Practical Food Safety for Produce Farms

Planning your farm with food safety in mind

Virginia Nickerson, GAPs Outreach Coordinator

Hans Estrin, Farm to School Coordinator

February 10, 2011

UNIVERSITY OF VERMONT EXTENSION

CULTIVATING HEALTHY COMMUNITIES

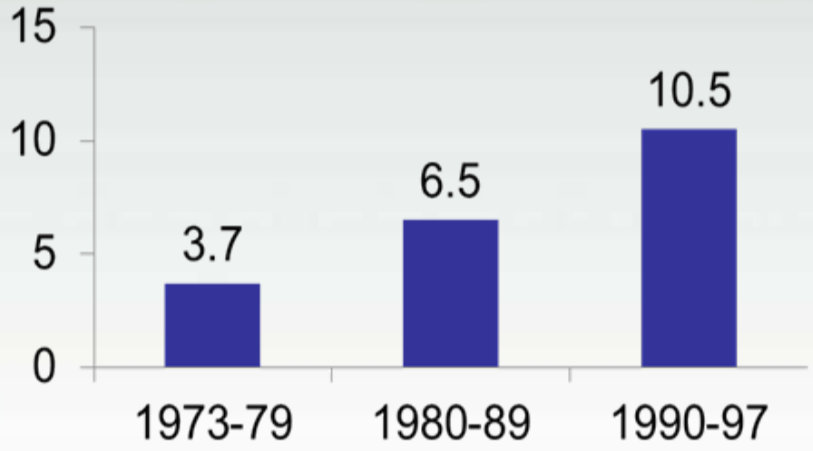
What we will cover:

- Why Should I Care About Food Safety?
- Will the Food Safety Modernization Act affect me?
- Do I Need To Be GAPs Certified?
- Food Safety Issues To Consider In Farm Planning
- Food Safety and Farm to Institution Sales
- Helpful Resources
- Questions and Answer Time

Why should I care?

Changes in Food System + Changes in Public Health Trends
= Increase in Outbreaks of Food Borne Illnesses

Number of Produce-Associated Outbreaks Increasing



Source: Wesley Kline, PhD Rutgers Cooperative Extension of Cumberland County, 2009

Changing Food System

- New technologies & delivery systems (pre-cut and bagged) = good environment for microbes
- Centralized production and distribution systems means contamination at one site can affect consumers over wide geographic area

Changing Public Health Trends

- More people eating *raw* fresh produce
- More people living with immune issues
- More virulent pathogens evolving

UNIVERSITY OF VERMONT EXTENSION
CULTIVATING HEALTHY COMMUNITIES

Will the Food Safety Modernization Act affect me?

- ***Over*** $500,000 in gross sales, through direct market OR over $500,000 in wholesale sales = **subject to FDA authority**

- ***Under*** $500,000 in gross sales through direct market within the state or 275 mile radius = **subject to local and state regulations**

Do I need to be "GAPs" Certified?

GAPS = Good Agricultural Practices

Requiring GAPs

- Hannafords
- Price Chopper
- Albert's Organics

Practical Food Safety Plan

- Everyone else!
  - Direct markets
  - Schools
  - Hospitals
  - Restaurants
  - Stores & Coops
  - Distributors (Traceback)

Why should I have a Written Food Safety Plan?

Increased Outbreaks = Increased Public Attention To Food Safety

Having a Written On-Farm Food Safety Plan is a Good *Business* Practice

- Increase shelf-life of product and efficiency of operation
- Reassure concerned consumers and buyers
- Increase market opportunities
- Good records help prove your safety practices in case of outbreak
- Reflects your values to provide the highest quality, safest food possible
- It's your responsibility as a professional!

What contaminants are we talking about?

- **Chemical:** heavy metals, natural toxins, pesticides
- **Physical:** wood, glass, stones, etc…
- **Microbial** (bacteria, viruses, parasites) most common food borne illness pathogens :
  - Campylobacter
  - Salmonella
  - Escherichia coli (esp. concern E.coli 0157:H7, produces toxins)
- **Points of contamination:**
  - Soil
  - Water
  - Hands
  - Food and water contact surfaces (containers, counters, wash tanks)

Values-based Food Safety Planning

- What are your values?
  - For the food you produce?
  - For your customer's experience?
  - For your farm?

Mission Statement: (Excerpted from Cedar Circle Farm Food Safety Plan)

"One of the most important functions of Cedar Circle Farm is food safety. Both management and employees are committed to producing and marketing safe product safety through good agricultural practices that focus on principles of food safety and quality. To make sure our food safety goals are met, we have also designated Megan Baxter as supervisor to oversee the food safety program."

Six steps to creating a Farm Food Safety Plan

1. Write your mission or vision statement for your farm first- how does food safety fit in?
2. Assess the risks on your farm
3. Locate risks (if any) on map of farm
4. Address the risks
5. Think about your standard practices or policies to ensure food safety and *write them down*
6. Educate others about your practices: signage for workers & visitors

Practical Food Safety Road Map

- Cultivating (Soil History, Risks, Manure/Compost, Water, Animals)
- Harvesting
- Washing and Cooling
- Packing and Storing
- Transporting
- Tracking
- Farmer Health and Hygiene
- Costs

Cultivating: Land History Risks

Soils and Land Use History

- How long has land been in agriculture? Prior uses of concern?
- Potential sources of contamination:
  - Flooding
  - Carcasses, Dump site / Toxins
  - Septic leaks or run-off
  - Location of Manure and/or compost piles

Best Practices

- Crops located away from animals, manure or compost piles (up slope if possible)

- Mediate with ditches, berms, buffer strips or hedgerows

UNIVERSITY OF VERMONT EXTENSION
CULTIVATING HEALTHY COMMUNITIES

Cultivating: Managing Manure and Compost: Location and Application

- Locate animals, manure & compost downslope from crops
- 120 days between manure application/livestock rotations and harvesting
- Use berms and buffer strips to protect crops from run-off

- Keep compost records: temperatures & turning
- Heat to at least 131^0 F for at least 3 days
- Watch out for re-contamination!

UNIVERSITY OF VERMONT EXTENSION
CULTIVATING HEALTHY COMMUNITIES

Water Quality

- Test *all* Water Sources
  - Municipal- get test results from town
  - Well and surface waters – test yourself

Source	VT Water Quality Criteria
Drinking , Hand-washing and Processing	Total Coliform: 0 CFU/ 100 ml E. coli: 0 CFU / 100 ml
Irrigation	Total Coliform: 200 CFU/ 100 ml E.coli: 77 CFU/100 ml

- **Mitigation Options for Wells**
  - Shock wells
  - Filter system
  - UV or Ozone system

Cultivating: Irrigation from Surface Water

Assess Water Source

- Test surface water on low flow day – not after rain
- Take sample from outflow
- If numbers high, take again (could be outlier)

Assess Delivery Method

High E. coli?

- Overhead Irrigation- ok
  - Maximize drying days between irrigating and picking
  - Consider switching to furrow or drip
- Trench or furrow – better
- Drip or drip under plastic- best practice

UNIVERSITY OF VERMONT EXTENSION
CULTIVATING HEALTHY COMMUNITIES

Minimizing Animal Contamination and Crop Damage

Flash tape

Scare balloons

Double stranded electric deer fence

UNIVERSITY OF VERMONT EXTENSION
CULTIVATING HEALTHY COMMUNITIES

Field Harvesting

Washable harvest containers

Color coded washable harvest containers

Sanitize harvest tools

Washing & Cooling

- Avoid getting dirt on crops after harvesting – keep everything off the ground
- If food drops on ground/floor– when in doubt- throw it out!
- Change cooling and/or wash water often (or use double or triple wash tanks)
- Consider adding disinfectant to reduce fungi, extend shelf life, and reduce food borne illness pathogens
- If used, chlorine (100 – 150 ppm) or disinfectant levels are monitored to maintain appropriate pH for disinfectant (6.5 – 7.5)

UNIVERSITY OF VERMONT EXTENSION
CULTIVATING HEALTHY COMMUNITIES

*FBI = Food Borne Illness

Packing / Storage

- Packing area is kept clean and orderly, receives regular cleaning
- Packing containers are kept off ground and protected
- Rodent control program if necessary - where there is food there are mice!
- Consider investing in washable, reusable containers for packing

Cold Storage

- After washing and cooling, keep produce covered and cool until sale or shipping
- Minimize storage time between harvest and sale – attempt to sell perishable produce within 72 hours of harvesting
- Best Practice: store produce at 30^{o}-45^{o} after harvest and any post-harvest handling
- Make sure condensation from coolers does not drip on produce, wet produce is not stored above dry produce

Transporting

- Transport vehicles kept cleaned, washed as needed
- Best practice: not used to carry non-food items

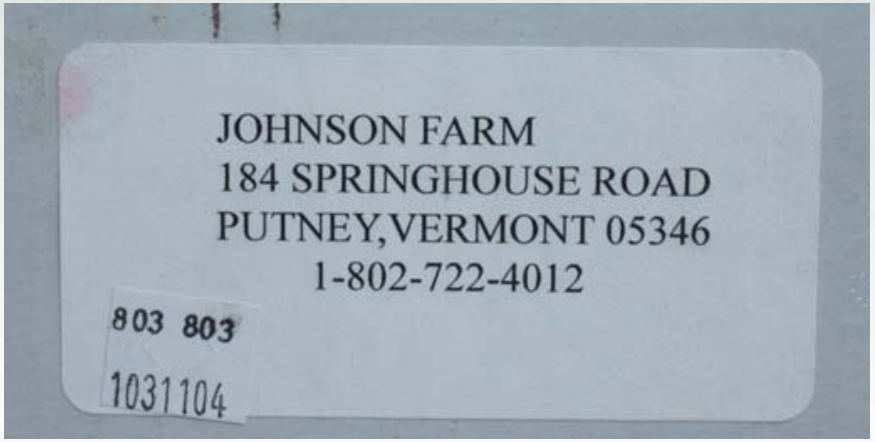
If necessary:

- Use tarps to protect surfaces
- Sanitize all surfaces after transporting potential contaminants (manure, compost, livestock, meat, chemicals, etc…)

Tracking Produce and Sales

Best Practice: Label packing containers for wholesale buyers

- Farm name
- Farm location (town or zip)
- Pick/pack date



Self-printed labels

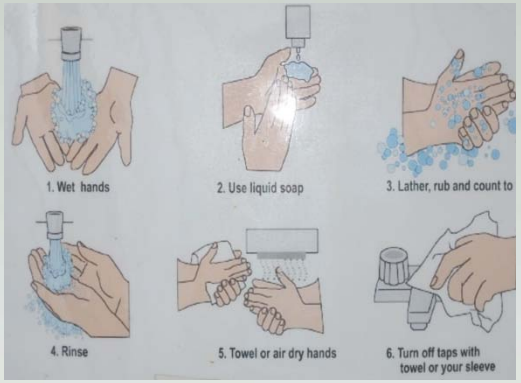
Label gun for pack codes

Record Keeping for Produce Safety

- Water tests
- Dates of raw manure application/animal grazing rotations
- Compost: temperatures and dates of turning
- Rodent/pest control events (learn animal behavior)
- Harvest and/or packing logs (what went to who, when?)

Farmer Health and Hygeine

- Avoid going to bathroom in the field
- Always have hand-washing site available
  - Running water, soap and clean towels located near bathrooms/port-a-johns and break areas
  - Wash hands for 20 seconds
- Don’t touch produce if have diarrhea, fevers, jaundice, vomiting
- Bandage cuts and wear gloves over bandage



Post hand-washing signs

Make your own “tippy-tap”

UNIVERSITY OF VERMONT EXTENSION
CULTIVATING HEALTHY COMMUNITIES

Visitors (CSAs, U-Picks)

- Bathroom and hand-wash station available
- Request no dogs in production or packing areas
- Post informational signs as needed
- Encourage visitors to wash hands after touching livestock and before handling produce

UNIVERSITY OF VERMONT EXTENSION
CULTIVATING HEALTHY COMMUNITIES

Sunshine Farm: Example of Spreading Costs Over Time

Action	Phase I	Phase II	Phase III / GAPs
MANURE/COMPOST MANAGEMENT	• Manure and/or compost contained by berms , ditches or buffer zones	• Temperature probe for compost	• Compost covered w/ fleece
WASHING AND PACKING	• Field washing and packing • Double or triple wash	• Covered washing and packing • Triple wash w/ disinfectant	• Enclosed packing house • Stainless steel triple wash sinks
TRANSPORTATION	• Pick-up truck , cleaned and washed on regular basis	• Power washer for cleaning truck, harvesting and packing containers	• Refrigerated truck

Farm to Institutional Sales: Special Considerations

- Food Services are trained to minimize contamination (hand washing, sterilization, cold chain, etc)—**need to get on the same wave length.**

- Hospitals and senior centers—Compromised immune systems= greater risk.

Farm to Institutional Sales: Special Considerations

- Cafeteria cooks under pressure—need clean/ uniform product.
- Trusted cook--farmer relationship is key value added.

Take Home Messages

1. Start from *your* values and *your* vision for *your* farm

2. Look for the win-wins: where food safety practices = good horticulture practices and good business practices

3. Basic process:
   - Be aware of pathogens and other potential contaminants
   - Assess risks on your farm
   - Address risks if necessary
   - Develop good standard practices, follow them and tell workers and others about them

Want to learn more?

EDUCATION AND TRAINING OPPORTUNITIES

- Practical Food Safety (Spring 2011) hestrin@uvm.edu
- National GAPs on-line classes and in-person workshops http://www.gaps.cornell.edu/
- NOFA-Vermont GAPs Farm Tours and Workshops (Fall 2011)

GAPs TECHNICAL ASSISTANCE gnickers@uvm.edu

- Farm Visits
- Plan Review
- Practice Audits
- News and Events Listserve

Websites: Penn State, UMass, Vermont Veg & Berry Growers, UVM Center for Sustainable Agriculture

UNIVERSITY OF VERMONT EXTENSION
CULTIVATING HEALTHY COMMUNITIES

Contact for Help

- **GAPs (Good Agricultural Practices) for Fresh, Whole Produce**

  Ginger Nickerson, GAPs Outreach Coordinator

  UVM Extension Center for Sustainable Agriculture

  gnickers@uvm.edu

  (802) 656-5490

- **Farm to Institution Relationships**

  Hans Estrin, UVM Extension Local Food Network Coordinator

  hestrin@uvm.edu

  (802) 257-7967

- ***HACCP, Processed foods, Meat and Maple**

  Londa Nwadike

  UVM Extension Food Safety Faculty

  (802) 223-2389

UNIVERSITY OF VERMONT EXTENSION
CULTIVATING HEALTHY COMMUNITIES

*Hazard Analysis and Critical Control Points

Questions?