Food Safety and Defense for Direct Food Sales

What Can be Done?

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Session Objectives

What we are gonna’ do

• Understand needs of foodservice and other direct markets
• Understand why implementing risk mitigation strategies is important.
• Review best practice on farm food safety
• Small group case study discussion during a working lunch
On Farm Food Safety

• Dependent on products grown or raised
• Regulations – state or federal exist for some products but not for all
• Best practices are defined and based most recent science
• Good Agriculture Practices – GAPs
• Increasingly, food safety assurances are sought by buyers at retail levels
“Ingredients” for Bacterial Growth

- **Moisture** - found in most foods, including fruits and vegetables with high water

- **Nutrient source** - provided most foods (protein, carbs)

- **Warmth** - especially room temperatures or between 41°C - 135°F (temperature danger zone/ TDZ)

- **Time** – more than 2 hours in TDZ (less in 80°F + weather)
Regulated Products

- Mostly greater risk
- Time – temperature controlled for safety (TCS) or Potentially Hazardous (PHF) foods
- Require license and inspection at state and/or national level:
  - fresh shell eggs
  - processed foods
  - meats and poultry
  - dairy
  - some fresh produce
Procurement Regulations

– Most fresh produce is NOT considered a PHF or TCS **

– No license is required by the vendor to sell most whole, unprocessed or minimally trimmed fresh produce

– Distinction between food service and food processing

– * Food Code 2005 TCS produce: cut tomatoes, sprouts, sliced melons

– **Food Code 2009 TCS produce adds: washed, chopped salad greens
Summary of Food Code regulations

Buying Local Foods for Retail Foodservices


These resources focus on Good Agricultural Practices (GAPs):
- Cornell University Good Agricultural Practices Project—www.gaps.cornell.edu
- United States Department of Agriculture—www.ams.usda.gov/fsfbpbgshp.htm
- University of California-Davis Postharvest Technology Research and Information Center—http://postharvest.ucdavis.edu

Want to know more?
Contact these groups.
- Buy Fresh Buy Local: Iowa program—www.buyfresh.org
- Iowa Department of Agriculture and Land Stewardship—www.iafoodroutes.org
- Food Alliance—www.foodalliance.org
- City or county health inspector
- Iowa Department of Inspection and Appeals—www.dia.iowa.gov/food515/281-6538
- ISU Extension Distribution Center—www.extension.iastate.edu/store
- ISU Hotel, Restaurant, and Institution Management Extension: Local foods—www.iastatelocalfoods.org
- Leopold Center for Sustainable Agriculture—www.leopold.iastate.edu
- Produce Marketing Association—www.pma.com
- United Fresh Fruit and Vegetable Association—www.unitedfresh.org

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Self-Assessment Checklist Example

• Buyer must demonstrate due diligence as no inspections
• ISU Extension PM2046A
• Checklist can begin the conversation
• Items based on GAPs
• Asks questions regarding on farm actions about:
  - Water
  - Manure
  - Product Handling
National GAPs initiative

http://www.gaps.cornell.edu
Post Harvest Info UC Davis

Goals:
Improving the quality and value of horticultural crops available to the consumer
Reducing postharvest losses and improving marketing efficiency
Solving particular problems in handling fruits, vegetables, and ornamentals to maintain their quality and safety

Postharvest Technology Research and Information Center
- About the Center
- Endowment Fund
- Short Courses and Workshops
- Announcements and Meetings
- Center Publications - list and order form

Online UC Postharvest Information
- Produce Facts
- Physiological Disorder Fact Sheets
- Properties and Recommended Conditions for Storage of Fresh Fruits and Vegetables
- Additional Information

http://postharvest.ucdavis.edu
On Farm Food Safety: Areas of Concern

• Production: (GAPs)
  • Water quality & safety
  • Manure handling & application
  • Wildlife & Pets
  • Documentation

• Harvest:
  • Worker sanitation

• Post-harvest Handling:
  • Cleaning
  • Packing & Processing
  • Storage
  • Transportation
  • Distribution
Buyers’ Food Safety Assurances

• License by government

• Demonstration of knowledge
  – i.e. certificate of training

• Documented practices and procedures
  – i.e. review of a farm food safety plan

• Certification by third party
  – i.e. GAPs Certification

• Farm Tours
Farm Tours by Prospective Buyers
Drivers of Food Safety Assurances

• Retailer demonstration of *reasonable care*
• Retailer insurance requirements
• Organizational procurement rules
• Protection of business liability challenges
• Lack of government oversight certain foods-pending fresh produce standards with FSMA
• Government requirements certain sectors foodservice market - HHFKA
• Best practice
• Increasing awareness risk
Child Nutrition Reauthorization Act 2010

- Mandates national nutritional standard: *increase fruits and vegetables*
- Formalizes F2S programs: *safety paramount as children at risk and procurement rules*
- Focus on school health environment *safety and nutrition*
- School Gardens viability *able to use produce in CNP*
Impacts of estimated 48 million FBI Outbreaks each year

- Consumers become ill.
- Consumers lose confidence in safety of food.
- ALL producers of implicated food are affected.
- People eat less produce, decreasing sales.
- Works against “5-A-Day” nutrition programs.
- Leads to unwanted legislation or regulation.
Vulnerabilities Exist Throughout the Food Supply Chain:

1. **Farm/Transportation**
2. **Food Processor/Transportation**
3. **Retail/Transportation**
4. **Preparation/Consumption**
Concerns with Fresh Produce

• Outbreaks fresh produce – PHF and TCS foods
• Raw Agricultural Foods – pathogens are present
• Need to wash whole product prior to service (unless RTE label)
• Fresh produce won’t get heat treated - no kill step
• Lower risk due to acidity and lack of protein
• Pathogens from environmental or human sources can contaminate
  • Ex: Norovirus, E. Coli 0157:H7 & Hepatitis A
• GAPS are important!
Environmental Sources of Pathogenic Microorganisms

- Soil and water
- Plants and plant products
- Air and dust
- Manure
- Compost
- Containers for harvesting produce
- Packing materials
Environmental Contamination Depends On...

- Prior/adjacent land use
- Field slope & drainage
- Animal controls – wild and domestic
- Pest control
- Soil properties and management
- Water quality & practices
- Crop inputs
- Cleaning practices
Wild Animal and Domestic Pets
Access to Crops
Wild Pig Route
Manure = Fecal Matter = Microbes

• Human or animal: DO EVERYTHING you can to keep manure off produce.
• Preventing contamination is the goal.
Fruits and Vegetable contamination with *E. coli* O157:H7

- Major Reservoir is intestinal tract of cattle and other ruminants; animals can shed organism into environment, including ground water.
- Wild or domestic animals.
- Improperly composted animal manure.
- Fruits and vegetables dropped on the ground have a higher chance of being contaminated by manure.
- Water may carry and spread organisms – the *stealth ingredient*.
- Workers may also contaminate produce.
Water – the Stealth Ingredient

• *E. coli* 0157:H7 viewed primarily as a water-borne pathogen.
• *Salmonella, Giardia* and *Cyclospora* outbreaks on produce caused by contaminated water.
• Many outbreaks associated with run off and recreational water. Best source (lowest risk) is drinking water, such as municipal.
• Ground water is less likely to have microbial contaminants than surface water.
• Surface water quality and pathogen levels are affected by watershed activities and season.
• Chlorinate dump tanks and wash water
• Keep records of water tests
Water Testing Frequency

• At least once a year:
  – Municipal water
  – Well water
• Test surface water for quality assurance
  – 3 times during season in temperate climates
    • at planting (high flow)
    • at peak use (low flow)
    • at harvest
  – Quarterly in more southern climates
• Maintain good records of results
Selected Iowa Water Testing Labs

State Hygienic Laboratory
University of Iowa
IU Research Park – Coralville
Iowa City, IA 52242
Ph:   (319) 335-4510
     (800) 421-4692
http://www.uhl.uiowa.edu

Private Laboratories:

AgSource Laboratories
(LGI Laboratories)
1532 Dewitt
P.O. Box 247
Ellsworth, IA 50075
Ph:   (515) 836-4444
http://agsource.crinet.com/page2251/TestingServices

Iowa Testing Laboratories, Inc.
Hwy 17 North
P.O. Box 188
Eagle Grove, IA 50533
Ph:   (515) 448-4741
     (800) 274-7645
http://www.iowatestinglabs.com/

Mangold Environmental Testing, Inc.
2004 Expansion Blvd
Storm Lake, IA 50588
Ph:   (800) 863-7786
http://www.met-lab.net

MVTL Laboratories, Inc.
35 L Avenue
Nevada, IA 50201
Ph:   (515) 382-5486
     (800) 362-0855
http://mvtl.com/
Water Contamination

- Livestock
- Sewage treatment facilities
- Wildlife
- Well water contamination
- Poorly maintained wells or pumps
- Livestock in active well recharge area
Wash Water Quality

- Use potable water for all produce washing, cooling, dipping, icing, and processing.

- Monitor wash water temperatures to avoid more than 10°F cooler than produce – so wash water is 65°F and produce is 75°F.
Stainless steel surfaces are easy to clean & sanitize.
Human Sources Contamination

• Workers
• Health – ill with transferable disease
• Practices – poor hand washing, cleaning
• Training – do they know?
• Policies and Procedures Guide Practices
• Tools – proper tools and supplies provided
Extension Publication Series
PM 1974 a,b and c - content

• On Farm Food Safety Worker Health and Hygiene
• On Farm Food Safety GAPs
• On Farm Food Safety Cleaning and Sanitizing
Hand washing is fundamental!

STOP! DID YOU WASH YOUR HANDS?

CONJUNCTIVITIS (PINK EYE)
E. COLI 0157:H7
NOROVIRUS
COMMON COLD
STAPHYLOCOCCUS AUREUS

INFLUENZA
SALMONELLA
HEPATITIS A
DIARRHEA

HANDWASHING with SOAP and WARM WATER is the best way to PREVENT ILLNESS
Worker Hygiene

Hand washing:

Are adequate supplies available?
- Hand soap and cleaning detergent
- Disposable towels
- Clean water

Are supplies used properly?
- Hands washed after using the bathroom
- After harvesting or work in field
- After eating or drinking or smoking
Worker Hygiene

- Workers should follow good hygienic practices to protect against contamination of the product.
- They should receive training in proper food handling techniques, food protection basics, personal hygiene and sanitary practices.

Don’t Assume!
Worker Hygiene

Wear clean outer garments.
- Change clothing/don aprons
- Designated gloves/containers

Maintain personal cleanliness.

Wash hands thoroughly:
- Before starting new task.
- After absence from work station.
- Any time hands become soiled.
Change in tasks requires a hand washing!
Getting Started

• Inventory your operation for areas that could use standardized policies to insure food safety
  * Check out *My Farm Assessment* in book
• Standard Operating Procedures provide clear expectations to workers
• View on-line SOP’s and modify them to fit your operational needs
Elements of a Food Safety Plan

1. Description of the farm:
   Include Location and size (map); water sources (include ice); market venue; products and type of production; number of workers; facilities etc

2. Mission Statement or Policies – these reflect general philosophy

3. Job descriptions are useful to identify needed skill sets of workers, explain job functions, and performance review

4. Standard Operating Procedures - written guidance on what and how to complete tasks and monitor; address protocols related to quality, food safety, physical safety, traceability, etc.
Farm Food Safety Plan Addresses:

- Manure storage and handling
- Animal exclusion (domestic & wild)
- Irrigation and drainage management
- Equipment sanitation
- Harvest and post harvest handling
- Employee training program
- Restroom & hand washing facilities
- Crisis management strategy
- On-farm self-audits
Why the Paper Chase?

- Foodservices will often request this information, especially if serving elderly or children.
- F2S programs are supported – key part of HHFKA 2010.
- Checklist for foodservices PM 2046A – *intent is to begin the conversation*.
- Insurance carrier negotiation.
- Market quality and safety aspects of your products.
  (Some preliminary survey research indicates people *will pay* premium for assurances – sets of experimental trials at ISU.)
Mission Statement

• This section is for you, your staff, customers, and others.

• It tells why you are here and addresses:
  • Where do you want to be down the road?
  • What are your interests and commitments

• Example: The owners and staff at Strohbehn Squash Farm are committed to producing and marketing a safe and quality product through the use of good agricultural practices and handling that focus on principles of food safety.
Standard Operation Procedures - SOP Guidelines

Step by step written instructions about certain tasks:

WHY, WHAT, HOW, WHEN, and WHO

Ideally, each SOP should include:

1. Rationale
2. Detailed description of procedure – based on standards/best practice
3. Monitoring actions - accountability
4. Corrective actions – what is done if monitoring shows SOP is not followed?
Why Needed?

• Serve as framework for organizational policy – provide direction and structure
• Written documentation of best practice – it is your proof!
• Tells what, how, when, why and who
• Provides foundation for job descriptions, employee training, performance review
Now what?

- *What do you do with these SOPs and logs after developed?*
- Have them available – not in a notebook on shelf!
- Infuse into the culture of the farm –
  - *train new workers*
  - *Refresher training others*
- Incorporate into job descriptions/reviews
- Update as needed
Record Keeping

• Organization is important!
  * Electronic or paper
  * Know where kept
• Certified Organic Producers already document
• Use what system works for you and others in operation – such as clipboards, files, etc.
• Initial process is completed by designated person – all workers involved
• Monitor that it is done!
Keeping it simple!
SOP - SOS

- Bank of SOS templates available in word form.
- Modify to fit needs of operation.
- Minnesota site – FSP4U – template of food safety plan
  - [www.iowahaccp.iastate.edu](http://www.iowahaccp.iastate.edu)
FSP4U

A Food Safety Plan (Template) for You

Compiled by:
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If you did not RECORD IT, you did not do it.

• Record keeping allows you to keep track of farming operations and worker training.

• Record keeping documents *reasonable care* has been taken – can be helpful if any challenges.
Case Study Work Groups

• Teams of 3-4
• Review one of two scenarios
  – Black Earth Forever Farm
  – First Fruits Farm
• During work session of 30 minutes
  – Prepare group response
  – partake of box lunch and beverage
  – stretch break
• Group reports