





Introduction

- This presentation is based upon FDA's testimony about the *E. coli* outbreaks to the U.S. Congress delivered on November 15, 2006
- The taco outbreak is currently under investigation and all information is still preliminary... but lettuce is implicated



U.S mechanism for foodborne outbreaks Introduction

- U.S mechanism for foodborne outbreaks surveillance include:
 - FoodNet
 - PulseNet
 - OutbreakNet
- Food Outbreak trends
- Recent *E. coli* O157:H7 outbreak linked to fresh spinach
- U.S. initiatives to enhance safety of produce
- Next steps...



U.S mechanism for foodborne outbreaks

- FoodNet determines the severity, outcome, travel history of contaminated foods
- FoodNet Partners are:
 - Centers for Disease Control (CDC)
 - U.S. Department of Agriculture (USDA)
 - Food Safety Inspection Service (FSIS)
 - Food & Drug Administration (FDA)
 - Participating State Health Departments



FoodNet Partners

United States Department of Agriculture

Agriculture Plant Health Inspection Service (APHIS) (Now Dept. of Homeland Security)

◆ Imports and Phytosanitary Standards

Agriculture Marketing Service (AMS)

◆ Grade Standards

◆ Qualified Through Verification (QTV)

◆ Partners In Quality (PIC)






FoodNet Partners

Produce Quality

USDA Specifications

Vegetables: www.ams.usda.gov/standards/vegfm.htm

Fruit: www.ams.usda.gov/standards/frutmrkt.htm

Fresh-cut Produce

PACA Good Arrival Standards (Blue Book/Red Book)

Quality: Size

Condition: Bruising, Ripeness

www.ams.usda.gov/tpaca/fobgood.htm#top






FoodNet Partners

Food & Drug Administration FDA


- ❖ Good Manufacturing Practices (cGMPs)
- ❖ Good Agricultural Practices (GAPs)
- ❖ Additives & Preservatives
- ❖ Antimicrobials (processed foods)
- ❖ Packaging Components
- ❖ Labeling
- ❖ Research




FoodNet Partners

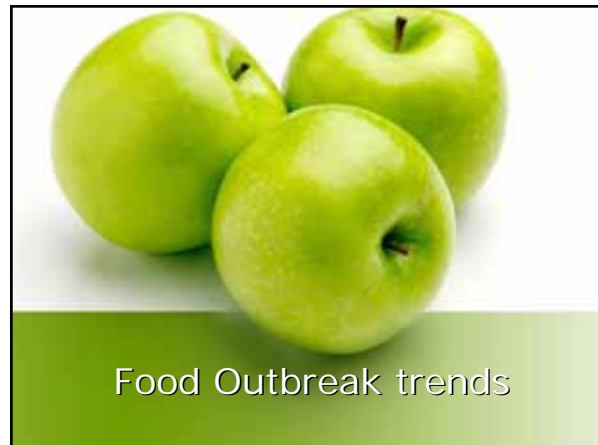
Imports

- ❖ FDA is responsible for the food safety of imported produce. FDA monitors produce for pathogens and chemical residues at the border.
- ❖ Department of Commerce regulates the label information.
- ❖ APHIS monitors for insect contaminants and other grade standards.




FoodNet Partner Process

- PulseNet
 - Network of Nationwide public health laboratories
 - Use standardized protocols for "DNA fingerprinting" – Share results through CDC PulseNet database
- Outbreak Net
 - Network of public health professionals who investigate foodborne disease outbreaks
 - All 50 states and several federal agencies




Food Outbreak trends

Food Outbreak trends

Morbidity and Mortality Weekly Report, CDC April 2006

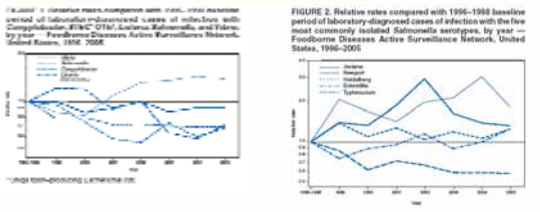
- Surveillance data shows that the estimated annual incidence of several infections declined significantly from 1996--1998 to 2005
 - The report shows that the incidence of infections caused by *Campylobacter*, *Listeria*, *Salmonella*, Shiga toxin-producing *E. coli* O157, *Shigella*, and *Yersinia* has declined.
 - *Campylobacter* and *Listeria* incidence are approaching levels targeted by U.S. health objectives.




Incidence of Infection with Pathogens Transmitted Commonly Through Food

Morbidity and Mortality Weekly Report, CDC April 2006

<http://www.cdc.gov/MMWR/preview/mmwrhtml/mm5514a2.htm#top>




Food Outbreak trends Escherichia coli O157 in the U.S.

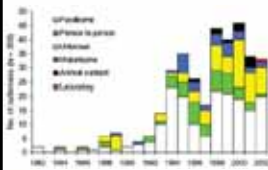
- Estimated 73,000 infections/year (Mead, EID)
- Causes diarrheal illness, often bloody stools
- kidney failure, and death
- Sources:
 - food (e.g., beef, leafy greens, sprouts, unpasteurized juice), water, animal contact
- Incidence decreased recently
 - coincides with decreased contamination of beef

From: Michael Lynch, MD, MPH
U. S. Centers for Disease Control

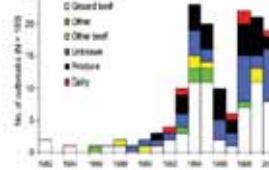



Food Outbreak trends Escherichia coli O157 in the U.S.

Major Causes of Outbreak in USA from 1982-2002



Major Foodborne Causes of Outbreaks in USA from 1982-2002





E. Coli O157:H7 Outbreaks


- Foodborne sources
 - Ground beef
 - Other forms of beef
 - Salami
 - Produce
 - Spinach
 - Alfalfa
 - Lettuce
 - Unpasteurized Apple Juice

- Water sources
 - Swimming in Lakes
 - Drinking from infected water supplies
- Contact with infected animals
 - Petting Zoos



Food Outbreak trends Escherichia coli O157 in the U.S.

- Ready-to-eat fresh vegetables, fruits, and prepared salads have a high potential risk of contamination because:
 - they are generally grown in a natural environment (for example, a field or orchard) and
 - are often consumed without cooking





E. coli O157:H7 outbreak linked to fresh spinach

Fall 2006

Spinach Outbreak

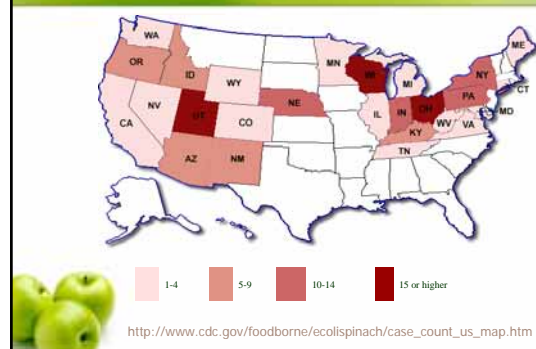
- Infected over 200 people
- Three individuals died
- FDA traced sources to four California ranches
- Cause in one ranch was grazing feral pigs
- Uptake with *E. coli* bacteria by the plant systemically does not exist.



Outbreak Reporting Timeline



Infection cases of O157:H7 due to contaminated spinach in Fall 2006



FDA response to the outbreak

- FDA held press conferences and issued press releases
- Posted updates on FDA website to limit the spread of the outbreak by keeping the public informed
- FDA also worked closely with Canada food safety officials to provide with them up-to-date information

U.S. initiatives to enhance safety of produce

Future U.S. initiatives regarding the food safety for fresh produce

- Progress has been made in reducing foodborne infections
- However, the recent *E. coli* outbreaks show that further progress is needed, with ready-to-eat produce
- Good Agricultural Practices (GAPS) is crucial to ensuring that microbial contamination is minimized
- Consumer education

U.S. Industry Initiatives

- Farm-to-table approach
 - delineating responsibility
- Good Agricultural Practices (GAPS)
- Hazard analysis critical control point (HACCP) for fresh unpasteurized orange juice
- Risk analysis
- Global standard setting and harmonization
- Transparency
- Scientific basis

Risk Reduction Using Common Sense

- *E. coli* is only passed through fecal-oral contact
- PREVENTION:
 - Wash hands
 - Foodborne
 - cook meat thoroughly
 - wash vegetables
 - pasteurize dairy products and juices
 - Consumer education will reduce risk



FDA activities to address safety concerns

- develop guidance
- outreach to consumer
- sample and analyze domestic and imported produce for pathogens
- and work with industry to promote the use of good growing, harvesting, packing, transporting, and processing practices



FDA Produce Safety Action Plan

- In October 2004, FDA announced its Produce Safety Action Plan to help reduce the incidence of foodborne illness attributed to the consumption of produce.
- The Action Plan represents the first time that FDA had developed a comprehensive food safety strategy specific to produce.



FDA Produce Safety Action Plan

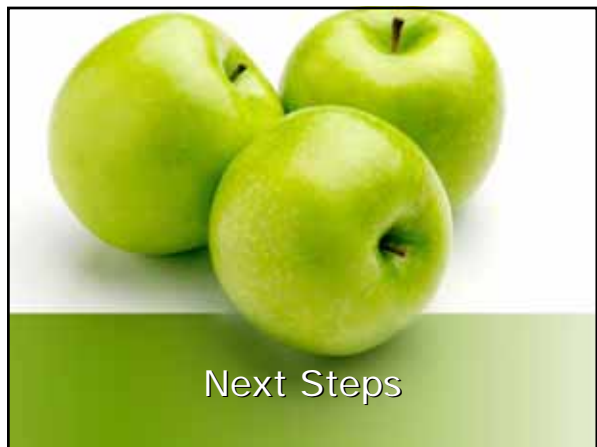
The Action Plan has the following four objectives:

- preventing contamination of fresh produce with pathogens;
- minimizing the public health impact when contamination of fresh produce occurs;
- improving communications with producers, preparers and consumers about fresh produce safety;
- facilitating and supporting research relevant to fresh produce.



FDA Produce Safety Action Plan

- FDA has collaborated with industry in developing guidance for five commodity groups:
 - cantaloupes
 - lettuce
 - leafy greens
 - tomatoes
 - green onions
 - herbs, e.g., basil



Next Steps

Next Steps

- In March 2006, FDA released draft guidance for the fresh-cut produce industry,
 - "Draft Guide to Minimize Microbial Food Safety Hazards of Fresh-cut Fruits and Vegetables"
 - FDA is currently working to finalize this guidance document.



Next Steps

- Once FDA have completed their current investigation (taco outbreak)
 - FDA will hold public meetings to address the larger issue of foodborne illness linked to leafy greens.
 - FDA will examine where improvements can be made



Next Steps

- FDA will concentrate in four areas to help prevent or contain future outbreaks:
 - food technology strategies to prevent contamination
 - ways to minimize the health impact after an occurrence
 - ways to improve communication; and
 - specific research
- FDA will be holding a series of meetings with industry and consumer groups to discuss ways to improve the safety of fresh produce – Early 2007 TBA



Next Steps...

- FDA will consider additional guidance as needed
- Additional regulations are unlikely for now
- FDA will continue to look for a better path to improve the safety of fresh produce; research will remain a critical element



Next Steps...

- Research on analytical technologies that enable faster detection of foodborne pathogens
- FDA current research is focused on improving the identification and detection of disease-causing bacteria and



Next Steps...

- FDA is also studying possible intervention strategies, such as use of thermal treatment and irradiation, which could be applied to fresh produce products to reduce the level of bacteria and viruses that are in or on the product.
- Finding better intervention strategies



Conclusion

- Collaboration with universities, industry, and state governments to develop risk-based microbiological research programs
- FDA will continue to work with partners to develop:
 - guidance
 - research
 - educational outreach documents, and
 - to initiate other commodity- or region-specific programs that will enhance the safety of fresh produce.



Thank You
Merci Beaucoup!