Stakeholder Update: A Perspective from the Fresh Produce Industry

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Challenges Facing the Fresh Produce Industry Today

Produce Marketing Association is a trade organization representing companies from every segment of the global fresh produce and floral supply chain. PMA helps members grow by providing connections that expand business opportunities and increase sales and consumption.

FSMA RULES UPDATE
FDA releases supplemental proposed rules for FSMA.
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“...The contact lists and the networks that PMA is able to provide have been essential.”
—Emma Townsend, Industry Service Provider, Onyx Automation, Australia
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Challenges Facing the Fresh Produce Industry Today
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Food Safety Modernization Act (FSMA)

Six new rules under development

1. Preventative Controls Rule (Human Food)
2. Fresh Produce Rule
3. Preventative Controls Rule (Animal Feed)
4. Foreign Supplier Verification and 3rd Party Accreditation
5. Sanitary Transport
6. Intentional Adulteration
SINGLE KNOWN CAUSES OF FOODBORNE ILLNESS OUTBREAKS, U.S., 2009-2012

Norovirus 48%

http://www.cdc.gov/norovirus/index.html
Foods Implicated* in Norovirus Outbreaks Reported to CDC by Commodity and Point of Contamination, 2001-2008

- **Leafy Fruits-nuts**
- Mollusks
- Poultry
- Beef
- Pork
- Dairy
- Vine
- Grains-beans
- Root
- Finfish
- Oils-sugars
- Crustaceans
- Eggs
- Fungi
- Game

*Limited to outbreaks with a simple food (consisting of a single commodity) implicated

**Insufficient or conflicting information provided in outbreak report
CDC Service Message:

* Food as a top priority…

* Fruits and vegetables make up 20% of this message (or more...)
Current Efforts to Address Viral Outbreaks Associated with Fresh Produce

* Produce Safety Alliance (PSA) – small farms
  * Provided information relative to viruses for the national Good Agricultural Practices (GAPs) curriculum, which is currently under development (review).
  * Developed an additional continuing education module for the PSA – case studies of viral outbreaks associated with fresh produce.

* Provided updates on NoroCORE progress to International Association for Food Protection, Professional Development Groups

* Developed two infosheets related for viral contamination of berries: 1) farm workers vs. 2) farm managers
Harvesters: keeping your hands clean

Dirty hands can contaminate produce with viruses that cause human illnesses, like hepatitis A and norovirus.

**Prevention**

Washing hands properly is the best control and good hand hygiene is critical to making berries safer:

- Wash your hands thoroughly with soap and clean water, especially after using the bathroom.
- Do not rely on alcohol based hand sanitizers, they are not completely effective against foodborne viruses like norovirus and hepatitis A.

Berries are at risk for viral contamination.

- They are hand picked and these viruses spread easily with hand contact via the fecal oral route (poop to mouth).
- Berries are generally not heated or cooked before being eaten so virus is not destroyed.
- The use of sanitizers, washing, and/or freezing berries is not effective for removing or destroying the virus.

**Foodborne viruses**

Noroviruses are the leading cause of foodborne illness.

- Norovirus (the “stomach flu”) causes nausea, vomiting, and/or diarrhea. There are over 2 million foodborne cases per year in the U.S. alone. Hepatitis A illness starts with flu-like symptoms and then progresses to jaundice (yellowing of the skin & eyes) and sometimes other complications.
- For both viruses, it is possible to be infected and not show symptoms, the sick person is also infectious for days to weeks before, during, and after illness, so keeping your hands clean is especially important. This is also important if you are taking care of someone who is ill.
- Norovirus infection is miserable but usually lasts a short time. Sometimes it is necessary to see a doctor because of dehydration. Hepatitis A infection is much more severe.

**Outbreak Snapshots**

<table>
<thead>
<tr>
<th>Hepatitis A</th>
<th>Norovirus</th>
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<td>In 2013, over 100 people in the Western U.S. became ill with hepatitis A infections after eating contaminated frozen berries (pomegranate seeds are likely the vehicle of contamination).</td>
<td>In 2012, over 11,000 children and teens in Germany were sickened by norovirus from contaminated frozen strawberries distributed to schools.</td>
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<tr>
<td>In early 2013, dozens were sickened in Europe over several months from frozen berries served in smoothies.</td>
<td>In a 2009 norovirus outbreak in Europe caused by raspberries, over half of those affected were children younger than 7 years of age.</td>
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<td>A 2012 outbreak of hepatitis A in Canada was also linked to a frozen mixed berry blend.</td>
<td>In 2005, contaminated raspberries sickened more than 1000 people in Denmark, including people in hospitals and nursing homes.</td>
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Produced by the USDA-ARS Food Safety Collaborative (NorCoRE). For more info, visit norcore.ncsu.edu or email norcore.admin@ncsu.edu.

NorCoRE is supported by a grant from the United States Department of Agriculture, National Institute of Food and Agriculture, NCSU NC 0002.
Hand Hygiene for Farm Management

Dirty hands can contaminate produce with viruses that cause human illnesses, like hepatitis A and norovirus. Farms need adequate toilet facilities and hygiene tools.

Prevention is Key

- Training: Educate workers about good hand hygiene practices and proper glove use. Teach control measures, why they are important, and what the consequences are if they are not used. Do not rely on alcohol-based hand sanitizers; they are not completely effective against foodborne viruses.

  Norovirus (the 'stomach flu') causes nausea, vomiting, and diarrhea. Hepatitis A illness starts with flu-like symptoms but progresses to disease of the liver, leading to jaundice (yellowing of the skin & eyes) and sometimes additional complications.

  For both viruses, it is possible to be infected and not show symptoms; the sick person sheds virus for a long time, and these viruses remain stable in the environment.

- On the Farm: Provide the facilities. Adequate toilet and handwashing facilities include soap, clean water, and paper towels. Trash bins should not be allowed to overflow (soiled paper or tissue can contaminate shoes).

- Opportunity: Create a working environment and schedule that promotes appropriate hand-washing practices.

Virus contamination of field worker hands has been reported by authorities.

...for proper handwashing, provide soap, clean water, and paper towels.

...these viruses can be transferred from hands to produce.

Produced by the USDA-NSF Food Virulence Collaborative (NoroCORE). For more info, visit norecore.ncsu.edu or email norocore-admin@ncsu.edu. NoroCORE is supported by a grant from the United States Department of Agriculture, National Institute of Food and Agriculture.
Future Needs to Reduce Virus-Related Outbreaks Associated with Fresh Produce

Research >>> Education

* More information and research is needed, but particularly related to:
  * Norovirus – infectivity
  * Routes of contamination
  * Environmental niches/reservoirs
  * Methods to mitigate viruses throughout the process chain
    * Physical processes
    * Education

* Ongoing research to determine factors for virus attachment to berries (strawberries, blueberries)

* Future research to address removal or inactivation of viruses on berries
* Continue to develop infosheets as needed to address stakeholder concerns

* Direct stakeholder engagement – questions submitted through NoroCORE.com

* General awareness through a public and social media campaign:
  * Facebook
  * Twitter
  * Press releases: Local and Regional News stories

* Disseminate new information from research findings at targeted stakeholder events
  * Collaborative efforts with the Produce Safety Alliance
  * IAFP
  * At local, state, regional, and national meetings, as appropriate
Future Needs to Reduce Virus-Related Outbreaks Associated with Fresh Produce

Don’t Re-Invent the Wheel!

* When others have policies or procedures that work, adopt them!

* Learn from the mistakes of others… and don’t make them yourself…