

GOOD, BAD, AND UGLY FOOD SAFETY PRACTICES

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WORKER HEALTH & HYGIENE

- **Can carry human pathogens**
 - *Shigella*, Hepatitis A, Norovirus, and others
- **Can spread human pathogens**
 - Harvest and pack with their hands
 - Fecal-oral route
- **Require training to reduce risks**
 - Proper handwashing
 - How to handle illnesses and injuries









SOIL AMMENDMENTS

- Untreated biological soil amendments of animal origin are considered high risk since they have not been treated to reduce or eliminate pathogens
- All of the following soil amendments would be considered untreated:
 - Raw manure
 - 'Aged' or 'stacked' manure
 - Untreated manure slurries
 - Untreated manure teas
 - Agricultural teas with supplemental microbial nutrients
 - Any soil amendment mixed with raw manure





COMPOSTING

- Composting is a controlled biological process that decomposes organic matter and reduces pathogens
- Temperature is the primary method of pathogen reduction for thermophilic composting; however, chemical and biological factors also contribute
- Only a composting process that has been scientifically validated ensures pathogen reduction
- Process monitoring and recordkeeping are critical to ensuring the compost is adequately treated





COMPOSTING

Must use a scientifically valid process:

1. Aerated static composting: aerobic, minimum 131°F (55°C) for 3 days, followed by curing with proper management to ensure elevated temperatures throughout all materials
2. Turned composting: aerobic, minimum of 131°F (55°C) for 15 days, minimum 5 turnings, followed by curing
3. Other scientifically valid, controlled composting processes





COMPOSTING

- Minimize runoff, leaching, and wind drift to reduce contamination of crops, water sources, and handling areas
 - by soil amendments
 - Cover piles
 - Build berms to prevent runoff
- Do not store in locations that are likely to experience runoff or areas that are close to water sources
- Keep raw manure and finished compost in separate areas to prevent cross-contamination
- Minimize animal access to compost piles





COMPOSTING

Steps you should take to reduce risks:

- Preferentially apply soil amendments containing manure to crops not intended for fresh consumption
- Maximize the time between application and harvest
- Do not contact the edible portion of the crop during application.
- Do not side-dress with raw manure
- Minimize risks to adjacent produce crops if you are field spreading manure







POSTHARVEST HANDLING AND SANITATION

- **Cleaning:** Physical removal of dirt (soil) from surfaces which can include the use of clean water and detergent
- **Sanitizing:** Treatment of a cleaned surface to reduce or eliminate microorganisms

Important point: You cannot sanitize a dirty surface.

Cleaning always comes first!







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POSTHARVEST HANDLING AND SANITATION

- Continue produce safety practices by keeping things clean during harvest and postharvest handling
- Consider everything that touches or impacts produce
 - Packing and picking containers
 - Packing equipment
 - Hands and clothing
 - Postharvest water
 - Buildings (i.e., coolers, storage areas)
 - Transport vehicles











CARTONS

SUPPLIES

STOP

POSTHARVEST HANDLING AND SANITATION

- Areas outside of or adjacent to the packing area
- Includes loading docks, warehouses, manure or compost piles, and livestock operations
- May provide opportunities for contamination to enter the packing area





NOTICE
NO ENTRY
NO PARKING



N.L.S.
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STOP
Restricted Area
Keep Out













WILDLIFE & DOMESTIC ANIMALS

- Workers must never harvest produce destined for fresh market that is contaminated with feces
- Workers must never harvest or distribute dropped covered produce
- Worker health and hygiene practices should include:
 - Wearing clean clothing and footwear
 - Following glove, hairnet, and jewelry policies
 - Using worker break areas, handwashing stations, and restrooms









WILDLIFE & DOMESTIC ANIMALS

- **During the growing season:**

- Monitor for feces and evidence of intrusion
- Evaluate the risk of fecal contamination on produce (e.g., tree vs. root crop)
- Consider past observations and wildlife attractants

- **Immediately prior to harvest**

- Monitor for fecal contamination, signs of animal activity (e.g., trampling, rooting, feeding, tracks)
- Assess risks and decide if the crop or a portion of the crop can be safely harvested



WILDLIFE & DOMESTIC ANIMALS

- Pathogens may be transferred between livestock and wildlife
- Pathogen loads in domesticated animals may be species specific and impacted by animal management practices on the farm
- Shared grazing lands and water sources may offer contamination pathways among species



WILDLIFE & DOMESTIC ANIMALS

- **Should be excluded from produce fields**
- **Visitors to the farm should be instructed to leave their pets at home**
- **Farms with petting zoos should have handwashing sinks available and signage instructing visitors of the food safety policies**



WILDLIFE & DOMESTIC ANIMALS

1. Do not harvest any produce that may be contaminated
2. Determine if no-harvest buffer zones around the contamination are sufficient to reduce risk to allow harvest of the uncontaminated produce
 - Suggested no-harvest buffer zones vary from a 0-25 foot radius, depending on the crop, climate, contamination event, and harvest equipment
3. Consider other corrective actions that could reduce contamination risks





WILDLIFE & DOMESTIC ANIMALS

4. Make a decision about what to do with the contamination
 - Remove, leave, bury, or use other strategies
 - Consider risks that could result from these actions
(e.g., cross-contamination of equipment with feces)
5. Document all actions
 - Monitoring, deterrence, and corrective actions







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AGRICULTURAL WATER

- **Assess nearby land use and upstream water activities to identify risks**
 - Work with neighbors and local watershed groups to understand and minimize identified risks
- **Assess and address runoff risks**
 - Develop diversion ditches, berms or containments to minimize environmental runoff, runoff from manure and compost piles, or runoff from livestock feeding areas
- **Monitor and control animal access to irrigation water sources where practical (e.g., irrigation reservoirs)**







AGRICULTURAL WATER

- Inspect well to ensure it is in good condition
- Inspect wellhead to ensure it is properly capped and elevated
- Be sure land slopes away from wellhead to prevent runoff contamination into the well
- Install backflow prevention devices











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Tag Applied
For

Thomas





