Covered Produce

§112.1, §112.111 Harvest and Handling

Covered Produce

1

Covered produce is produce that is subject to the Produce Safety Rule. The rule is a mandatory federal standard for food safety.

The rule has been developed to prevent outbreaks of foodborne illnesses.

Not all produce is covered by the rule. Covered produce is a raw agricultural commodity that is often consumed raw. The rule does not cover produce that is rarely consumed raw.

Covered produce includes fruit and vegetables, such as apples, pears, berries, cabbages, cantaloupes, carrots, sweet cherries, lettuce, nectarines, summer squash, tomatoes, and watermelons.

When both covered and non-covered produce are harvested at the same time, covered produce must be separated from the non-covered produce, unless packed together for distribution.

Food-contact surfaces that touch both covered and non-covered produce must be cleaned and sanitized before touching covered produce.

Non-covered produce sales are included with total produce sales when a farm grows both types of produce.

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Utah Department of Agriculture and Food

Harvest Containers

§112.22 Harvest

Harvest Containers

2

Employees should be trained about which containers are acceptable for use in harvesting.

Workers should inspect harvest containers before using them for harvest. Only clean harvesting bins, bags, or baskets should be used for harvest.

If a container is damaged or has sharp edges that can damage produce, replace it.

Harvest bins that are set on the ground should not be stacked on other bins without a cover over the bottom bin. Dirt and debris from the ground can stick to the bottom of the bin and fall into another bin with produce.

Harvest bags should be washed periodically and should not be placed on the ground or on dirty surfaces.

Even wooden bins should be cleaned.

Cloth or other basket covers should be cleaned. They should only be placed on clean surfaces and never on the ground.

Cleaned containers ready for use should be covered if stored outside.

Contaminated produce can contaminate a harvesting container. That container will contaminate other produce placed in the container.

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Harvest Tools

§112.121 Harvest

Harvest Tools

Tools used for harvesting should be cleaned periodically.

When not in use, tools should be stored in a designated area where they can not be contaminated.

Don't use harvest containers as trash bins.

Harvest tools should be accounted for at the end of each shift. Tools may be identified to aid in accounting for them at the end of the shift.

A cleaning and maintenance schedule should be developed for tools and equipment.

Tools with cracks or scratches can make cleaning difficult and may need to be replaces.

Tools dedicated for contacting soil or feces removal should be stored away from tools than can contact produce.

When used in the field, tools should not be held in personal pockets, set on the ground, or carried in a personal vehicle.

When not in use, harvest tools should be stored in a clean bin or in an area to prevent them from being contaminated.

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Utah Department of Agriculture and Food

Zone 4

§112.123 Harvest and Handling

Zone 4

4

This zone includes areas outside of produce storage and packing areas.

The zone includes sheds, loading docks, manure storage, and other outdoor areas.

Footwear and clothing can spread unsanitary debris into areas where produce is stored or handled.

These areas can contaminate other zones by wind or water runoff.

Spread can be prevented by removing dirt from harvest crates or bins, avoiding walking through manure storage areas, using foot baths, and including barriers to prevent exterior material from entering storage and handling areas.

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Utah Department of Agriculture and Food

Sources of Contamination

§112.32 Harvest and Handling

Workers can carry and spread pathogens.

Workers must wash their hands after touching:

- cell phones
- keys
- inside of cars
- ground
- manure
- toilets
- door knobs
- untreated water
- nose
- mouth
- animals
- injuries
- bodily fluids
- clothing pockets
- dirt
- money
- food partially eaten by animals
- pens/clipboards

Cloth should not be used to dust off or wipe produce unless there is some form of preventative measure to reduce cross contamination.

Clothing should never be used to wipe off produce.

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Utah Department of Agriculture and Food

Clothing

§112.32 Hygiene

Clothing

Workers must maintain personal cleanliness. Personal clothing must be clean to avoid contaminating produce.

Produce must not touch personal clothing.

Produce should not be carried against personal clothing. Personal clothing should not be used as a harvest container.

Clothing that has touched pets or working animals should be cleaned or changed.

Jewelry should not be worn or should be covered unless the surfaces can be adequately cleaned and sanitized.

Produce liquids that have spilled or leaked onto clothing can provide growth media for bacteria. Aprons, gloves, and hairnets should be cleaned or replaced when dirty to avoid contaminating produce.

Aprons, gloves, and hairnets should be removed and placed in a sanitary location before using the toilet.

Footwear can become contaminated if walking near manure storage or in a field that has had manure applied. Footwear should be changed or cleaned before entering areas with covered produce.

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Melons

Higher Risk Produce

Melons

7

Melons are a high risk produce because they:

- are linked to outbreaks,
- can be grown year round,
- have textured skin that can hold bacteria,
- are widely sold and can be eaten by more people,
- can absorb cooling water and bacteria into the flesh of the melon,
- are often sold pre-cut in salads and fresh fruit bowls. Cutting can spread microbes from the rind to the flesh of the melon,
- are very likely to hold dirt and microbes from the ground, and
- are difficult to wash because of the rind texture.

Included are honey dew, cantaloupe, sun melon, rock melon, and watermelon.

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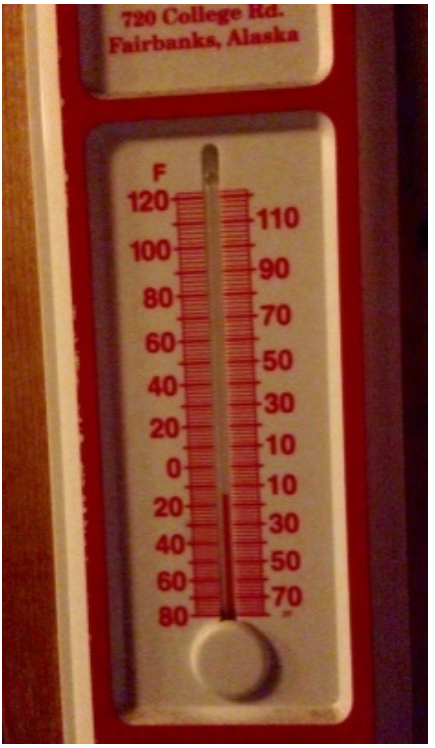

Storage

§112.122 Equipment and Tools

Storage

Storage areas should be monitored for pests and should be clean to prevent contamination. Waste produce should be removed to prevent having food and habitat for pests.

Products should be stored away from building walls so the area around the products can be inspected and reduce contamination from rodents and insects.

If produce is stored outside, storage containers should be covered to prevent birds and rodents from getting into the produce and contaminating it.

Produce should not be stored in damp areas. The storage building should be regularly inspected to identify condensation or water that can drip into the storage area.

Before bringing containers into the storage area, dirt should be removed from the outside of the containers to prevent contamination of produce stored under or adjacent to the container.

If cold storage is used, the temperature should be monitored. Thermometers and monitoring equipment must be maintained in working order and calibrated. Produce should be stored away from walls to allow air flow and even temperatures throughout the produce.

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Pre-harvest Checklist

§112.112 General

Pre-harvest Checklist

Before harvesting, check the following for potential contamination risks:

- ❑ Water sources are not contaminated
- ❑ Water delivery systems are not contaminated
- ❑ Areas of flooding have not touched produce
- ❑ Animal intrusion areas are identified as no-harvest areas
- ❑ Harvest equipment is clean
- ❑ Harvest bags, boxes, and bins are clean
- ❑ Personal hygiene of workers is acceptable
- ❑ Manure storage is not a contamination source
- ❑ Personnel are trained
- ❑ Personnel are not ill or have visible injuries
- ❑ Trash and vegetation waste is removed
- ❑ Water quality and microbial die-off rates are met
- ❑ Necessary log books are present
- ❑ Temporary storage areas are clean
- ❑ Other food-contact surfaces are clean and sanitized

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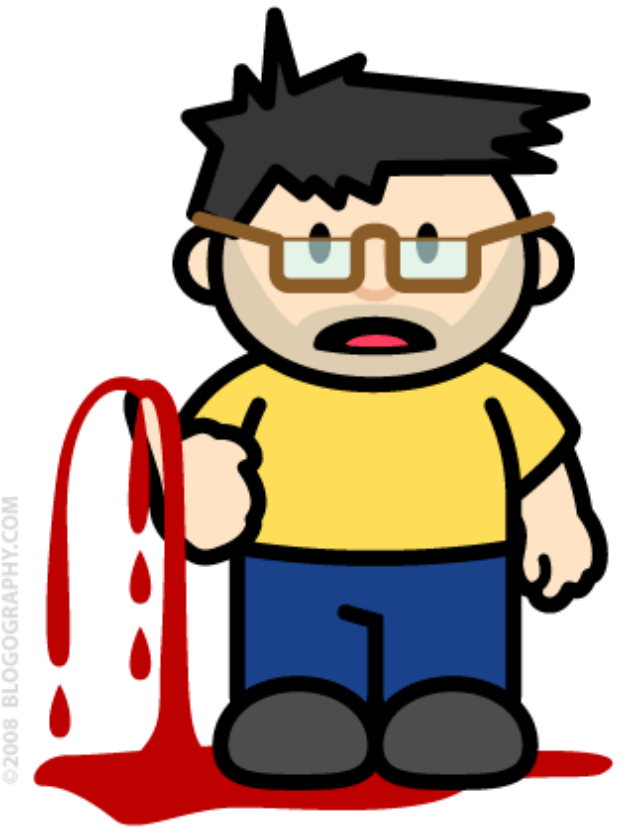

Injury

§112.32 Hygiene

Injury

10

Know where first aid kits are located. Check to make sure the contents are not expired.

Cuts, scratches, or abrasions must be bandaged and covered with additional clothing or gloves.

Check products for contamination. Dispose of produce that may have been contaminated by blood.

Check clothing or protective clothing for possible contamination routes.

Check food-contact surfaces for contamination and clean and sanitize if needed

Notify your supervisor if you are injured.

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Personnel Training

§112.21 General

Personnel Training

The Produce Safety Rule requires all personnel who handle covered produce to be trained in food safety.

You should be trained when hired and periodically throughout the season.

After initial training, you should go through training at least once each year.

Everyone who touches covered produce should have the necessary education, training, and experience to perform their duties.

If a worker is not following food safety policies, that worker should receive additional training.

Training must include but is not limited to:

- Principles of food hygiene and food safety
- Health and personal hygiene
- The Produce Safety Rule standards
- Knowing which produce to harvest
- How to inspect harvest containers
- How to correct problems with containers

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Buildings

§112.122 Equipment and Tools

Buildings

Buildings include any fully or partially enclosed structure such as sheds or structures with no walls but have a roof.

Buildings covered by the Produce Safety Rule include any structure where covered activities occur such as storage or packing produce.

Equipment and tools need to be in areas that allow cleaning around them.

Buildings must be the correct size and design to allow for sanitary condition.

Ceilings and rafters must be cleaned to prevent contaminants from falling on produce.

Buildings must have adequate drainage for water and waste.

Pets must be kept out of fully enclosed buildings where produce is stored or handled or separated from covered activities.

Use screens or some other measure to prevent pests. Check to make sure screens or windows do not have cracks that can allow pests to enter.

Buildings must be ventilated to prevent outdoor contaminants from entering.

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Utah Department of Agriculture and Food

E. coli

§112.44, §112.54 Microbial Pathogens

Bacteria: *Escherichia coli*

1

E. coli lives in water and the intestines of people and animals.

E. coli can be transferred from contaminated clothing, keys, phones, knives, containers, equipment, and tables to other such objects.

Most *E. coli* infections are from ground beef and contaminated produce.

E. coli transfers from contaminated surfaces - to hands - to produce - to the consumer of produce. Dropped produce can pick *E. coli* up from touching the ground.

Infection is caused by ingestion of fecal particles on produce.

Some *E. coli* make Shiga Toxin that can remain in food, even after cooking. Cooking only kills the bacteria and not the toxin.

Symptoms include cramps, diarrhea, and vomiting.

Prevention of spread:

- Handwashing with soap and water after using the bathroom and before handling produce
- Prevention of container contamination
- Washing harvest equipment and containers
- Cooking food thoroughly

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Animals

§112.83 Microbial Pathogens

Animals

2

Animals can carry pathogens such as *E. coli, Salmonella,* and *Listeria*. Animals spread pathogens through feces and urine.

Nearby water sources such as ponds or streams can be contaminated from animal feces. Never use untreated surface water for harvesting or handling produce. If you touch untreated water with your hands, wash them thoroughly.

Don't harvest produce that has recently touched untreated surface water.

Don't harvest produce that has been chewed upon or if it has feces (bird or mammal) on it or immediately around it. A no-harvest buffer around feces may be necessary if produce is likely contaminated by nearby feces.

Don't allow pets in produce growing, storing, or packing areas.

If you touch an animal, wash your hands before touching produce.

Watch for animal feces when harvesting. Particles could have spread from wind or rain water. Avoid harvesting produce if you think fecal matter could have contaminated produce.

Use dedicated tools for feces removal or wash tools after removing animal feces from the field.

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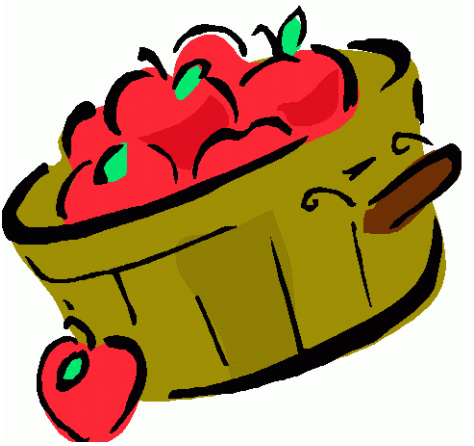

Zone 1: Food-Contact Surfaces

§112.123 Harvest and Handling

Zone 1: Food-Contact Surfaces

Food-Contact Surfaces: Surfaces that touch food or surfaces where drainage or other materials touch surfaces that touch food.

These surfaces have the highest risk of cross contamination from materials with germs to produce.

Surfaces may easily become contaminated by unclean produce touching an otherwise clean harvest bin.

Gloves may become contaminated by touching the rungs of a ladder where workers step or by touching produce contaminated by feces.

These surfaces include equipment and tools used for harvest, packing, and storage.

Harvest bins, bags, or boxes
Cutting tools
Gloves and Workers' hands
Tables, belts, brushes

Food-contact surfaces must be inspected, maintained, and cleaned. These surfaces should not contact any other type of surface.

If possible, tools should be stored in areas that prevent contact with all other surfaces when not in use.

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Green Onions

Higher Risk Produce

Green Onions

Green onions are a high risk produce because they:

- are linked to outbreaks,
- are widely used and can cause more people to become sick,
- have leaves in rolls that hold bacteria,
- have edible portions that are grown in contact with soil, and
- are difficult to wash because of the rolled leaves.

Green onions can become contaminated during irrigation, harvesting, storing, and processing.

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Contaminated Produce

§112.22 Harvest

Produce partially eaten by wildlife must not be harvested. The produce could be contaminated with pathogens.

Produce must not be harvested if visibly contaminated with animal feces. Produce adjacent to animal droppings must not be harvested if it is likely contaminated.

Produce contaminated with feces can not be wiped off and harvested.

Produce that has been dropped on the ground must not be harvested. It could be contaminated with bacteria or fungus.

If the produce area has been flooded or the produce has contacted unclean water, the produce must not be harvested.

If it is possible that stored manure or a field treated with manure has contaminated produce by wind or water runoff, the produce must not be harvested.

If produce was harvested by a worker who had not washed their hands prior to harvest, the produce harvested should be disposed of and the harvest bin must be cleaned.

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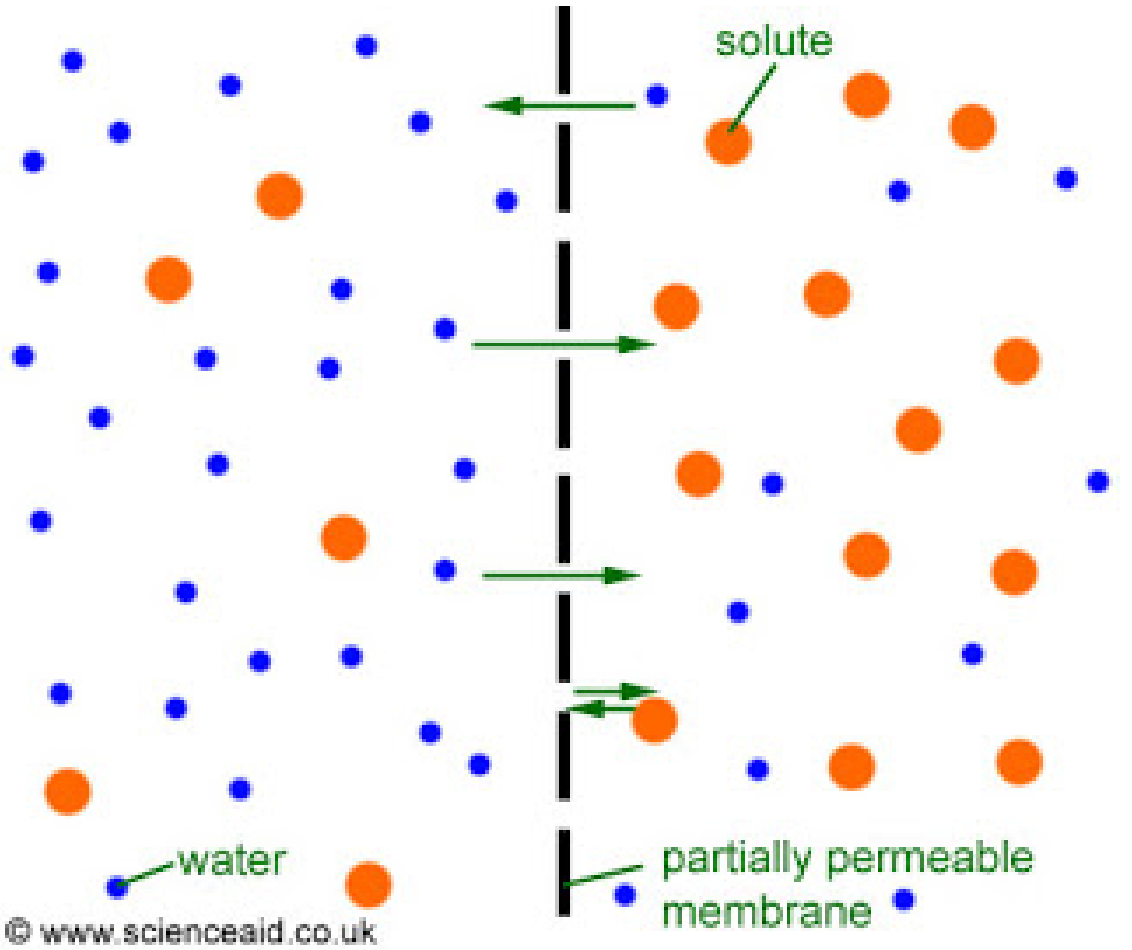

Temperature and Infiltration

§112.48 Harvest and Handling

Temperature and Infiltration

When using water in a harvest or handling activity, the temperature of the water should be monitored.

Water temperature must be maintained at a temperature appropriate for the commodity, generally the same temperature as the produce but no more than 10 degrees warmer than the produce.

When water is colder than the produce, water can seep into the produce and bring pathogens into the produce (infiltration).

The time and depth of produce submersion must be monitored to reduce infiltration of microorganisms into the produce. Infiltration is greater when depth and time increases.

Water temperature can also affect sanitizer efficacy. Read the label of the sanitizer to find the correct temperature.

Instruments to measure water temperature and pH must be adequately maintained and accurate.

When water is used in flumes or tanks for packing or holding, sanitizers in the water are not meant to clean the produce. It is meant to prevent contaminated produce from contaminating other produce.

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Labels

§112.6 General

Labels

If your food packages require a label by the Federal Food, Drug, and Cosmetic Act, the complete farm business name and address where the produce was grown must be included on the label.

If a label is not required, the name and complete business address of the farm where the produce was grown must be displayed by sign or documents given at the time of sale.

The address must include:
Street address or PO box
City
State
Zip code

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Sanitizers

§112.123 Equipment and Tools

Sanitizers

Sanitizers and detergents must be approved for food-contact surfaces.

The sanitizer label will state if the product is approved for food-contact surfaces. If bleach is scented, it is not likely approved for food-contact surfaces.

Sanitizers must be used in accordance with manufacturer requirements.

You must not use sanitizers in a higher concentration than is stated on the label. Test strips can be used to measure the concentration of the sanitizer-water solution.

Some sanitizers may require a final water rinse or a time period before food can touch the sanitized surface.

You may want to monitor the pH of the water and sanitizer mix if using chlorine products. The chlorine products are sensitive to pH.

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Handwashing Stations

§112.130 Hygiene

Handwashing Stations

10

The farm must supply workers and visitors hand-washing stations near toilet facilities and have accessible stations in fully-enclosed buildings during covered activities.

Hand-washing stations must have:

- Soap or other effective surfactant
- Running water free from general *E. coli*
- Single service towels, sanitary towel service, or electric hand dryers
- An appropriate disposal of waste, such as waste water and single use towels
- Hand sanitizer may be used, but can not replace washing with soap and water

Observe the waste water and avoid having waste water contaminating produce and food-contact surfaces.

One problem is that not all water is collected. Some water splashes onto the ground when handwashing. The area around wash stations could be a potential source of contamination.

Trash cans should have a lid or some way to keep disposable towels from entering the field.

Wash stations should be easily accessible and away from ditches, canals, or any other type of hazard.

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Records

§112.161 General

Records

The Produce Safety Rule requires several records to be maintained and kept.

Most farms will be required to keep these records:

- Water system inspection
- Worker training
- Cleaning and sanitizing
- Harvest tool and container cleaning
- Water tests

These records may be required:

- Packing and washing line cleaning
- Wash water sanitizer
- Documentation of alternative methods
- Water treatment
- Contract personnel training
- Microbial die-off rate
- Exemption records
- Soil amendment purchase/process/use

Even if there is no action required after inspection, still record that the inspection was completed.

Records must have the name and location of the farm, actual values, description of the commodity, location of activity, and date and time of the activity. Records must be created at the time of the activity. Records must be accurate, legible, and indelible. Records must be signed or initialed by the person performing the activity.

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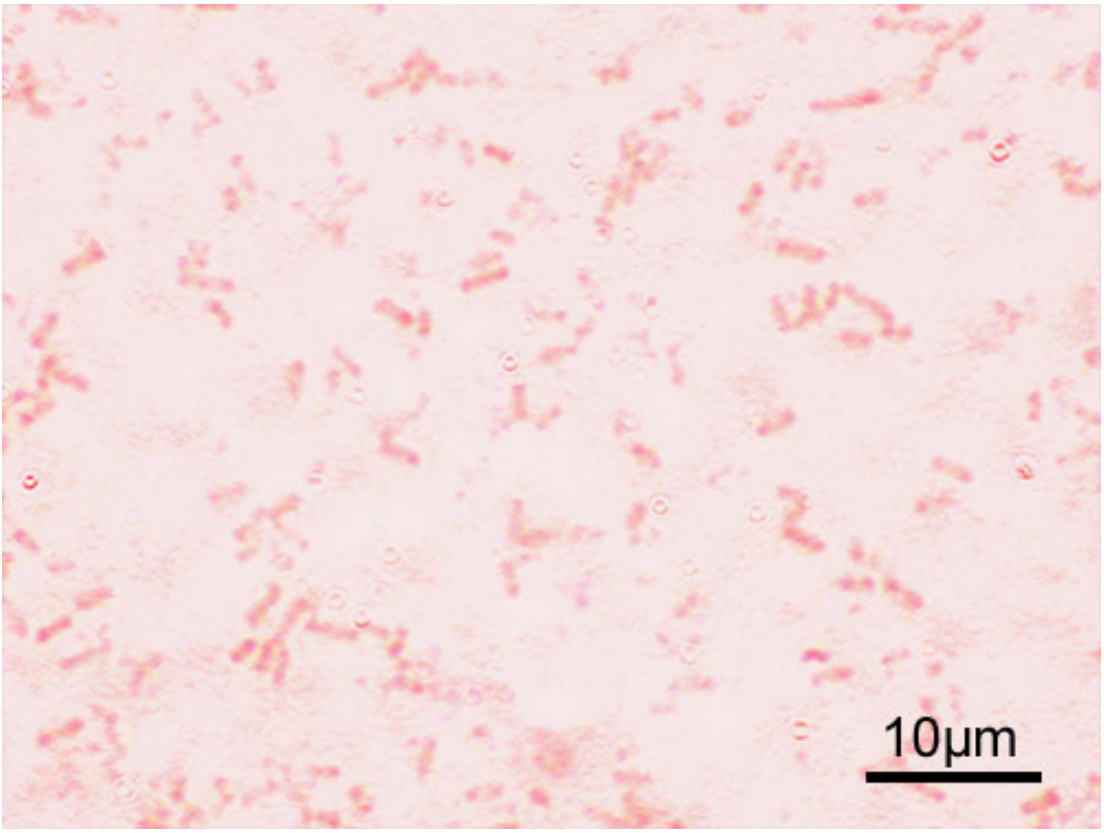

Shigella

Microbial Pathogens

Shigella

Symptoms include: diarrhea, fever, cramps, vomiting, and bloody stool.

Some infected people may not show symptoms but may still infect other people.

Poor hygiene of food workers cause most cases of infection.

Spread is by fecal-oral pathways.

Infection can be caused by eating food prepared by someone infected.

Shigella can be found on produce or in water contaminated by feces.

Only a few cells can start disease

Some strains produce Shiga toxin.

Spread can be prevented by avoiding human waste and washing hands after using the toilet.

Foods consumed raw are more likely to be contaminated with Shigella.

Shigella can contaminate fruit and vegetables if gown in fields with human waste.

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Utah Department of Agriculture and Food

Floods

Harvest

Floods

Flooding can be from heavy rain puddling and is not generally a concern for produce safety.

Floods from overflowing surface waters are a concern.

If flood water has touched the edible portion of the crop, the crop must not be harvested.

Include a buffer from the flood water line to avoid contaminating equipment and clothing while harvesting the non-flooded crop.

If a well head was covered in water, inspect the equipment and have the well water tested.

Wear protective clothing if you are working in a flooded area to prevent yourself from disease causing bacteria.

Equipment used to disc in or destroy flooded crops should be cleaned after leaving the flood area.

Inspect sewage or septic systems for damage after a flood event.

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Gloves

§112.32 Hygiene

Gloves

1

Dirty gloves can contaminate food and food-contact surfaces. Just because you are wearing gloves does not mean you can't contaminate food.

Be sure to understand the producer's glove policy.

Before putting on gloves, wash your hands.

Gloves must be intact and clean. Replace gloves if they are dirty or torn.

Replace gloves when they touch a possible contaminant.

Remove gloves before entering the bathroom or eating food during breaks.

When not used, reusable gloves should be stored in a clean location where they will not be contaminated. Extra disposable gloves should be stored in a clean container.

Reusable gloves should be cleaned frequently, especially after being stored in an unclean location.

Gloves should not be stored in personal pockets, set on the ground, taken into vehicles, or placed on unclean surfaces.

Gloves should be used to cover bandaged wounds.

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Illness

§112.31 Hygiene

Illness

2

Workers with illnesses can contaminate produce without realizing it. A sick worker rubbing their eyes, nose, or mouth contaminates their hands and then all the produce they've handled.

Illness includes symptoms such as vomiting, nausea, sneezing, coughing, stomach cramps, diarrhea, fever, joint aches, and fatigue. Visitors and workers with these symptoms should not be allowed to work with produce.

Ill workers must not handle produce.

Talk with your supervisor if you are feeling ill or if you notice another worker appearing ill.

Contaminated produce from vomit, sneezing, or coughing must not be harvested. If contaminated produce is placed in a container with other produce, the entire contents of the container must be disposed of.

Common symptoms of foodborne illness include bloody stools, fever above 102 ºF, vomiting, dehydration, and diarrhea for more than three days. See a doctor if you have these symptoms.

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Leafy Greens

Higher Risk Produce

Leafy Greens

Leafy greens have a higher risk for contamination because they:

- are grown in large quantities making it more difficult to monitor,
- have been linked to more outbreaks,
- are grown in different ways such as from the ground, in pots in a greenhouse, and hydroponically,
- are sold in various forms such as head, leaf, and cut,
- are often mixed in items like salads,
- have large and wrinkled leaves that catch and hold bacteria,
- have edible portions that are grown in contact with soil, and
- are processed in multiple ways.

Leafy greens include lettuce, spinach, cabbages, chicory, fresh herbs and watercress.

Leafy greens can be contaminated with Norovirus, *Salmonella, E. Coli, Cyclospora* or other harmful microbes.

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Campylobacter

Microbial Pathogens

Bacteria: *Campylobacter jejuni*

4

Illnesses have been linked to contaminated raw milk and cheeses, poultry, and unclean water. Other forms of the bacteria can come from animal contact.

Can live in low oxygen environments, but are weak against freezing, drying, heating, and disinfectants.

Symptoms include vomiting, cramps, and diarrhea.

Prevention of spread:

- Wash your hands before touching or harvesting produce. Wash hands and equipment after touching untreated water.
- Make sure all utensils and food-contact surfaces are cleaned and sterilized, if possible.
- Do not eat foods while harvesting produce.
- Avoid touching or allowing food-contact surfaces to touch dirty water from ponds and streams.

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Zone 2: Indirect Food-Contact Surfaces

§112.123 Harvest and Handling

Zone 2
Indirect Food-Contact Surfaces

5

Zone 2 surfaces are near produce and food-contact surfaces.

Produce is not intentionally contacting these surfaces, but these surfaces can indirectly contaminate produce.

Surfaces include internal and external surfaces of equipment, spray nozzles, housing, and sidewalls.

Often these surfaces are not easily reached and cleaned, which leads to buildup of waste and biofilms.

These surfaces can harbor pathogens that can fall onto produce or food-contact surfaces.

Surfaces also include exterior of harvest bins. Bins set on the ground can be contaminated. Workers handling bins can spread contaminants. Dirt can fall into other bins if stacked.

Aprons and clothing are included.

Other surfaces may be the underside of storage racks, the back side of a door that slides to the ceiling, some harvest tool handles, and cart bottoms.

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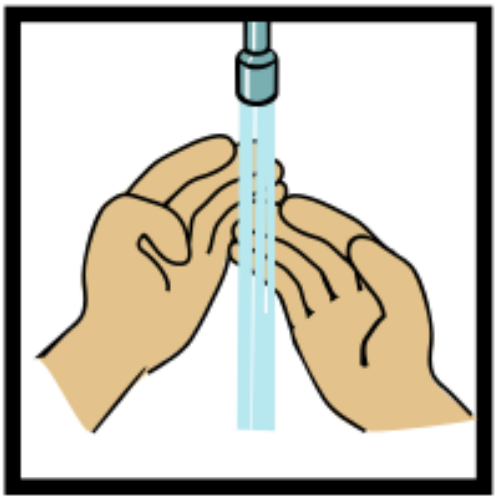

Postharvest Water

§112.44 Harvest and Handling

Postharvest Water

6

Clean water with no detectable generic *E. coli* must be used if the water:

- directly contacts produce,
- is used to make ice that will contact produce,
- contacts food-contact surfaces, and
- is used for hand washing.

Untreated surface water must not be used in harvest or handling activities if the water will touch produce or food-contact surfaces.

Infiltration is when water enters the rind or skin of the produce and can bring pathogens into the produce.

When using water for harvest or handling, water temperature must be monitored to prevent infiltration. Damaged and bruised produce have a higher risk of infiltration. Water that is colder than the produce also increases infiltration.

If chlorine sanitizers are used, the pH of the water should be monitored.

Turbidity can reduce the efficacy of sanitizers and should be changed periodically. Monitor the sanitizer in the water frequently during production runs.

If you notice a problem with water quality or monitoring instruments, notify your supervisor.

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Health and Hygiene

§112.32 Hygiene

Health and Hygiene

7

Personnel who work with covered produce must use hygienic practices to prevent contamination.

Workers must maintain personal cleanliness, wear clean clothes, take daily showers, and have clean and trimmed fingernails.

Workers must avoid contact with animals.

Workers must wash hands thoroughly before touching produce or food-contact surfaces.

Workers must remove jewelry that cannot be cleaned and sanitized.

Workers must not eat, chew gum, or use tobacco products while near covered produce.

Workers should not wear loose clothing.

Workers must not handle produce when ill.

Workers can bring potential sources of contamination from home such as clothes, cars, cell phones, pockets, keys and jewelry.

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Traceability

§112.161 General

Traceability

Traceability is used in the event of a necessary recall and minimizes loss to the farmer as well as risk to the consumer.

Traceability is being able to follow a product sold, back through the handling, harvest, and growing with documentation.

A lot numbering system is helpful for farmers because in the event of contamination, only a portion of the crop can be recalled or destroyed instead of the entire crop.

Lot numbers can link which field the produce was grown in, what inputs went into the field, the people who harvested it, when it was harvested, and the people who handled it.

Lot numbers do not need to be complex, but should be able to link the produce to those mentioned records.

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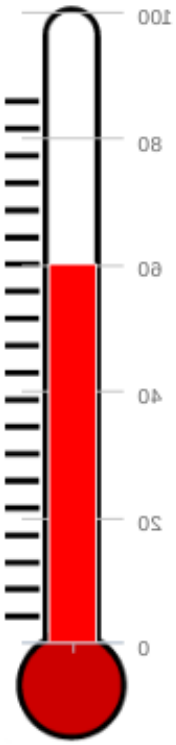

Thermometers

§112.124 Equipment and Tools

Thermometers

Thermometers must be maintained, accurate and precise for measuring, regulating, and recording storage temperatures.

To calibrate a thermometer with ice water:

- Fill a glass with crushed ice and cool water.
- Stir and let the ice water sit for two minutes to let the water cool.
- Insert the thermometer into the ice water and try to avoid touching the sides of the glass.
- Wait approximately 30 seconds.
- Record the temperature and the difference between the reading and 32 ºF (0 ºC).

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Utah Department of Agriculture and Food

Pest Management

§112.128 Harvest and Handling

Pest Management

10

You must take measures to prevent covered produce from pest contamination.

Pests can be prevented from entering facilities by making sure the cracks in the doors and windows are sealed.

Remove debris and produce waste to eliminate habitat and food for pests.

Partially enclosed buildings can have screens or can be monitored for pest activity.

Pests should be monitored regularly and results should be recorded.

Pesticide use must follow the local and federal laws and regulations as well as the directions on the pesticide label.

Traps can be useful for monitoring for pests. Traps should be checked regularly and findings recorded.

Product and equipment storage should be stored away from building walls to allow for monitoring.

Areas around building walls should be free from weeds and debris to limit pest habitat.

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Keeping Logs

§112.161 General

Keeping Logs

The Produce Safety Rule does not require some records. These logs can be helpful to show that your are compliant with the rule and can be used for other third party audits.

- Water source testing
- Field sanitation unit and wash station service
- Restroom cleaning
- Delivery vehicle inspection and cleaning
- Storage cooler cleaning
- Harvest container and equipment inspection
- Equipment and vehicle maintenance
- Pesticide application
- Manure application
- Visitor check-in and training
- Pre-harvest assessment
- Cooler temperature
- Thermometer calibration
- First aid kit
- Injury/illness
- Traceability and harvest production
- Product disposal
- Pest monitoring

Even if there is no action required after inspection, still record that the inspection was completed.

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Adjacent Land Uses

§112.42 Harvest

Adjacent Land Uses

12

The Produce Safety Rule requires at least one annual inspection of agricultural water systems at the beginning of the growing season. The inspection includes considering possible contaminants from adjacent land uses.

Look for potential contaminants coming from adjacent land that could impact water quality or produce.

Fields with livestock or fields treated with manure uphill from your field could result in manure particles blowing into your field.

Water runoff from adjacent land could also be a source of contamination.

Undeveloped land could attract wildlife and potential intrusions should be considered.

Residential or commercial areas could be sources of contamination from parking lot runoff or sewer and septic systems. Residents could be dumping lawn clippings or pet droppings over the fence onto the farm.

Record which prevention methods have been employed to prevent contamination from adjacent land.

If adjacent land uses change, potential risks of contamination should be assessed.

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CFR Standards:

Personnel Qualifications and Training

Health and Hygiene

Agricultural Water

BSAAO and Human Waste

Domesticated and Wild Animals

Growing, Harvesting, Packing, and Holding Activities

Equipment, Tools, Buildings, and Sanitation

Records

FSMA/Produce Safety Rule

§112. General

FSMA/Produce Safety Rule

Acronym and abbreviations:

- United States Food and Drug Administration (FDA)
- Food Safety Modernization Act (FSMA)
- Produce Safety Rule (PSR)

The objective of FSMA is to prevent foodborne illnesses instead of treating them.

There are seven rules that make up FSMA, the Produce Safety Rule is one of them.

FSMA is intended to improve producers' compliance with food safety standards and to reduce foodborne illness cases.

FSMA was passed in 2011 and the PSR was published in 2015.

The PSR sets minimum standards for growing, harvesting, packing, and holding produce. The standards are based on science and Good Agricultural Practices.

The FDA has been working with USDA, state agricultural departments, the Produce Safety Alliance and others to help farmers become compliant with the rule.

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Utah Department of Agriculture and Food

Handwashing

§112.32 Hygiene

Handwashing

Handwashing reduces spread of fecal-oral pathogens.

You must use only clean, safe handwashing water.

You must wash hands:

- Before work starts
- Before wearing gloves
- After toilet use
- When going back to the work station after breaks or leaving the work station
- After touching waste
- After any time hands may be contaminated

How to wash your hands:

- Rinse hands with water
- Use soap and wash by rubbing hands together for 20 seconds. Don't forget to wash between fingers, backs of hands, and under fingernails.
- Rinse hands with water
- Dry hands with a single use towel. Don't reuse cloth towels.
- Turn off water using the towel and throw the towel in the garbage can.

Once your hands are clean, then you can use hand sanitizer or hand dip stations. Hand sanitizer cannot replace washing hands with soap and water.

Reusable towels must not be used to dry hands. Pathogens can be spread from one person to another.

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Utah Department of Agriculture and Food

Untreated Biological Soil Amendment of Animal Origin

§112.52 Harvest

Untreated BSAAO

Consider compost as untreated if not processed with an approved method or has had contact with other untreated material.

Includes compost, manure, animal byproducts, peat moss, vegetative waste, sewage sludge, food waste, bone/blood meals, or vegetation trimmings.

Does not include untreated human waste or post consumer waste.

Untreated amendments have a high risk of containing and spreading bacteria and viral pathogens like *E. coli, Salmonella, and Campylobacter.* Pathogens can live in untreated amendments for a long time.

Harmful pathogens can be spread by humans and animals walking through untreated amendment storage areas or fields applied with untreated amendments. Clothes can pick up and carry particles. Avoid walking in these areas before harvesting.

Wind and water can also spread amendment particles and pathogens.

Tools, knives, shovels, wheelbarrows, and other equipment that contacted untreated amendments or surfaces that may be contaminated by untreated amendments should not touch produce or food-contact surfaces without being thoroughly washed.

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Breaks

§112.32 Harvest

Breaks

No eating, chewing gum, or using tobacco products in areas of covered produce. Drinking beverages is permitted in designated areas.

Breaks must be taken in a designated area or not in areas with covered produce. Breaks can not be taken in areas where covered produce is grown or handled.

Single use cups for water must be used if workers do not bring their own containers.

Gloves, hairnets, and aprons must be taken off and stored in a sanitary location before taking breaks.

Wash your hands before returning to work after breaks.

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Utah Department of Agriculture and Food

Cleaning and Sanitizing

§112.123 Harvest and Handling

Cleaning and Sanitizing

You must clean and, when appropriate, sanitize food-contact surfaces.

Cleaning is removing dirt from contact surfaces and may include using water and detergent.

Sanitizing is treating cleaned surfaces to remove or kill microorganisms.

A surface must be cleaned before it can be sanitized.

Water used for cleaning must be clean and free from *E. coli*.

To clean a surface, visible dirt must be brushed or removed with water. Detergent and scrubbing can then be used to remove films. The surface can then be rinsed with clean water. Sanitizer can then be used according to label instructions.

Sanitizers must be appropriate for its use. Not all chlorine products are acceptable for food-contact surfaces. Products must state on the label if they can be used for food-contact surfaces. Sanitizers must be used according to label instructions and rates.

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Utah Department of Agriculture and Food

Packing

§112.115 Harvest and Handling

Packing

Covered produce must be packaged to prevent the formation of Clostridium botulinum toxin if the toxin is a foreseeable hazard.

Packaging for covered produce must allow air flow.

Packing material must be adequate for its intended use. Food packing or food packaging must be cleanable or clean for single use.

Packing material must be stored away from potential contaminants and should be inspected prior to use.

If food-packing material is reused, it must be cleaned or a disposable liner is used.

The packing area must be clean and, if possible, food-contact surfaces should be sanitized.

Partially enclosed packing areas should be monitored to prevent pests and blowing dirt from contaminating produce.

Covered and non-covered produce must be separated unless packaged together for sale.

If both covered and not covered produce touch the same food-contact surfaces, the surfaces must be cleaned and sanitized before covered produce touches them.

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Utah Department of Agriculture and Food

Salmonella

§112.54 Microbial Pathogens

Bacteria: *Salmonella*

Two species with over 2,500 serotypes can cause illness in humans.

Symptoms include cramps, headache, fever, nausea, vomiting, and diarrhea. Some serotypes can cause Typhoid Fever.

Infection to humans is caused by fecal-oral pathways such as eating contaminated food or water.

Infection could start with as few as one cell.

Lives in intestines of animals and humans. Can also survive in pond water.

Frequently associated with chicken, eggs, dairy products, and contaminated produce.

Spreads through soil, water, hands, equipment, and contact surfaces.

Contamination can spread any time during harvest, packing, handling or storage processes. For example, handling raw meats then touching utensils that then touch produce.

Spread can be prevented or reduced by handwashing, cleaning equipment, not using utensils that have touched the ground or dirty surfaces.

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Utah Department of Agriculture and Food

Visitors

§112.33 Hygiene

Visitors

Workers should be aware of visitor policies and should notify a supervisor if visitors could potentially be contaminating produce.

Visitors must be adequately trained to prevent risk of contamination.

Visitors should have training on health and personal hygiene. That includes knowing the symptoms of illness.

Visitors should be taught the importance of avoiding contaminated food and practices to prevent contamination.

Visitors or customers that harvest or handle produce must wash their hands prior to touching food.

Handwashing stations and toilet facilities must be accessible to visitors.

Visitors must be aware of farm policies.

Visitors must not bring pets into areas where produce is grown, stored, or handled.

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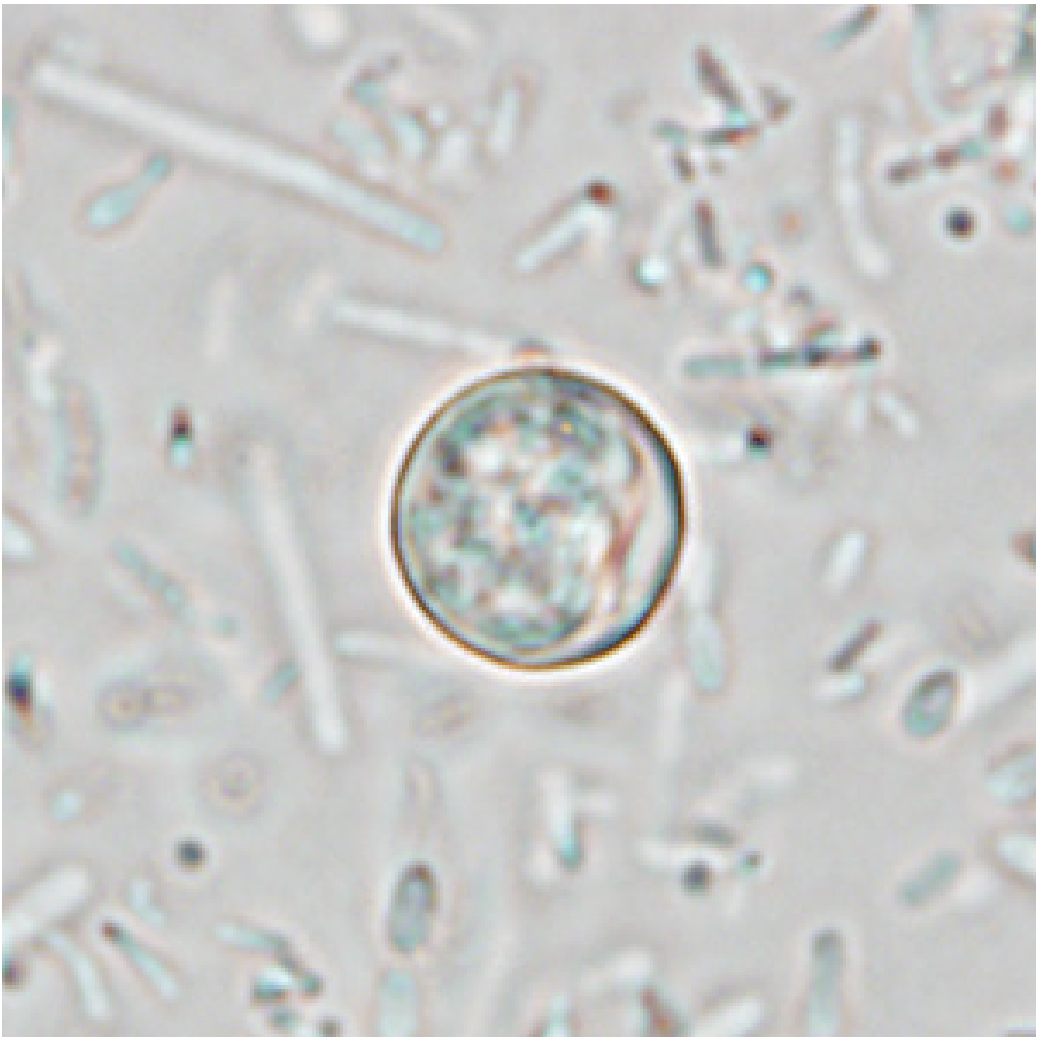

Cyclospora

Microbial Pathogens

Parasite: *Cyclospora cayetanensis*

This parasite is transmitted by fecal-oral pathways.

The parasite needs days after excretion to become infectious.

Symptoms include diarrhea, loss of appetite, cramps, nausea, bloating, vomiting, and aches. Symptoms can recede and then come back.

Washing hands and sanitizing food-contact surfaces can reduce the spread of the parasite.

Outbreaks have been linked with produce such as berries, basil, and lettuce.

Recent outbreaks have been linked with salad mix, imported basil, and vegetable trays.

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Zone 3

§112.123 Harvest and Handling

Zone 3

Zone 3 surfaces are areas such as floors, walls, doors, forklifts, areas above stored produce.

These surfaces can cause contamination because the surfaces are close to or above produce.

Waste, dust, dirt, and garbage can accumulate and harbor pests and pathogens if not periodically cleaned.

Surfaces can be a source of contamination that is touched by workers and spread to food-contact surfaces.

It is important to keep these surfaces clean to prevent debris from contacting produce.

A cleaning schedule for these surfaces may be yearly, monthly, or even daily depending on the surface and time of year.

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Produce Safety Plan

General

The Produce Safety Rule does not require a written produce safety plan. If your farm has one, be sure to follow the procedures in the plan.

Another third party audit plan can suffice for much of the rule's requirements (e.g. USDA Harmonized GAP).

Each farm must have at least one person to oversee operations for food safety and make sure the plan is followed.

At least one person from the farm must attend an approved food safety training course.

The plan should include risks to food safety and policies to reduce those risks.

The plan should have descriptions of the required records and documentation that you need to maintain.

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Vehicles and Equipment

§112.123 Harvest and Handling

Vehicles and Equipment

Vehicles and equipment should be used in a way to prevent risk of contaminating produce or food-contact surfaces.

Tractors or wagons that have been through a field treated with manure or through a manure storage area should be cleaned before entering growing areas of covered produce.

If produce is transported in open containers, assess the risk of dust and dirt kicked up into the air. Covering containers can reduce the risk of contamination.

Inspect vehicles or equipment for cleanliness before transporting produce. If dirt, grime, or smell indicate the transportation is not clean, clean it.

A clean liner can be used under transported produce.

Inspect the controls and monitoring system if refrigerated transport is used.

Clean out truck beds or trailers if anything except covered produce has been transported, such as animals, manure, or hay.

Workers should prevent damaging produce during transportation. Pathogens can enter produce through damaged or bruised produce.

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Tomatoes

Higher Risk Produce

Tomatoes

Tomatoes are a high risk produce because they:

- are linked to outbreaks,
- are produced in large quantities making monitoring more difficult,
- are grown in a many different ways such as in a greenhouse or from the ground,
- have more intensive post-harvest handling such as slicing and dicing. Cutting the tomato can spread microbes from one piece to several pieces,
- are widely consumed and traded in numerous products, and
- are often sold pre-cut as in salads or hamburgers.

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Ladders

§112.121 Equipment and Tools

Ladders

When using a ladder for harvesting produce avoid touching the rungs or steps with your hands.

Soil can cling to footwear and can be left on the rungs you step on.

Touch only the side rails when climbing or moving the ladder

If laid on the ground, ladder side rails can be contaminated.

Keep the side rails clean when used during harvest.

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Preharvest Water

§112.41 Harvest

Preharvest Water

1

Agricultural water must be safe and adequate sanitary quality for its intended use.

The source of agricultural water should be monitored for possible contaminants.

Contaminants in surface water may be from animals, manure, runoff into the source, or sewage system leaks.

Inspect agricultural water systems to ensure they are maintained and working to prevent contamination of the water.

Monitor for leaks or sprays in the water delivery system. If water is not intended to contact the harvestable portion of the produce and is contacting it, repair or replace the water delivery system.

Be sure workers mixing or spraying pesticides or herbicides are trained and are using the appropriate water. Water contacting covered produce must meet the water quality standards of the Produce Safety Rule.

If using well water, inspect the well head and delivery system for maintenance and possible contamination.

Watch for produce that may have been in contact with pooled water. Pooled water even from irrigation could harbor pathogens.

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Other Contaminants

§ Harvest and Handling

Other Contaminants

2

The Produce Safety Rule does not specifically cover all sources of contamination. The rule emphasizes biological contamination related to foodborne illnesses.

Physical contamination can be from debris such as bolts, broken glass, hair pins, chips from equipment, machine parts, food wrappers and other solids.

Chemical contamination can be from misused pesticides or herbicides, machine oil, improper sanitizer use, bug repellant, and other chemical substances.

These contaminants can be harmful to consumers and could hold pathogens.

Be aware of your farm's policies if you find these contaminants. Some harvested produce may have to be disposed of.

Notify your supervisor if you find these contaminants.

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Toilets

§112.129
Hygiene

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Toilets

- Urination and defecation must not be done in the field or orchard and only in a toilet.
- Wash your hands after using the toilet.
- Notify a supervisor if you see the toilet facility leaking on the ground or is unsanitary.
- Toilet paper must be disposed of in the toilet and not a waste basket.

- Toilet facilities must be stocked with toilet paper. Notify your supervisor if it is not.
- Remove gloves, aprons, and hairnets before entering toilet facilities.
- Make sure the door can be closed to prevent airborne contaminants from contacting produce.
- Toilets should be within ¼ mile of walking distance if transportation is not available

- The number of toilets should comply with OSHA standards of 1 toilet for every 15 employees and 2 toilets for up to 35 employees.
- Workers are allowed to leave their workstation to use the restroom when needed.
- Unreasonable restrictions from employers on restroom use should be avoided.
- Restrictions such as locking doors or signing out a key should not cause extensive delays.
- Toilet facilities should be separated by sex unless the facility can be locked from inside and has at least one water closet.

§112.54
Microbial Pathogens

Listeria

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Bacteria: *Listeria monocytogenes*

- Leading cause of death from foodborne illness.
- Can survive in temperatures less than freezing and can live in moist areas including soil, vegetation, and food processing facilities.
- Outbreaks have been traced to unpasteurized milk, seafood, deli meats, soft cheeses, and fresh produce

- Symptoms include vomiting, diarrhea, aches, and some infections can result in nervous system damage.
- Contamination can come from workers, food contact surfaces, air, and raw foods.
- Outbreaks led to recalls of frozen vegetables, cheeses, salads, and apples in recent years. A sprout producer was closed because of *Listeria* contamination

Prevention of spread:

- Wash hands before touching and harvesting produce.
- Maintain and clean equipment and harvest bins, bags, or boxes.
- Avoid touching areas where condensation or water is dripping in a facility.
- Keep produce away from damp areas.
- Thoroughly clean and sanitize food contact surfaces.