# GAPs and GHPs for the Urban Farm

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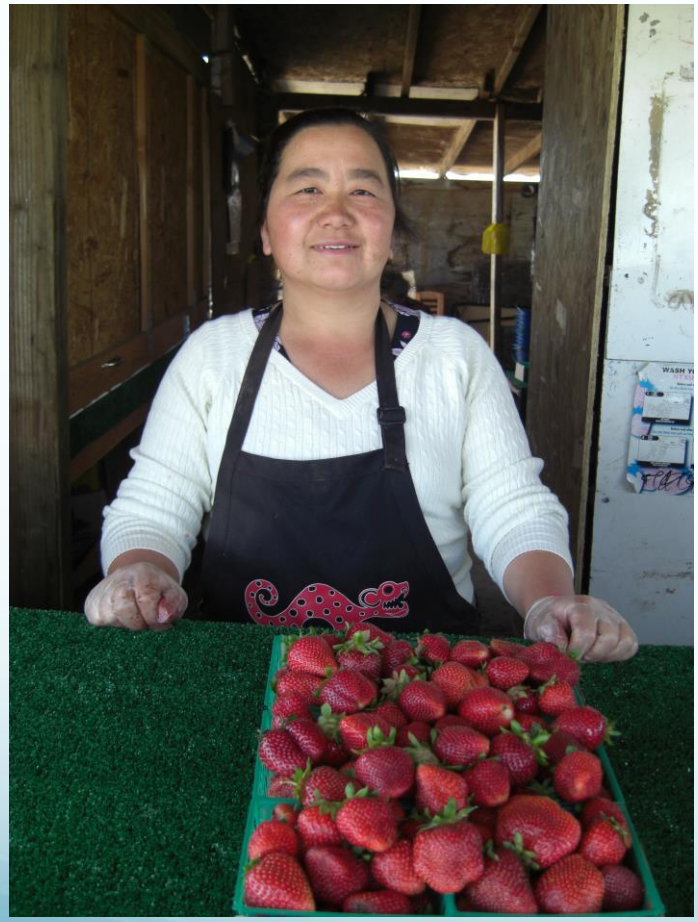
United States Department of Agriculture
National Institute of Food and Agriculture

# Food Safety on My Urban Farm



- What are some effective practices to minimize food safety risks on the farm?
- What is required in the CDFA guidelines?

WASSH

# WATER

# Test your water source

- Test **all** your water sources, including for irrigation, handwashing, human consumption and produce wash water.
- **If you use only municipal water, you do not need to get your water tested. Simply obtain water test results from the city.**
- For surface water, FDA requires farms to do baseline survey, collect 20 samples, close to harvest over 2-4 years. Then 5 samples/year.
- For groundwater, the FDA requires farms to do baseline survey, collect 4 samples close to harvest over one year. Then 1x/year.

# CDFA's Small Farm Food Safety Guidelines Related to Water

- **If you use only municipal water, you do not need to get your water tested so you can ignore the water testing requirement in this slide**
- Test **all** your water sources, including for irrigation, handwashing, human consumption and produce wash water.
- Prior to planting, test irrigation water and, if contaminated, find the source and fix it or request that your water supplier do so
- During the growing season, test irrigation water as close to point-of-use as possible at least once during the growing season
- Ensure that water used for spray applications of pesticides and fertilizers is not contaminated

# Municipal Water

- US EPA has established Federal drinking water standards and California has similar standards
  - Some are stricter
  - See handout comparing US & California standards
- Required to be tested annually in California
- Must meet State drinking water standards

# Collecting water sample

- Sterile sample containers obtained from lab.
- Run water for 2-3 min.
- Clean tap with bleach, then let water run 2-3 min.
- Keep sample cool during transport to lab.
- Deliver ASAP (no more than 30 hr after collection).
- Water is tested for total coliform & E. coli & treated as needed.
- If risk is evident, test for additional contaminants

# Interpreting water test results

- Water used for drinking must be **potable**.
- Water used for handwashing and post-harvest washing must have NO detectable generic E. coli in 100 ml of water.
- Water used for irrigation must have (GM) 126 or less CFU of generic E.coli per 100 mL of water or (STV) 410 CFU or less of generic E.coli in 100 mL of water.
- If water tests results exceed the recommended Action Threshold for this operation, corrective action will be taken.

# Captured Rainwater

- If capture rainwater is used only to irrigate crops, it does not need to be potable
  - Confirm with LA Co Environmental Health Dept
- Captured rainwater should be examined weekly
  - prone to rodents, mosquitoes, algae growth, insects and lizards
  - may seep chemicals, insects, dirt or animals droppings
- Captured rainwater should not be used to wash harvested produce or for handwashing

# FSMA Water Quality Criteria for Water Used During Growing Activities*

- Each source of production water (including captured rainwater) must be tested to evaluate whether its water quality profile meet the following criteria:
  - **126 or less** colony forming unites (CFU) generic *E. coli* per 100 mL water geometric mean (GM)

    AND
  - **410 or less** CFU generic E. coli per 100 mL water statistical threshold value (STV)
- This requirement is difficult to understand. But it basically means that your testing costs will be more than your water cost savings from harvesting rainwater

*SOURCE: Produce Safety Alliance Train the Trainer, Module 5.1, slide 21

# Drip Irrigation

- Consider using drip irrigation wherever possible. It minimizes the risk of contamination because above-ground plant parts are not directly wetted

# Clean Wash Water

- Water used in post-harvest washing/packing is potable.
- Do not use captured rainwater unless tested
- Wash tanks, tubs and surfaces are cleaned/sanitized following SOP.
- Small amount of chlorine (or other sanitizer) keeps microbial content in water down.
- It does NOT sterilize produce.

# Cleaning and Sanitizing Solutions

| Item | Soap/ Cleanser | Chlorine/ Sanitizer Chlorine (5.25%) | How much water | PPM (parts per million) pH 6<7.5 | How often? |
|---|---|---|---|---|---|
| Harvest Buckets | Dish soap | 1 Tablespoon | 1 gallon | 150 PPM | Daily |
| Wash Container | Dish soap | 1 Tablespoon | 1 gallon | 150 PPM | Daily |
| Produce Wash Water | -- | ½ teaspoon | 6 gallons | 5 PPM | Daily or when necessary |
| Drinking Water Container | Dish soap | 1 Tablespoon | 1 Gallon | 150 PPM | Once a week |
| Hand Washing container | Dish soap | 1 Tablespoon | 1 gallon | 150 PPM | Once a week |
| Restroom Facility | 409 | -- | -- | -- | As needed (at least 1x/mo.) |

= 1 Tablespoon (1 TBL)
1 Teaspoon
½ Teaspoon
¼ Teaspoon

## Alternatives to chlorine for cleaning and sanitizing surfaces and for produce wash waters.

You can go to the Organic Materials Review Institute (OMRI) website & search in their data base for products that are allowed for use in organic production and processing. http://www.omri.org/omri-lists

### About OMRI

The Organic Materials Review Institute (OMRI) is a national nonprofit organization that determines which input products are allowed for use in organic production and processing. OMRI Listed—or approved—products may be used on operations that are certified organic under the USDA National Organic Program. OMRI's funding comes from a variety of sources, including sales of publications, grants, donations, and subscriptions. Mainly, however, the organization generates income through fees collected for the review of products intended for use in organic production or processing.

The following are some of the recommended products for “organic sanitizers” on the OMRI list:

ProOxine (Bio-Cide International Inc.)
Oxcide (Chem Fresh, INc.)
Oxine (Bio-Cide International inc.)
San-I-King, No. 451 (Hydrite Chemical Co.)
Sterilox Sanititzer and Disinfectant (Sterilox Food Safety/Division of PuriCore, Inc)
The Disinfectant Answer (Environmental Care and Share)

In addition to approved chlorine based materials, it also lists Hydrogen Peroxide, and Peracetic Acid.

Anything on the OMRI list is allowed or restricted for use by CCOF. Sanitizers can be used as long as "Residual chlorine levels in water shall not exceed the Maximum Residual Disinfectant Limit under the Safe Drinking Water Act, currently 4 mg/L (4ppm) expressed as chlorine, or 0.8 mg/L (0.8 ppm) expressed as chlorine dioxide".

It may be difficult to find small amounts of the above food grade “sanitizers”. Possible source of small amounts might be Home Brew or Home Canning supply places.

# Clean Potable Drinking Water

- Clean drinking water is available always and water source documented.


# ANIMALS

# Minimize and Monitor Wildlife & Animal Entry

Keep domestic animals out during production

Monitor & record entry of all animals

Keep all animals out of production area 120 days before harvest.

# Inspect Fields Before Harvest

# Monitor packing area for pests


# Keep Packing Area Clean and Remove Nesting Sites

- Remove all debris from around farm and packing shed - good nest sites!
- Try and prevent rodents from entering packing area
- Remove all food sources and nesting sites

# Rodent Control

- Monitor for rodent presences (droppings, sighting).
- Use mechanical or sticky traps when evidence of rodents in packing, storage or farm stand area.
- DO NOT use bait traps inside farm stand or packing area.
- Check traps frequently Dispose of trapped animal immediately with gloves.
- If using bait, make a map of all bait stations.

# SOILS

# Know Your Soil History

- Avoid farming on land with history of soil contamination
  - Dumpsite
  - Old home or barn
  - Old livestock pens
  - Sewage or toilet spill
  - Flooding from creeks or rivers
  - Septic tank spill on field
  - IF RISK, soil test.

3 YEAR BUFFER no flooding from creeks/rivers or septic tank or other sewage

# Ensure there is no landfill or sewage treatment facility next to farm

# Hedgerows & ditches: prevent runoff onto your fields

# If known risk, then test your soil

# Manure & Municipal Biosolids

- If no manure is applied, no concern.
- If raw manure: follow NOP standards (120 day interval before harvest in contact, 90 day no contact).
- Composted Manure: must use properly treated manure (see rule).
- Need records of source of manure or *own* records with SOP.
- Store manure safely (no runoff)
- Must record manure application

# SURFACES

# Clean Toilet and Handwashing Station

See Handwashing sign

# Clean Toilets

- Toilets are screened, and have self closing doors.
- Spot clean as needed with 409 or other cleanser.
- Wash with water and 409 when needed (at least 1x/month)
- Must have toilet paper, handwashing station, covered trash.
- Remove trash as needed.
- Keep record of cleaning and when unit is serviced.
- Keep records for 2 years.

# Clean Handwashing Station

- Handwashing station is next to toilet.
- Water for washing is drinking water quality.
- Soap, paper towel and trash can with lid required.
- Waste water does not cause unsanitary conditions.
- Handwashing container is cleaned and sanitized weekly or as needed with properly labeled scrub brush.
- Cleaning and resupply record are maintained.

# Clean Harvest and Wash Equipment

All harvesting equipment is cleaned and washed following a standard operating procedure, during harvest season on a daily basis and recorded.

# What happens when you stack your dirty buckets?


# Buckets on the ground

# No bucket, no mud!

# Clean Produce Washing Containers

# How to Clean Harvest Equipment and Wash Tanks

- 1: Rinse with clean (drinking) water; use brush if necessary
- 2: Scrub with dish soap
- 3. Rinse in drinking water
- 4: Sanitize with chlorine & water
  - 1 Tablespoon bleach (5.25%) to 1 gallon water
  - Test water with chlorine strips to make sure = 150ppm
  - pH: 6—7.5
- 5: Air Dry or wipe with clean gloves and clean paper towel

# Cleaning and Sanitizing Solutions

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# Clean Packing Shed

- Packing & Storage areas are cleaned regularly, before loading with product.
- Materials used include broom, or power washing ground with food safe cleanser.
- Clean all ledges of spider webs, nests, dust and debris. Remove all sources of food for rodents.
- Spot cleaning as needed.
- Trash cans are emptied.
- Label and store cleaning materials separately.

# Remove garbage

# Clean Storage of Packaging Materials

- Boxes, bags and other materials used for packaging should be kept:
  - In a dry location
  - Off the ground
  - Pest-free

# Clean Transportation

Vehicles are clean & produce covered

Produce is kept cool & covered

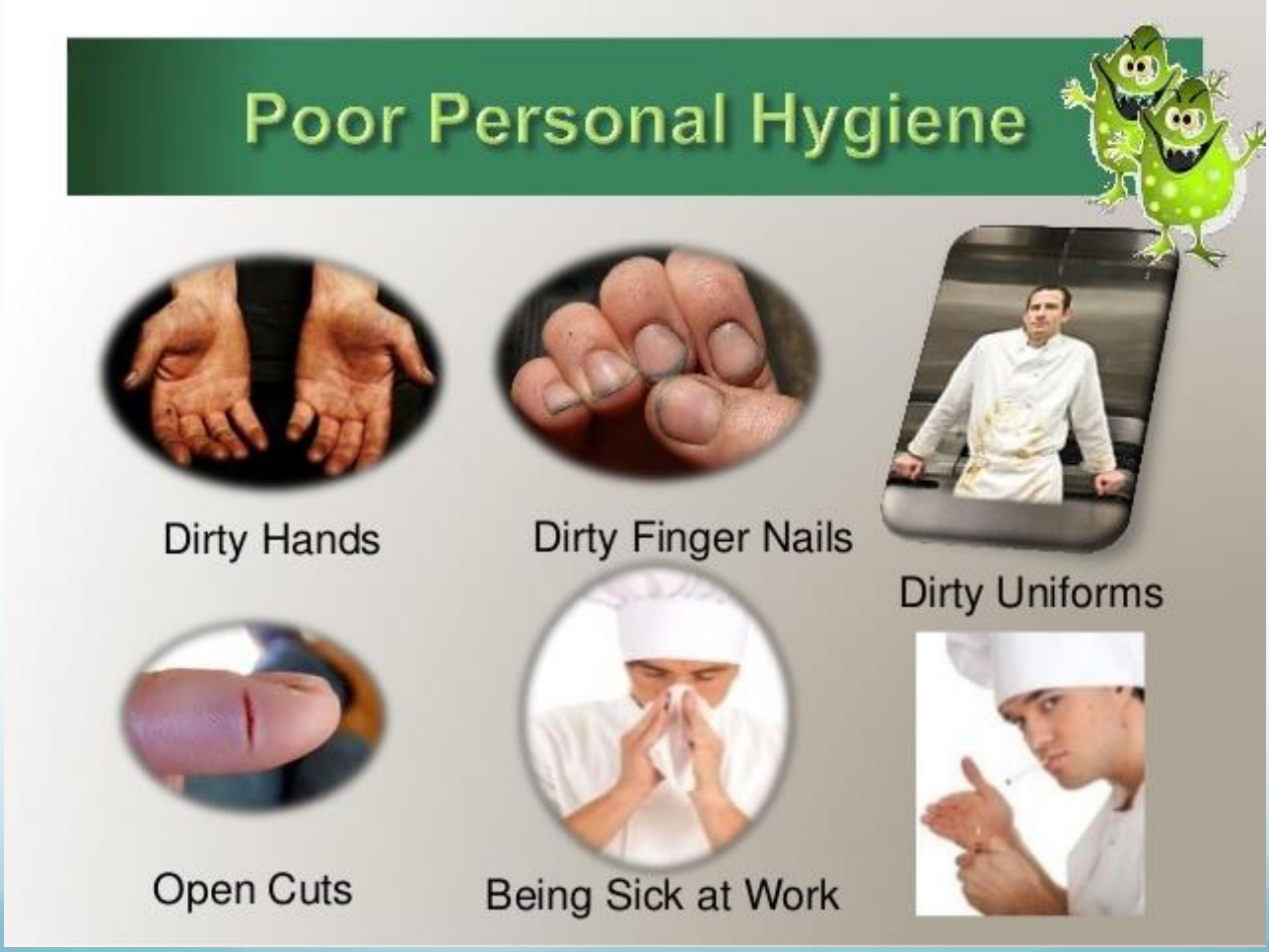
# Is this a clean way to transport?


More an issue of quality than of food safety

# Covered Transport!

# HEALTH AND HYGIENE

# Workers are a potential source of contamination



# Some outbreaks associated with infected workers

| Date | Produce | Pathogen | # of cases | Produce origin |
|---|---|---|---|---|
| 1987 | raspberries | Hepatitus A virus | 92 | United Kingdom |
| 1990 | strawberries | Hepatitus A virus | 53 | United States |
| 1994 | green onions | Shigella | 72 | CA |
| 1996 | leaf lettuce | E. coli 0157:H7 | 49 | United States |
| 1997 | strawberries | Hepatitus A virus | 250 | CA |
| 1997 | green onions | Cryptospordium | 55 | United States |
| 1997 | basil | Cyclospora | 341 | United States |
| 1998 | green onions | Hepatitus A virus | 43 | United States/CA |
| 1999 | parsley | Shigella | 486 | United States |
| 2003 | parsley | enterohemorrhagic E. coli | 77 | United States |

# Practice Good Health and Hygiene

# Avoid handling produce when you are sick!

Diarreah

Runny nose, cough, sneeze

The average sneeze travels up to 8 feet!

Assign workers other duties while they are sick or send them home

# Wash your Hands!!

## Proper Handwashing

- Proper handwashing: Hands must be washed before work, and after using restroom, smoking, coughing, handling garbage, money & breaks.
- 20 seconds

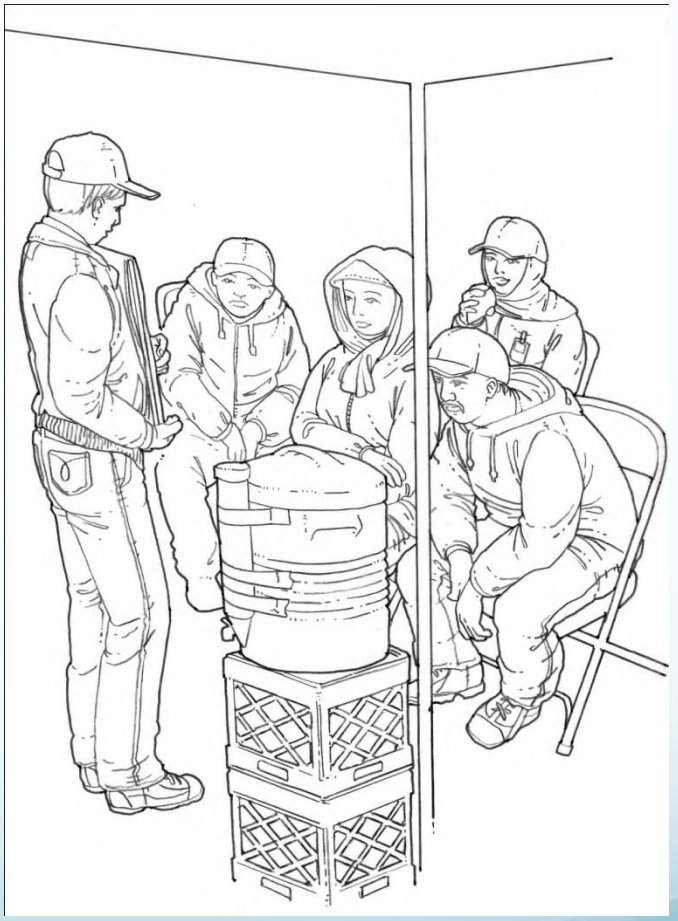
# Wash, not wipe

Anti-bacterial gel does not kill viruses!


Hand washing is best

# Provide Worker Hygiene Training

- Everyone who helps on the farm is trained in and must follow good hygiene practices.
- The training takes place at least once a year and is documented.
- Do follow up training during growing season



# Who needs to be trained?

- All employees
- Temporary workers
- Relatives who help
- Wife, husband, children
- Volunteers
- Visitors/U-Pick customers
- EVERYBODY!

# Personal Hygiene Training

All workers must:

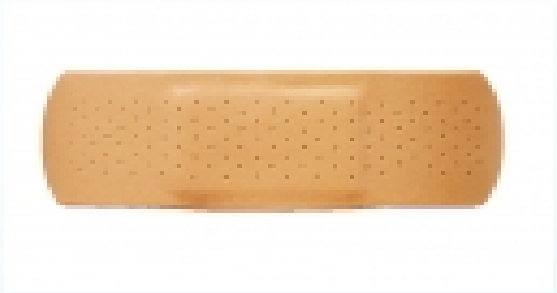
- Take shower and wear clean clothes daily
- Wear clean, un-ripped gloves (nitrile are best)
- Take off gloves before using toilet & eating lunch
- Wash hands for 20 seconds after using toilet and before returning to work
- Not eat, chew gum, use tobacco, spit, urinate or defecate while in growing/processing area
- Use toilet and handwashing facilities regularly and properly.
- Keep clean, cut nails; tie long hair back.
- Not wear necklaces or rings or dangling jewelry.
- Eat and smoke away from food handling area.
- Not use product containers for personal use.
- Avoid wearing field clothes (especially shoes and boots) in packinghouse

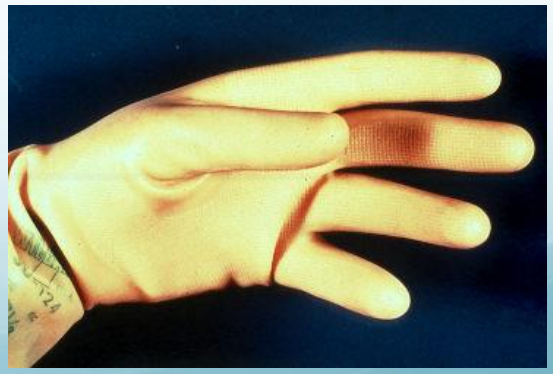
# Provide Training in Illness and Accident Prevention and Response

Training to all workers in illness prevention and response is provided and documented

# Hand injury & gloves

- Wounds on hands must be covered with a bandage PLUS a glove.
- Gloves must be kept as clean as bare hands
- Broken gloves are not safe and should not be used.
- New gloves should be used after bathroom visits





# If someone is injured…

- If injured (including cut/nosebleed, etc), workers must treat wound immediately.
- Any contaminated product is discarded.
- All contaminated surfaces and tools disinfected.
- Clean contaminated containers
- Everyone on farm knows location of 1st aid kit.

# Keep Your Workers healthy!

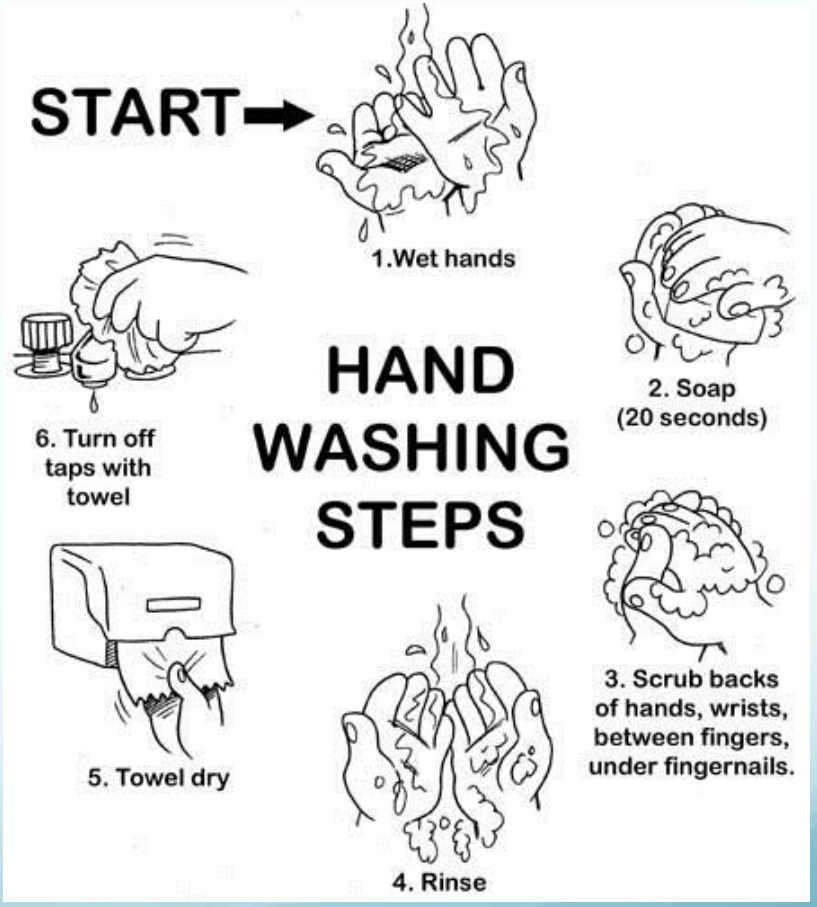
- To avoid heat exhaustion, drink 2 quarts of water per person/day. Especially when hot! Use single use cups
- Shade is required. Breaks in shade.
- Monitor employees for symptoms of illness and for wounds.
- Sick workers that show signs of diarrhea, vomiting, fever, jaundice or infected wounds should not handle produce.

# Provide Clean Potable Drinking Water

- Clean drinking water is available always and water source documented.


# Post Signs that Reinforce Good Hygiene

- Signs are posted in field and packing area instructing workers when and how to wash hands



# No eating/drinking in food handling areas

- Monitor compliance


Post signs!

# Create Separate Area for Personal Use

- Eating
- Breaks
- Smoking
- Storage of personal items

To avoid cross contamination in field and packing area!

# Provide Proper Field Sanitation Units

- Toilets & handwashing facilities are provided with TP, single use towels and garbage can with lid.
- Wash hands after EVERY use of toilet & apply new gloves if using.
- Everyone follows these rules.
- Field sanitation units are accessible for servicing in the event of a spill or leak.
- Continue to monitor use

# Is this a proper field sanitation unit?

# What is missing?

# What is correct? Missing?

# What is missing?

# Summary

- Develop a health and hygiene policy for your farm
- Keep workers healthy
- Send sick workers home
- Provide Training in:
  - Good health and hygiene practices
  - Handwashing
  - Accident and illness prevention
- Put up signage for handwashing instruction
- Provide clean restroom and handwashing stations and SOP for keeping them clean
- Monitor workers to ensure compliance

# Chemicals and Pesticides

# Follow all instructions

# Safe Pesticide Use

- Operator ID—required if using any pesticide
- Restricted Material Permit—required if using restricted materials
- Private Certified Applicator to apply restricted materials.
- Only registered pesticides by State of Ca. are legal.
- Back flow prevention valve
- All pesticides must be stored in locked area.
- Training must be provided to anyone applying pesticides
- Training must be documented

# Pesticide Reporting & Record Keeping

- Keep records of ALL pesticide applications for 2 years.
- PUR must be filled out and submitted to Ag. Commissioner's office within 10 days of the month after the application.
- If any pesticide has been used within the last 30 days, and workers are on the farm, workers must be informed of pesticide info: (MSDS, labels, Pesticide Safety Information Series).

# Locked and Labeled Pesticide Storage


# Proper chemical and container disposal

Dispose of leftover mixed chemicals and containers—DO NOT SAVE FOR REUSE

# Summary!
# How to Minimize Risk of Contamination

## Risks

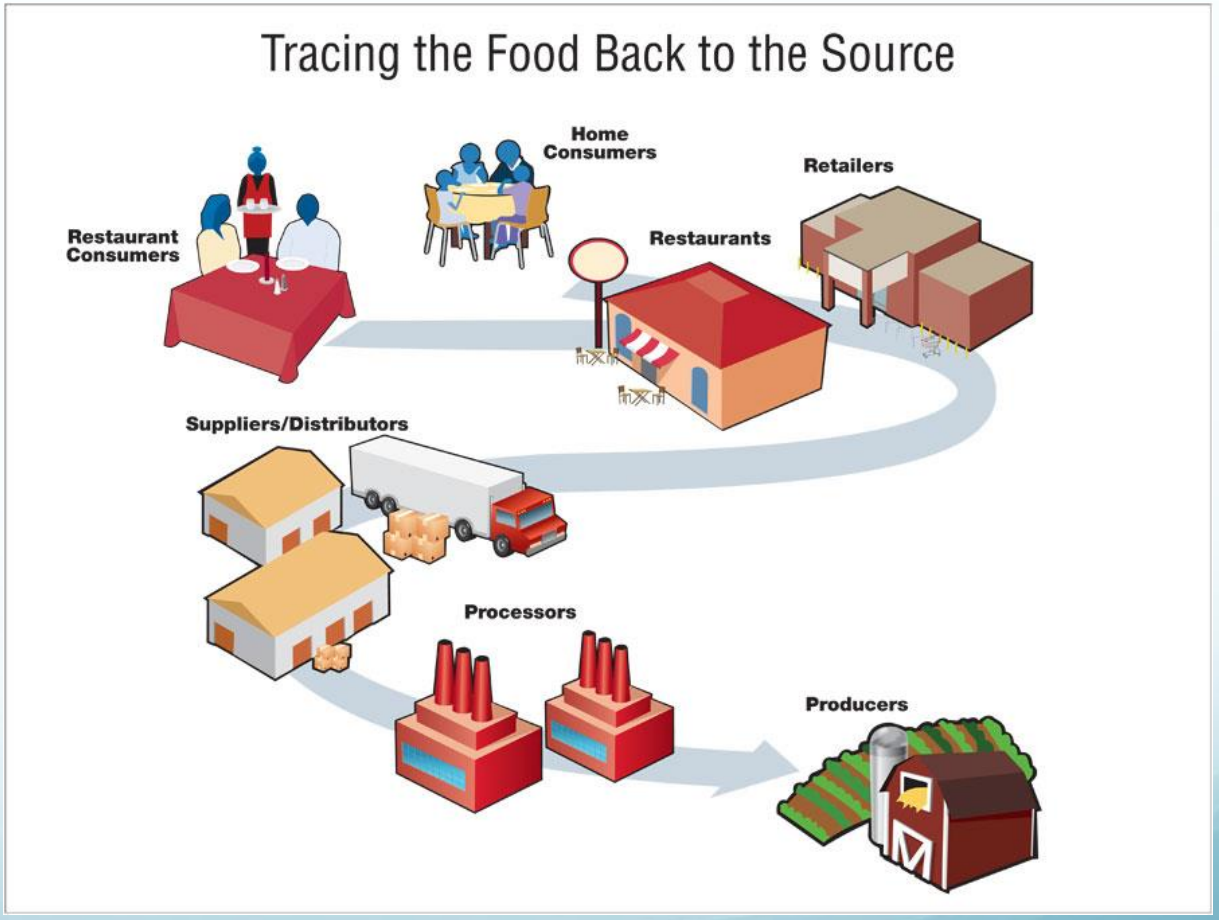
- Water
- Animals (intrusion)
- Soils & Land
- Surfaces & Equipment
- Worker Health & Hygiene
- Chemicals
- Transportation

## Corrective Actions

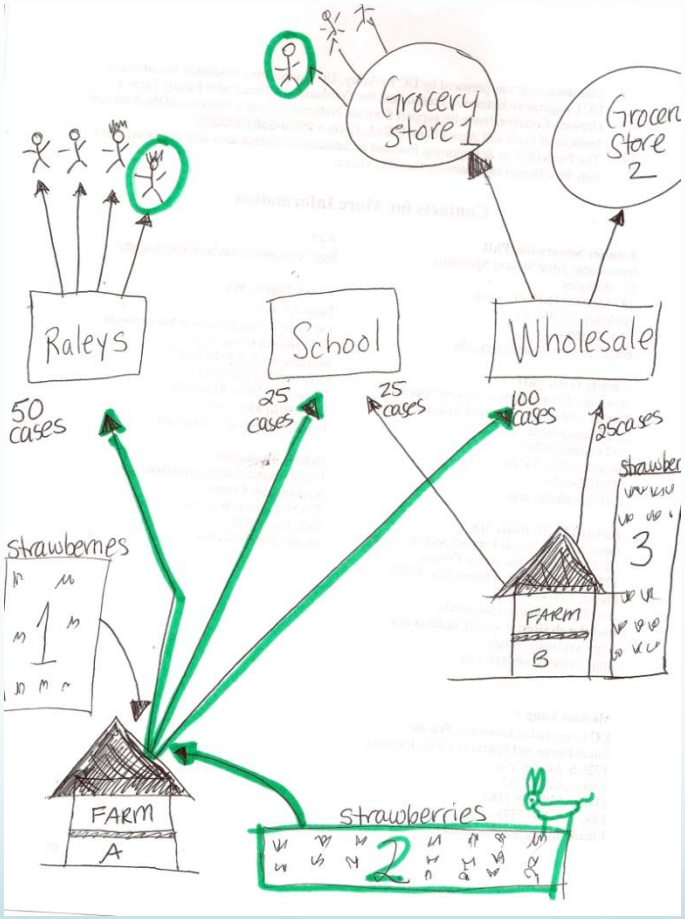
- Water test & treatment
- Fencing, avoid harvest, traps
- Soil test, manure records, land use history
- Clean & sanitize
- Worker Training, Toilets & handwashing facilities
- Proper use & storage
- Covered, Traceback

# Traceback and Recall

- A traceback system allows you to know where product came from and where product was sent to.



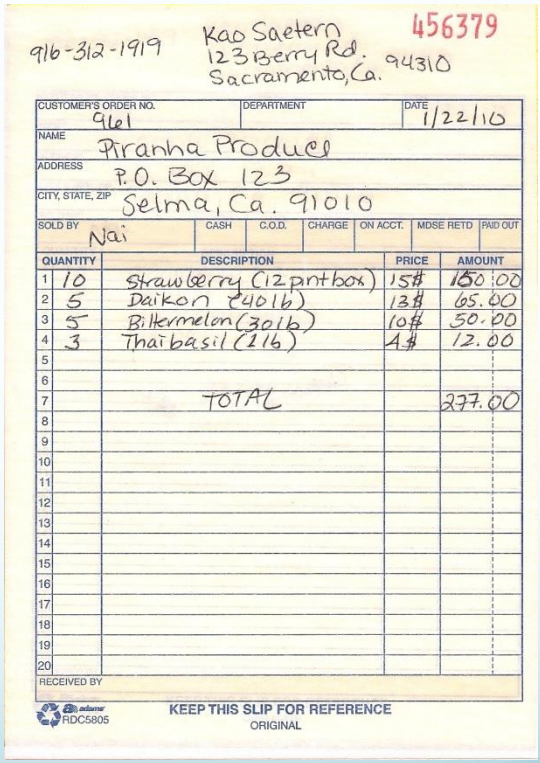
# Why is traceback important?



# What you need for traceback

## Labels


## Record Keeping



916-312-1919 Kao Saetern 456379
123 Berry Rd. 94310
Sacramento, Ca.

| CUSTOMER'S ORDER NO. | DEPARTMENT | DATE |
|---|---|---|
| 961 | | 1/22/10 |

NAME: Piranha Produce
ADDRESS: P.O. Box 123
CITY, STATE, ZIP: Selma, Ca. 91010

| SOLD BY | CASH | C.O.D. | CHARGE | ON ACCT. | MDSE RETD | PAID OUT |
|---|---|---|---|---|---|---|
| Nai | | | | | | |

| | QUANTITY | DESCRIPTION | PRICE | AMOUNT |
|---|---|---|---|---|
| 1 | 10 | Strawberry (12 pint box) | 15# | 150.00 |
| 2 | 5 | Daikon (40 lb) | 13# | 65.00 |
| 3 | 5 | Bitermelon (30 lb) | 10# | 50.00 |
| 4 | 3 | Thai basil (2 lb) | 4# | 12.00 |
| 5 | | | | |
| 6 | | | | |
| 7 | | TOTAL | | 277.00 |
| 8 | | | | |
| 9 | | | | |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |
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| 20 | | | | |

RECEIVED BY

adams RDC5805 KEEP THIS SLIP FOR REFERENCE
ORIGINAL

# SOP IRQ/Traceback Labels


THE BASICS: Your boxes must have the following information on them:

- I=Identity: What is in the box (eg. Bok choy)
- R = Responsible party: Farm or owner name and county.
- Q=Quantity: (eg. 20lb)
- Date of harvest
- Field of harvest

# Brand Name Label

# Produce Traceability Initiative



# 6. Traceback Record

**Name of Operation:_____**

**Please record any produce you sell beyond your farm stand here.**

| Date Harvested | Date Shipped | Crop | Production Area/field | # Boxes | Picked up/delivered by | Sent to | Total Price |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
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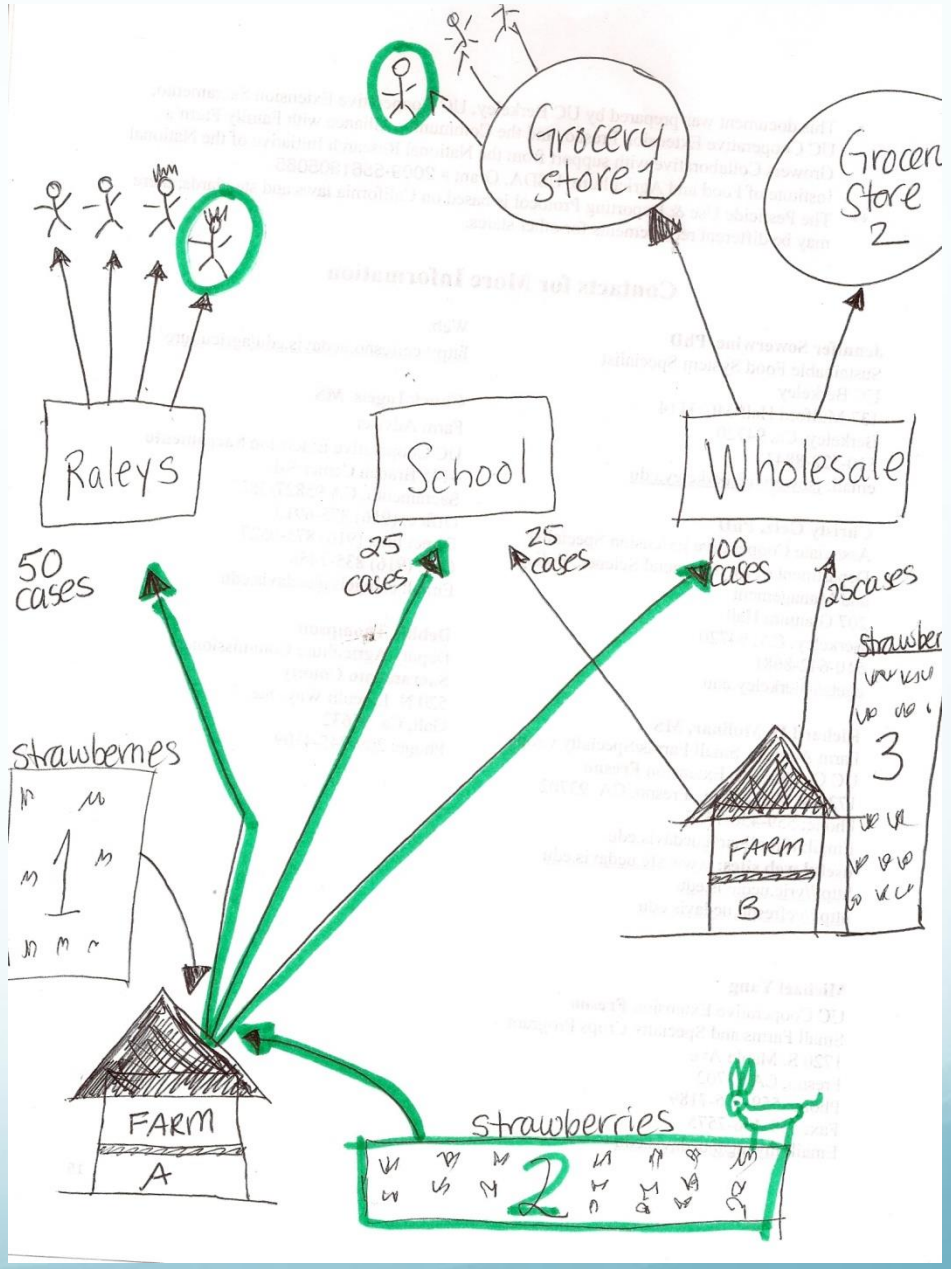
# Recall Program

- A recall program is the ability to pull product from the marketplace once it has left the operation’s control.
- One step forward, one step back

- Work with your suppliers to track the path the product takes from the farm to the consumer.
- Mock Recall: Conduct a mock or pretend recall to ensure your system works.




SOP-Mock Recall Plan Page 5

# Questions?