CAFF

COMMUNITY ALLIANCE with FAMILY FARMERS

FARM FOOD SAFETY WORKSHOP

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WELCOME

- Farmer Services Program Manager for Community Alliance with Family Farmers (CAFF)
- Organic vegetable farming experience
- Provide one-on-one food safety technical assistance to farmers across the state
- Based in Sonora, California

CAFF

We build sustainable food and farming systems through policy advocacy and on-the-ground programs that create more resilient family farms, communities, and ecosystems.

FARMER SERVICES

- **TECH HUB**
- **FOOD SAFETY**

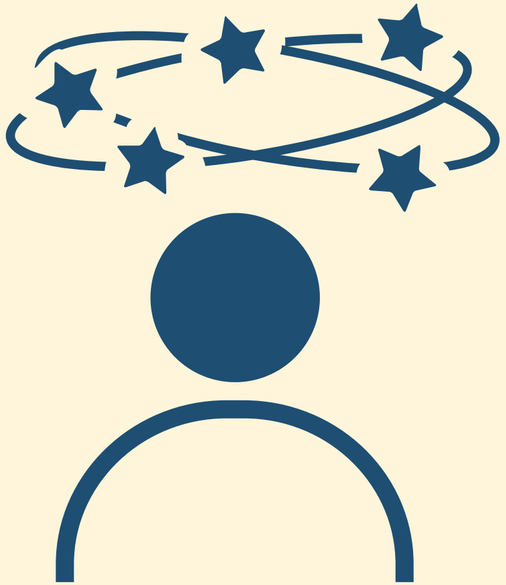
FARM-TO-MARKET

ECOLOGICAL FARMING

POLICY ADVOCACY

A PREFACE

- Don’t get overwhelmed with all these details – I’m not covering everything in the presentation
- Take notes and highlight important sections for your farm
- Reference the resource links after the presentation
- Go to https://www.caff.org/food-safety/ for more resources.



WHAT'S YOUR EXPERIENCE WITH FOOD SAFETY?

PRESENTATION ROADMAP

1. **Contamination Types**
2. The importance of on-farm food safety
3. Good Agricultural Practices (GAPs)
    - Water
    - Worker Health & Hygiene
    - Land Use
    - Animals: wild, domestic, livestock
    - Equipment, tools, buildings
    - Manure/Compost

HOW DOES CONTAMINATION OCCUR?

PHYSICAL

- Equipment parts Screws
- Nails
- Hair
- Staples
- Insects, etc.

CHEMICAL

- Fertilizers
- Sanitizers
- Herbicides
- Pesticides
- Fungicides
- Equipment
- Lubricant

BIOLOGICAL (MICROBIAL)

- Viruses, bacteria, parasites, fungi
- E. coli 0157:H7 in spinach, strawberries
- Salmonella in tomatoes
- Listeria in cantaloupes

HOW DOES BACTERIA SPREAD?

Contaminated water used to irrigate crops

Employees not washing their hands

Equipment not cleaned thoroughly

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WHY IS ON-FARM FOOD SAFETY IMPORTANT?

- As good stewards of the land, we are also good stewards of the produce we grow for public consumption
- What we *can* see is as important as what we *can not* see; microbes and foodborne illnesses
- Farms of all sizes have been involved in foodborne outbreaks, **all growers** need to implement “right sized” food safety practices on their farm

EXAMPLE OUTBREAKS

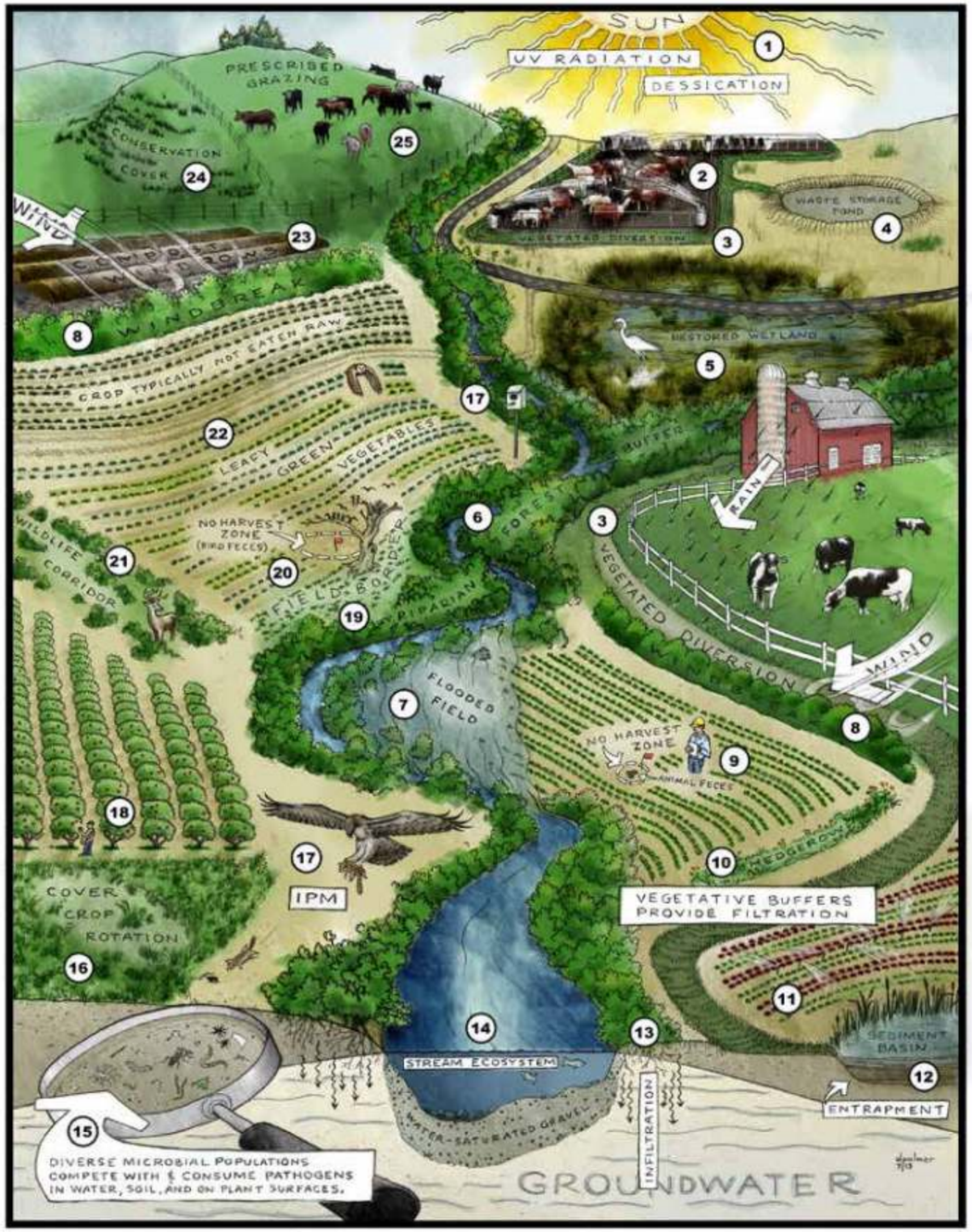
2011 MULTI-STATE CANTALOUPE LISTERIA

- 147 illnesses reported in 28 states, with 33 deaths and 1 miscarriage
- Isolated to a potato washer that was modified to clean melons
- First time that farmers faced criminal charges

2011 FRESH STRAWBERRIES E.COLI 0157:H7

- Found at Oregon’s Jaquith Strawberry Farm
- 15 total ill, 7 hospitalized and 1 death of elderly
- Wildlife--specifically deer feces--was isolated as the source.

Healthy Diverse Ecosystems Help to Keep Pathogens in Check



Not to Scale

QUESTIONS?

PRESENTATION ROADMAP

1. Contamination Types
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INTRODUCTION TO GOOD AGRICULTURAL PRACTICES (GAPS)

- GAPs are voluntary guidelines for produce farmers to reduce the risk of biological contamination on their farms
- Based on guidelines from the United States Food and Drug Administration (FDA)
- Not the same as GAP Audits, GAP Certifications or 3rd Party Audits
- Can be applied to any farm regardless of size, scope and circumstance

WHAT ARE GAPS?

- GAPs = Good Agricultural Practices

- 6 key areas of focus:
  - Water
  - Employee Training (Health & Hygiene)
  - Land Use
  - Animals: Wild, Domestic and Livestock
  - Equipment, Tools & Buildings
  - Manure, Compost & Chemicals

HOW DO I IMPLEMENT GAPS ON MY FARM?

1. Start by understanding *why* it matters
2. *Identify* your practices and the *potential risks* associated with them
3. Identify what you could do to *minimize risks*
4. *Implement* changes

******NO SUCH THING AS "ZERO-RISK"*****

WATER

Understand your source(s), use and potential contaminants.

Questions to assess your risk:

- Where is your water coming from (surface, ground, municipal, rainwater)?
- Is it used directly from the source or stored (tanks, reservoir, etc.)?
- How is it being used?
- What is it being used for?

WATER CONTAMINATION POTENTIAL: SURFACE WATER

WATER CONTAMINATION POTENTIAL: GROUND WATER

WATER CONTAMINATION POTENTIAL: DRIP IRRIGATION

WATER CONTAMINATION POTENTIAL: OVERHEAD IRRIGATION

TOOLS TO EVALUATE YOUR RISK

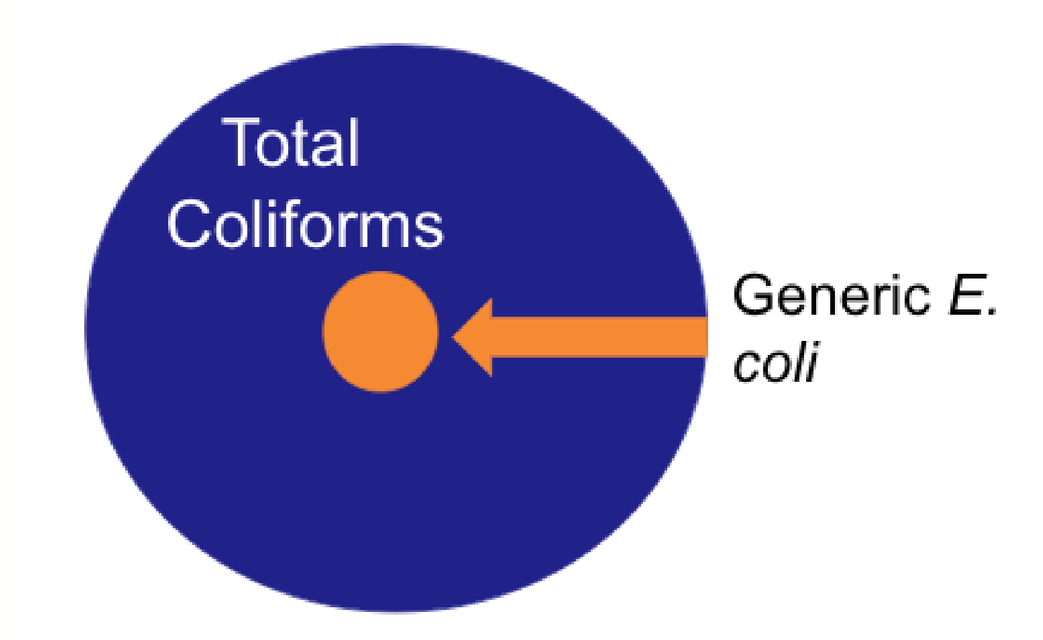
- Know the quality of your water source(s) by testing for generic E.coli annually
- Monitor activities occurring on your property & adjacent property that could potentially contaminate your water source(s)

- Add water to your farm map:
  - irrigation sources
  - areas on the surface where water tends to pool
  - inclines and how water moves when it rains
  - wash station areas
  - septic leach fields

TOOLS TO EVALUATE YOUR RISK

WATER TESTING FOR GENERIC E. COLI

- Testing your water source can help assess risk
- Water tests must test for generic E. coli because generic E. coli is an indicator of pathogens that could cause harm to humans



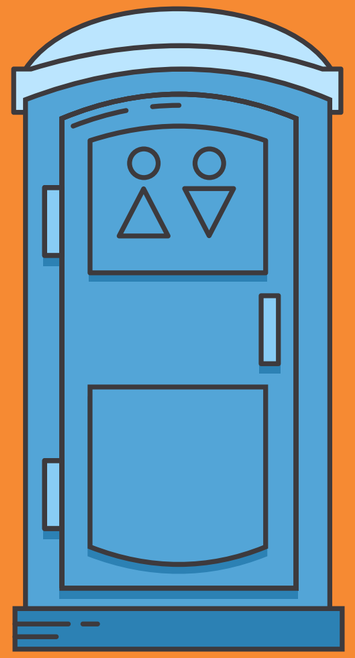
WATER

Minimize risks of water contamination by:

- Converting to drip irrigation (if feasible)
- Monitor water quality through testing
- Ensuring well is properly maintained
- Increasing (maximize) time intervals between irrigation and harvest
- Exposure to UV kills bacteria
- Using potable water if it will contact the crop close to harvest
- Protect your water source as much as practicable

QUESTIONS?

EMPLOYEE HEALTH AND HYGIENE TRAINING



- **Poor personal hygiene** can lead to the **spread of bacteria, viruses and parasites**, and result in **contamination of fresh produce and other people**
- Proper training & education can minimize or prevent contamination:
  - Good personal hygiene practices
  - Good harvesting practices
  - Field cleanliness
  - Reporting problems
  - Moving between animal fields, barns & crop growing areas

EMPLOYEE HEALTH AND HYGIENE TRAINING

- Questions to **assess your risk**:
  - Are employees trained on good hygiene practices (e.g. washing hands after using bathroom)?
  - Are supplies easily accessible (e.g. handwashing stations, first aid kit)?
  - Do employees have a separate pair of shoes or a change of clothes if they are working with animals and produce?
  - Do employees know who to discuss concerns or questions with?

EMPLOYEE HEALTH AND HYGIENE TRAINING

- **Minimize risks** by:
  - **Training your employees** on basic health and hygiene practices at least once annually or upon hire
  - Remind employees of food safety practices by **posting signs** and making training handbook available
  - Position **hand washing stations** near bathrooms or other accessible areas
  - **Modeling** good health and hygiene practices
  - Keep your farm “**farm clean**”
  - **Providing resources** for employees to follow good health and hygiene practices

PORTABLE HAND WASHING STATION

- Your hand wash station should have:
  - Potable water
  - Single use paper towels
  - Liquid soap
  - Grey water catchment or adequate drain (limit amount of standing water)
  - Trash can with lid
- How-to build a portable hand wash station: **https://extension.umn.edu/growing-safe-food/handwashing-station**

EMPLOYEE HEALTH AND HYGIENE TRAINING

Employee Training

Employees at _____ play an important role in reducing on-farm food safety risks and preventing the contamination of crops. We acknowledge that employees have the potential to contaminate produce through feces, clothing, hands, footwear, tools and equipment, and illness and injury.

We minimize food safety risks by training our employees annually, following our stated food safety practices and communicating concerns. Employees who harvest and pack produce must follow our food safety procedures explained below and sign the Employee Training Log.

Employee Illness, Disease and Injury

- Please stay home if you are sick and monitor symptoms if you feel ill while at work
- If you are experiencing diarrhea, nausea or vomiting, it could be a sign that you are able to transmit, or suffering from, a contagious disease and/or illness transferable to food (e.g., Hepatitis A, Salmonella, *E. coli* O157:H7). If you have symptoms of a temporary illness (e.g.

QUESTIONS?

LAND USE

- **Assess potential food safety risks** on your farm related to land use:
  - Previous land use
    - Was it used as a feedlot, landfill or intensive livestock operation?
  - Location of septic fields
  - Likelihood of flooding
    - When did it occur?
    - How could it contaminate water, crops, tools/equipment, etc.?

LAND USE

- **Adjacent sites** can also pose food safety risks for your farm:
  - What is located upstream?
  - Could activity be contaminating your water source?
  - Could crop/water source be contaminated by activity downwind, such as an intensive livestock operation?

LAND USE - SURROUNDING AREAS

MINIMIZE YOUR RISKS

- **Minimize risks** by:
  - Understand land use history and conduct soil and/or water tests
  - Communicating with your farm neighbors
  - Monitor changes occurring on your farm or neighboring sites
  - Use buffers, set backs or windbreaks

QUESTIONS?

ANIMALS: WILD, DOMESTIC, LIVESTOCK

- The presence of wild, domestic and livestock and their feces **pose food safety risks** for produce farms
- **Assess your food safety risks** associated with animals:
  - What animals have access to your farm?
  - Do animals have access to crop area? Packing area? Water source(s)? Manure/compost piles?
  - What is your current practice if animal intrusion occurs?

ANIMALS & PRODUCE CONTAMINATION

- 2011 Fresh Strawberries E.coli 0157:H7 at Oregon's Jaquith Strawberry Farm: (15 total ill, 7 hospitalized and 1 death of elderly)
- Deer feces was isolated as the source of contamination
- Note: Deer feces in California have NOT been found to have E.coli 0157:H7

ANIMALS: WILD, DOMESTIC, LIVESTOCK

- **Biodiversity is essential**. Instead of trying to eradicate unwanted animal activity, look for signs of contamination such as:
  - Trampling of product
  - Feces / Droppings
  - Flocks of birds moving from feedlots or garbage dumps to crop area
- **To minimize potential risks**:
  - Pets and livestock should be kept out of producing areas
  - Know what animal intrusion looks like
  - Establish buffer zones if animal intrusion occurs
  - Be prepared - create policies for how to handle animal intrusion
  - Keep records for animal rotations in the field
  - Use non-life threatening deterrents such as fences or noise cannons

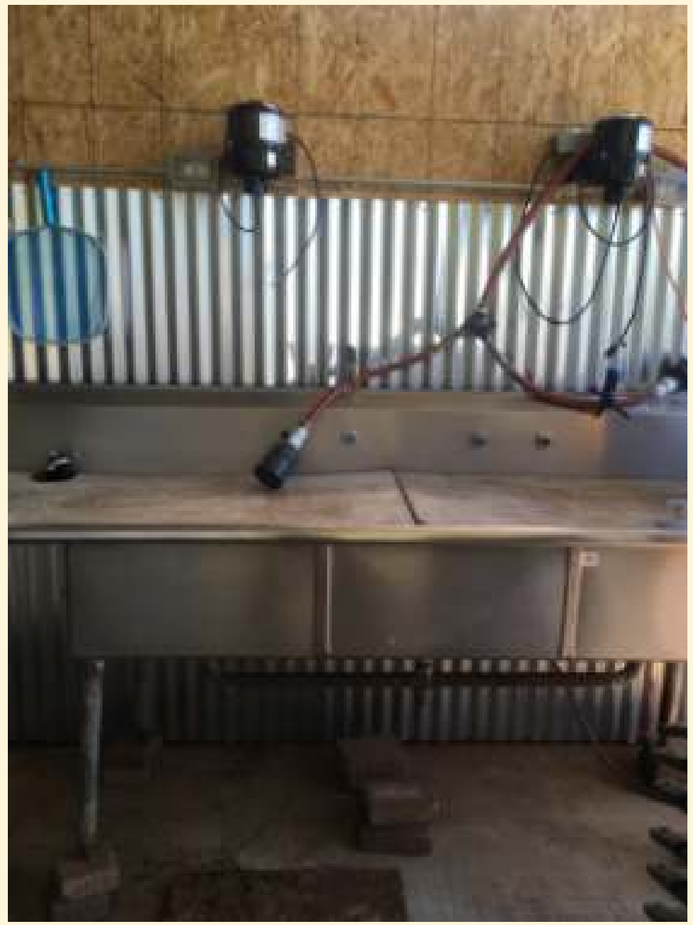
QUESTIONS?

EQUIPMENT, TOOLS & BUILDINGS

- Assess food safety risks by monitoring how buildings, harvest tools, equipment & containers are:
  - Cleaned
  - Used
  - Stored
  - Adjusted / Adapted / modified from original intended use

EQUIPMENT: OTHER FOOD CONTACT SURFACES

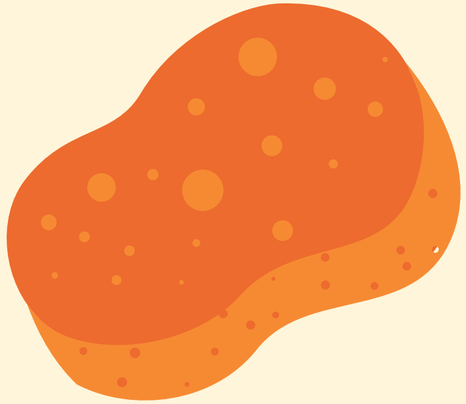
- Also think about surfaces that do not directly touch produce but are **adjacent to produce**:
  - Delivery trucks
  - Coolers
  - Dry storage areas
  - Pallets
  - Cull bins



POSTHARVEST ACTIVITIES

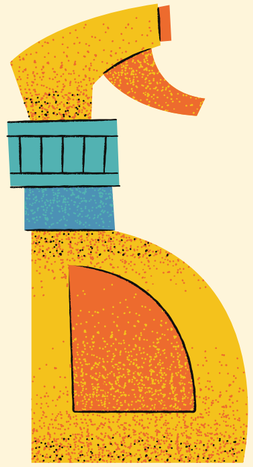
- How is the risk of **cross contamination minimized** in your packing area?
  - Is there a flow of product movement?
  - Are employees trained to identify risks?
  - Is pest monitoring occurring?
  - Using shatterproof lights/light covers
  - Are surfaces being adequately cleaned and sanitized?
  - Can it be easily cleaned? Including:
    - All Produce Contact surfaces
    - Drains

CLEANING



Remove first and other particles from the surface by using a soap (detergent) and water to wash the particles away.

SANITIZING



After a surface is cleaned, you apply a sanitizer to lower the number of germs on a surface to a safe level by public health standards.

DISINFECTING

After a surface is cleaned, you apply a disinfectant to kill germs on surfaces.

HELPFUL RESOURCE ON THIS TOPIC: HTTP://BLOG.UVM.EDU/CWCALLAH/2020/03/30/CLEAN-SANITIZE-DISINFECT/

EQUIPMENT, BUILDINGS & TOOLS

General Cleaning & Sanitizing Log

Farm Name and address:_____

Date	Describe or Name Equipment/Tool/Containers	Cleaned*		Sanitized		Product Used & Amount Used		Cleaned by:
		Yes	No	Yes	No	Cleaner	Sanitizer	

SEE MORE TEMPLATES: HTTPS://CAFF.ORG/FOOD-SAFETY/FOOD-SAFETY-PLAN-TEMPLATES/

USING SANITIZERS – KEY POINTS

- If using sanitizers in postharvest wash water, sanitizers do not remove the contamination from the water. Instead they stop the contamination from spreading from one leaf to all the leaves in the tank thru the water.
- Only use a product for the use(s) written on the label.
- Contact county environmental health officers for discharge requirements (website on resources slide).

EQUIPMENT, TOOLS & BUILDINGS

- **Minimize potential risks** by:
  - Determining your risk for **cross contamination** in these areas
  - Establishing a **cleaning/sanitizing schedule**
  - **Minimizing direct ground contact**
  - Keeping **clean harvest tools** in a plastic container
  - Keeping all packaging materials **off of the ground** and neatly stacked, ideally under cover (shed, etc.) to keep them protected from rain and/or bird/animal intrusion.
  - Storing equipment off of the ground, neatly

QUESTIONS?

MANURE & COMPOST

- Used to help build up organic matter and **add nutrients** to the soil
- Using animal manures can spread **human pathogens** to your soil
- Untreated (raw) manure and treated compost containing animal manures pose **different food safety risks**

MANURE

- Questions to **assess your risk**:
  - Source and type
    - Is the product raw or composted?
  - Application method and timing
    - Is the product injected or broadcast?
    - Incorporated or side dressed?
    - When during the season is the product applied?
  - Storage
    - How is the product stored–uphill or downhill from produce fields? Covered or uncovered?

MANURE: MINIMIZING RISK

- Use **treated or composted manure**
- If using raw manure, apply:
  - Prior to planting or after harvest
  - **Follow 90/120 day window** between application and harvest
- Storage
  - **Keep it covered and contained**
  - Exclude animals
  - **Locate downhill** and away from production fields to avoid run-off

- Prevent cross contamination of raw manure, produce and food contact surfaces
  - Have **separate boots and clothing** to wear when working with **manure** OR work with product only **after you're done** with other farm activities, especially harvest
  - **Separate** equipment and tools OR **sanitize after use**
- **Keep records of manure applications and production**

COMPOST: MINIMIZING RISK

- If using **treated compost containing animal manure**:
  - Follow proper composting protocols and keep track of time, temperatures and turnings if producing on-farm
  - Observe 45-day interval between application and harvest
- Storage
  - **Keep it covered and contained**
  - Exclude animals
  - **Locate downhill** and away from production fields to avoid run-off
- Prevent cross contamination of raw manure and treated compost
  - Have **separate boots and clothing** to wear when working with **manure/compost** OR work with product only **after you're done** with other farm activities, especially harvest
  - **Separate** equipment and tools OR **sanitize after use**
- **Keep records of compost applications and production**

WHAT ARE GAPS?

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QUESTIONS?

FOOD SAFETY RESOURCES

- Visit https://caff.org/food-safety/ for complete access to our resources
- Watch the *new* Post-harvest tools for small farms video: https://www.youtube.com/user/CAFFflix
- Download the video resources: https://caff.org/wp-content/uploads/2022/02/post-harvest-tools-for-small-farms-video-resources.pdf
- Complete the GAPs worksheet made for this workshop

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THANK YOU!

Questions?
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