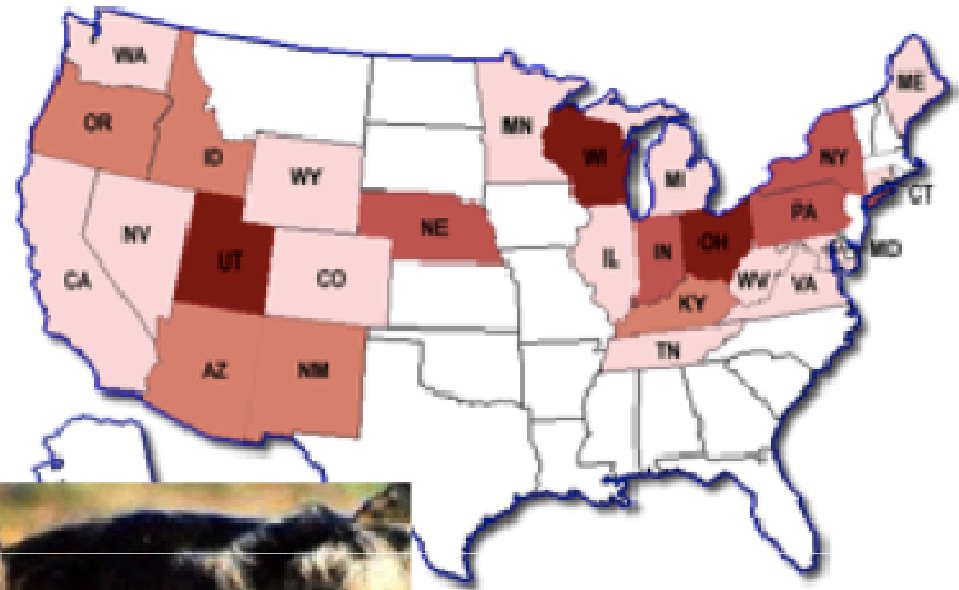
- Most pathogens are only transiently present in the soil (e.g. *Salmonella*)
- Exceptions are:
 - *C. botulinum*, *C. perfringens*, & *B. cereus* (part of soil microflora)
 - *L. Monocytogenes* (associated with decaying plant material)
- Soil is not an important direct source of enteric pathogens (with the exception of the above microorganisms)
- Soil is an important vehicle for enteric pathogens derived from feces, especially if fertilized with inadequately composted manure

Partnership for Food Safety Education -- July 20, 2004

- “In light of recent news related to salmonella and potential produce contamination...”
- ”...In all cases, the first line of defense to reduce risk of contracting foodborne illness is to cook, clean, chill and separate,”

Spinach outbreak

200 people, 26 states, 3 dead



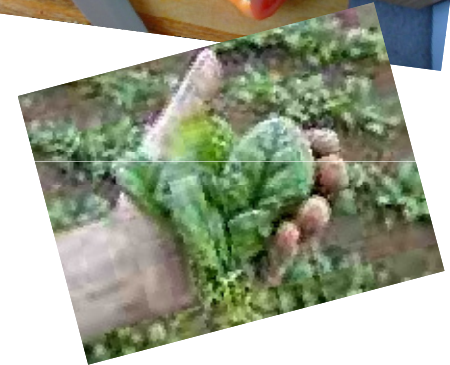
E. coli O157:H7 spinach, U.S., 2006

- Sept. 14, 2006, U.S. Food and Drug Administration warned the public that consumption of bagged fresh spinach might be the source of a multi-state outbreak of E. coli O157:H7
- advised consumers to discard spinach, washing would not rid it of contamination
- source was spinach bagged by Natural Selection Foods LLC
- Sept. 20/06, outbreak strain of E. coli O157:H7 confirmed in a bag of spinach belonging to a patient in the investigation
- 199 persons confirmed ill with the outbreak strain of E. coli O157:H7, 3 deaths



E. coli O157:H7 spinach, U.S., 2006

- 102 (51%) were hospitalized and 31 (16%) developed hemolytic-uremic syndrome
- samples of river water, wild pig feces, and cattle feces tested positive for the outbreak strain of E. coli O157:H7, and infected feces of nearby grass-fed cattle were found on one of the four fields where the contaminated spinach was grown, under organic production standards, in Salinas Valley
- despite 29 previous leafy green outbreaks, this was the tipping point



E. coli O157:H7 spinach, U.S., 2006

- *“While our food safety systems have always been at the top of the industry, this outbreak has demonstrated the immediate need for improved industry protocols”*
- no verification that farmers and others in the farm-to-fork food safety system were seriously adapting to the messages about risk and the numbers of sick people, and then translating such information into behavioral changes that enhanced front-line food safety practices



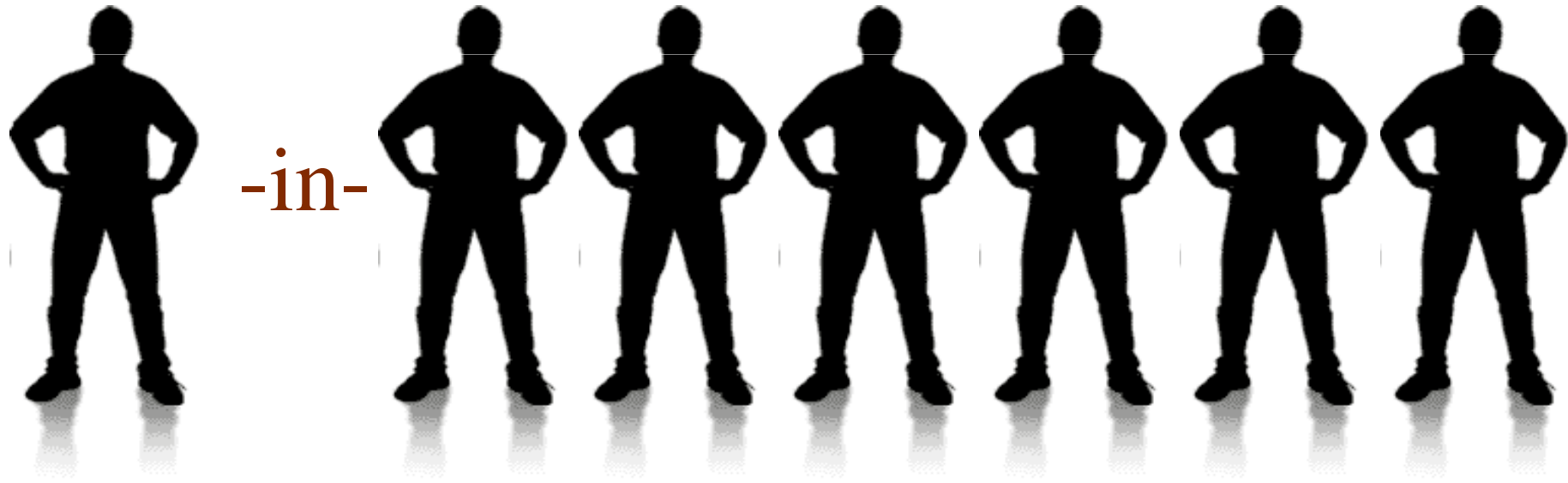
Quebec Grown and Packaged Fresh Spinach Is Entirely Safe to Eat

- On the other hand, fresh bulk and bagged spinach grown in Quebec poses no threat
- Consumers wishing to eat delicious fresh spinach without risk are invited to be sure to buy only Quebec spinach
- Growers association press release Sept 19

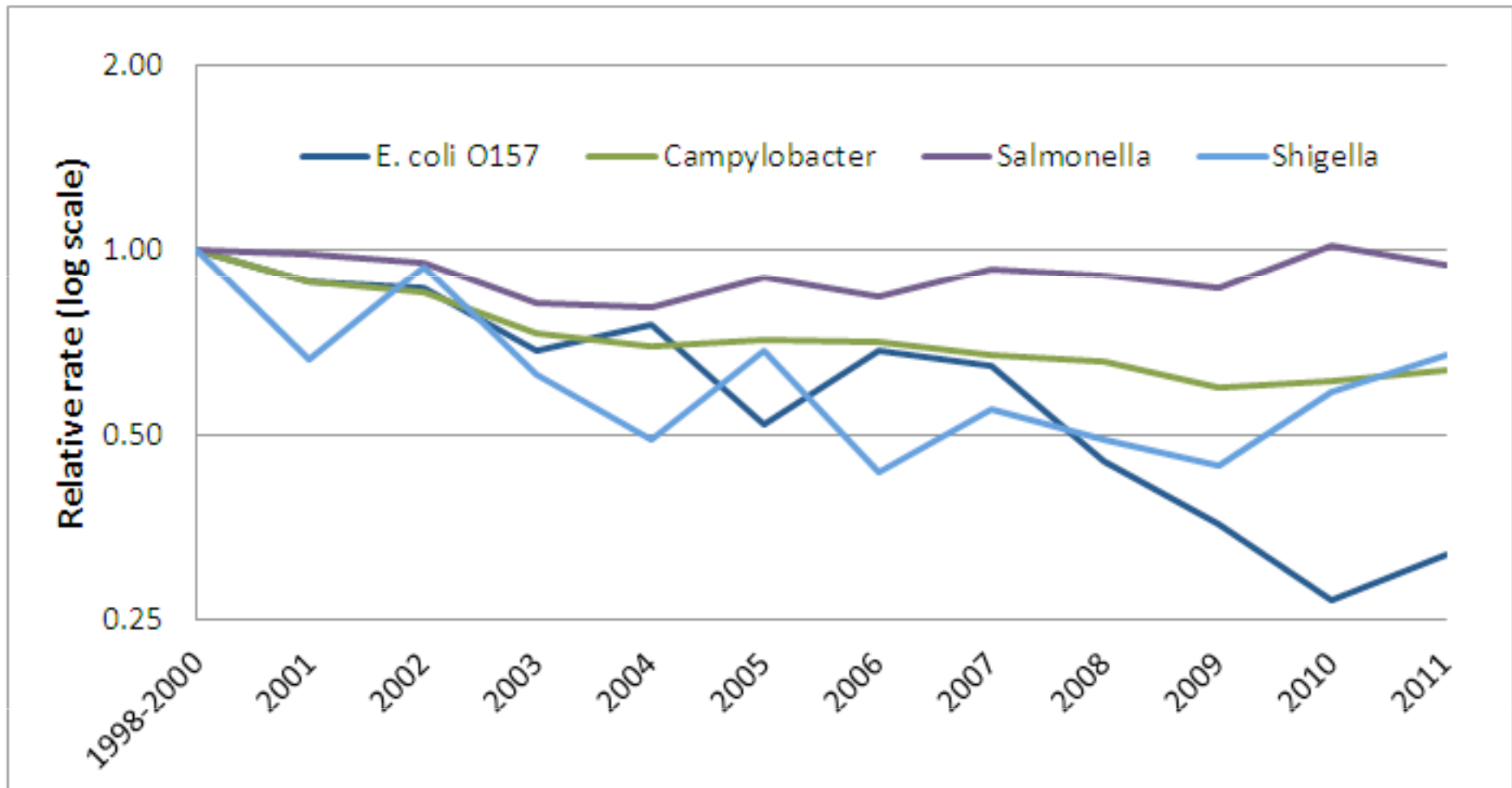
Paisley farms, Columbia County, Long Island -- New York Times, September 29

- Michael Kokas -- Manager
- On receiving questions at farmers' market:
- "They want to know, 'Do you have spinach? Is it O.K.? Does your farm have E. coli?' You have to explain the regionality of the problem. You have to go through the whole spiel. It's annoying."

Foodborne illness in the US



- 48 million cases of foodborne illness
- 55,961 hospitalizations
- 1,351 deaths



WHO factors contributing to foodborne illness

- Improper cooking procedures
- Temperature abuse during storage
- Lack of hygiene and sanitation by food handlers
- Cross-contamination between raw and ready-to-eat foods
- Foods from unsafe sources
 - All human factors, behavior based
 - WHO, 2002

Lessons learned?

- Food safety begins on the farm
- Biological systems, not conspiracies
- Systems are only as good as the weakest link
- Stop blaming consumers



Produce food safety culture

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