

Hello, and welcome to Essentials of Food Safety for Farmworkers, a training series brought to you by the CCE Cornell Vegetable Program. Every produce farm should implement food safety practices to ensure that produce is safe for consumers. This is Caitlin Tucker, Program Assistant for the Cornell Vegetable Program. Throughout this series, I will walk you through how to create a worker training program, foodborne pathogens of concern, routes of contamination, principles of health and hygiene, risk assessment, and so much more.

This training aims to cover many of the required worker training topics set forth by FSMA (the Food Safety Modernization Act), or other 3<sup>rd</sup> party auditing programs. This training series primarily focuses on training farmworkers in the **produce** industry. Because Food Safety is a company-wide responsibility, we invite **all** farm employees to participate in this training.

### **Here are some highlights from Part 3: Everyday Practices to Prevent Foodborne Illness**

- Worker health and hygiene is critical for ensuring food safety on the farm.
- Workers should always follow their farm's food safety policies. This may include guidelines on clothing, footwear, jewelry, and glove-wearing.
- Follow hand-washing recommendations including when to wash hands.
- Understand how injuries can introduce contamination.
- Do not eat, chew gum, or use tobacco products when working with produce

### **Let's begin Part 4: Reducing Food Safety Risks on the Farm**

#### **Objectives for Part 4 include:**

- Discuss the difference between cleaning and sanitizing and how to effectively do both.
- Outline possible risks throughout production areas, wash/pack facilities, storage, and transportation.
- Identify steps farmworkers should take if they find a risk they cannot mitigate.

#### **Before we dive into the details, let's take a step back and think about the big picture.**

- Produce is not often grown in a sterile environment. There are many ways that produce can become contaminated. Workers, animals, soil amendments, water, tools, equipment, and buildings can all serve as sources of contamination or cross-contamination.
- Risks can exist in: production areas, wash and pack houses, storage buildings, and transportation. Risks can exist off the farm, on adjacent property. Do the neighbors have livestock that routinely break through fences? Are they spreading manure on a windy day? Does the stream next to your field frequently flood? What about the migrations of geese flying overhead?
- It can be hard to completely eliminate every risk – especially those that you have very little control of.
- If you cannot eliminate a risk, do everything you can to minimize it! In the next few slides, I'll share ideas on how you can minimize food safety risks on the farm

**Besides regularly keeping up with health and hygiene, one of the most important practices you can do on the farm to minimize risks is keeping things clean!**

Think about everything that touches produce from the field to the customer? Hands or equipment harvest it. The produce goes into some type of harvest container. The produce may then be sorted, graded, and then sent

through washing equipment to be cleaned. Then it may go to a cooler to be stored before being loaded into a truck or van to be taken to market. At every step, there's a risk that contamination could be spread or introduced if cleaning and sanitizing doesn't regularly occur.

### But what do I mean by cleaning and sanitizing?

The next few slides have been borrowed from the Produce Safety Alliance and effectively describe the difference between cleaning and sanitizing.

Cleaning is defined as the physical removal of dirt (or soil) from surfaces. This may involve the use of clean water and detergent.

Sanitizing is defined as the treatment of a cleaned surface to reduce or eliminate microorganisms, including foodborne pathogens.

It is impossible to sanitize a dirty surface! Cleaning Always comes first.

#### *Let's review the 6 steps of cleaning and sanitizing –*

Step 1: Pre-clean. Remove any obvious dirt and debris from the food contact surface. You may have to use brushes or scrubbers, and water to loosen the debris.

Step 2: Initial rinse. Rinse the surface with water to remove the loosened debris.

Step 3: Clean. Apply an appropriate detergent for food contact surfaces and scrub the surface. The detergent will help to break down oils and biofilms left behind from foodborne pathogens.

Step 4: Post Rinse. Rinse the surface with clean water, making sure to remove all of the detergent and soil.

Step 5: Inspection. Check the equipment, tools, or food contact surface for any remaining soil or residue.

Step 6: Sanitize. Use a sanitizer that is appropriate for use on food contact surfaces. Follow the label instructions. Rinsing may or may not be necessary. Let the surface air dry.

Now that we all understand the concept of cleaning and sanitizing, let's review practices that can reduce food safety risks on the farm.

### How to Reduce Risks in Production Areas

**This includes anywhere crops are grown.** It's a good idea to conduct a pre-harvest risk assessment. Walk the fields that you plan to harvest from – do you see feces? Damaged crops? Rooting or animal tracks? If you see any or all of these signs of animal contamination, the produce may not be safe to harvest.

Record your findings in your farm's pre-harvest risk assessment log. The pre-harvest risk assessment log will be helpful in adjusting wildlife management as needed. If you repeatedly see rabbit feces or tracks in the field, that's a sign that you might have to find deterrents for rabbits. Maybe your farm should use decoys or fences? If you predominantly see bird feces or tracks, you might have to manage them in a different way.

It's helpful to know animal tracks and who they belong to in order to accurately identify the culprit behind the contamination. It is equally important to know scat ID. Scat is animal feces, and every animal's scat looks different. Knowing the ID of scat found in the field can help you to determine whether damage is being caused by deer, raccoons, rabbits, geese, or even people!!

You should never harvest produce destined for the fresh market if it is visibly contaminated with feces, other substances, or has been chewed on.

Your farm may ask you to follow their no-harvest buffer zone policy. A no harvest buffer zone, is an area in which it is determined that crops cannot be safely harvested due to contamination. These zones can vary in size. If the feces is runny, if animals have tracked it around, if the crop is being harvested with equipment, or if there has been a large rain event, there's a chance contamination could be spread across a larger area and you may have to have a larger no-buffer zone. If the crop is being harvested by hand, if the feces is dry, and the weather has been dry, you may be able to get away with a smaller no-harvest buffer zone. Follow your farm's no-harvest buffer zone policy, but let your supervisor know if you think adjustments need to be made.

Use only clean tools, harvest containers, and keep harvest bins off of the ground. Inspect harvest containers for signs of contamination before you use them. Tools can cause cross contamination if they are not regularly cleaned and sanitized. If harvest bins sit on the ground while you are harvesting, they may be sitting in feces or contaminated soils. When bins are stacked, contamination could spread to other bins.

Never harvest dropped produce! If you drop produce during harvest, there is a chance it became bruised or cracked. Not only has the quality of the produce gone down, but now there are open wounds on the crop in which harmful pathogens could enter. Exceptions to this recommendation include if the crop is grown on the ground or commonly harvested by dropping the produce to the ground.

### **How to Reduce Risks from Soil Amendments**

Follow your farm's policies on handling raw manure and/or compost. They may require to use specific tools or equipment designated ONLY for use with raw manure and or compost. Make sure your clothes, boots, and gloves are clean before handling produce. If possible, use a separate set of boots, clothes, or overalls, if possible. Wash hands after handling raw manure, compost, or other soil amendments.

### **Reduce Risks from Chemical Amendments**

This would include synthetic fertilizer, pesticides, herbicides, minerals, or sanitizers. Any type of harsh chemical. These chemicals post a minimal risk of human pathogens, but there is concern about worker health.

Always follow the label instructions, your farm's policies and safety procedures, and wear necessary PPP personal protective equipment. This may include aprons, gloves, respirators, or goggles.

Make sure the chemicals are stored in an appropriate and designated spot with proper labeling. You do not want to confuse a pesticide with a sanitizer!

### **Reduce Risks from Production Water**

As a reminder, production water is any water applied directly to produce. This includes water used for irrigation, fertigation, crops sprays, cooling or frost protection. This water could come from a pond, river, stream, canal. Or it could come from a well, or even be municipal water.

Always report any sign of water contamination as soon as you see it. Signs of possible contamination: flocks of birds in the water, dead animals in the water, livestock or wildlife contamination, runoff from nearby manure or chemical spills, cracks in piping, or a broken well cap.

If surface water from ponds, rivers, streams, etc. is used for irrigation, avoid irrigating crops close to harvest or at harvest. In general if your crop has less contact with water, there is generally less risk. If you can use drip irrigation or hand watering versus sprinkler irrigation you can reduce food safety risks from water. If you see that the irrigation tape or pipes is leaking or spraying onto crops, report this to your supervisor.

If well water is being used, report any issues with run-off pooling around the well head. And be sure the back flow valve is working properly.

If you suspect your water is contaminated, can you wait to harvest the crop. Foodborne germs can die off over time from exposure to sunlight, wind, and temperature extremes.

#### Post-harvest water can also contaminate crops.

As a reminder: this includes any water used for washing, cooling, ice-making, post-harvest fungicide or wax application. Check the wash line for signs of contamination – the work space must be clean. Only wash line related items should be present (no pesticides, no truck or equipment supplies)

To prevent infiltration from happening, you may need to reduce the temperature difference between produce and wash water. This may mean you need to harvest earlier in the day before it gets warm, or cool the produce down before you wash it.

Follow your farm's standard operating procedure for sanitizing water to kill foodborne pathogens. This may also include monitoring the water temperature, pH, sanitizer levels, or turbidity (also known as cloudiness).

#### Reduce Risks in Wash/Pack Areas

Always wash hands before handling produce. Maintain proper hygiene. Try to wear clean clothes. Make sure aprons and gloves are clean before using them. Do not eat, chew gum, or use tobacco products in packing areas. Follow your farm's policies on glove, hairnet, and jewelry wearing.

It is important that the wash/pack area stays organized! Put things back in their designated spots when you are done with them – such as tools, personal protective equipment, or sanitizers and detergents.

Make sure the sorting tables are free of animal or pest contamination.

If dumping harvest bins onto sorting tables, rinse off bins and stack off ground ready for next harvest.

Make sure water does not puddle up in the wash or pack area. Standing water can harbor foodborne pathogens like listeria. If this water is contaminated, it can easily be spread through the wash/pack by equipment like forklifts, or by people's shoes, etc.

If you have to take a break or leave for lunch, make sure produce is covered before you leave. This can prevent pests like rodents or birds from contaminating in.

Place culls into designated bins and empty and clean **at least daily**. Remember – wash your hands after taking out the trash or cull bins before returning to work.

### Keep the packing area clean and free from dust, debris

- Only use new, single-use containers or cleaned, reusable containers.
- Keep washed and packed produce off floor or dirty tables.
- Inspect equipment for:
  - Cracked hoses, torn rubber door seals
  - Standing water
  - Dirty conveyor belts, brushes, rusty equipment
  - Condensation (from walls, ceilings, cooling equipment, pipes)

### Reduce Risks in Cold Storage Areas

Cold storage areas should be clean and free from contamination. Do not store produce in cold storage areas along with animal products like meat or eggs.

Check for standing or dripping water. Check to make sure all seals are in good shape. This will help the cold storage run more efficiently and at an appropriate temperature. This will also help prevent small pests like mice or insects from entering into the cold storage unit. Check to see refrigeration is working properly – is temperature is set appropriately?

Report any pest problems you see!

### Reduce Risks from Pests

- Pests can include birds, rodents, insects...even cats, dogs, and other pets!
- Check for rodents, birds in rafters
- Keep produce covered, when possible
- Keep grass around buildings mowed so that pests are not attracted to these areas for places to hide or find food.
- Keep doors and windows closed as much as possible
- Report and record any sign of pests!

### Reduce Risks from Chemical Spills

- Pesticides, detergents, sanitizers, and other chemicals pose a risk to workers.
- Use only food-grade lubricants on equipment that can come into contact with produce
- Do not store chemicals in packing area
- Follow label instructions
- Follow your farm's SOPs for chemical handling
- Report all spills and follow SOPs for containment

### Reduce Risks from Physical Contamination

Produce can be contaminated by physical debris – wood (splinters), shards of metal, glass, plastic, or other foreign objects. Check that light fixtures are covered to prevent glass contamination. Check that equipment is working properly and not introducing metal or plastic contaminants

### Reduce Risks from Transportation

Farms may use trucks, wagons, vans, trailers, etc. for hauling produce, people, soil amendments, animals, etc. This can result in contamination or cross-contamination.

- Inspect all vehicles and equipment before transporting produce.
- Free of debris?
- Evidence of rodents, insects, or other pests?
- Is there an off odor?
- Are the refrigeration units working properly?
- Are door seals in good condition?

#### **So in general, if you spot a risk:**

- Report the incident to a supervisor
- Isolate the area and stop activity
- Isolate and hold the produce that may have been contaminated
- Dispose of produce, unless it's safety can be assured
- Clean, sanitize, or replace affected surfaces in the area
- Document the incident, and corrective actions

#### **In Summary:**

- Risks can exist in production areas, washing and packaging areas, in storage, in transport, and on areas adjacent to the farm.
- Cleaning and Sanitizing are critical in reducing risks throughout the farm.
- Workers should know how to spot risks in these areas, report risks to supervisor, follow farm policies for mitigating risks.
- Incidents should be documented in the farm's appropriate log.

**Thank you for watching Part 4: Reducing Food Safety Risks on the Farm.** If you have any questions or would like clarification or help identifying resources, do not hesitate to reach out. You can reach Extension Specialist Robert Hadad via email at [rgh26@cornell.edu](mailto:rgh26@cornell.edu) or by phone at 585-739-4065. You can reach CVP Technician, Caitlin Tucker, at [cv275@cornell.edu](mailto:cv275@cornell.edu) or by phone at 5735444783.

If you would like to learn more about the Cornell Vegetable Program visit [cvp.cce.cornell.edu](http://cvp.cce.cornell.edu).

**Next Up: Part 5: Spot the Risk. A series of case studies.**