School and Community Gardens: Food Safety

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Food Safety
Funding

College of Human Sciences Heddleson Grant at Iowa State University

“Equipping Iowa State University Families Extension specialist with food safety knowledge to impact Iowans lives”
Overview of Luncheon

• General Facts
• Current Status of Produce Industry
• On-Farm Food Safety Hazards
• General Good Agricultural Practices
• Special Considerations: Resources
• Question and Answer
Facts

• Popularity of school and community gardens has caused a dramatic increase

• According to Schoolnutrition.org in 2011
  – 98% of school districts offered fresh produce
  – 48% offered locally grown produce
  – 21% have school garden
Facts, cont.

• CDC aims to have at least 75% of the U.S. population consuming two or more portions of fruits daily and 50% consuming 3 or more servings of vegetables
  – In 2009 only 32.5% ate 2 or more fruits servings per day, and only 26.3% at 3 or more vegetable servings per day
Procurement

• National School Lunch Program are the guidance for regulations
• Must demonstrate safe practices
• School garden products can be incorporated into the school lunch
• Other growers must go through school procurement policies for use in school lunches
What Is Food Safety?

Handling  Preparation  Storage

AVOID FOODBORNE ILLNESS

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Healthy People. Environments. Economies.
Foodborne Illness In The US

- 47.8 Million episodes of foodborne illness
- 127,839 Hospitalizations
- 3,037 Deaths

Scallan et al., 2011
High Risk Populations (YOPIs)

- Pregnant
  - Immunocompromised naturally
- Immunocompromised
  - AIDS, chemotherapy, transplants, external stress
- Very young
  - Underdeveloped
- Very old
  - Decreased immune function
22 year-old Stephanie Smith
“I ask myself every day, ‘Why me?’ and ‘Why from a hamburger?’

Travis Cudney
2010 Champion Child
Blind since age 2
Complications from a pathogenic *E. coli* infection
CURRENT STATUS OF PRODUCE INDUSTRY
Fruit & Vegetable Outbreaks

• *Escherichia coli* O157:H7
  – Lettuce
  – Unpasteurized juices

• *Salmonella*
  – Melons

• *Cryptosporidium*
  – Berries

• *Listeria*
  – Cole slaw

Gast et al., 1997
Produce Outbreaks by Item, 1998-2008

- Leafy greens: 34.1%
- Tomatoes: 17.1%
- Melons: 15.9%
- Others: 9.8%
- Berries: 8.5%
- Herbs: 8.5%
- Green onions: 3.7%
- Unknown: 2.5%

Source: FDA 2009
### Percent of Outbreaks Due to Fresh-Cut* - 1998-2008

<table>
<thead>
<tr>
<th>Produce</th>
<th>Number of Outbreaks</th>
<th>Number of Outbreaks Due to Fresh-cut</th>
<th>Percent due to Fresh-cut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leafy Greens</td>
<td>25</td>
<td>14</td>
<td>56.0</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>14</td>
<td>5</td>
<td>35.7</td>
</tr>
<tr>
<td>Melons</td>
<td>12</td>
<td>2</td>
<td>16.7</td>
</tr>
<tr>
<td>Total</td>
<td>51</td>
<td>21</td>
<td>41.2</td>
</tr>
</tbody>
</table>

* Fresh-cut produce is fresh produce that has been processed by peeling, slicing, chopping, shredding, coring, trimming, or mashing, with or without washing or other treatment, prior to being packaged for consumption. -FDA CFSAN
ON FARM FOOD SAFETY HAZARDS
Food Safety Hazard Categories

- Physical
- Chemical
- Biological
Physical Hazards

- Object or foreign matter in a food item
  - May cause illness or injury to a person consuming the product

- Sources
  - Raw materials
  - Badly maintained facilities & equipment
  - Improper production procedures
  - Poor employee practices
Physical Hazards, cont.

- Examples
  - Bone
  - Metal flakes
  - Stones
  - Glass
  - Wood fragments
  - Insects
Chemical Hazards

- Toxic substances in a food item
  - May cause food to be unsafe to consumers

- Examples and Sources
  - Pesticides
  - Fertilizers
  - Antibiotics
  - Hormones
  - Nitrates
  - Lubricants
  - Paint
  - Cleaners
  - Sanitizers
Biological Hazards

- Microorganisms that cause foodborne illness

Examples and Sources
- Parasites
- Viruses
- Bacteria
Sources of Contamination

• Soil and water
• Plant and plant products
• Air and dust
• Wild and domestic animals
• Insects and birds
• Compost
• Container for harvesting produce
• Packing material
• Food Handlers
Norovirus

• 1st outbreak was in a school in Norwalk, Ohio in 1968
  – Gastroenteritis cases
  – EMERGING THREAT
• Causes 40% of the Fruit and Vegetable Outbreaks
• Able to contaminate through root system
Norovirus: Statistics

• Annual: 5,500,000 cases of disease (#1), 15,000 hospitalizations (#2), and 150 deaths (#4)
• 50% of gastroenteritis outbreaks
• Winter time has more outbreaks
Infection, cont.

- Incubation is 24 to 48 hours
- Infect and kill cells of the small intestinal mucosa
- Pass through digestive tract and shed in feces
- Symptoms last about 1-6 days
- Shedding in feces can last for up to 4 weeks
Norovirus: Symptoms

• Symptoms:
  – non-bloody diarrhea, vomiting, nausea, abdominal cramps, low grade fever
• 30% of persons are asymptomatic (without symptoms)
• Fast acting process within 10 hours after ingestion
Norovirus: Infection Rate

- Peak shedding is at 2-5 days
- Infection dose is ~18 viral particles (10 to 100 is range)
- ~100 billion viral copies per gram of feces
- ~5 billion infectious dose per gram of feces
Norovirus: Survival

- Surfaces up to 42 days
- On foods in a refrigerator for up to 10 days
- Freezing indefinitely
- More resistant to chlorine (5-6ppm) than other enteric viruses
- Chlorine of 0.5-1mg for 30 minutes
- 60°C for 30 minutes
- Depuration of oysters and mussels
Norovirus: Survival

• Resistant to strong acidic conditions (pH 2)
  – 3 hours at pH 2.7
• Tolerated salt concentrations ranging from 0.3% to 6.3% NaCl
• In a study Norovirus was able to survive 29 days in water, 4 days on lettuce, 12 days on soil, and 15 days on stainless steel disks
• Lettuce at 4C and 23C for 2 weeks → reduced by 1 log
L. MONOCYTOGENES
Habitat

- Decaying vegetative mater
- Soil
- GI tract of animals and humans
  - at least 37 mammalian species
  - at least 17 species of birds
- Cool, wet, damp processing environments
Optimal Conditions

- pH of 6-8 is optimal (4.1-9.6 has been shown)
- Temperature: 1°C to 45°C
- Water activity of ≥ 0.97
- Sodium chloride levels of 10-12%
- Moist conditions: standing water, condensation, refrigerators
Survival: pH

- Ability to adapt to conditions containing acetic acid, lactic acid, citric acid, malic acid and chlorine bleach
- pH 4.6 at 35°C for 1-3 days
  - Cabbage juice at pH 4.1 for 8 days
  - Cottage cheese at pH 5.05 and 5°C wasn’t able to grow but it survived
Listeria monocytogenes
Cantaloupe

- 146 persons infected, 30 deaths (Iowa miscarriage)
- Four outbreak-associated strains in 28 states
- Investigation from September 2\textsuperscript{nd} to October 19\textsuperscript{th}, 2011
- 99% of the 144 people were hospitalized
**Source of *L. monocytogenes***

- *L. monocytogenes* was traced back to the grocery store and the ill persons households
- Equipment and cantaloupe within packing facility
- Bought used equipment that was used for washing and drying potato's
- Unsanitary conditions within the packing house and poor farm management
SALMONELLA
Salmonella spp.

- Illness: Salmonellosis
- 2,463 serovars
- Three Main Groups
  - Those that infect humans only
  - The host-adapted serovars
  - Unadapted serovars
    - Most of the foodborne pathogens
PROBLEM IS...
MORE THAN 40
SECRETED VIRULENCE
FACTORS HAVE BEEN
IDENTIFIED IN
SALMONELLA
Salmonella spp.

- Optimal at 37°C (5°C to 45°C)
- pH growth at 6.5 to 7.5 but can survive at 4.5 to 9.5
- Facultative anaerobe (can survive under low oxygen environments)
- Wet environments are ideal, but able to adapt to adverse conditions
Salmonella spp

• Growth is inhibited at 3-4% salt, but tolerance of salt increases when temperature is raised
  – Survival in above 9% salt
• Heat Tolerance
• Peanut Butter (24 weeks)
• High sugar, low water-activity, peanut butter flavored candy fondant (7 weeks)
• Irrigation Water (7 weeks)
Surfaces

- *Salmonella enteritidis* has been shown to survive between 1-4 days on stainless steel and transfer to cucumbers or chicken fillet slices at a 20-100% transfer rate (wet surfaces had higher transfer rate) ([Kusumaningrum et al., 2003](#)).
• Wood surfaces were the most difficult to clean and stainless steel were the easiest to clean

• No cleaning or rinsing occurred after handling poultry products, *Salmonella* could be cross contaminated onto tomatoes that were on wood, plastic, glass and stainless steel surfaces
Adhesion

- Easily able to attach to stainless steel, marble, granite, glass, cutting boards
- Plastic conveyor belts exhibited stronger bacterial adhesion compared with stainless steel
ESCHERICHIA COLI
Biofilm on Apple

• SEM image showing attachment and biofilm formation by *E. coli* cells in the calyx area of an inoculated Golden Delicious apple
• Formed with 72 hours

Tarver. 2009. Biofilms: A threat to food safety. Food Technology
Vectors of Contamination

- Water
- Manure and Land Use
- Wild animals
- Humans
- Air
- Equipment
Survival

• Temperature range: 4-45°C (can survive refrigeration and freezing)
  – Optimal 37°C
  – Most cannot grow above 45°C
• pH range: 5.5 and 7.5
Survival

• Water activity: as low as 0.90
• Salt conditions of 3.5%
• Survive at 0.5 to 5.0% salt
• Survive several weeks in dry conditions in the refrigerator
• Able to move in the air (5 km)
Leafy Greens

Twenty-six lettuce/leafy green-associated *E. coli* outbreaks 1995-2005

- 751 ill, 94 hospitalized, 2 HUS, 1 death
- Lettuce second most common food vehicle in *E. coli*O157 outbreaks
GENERAL GOOD
AGRICULTURAL PRACTICES
PREVENTION is the Key to Reducing Microbial, Chemical, and Physical Contamination
Farm to Fork

Modified from Beuchat, 1996
Environmental Contamination Depends On...

- Prior land use
- Adjacent land use
- Field slope & drainage
- Soil properties
- Water quality & practices
- Animal control
- Pest control
- Equipment/containers (pre-and post-harvest)
- Crop inputs & soil management
Key GAP Controls Pre-harvest

• Manure
• Water
• Documentation
Manure – Source and Safety

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Manure = Fecal Matter = Microbes

- Human or animal: DO EVERYTHING you can to keep manure off produce.
- Preventing contamination is the goal.
Feces contamination is a problem with raw agriculture products

- Wild animal
- Domesticated animal
- Humans
Exclude Animals

- Keep wildlife out of production areas as much as possible.
- Manage rodents and birds in the field, packing houses and storage areas.
- No weeder geese in fields prior to harvest.
- No dogs or other pets in the field.
All Manure Can Carry Pathogens
Survival rate in soil over 90 days

- Livestock - cattle, swine, poultry, horse, & sheep
- Dog and Cat
- Bird
- Rodent
- Deer
- Fly or other insect
- Human
Manure Application

• Do not assume any manure is ‘clean’.
• **Incorporate, Incorporate, Incorporate**
• NO SIDEDRESSING with fresh manure.
• Keep records of application rates, timing, and fields receiving manure or compost
Manure Application

National Organic Program: 7 CFR 205.203 (c), (1)
http://www.ams.usda.gov/AMSv1.0/nop

i. Raw manure must be composted unless it is applied to land used for a crop not intended for human consumption;

ii. OR is incorporated into the soil not less than 120 days prior to the harvest of a product whose edible portion has direct contact with the soil;

iii. OR is incorporated into the soil not less than 90 days prior to the harvest of product whose edible portion does not have direct contact with the soil surface or soil particles.
Water – Source and Safety
Know Water Source Safety

• Best source (lowest risk) is drinking water, such as municipal.

• Ground (well) water is less likely to have microbial contaminants than surface water.

• Surface water quality and pathogen levels are affected by watershed activities and season.
Surface Water Contamination Sources

- Livestock
- Sewage treatment facilities
- Wildlife
Well Water Contamination

- Poorly maintained wells or pumps
- Livestock in active well recharge area
Water Testing Information

• Annually – All sources (unless city)
• Test for
  – Fecal coliform (screening other bacteria)
  – Nitrates (levels above 10 ppm unsafe humans)
  – pH
  – Salinity (total dissolved solids saltier taste and could damage soil or plants)
• Maintain good records of results
Farm Workers’ Health and Hygiene Matter
Importance of Hygiene

- Humans are the major source of food contamination
- Hands, hair, breath, perspiration are major sources of contamination
- Personal hygiene is important to ensure cleanliness
- Health plays an important role as well
  - Sickness can contaminate foods
Health

• Human Illnesses can be transferred to food
  – Hepatitis A and Norwalk Viruses
  – Unclean hands after sneezing can cause contamination

• People can become carriers
  – No symptoms of illness but still sick
  – Common to be a carrier of *Salmonella* and *Staphylococci*
Microorganisms Commonly Harbored by Humans

• Streptococci
  – These organisms are commonly harbored in the human throat and intestines
  – Responsible for food-borne infections as well as secondary infections in humans

• Staphylococci
  – Nasal cavity
  – Many people harbor pathogenic forms of this bacteria as natural residents of their skin flora
Microorganisms Commonly Harbored by Humans

• Intestinal Microorganisms
  – *Salmonella*, *Shigella*, *E. coli*, cholera, hepatitis, infectious intestinal amoebas
  – Can be carried after illness or with no symptoms of illness
  – Most probable source of food-borne infection from humans
Methods of Disease Transmission from Humans

• Direct Transmission
  – Disease transmitted by direct transfer of the microorganisms to another person through close contact
Indirect Transmission

• Most Common in Food Processing Environments

• Host of the infectious disease transfers the organism to vehicles such as water, food, and soil or to other objects

• Another person coming into contact with the contaminated “object” can get sick
Staphylococcus aureus

• Found in normally in the nose and on the skin of 25%-30% of healthy adults

• Damage to the skin or other injury may allow the bacteria to overcome the natural protective mechanisms of the body, leading to infection

http://www.kimicontrol.com/microorg/staphylococcus%20aureus.jpg
Streptococcus Group A

- Spread through
  - direct contact with mucus from the nose
  - throat of persons who are infected
  - through contact with infected wounds or sores on the skin

http://microbewiki.kenyon.edu/index.php/Dental_Caries_Prevention_by_Camellia_sinensis
Blood borne Pathogens

- Infectious microorganisms present in blood that can cause disease in humans.
- Examples: Hepatitis B virus (HBV), hepatitis C virus (HCV), and human immunodeficiency virus (HIV), the virus that causes AIDS
- Exposure can cause serious or life-threatening illness
Health and Illness

- Take care of your health
- Don’t come to work when ill with stomach ache, high fevers, or just malaise
- Viruses and microorganisms are spread through air and by contact
- Protect open wounds or injuries with water proof material
- Cross contamination is always a concern
Worker Hygiene

- Wear clean outer garments.
  - Change clothing or aprons if coming from the field.
- Shoes
- Maintain personal cleanliness.
- Wash hands thoroughly:
  - Before starting work.
  - After each absence from a work station.
  - At any time hands become soiled.
Worker Hygiene

Hand washing:
• Are adequate supplies available?
  – Hand soap and cleaning detergent
  – Single-use towels
  – Clean water
• Are supplies used properly?
  – Hands washed after using the restroom.
  – After harvesting or working in the field.
  – After eating, drinking or smoking.
Worker Hygiene

• Remove all unsecured jewelry & other objects.
• No eating, chewing or smoking in gardens
• Gloves must be intact, clean & sanitary.
• Wear hair & beard restraints.
• A worker with a health problem that could contaminate food or food contact surface shall be excluded from working with food.
Harvest wisely,
Pick it Clean
Keep it Clean
Owner should provide proper facilities, supplies, and guidance

And Role Model
Harvest Considerations

• Ideally pick dry fruits or vegetables – moisture used by bacteria to grow
• Pick when cool – cool product quickly.
• Leave produce that has bird droppings on it.
• Clean and sanitize totes daily.
• Work off ground
• Follow proper hand hygiene
Post Harvest Handling

• Post-harvest management practices that reduce product loss to spoilage or shrinkage will reduce microbial risks.
Stainless steel surfaces are easy to clean & sanitize.
Sorting

Objective: To remove product or portions of product that may detract or pose a risk for shortened shelf life and/or contamination by a microbial organism.

- Contaminated product
- Senescing product
- Insect damaged product
- Product with a broken skin
- Product that is out of grade

Nobody wants damaged or aging product
Cleaning the Product

Objective: Provide customers with a product that is attractive and clean with minimal risk of microbial contamination.

• Wipe/brush? Wash? Sanitize? Do nothing?
  – Ideally, washing, rinsing & sanitizing provides the greatest reduction of potential microbial contamination.

• Have to consider the crop:
  – How dirty is the product coming from the field?
  – Ability to remove excess moisture.
  – Tenderness & perishability of the product.
Focus on Cleaning & Sanitizing

• Cleaning means free of any visible soil & other materials.
  – May involve the use of soap/detergent and water.
  – Adequate rinsing so no residue is present.
  – Using water of potable quality.

• Sanitizing is next step.
  – Reduction of pathogens to non-harmful levels.
Sanitizing Agents

Typical sanitizers include: chlorine, iodine, hydrogen peroxide, quaternary ammonium compounds (Quats), and some organic acids.

- Be sure sanitizers are approved for food contact.
- Use correct concentrations for food contact.
- Test that correct concentrations are reached and maintained - test strips.
- Discard and change as needed.
Wash Water Quality

- Use potable water for all produce washing, cooling, dipping, icing, and processing.
- Water temperature slightly warmer than produce – about 10°F
Storage

Objective: Extend the shelf life of the product.

• Slow down product respiration rate.
  – Lower the temperature.

• Minimize moisture loss from the product.
  – Increase the humidity in the storage room.
  – Increase the humidity around the product.

• Reduce the risk of microbial growth.
  – Lower temperature below 41° F.
Cooling the Product

- Wet product can allow rapid bacterial growth if not cooled.
- Proper storage temperature is dependent upon the vegetable or fruit.
- Critical temperatures:
  - Below 41°F to minimize bacterial growth
# Product Respiration Rates

<table>
<thead>
<tr>
<th>Very High</th>
<th>High</th>
<th>Moderate</th>
<th>Low</th>
<th>Very Low</th>
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<tbody>
<tr>
<td>Asparagus</td>
<td>Basil</td>
<td>Beets, root</td>
<td>Apples</td>
<td>Garlic</td>
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<tr>
<td>Broccoli</td>
<td>Beans, snap</td>
<td>Cabbage</td>
<td>Rutabagas</td>
<td>Onions, bulb</td>
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<tr>
<td>Mushrooms</td>
<td>Beans, lima</td>
<td>Cantaloupe</td>
<td>Sweet</td>
<td>Potatoes, late</td>
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<tr>
<td>Peas, <em>in pod</em></td>
<td>Beets, <em>w/ tops</em></td>
<td>Carrots, <em>topped</em></td>
<td>potatoes</td>
<td></td>
</tr>
<tr>
<td>Raspberries</td>
<td>Cauliflower</td>
<td>Celery</td>
<td>Turnips</td>
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<tr>
<td>Spinach</td>
<td>Brassica greens</td>
<td>Cucumbers</td>
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<tr>
<td>Strawberries</td>
<td>Brussel sprouts</td>
<td>Pears</td>
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<tr>
<td>Sweet corn</td>
<td>Lettuce</td>
<td>Peppers, bell</td>
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<tr>
<td></td>
<td>Onions, green</td>
<td>Peppers, chili</td>
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<tr>
<td></td>
<td>Parsley</td>
<td>Potatoes, early</td>
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<td>Radish, <em>w/ tops</em></td>
<td>Pumpkin</td>
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<td>Squash, summer</td>
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<tr>
<td></td>
<td></td>
<td>Squash, winter</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tomatoes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Steps to Aid in Cooling

1. Harvest in the morning when it is cool.
2. Keep the product out of direct sunlight.
3. Move the product to the processing facility as soon as possible.
4. Use water rinses in postharvest handling.
5. Move product into a cooler as soon as possible after processing.
6. Procedures to increase the rate of cooling
## Chilling Sensitive Crops

<table>
<thead>
<tr>
<th>Crop</th>
<th>Chilling Injury Temp. (F)</th>
<th>Crop</th>
<th>Chilling Injury Temp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basil</td>
<td>&lt; 50°</td>
<td>Potato, early, Table</td>
<td>&lt; 45°</td>
</tr>
<tr>
<td>Beans, snap</td>
<td>&lt; 41°</td>
<td>Potato, early, Frying</td>
<td>&lt; 50°</td>
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<tr>
<td>Cucumber</td>
<td>&lt; 50°</td>
<td>Pumpkins *</td>
<td>&lt; 55°</td>
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<tr>
<td>Eggplant</td>
<td>&lt; 50°</td>
<td>Squash, summer</td>
<td>&lt; 41°</td>
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<tr>
<td>Melon, Honeydew</td>
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<td>Squash, winter *</td>
<td>&lt; 55°</td>
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<td>Okra</td>
<td>&lt; 45°</td>
<td>Sweet Potato **</td>
<td>&lt; 55°</td>
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<tr>
<td>Peppers, Bell</td>
<td>&lt; 45°</td>
<td>Tomato</td>
<td>&lt; 50°</td>
</tr>
<tr>
<td>Peppers, Chili</td>
<td>&lt; 45°</td>
<td>Watermelon</td>
<td>&lt; 45°</td>
</tr>
</tbody>
</table>

* May require curing. ** Requires curing.

http://postharvest.ucdavis.edu
Storage Area

- Separated from the processing area.
- Maintain clean using good housekeeping practices.
- Storage racks should be away from walls to allow cleaning and air circulation.
- Practice a “First-In”, “First-Out” (FIFO) system for inventory control.
Storage Area

• Walls, floor and ceiling should be constructed so that they can be kept clean and in good repair.
What they don’t want!
SPECIAL CONSIDERATIONS
Personnel/Volunteers

- Training program
- Communication
- Supervision
- Proper hand washing techniques
- Sanitizers & One-use gloves
- Health Status
- Restroom use
- Clothing and cleanliness
Garden

- Soil Source
- Water
- Animal Exclusion
- People Exclusion
- Crop Selection
- Access to restrooms and hand washing (even on weekends and during summer)
Logistics

• Volunteer Schedule
• Facilities: Restrooms, hand washing, storage, potable water
• Timing for Hygiene: School and children help
• Planting Logistics
• Marketing/Logistic Manager?
PRESERVATION CONSIDERATIONS
End consumer of Product

• School Use Only
  – Home preservation standards
• Directly to consumers or farmers market
  – Department of Inspection and Appeals
• Retail
  • Department of Inspection and Appeals
School Use Only

- Freezing
- Salsa
- Home Canning
Freezing

• The quality of frozen vegetables depends on the quality of the fresh produce

• Blanching and prompt cooling are essential in preparing most vegetables, except herbs and green peppers, for freezing.

• There are two basic packing methods recommended for frozen vegetables: dry pack and tray pack.

• Most vegetables maintain high quality for 12 to 18 months at 0 degrees F.
Salsa and Canning

- Approved recipes only
- Take into account water activity, acidity, and processing time and temperatures
Licensing Process

• Determine when a license is needed
  – Direct consumer sales of raw unprocessed produce, jams, jellies, & other non-potentially hazardous type foods
  – Wholesales of either non-hazardous or potentially hazardous foods
• What license type is needed and suitable?
Licensing Process

• License types vary based upon how products are to be sold.
  – RS or Food Service – Prepared on site and sold to the consumer for consumption on premises.
  – FE or Retail Food Service – purchased on site but consumed off premises.
Licensing Process

– FP or Food Processing – manufacture and/or storage of foods for wholesale to other retail business (generally not direct to household consumer).

– MF or Mobile Unit – Preparation and service direct to consumer. More limited than RS.

– HF or Home Food – Limited to bakery items as defined in IA administrative rules.
Licensing Process

- TF or Temporary – preparation and sales of foods to consumers at events. Less restrictions than RS & FE licenses but similar requirements
- FM or Farmer’s Market – preparation and/or sales of potentially hazardous foods at Farmer’s Market events, as defined in IA admin rules.
Licensing Process

• How is license obtained?
  – Obtain license application from DIA, Food & Consumer Safety Bureau or representative Contracting Agency
  – Submit application and fees, along with floor plan of proposed processing area.
  – Iowa administrative rules require application and fees to be submitted 30 days prior to opening.
  – Inspection of premises, process, and labels prior to opening business.
Governing Regulations

• Retail Establishments – 2005 Food Code and/or Iowa Administrative Rules

• Food Processing - 21 Code of Federal Regulations (CFRs)
Farmer’s Markets

• Considerations:
  – Manufactured foods that are rendered shelf-stable due to acidification or canning must be made in a licensed facility.
  • Farmer’s market license not required once shelf-stable.
  – Exemptions for licensure at farmer’s markets may not apply elsewhere.