American Friends Service Committee

Food Safety & Quality Control Manual

January 2016

Introduction

AFSC is committed to supporting farmers in having safe food with uniform quality. Food safety is a growing concern. An increasing number of wholesale buyers are now requiring that farmers have a food safety program in place. It is important to document each step in the harvest process including washing, packing, storing and transporting of the product. There should be someone on the farm who is responsible for keeping all records current. AFSC suggests that farmers who aggregate together have the same standards for quality control so the customers see food that all looks the same and is packaged the same. This manual is meant to support farmers in food safety and consistent quality control.

Product	Optimal Storage Temperature (F)	Approximate Storage Life	Comments
Green Chile	32-50	6 months	
Peppers, Sweet Bell	45-55	2-3 weeks	
Plums	31-32	2-5 weeks	Ethylene Producing
Potatoes	45-50		
Prunes	31-32	2-5 weeks	Ethylene Producing
Pumpkins	50-55	2-3 months	
Radishes	32	3-4 weeks	
Raspberries	31-32	2-3 days	
Rhubarb	32	2-4 weeks	
Rutabagas	32	4-6 months	
Salad Mixes	32-35		
Spinach	32	10-14 days	
Sprouts	32-35		
Squashes, summer	41-50	1-2 weeks	
Squashes, winter	50	1-6 months	
Strawberries	32	3-7 days	
Sweet Potatoes	55-60	4-7 months	
Tomatoes, mature green	55-70	1-3 weeks	Ripening can be delayed by storing at 55-60 F (13-16 C)
Tomatoes, ripe	55-70	4-7 days	Ethylene Producing
Turnips	32	4-5 months	
Watercress	32	2-3 weeks	
Watermelon	55-70		Keep away from ethylene producing fruits

Table of Contents

All participating growers are required to have a traceability program. Having a traceability program in place will help identify any issues on your farm should a food-borne illness occur. It is important to make sure all documentation is accurate and up-to-date on a regular basis. It may be helpful to have one person, such as the Farm Manager, keep track of this documentation.

Components of a traceability program

- **Farm map**
- **Harvest Log**
- **Product Recall**

Farm Map **Appendix A** — Example Farm Map (pg 11-12)

A map of your growing areas can be hand drawn or a printed satellite image. The map should have all growing areas delineated and numbered and farm elements depicted, for example, include wells, ponds, storage areas, irrigations sources, etc. Maps need to be dated, reviewed and updated periodically or when succession planting occurs. It is up to the grower to determine the size of each growing area.

Harvest Log **Appendix B** — Example Harvest Log (pg 13-14)

It is important to fill out a **harvest log** every time you harvest. Designate someone on the farm who is in charge of keeping the log current. Harvest logs should include the following information:

- **Name of harvested product**
- **Amount of each product harvested**
- **Harvest date**
- **Name/Initials of harvester**
- **Name/Initials of washer**
- **Name/Initials of packer**
- **Product Destination/Market**
- **Order #** (Same # on the invoice and each box label for the delivery)
- **Date the product will be delivered**

Product Recall

Appendix C — Buyer Contact Information (pg 15-16)
Appendix D — Product Recall Log (pg 17-19)

If a buyer calls to complain that there is an issue with the product, a functional recall program will allow the farm to locate the origin of the problem and to immediately take a corrective action.

Product	Optimal Storage Temperature (F)	Approximate Storage Life	Comments
Cherries	32-35		
Collards	32	10-14 days	
Corn, sweet	32	5-8 days	
Cucumbers	50-55	10-14 days	
Eggplant	46-54	1 week	
Endive	32	2-3 weeks	
Escarole	32-35		
Escarole	32	2-3 weeks	
Garlic	32	6-7 months	May be stored at 55-70 F (13-21 C) for shorter periods
Grapes	31-32	2-8 weeks	
Green Beans	40-45		
Green Peas	32-35		
Greens, leafy	32	10-14 days	
Herbs	32-35		
Kale	32	2-3 weeks	
Kohlrabi	32	2-3 months	
Leeks	32	2-3 months	
Lettuce	32	2-3 weeks	
Melons, Honey Dew	50-55		Riper melons may be stored at 45-50 F (7-10 C)
Mushrooms	32	3-4 days	
Okra	45-50	7-10 days	
Onions	32-35		May be stored at 55-70 F (13-21 C) for shorter period
Parsley	32	2-3 months	
Parsnips	32	4-6 months	
Peaches	31-32	2-4 weeks	Ethylene Producing
Pears	29-31	2-7 months	Ethylene Producing

Appendix I — Example Product Temperature Chart

Product	Optimal Storage Temperature (F)	Approximate Storage Life	Comments
Apples	30-40	1-12 months	Chill sensitive stored at 35-40 F (2-4 C), Ethylene Producing.
Apricots	31-32	1-3 weeks	Ethylene Producing
Artichokes	32-35		
Artichokes, Jerusalem	31-32	4-5 months	
Asparagus	32-35	2-3 weeks	
Basil	52-59		
Beans, dry	40-50	6-10 months	
Beans, green or snap	40-45	7-10 days	
Beans, sprouts	32	7-9 days	
Beans. Lima	37-41	5-7 days	
Beets	32-35		
Blackberries	32-33	2-3 days	
Bok Choy	32-35		
Broccoli	32	10-14 days	
Brussels Sprouts	32	3-5 weeks	
Bunched Greens	32		
Cabbage	32	2-3 months	
Cantaloupe	36-38		
Carrots	32	2 weeks	Ethylene may cause a bitter flavor
Cauliflower	32	3-4 weeks	
Cauliflower	32-35		
Celery	32	2-3 months	
Celeriac	32	6-8 months	
Chard	32	10-14 days	

Designate one person to be in charge of the recall program. Each farm should perform a mock recall to ensure that the program is operational. Should a customer report food borne illness, below is the procedure to recall items:

1. Fill out a **Product Recall Log** for each reported incident.
2. Review **Harvest Log** to see where contaminated food was sent.
3. Call all customers whom received potentially contaminated food and ask them to remove the produce for retrieval and inspection.
4. Review **Harvest Log** to see where contamination might have happened and document for further inspection.
5. Review the incident with employees and member farms.
6. Schedule a pick-up date of produce to replace with fresh produce.

SECTION 2: Harvesting

Employee Health and Hygiene

Appendix E — Example Employee Health and Hygiene Policy (pg 20)

All farms should have written health and hygiene procedure for all persons that come into contact with the product. There should be someone designated to training workers on health and hygiene policies and making sure that the following health and hygiene procedures are being followed prior to harvest:

- All employees are in good health and any employee who self-reports feeling ill is sent home or assigned to a job that does not directly handle food/food contact surfaces.
- Everyone has properly washed their hands (in a hand washing sink – not where the food is washed).
- Check to see that employees are wearing clothes that show no signs of potential contaminants like large amounts of dirt, blood or other bodily fluids. Shirts with sleeves and closed-toed shoes are mandatory.
- Make sure that all employees have removed all jewelry or other possible hazardous objects from their person.
- Employees must wear their hair back with a hair net.
- Verify that all persons involved in the harvest process have signed or initialed the harvest log.
- Any employee with open wounds must wear gloves while harvesting as well as smokers in order to avoid loss in food quality.

Harvest Containers and Tools

Appendix F — General Harvest Cleaning Log (pg 21)
Appendix G — Food Safety Checklists (pg 22)

All harvest containers and tools need to be made of easy to clean, non-corrosive materials. All harvest equipment should be labeled for field use only and

stored in a designated protected area off the ground.

Sanitizing Harvesting Equipment

There are many potential food safety issues that can occur during the harvesting process. One major source of contamination is dirty harvesting tools and totes which could transfer communicable diseases between plants, such as blight and curly top virus. When a plant is cut, for instance broccoli or lettuce, the plant will draw in moisture as part of the healing process. If the harvesting tool is contaminated then the plant will draw in the contaminants. All tools and harvesting equipment must be cleaned pre- and post-harvest and cleaning records kept. Below is the process for cleaning harvest equipment.

Harvesting Tools:
1. Fill 2 sanitization buckets with water. In bucket #1, add soap and water. In bucket #2, add 1 tablespoon of bleach per gallon. Test bleach solution using test strips (solution should be between 100ppm and 200ppm).
2. Use a clean rag to scrub harvest container, first with the soap solution followed by the bleach solution.
3. Rinse with potable water and let air dry.

Harvesting Totes:
1. Wash inside of containers with bleach solution and rinse with potable water.
2. Allow items to air dry.
3. Store in an area free from contamination or potential hazards.

SECTION 3: Washing

All wash station surfaces that come into contact with the produce should be made of easy to clean, non-corrosive materials. The water for washing product must be potable. Personnel handling produce must be trained in proper handling and food safety procedures. Below is the process for sanitizing washing surfaces and tools.

Sanitizing Washing Surfaces:
1. Wash hands with soap and warm water for a minimum of 20 seconds.
2. Fill two sanitization buckets with hot water (at least 75° F). In bucket #1, add soap. In bucket #2, add 1 tablespoon of bleach and test bleach solution.
3. Add a clean washcloth to both buckets.
4. Wash surfaces with bucket #1 soap solution, then bucket #2 bleach solution.
5. Make sure to wash all surfaces that will come in contact with the product (wash basins, tables, scales, etc.).

Sanitizing Washing Surfaces in a Commercial Kitchen:
Please note, in most commerical kitchens, surfaces may be cleaned with certain chemicals that contain quaternary ammonium or **quat** to disinfect. You will not want this chemical to come into contact with your organic (certified or non-certified) product. In order to avoid contamination with quat, follow these

Tomatoes

Description	Specification	Case Weight
Tomato, Large Red	U.S. No 1 Grade Standard	10#/20#
	2 1/2 " diameter	

Quality: U.S. No. 1 Grade Standard
- Mature; not overripe
- Uniform size
- Free from scars or sunscald

Harvest: Harvest tips
Harvest tomatoes that need at least 4-5 days to ripen
Pick with the last node of the stem intact
Store fruits on flats with the stem facing downward. Take care not to let fruits roll into each other or puncture each other in transit

Handling and Packing
Cooling and Storage: Store tomatoes at 45-60 F

Washing: Wipe tomatoes clean with gloved hand. Do not submerge tomatoes in water

Packing
- Pack tomatoes in new 10 lb or 20 lb case
- Do not put tomatoes in food grade plastic linings

Appendix H — Example Product Specification

Spinach

Description	Specification	Case Weight
Spinach	U.S. No 1 Grade Standard	3#
	Trimmed and Washed	

Quality: U.S. No. 1 Grade Standard
- Free from coarse stalks
- No sign of discoloration, yellowing or decay
- Little to no insect damage

Harvest: Harvest tips
- Harvest in the morning or the cool part of the day; it's ok if the greens are still wet
- Harvest with a knife, scissors or pluck each leaf by hand

Handling and Packing
Cooling and Storage: Spinach should be stored at 32-36 F

Washing
- Double or triple wash in clean potable water changing washing water frequently
- Add hypochlorite or other approved sanitizing solution to the wash water following the instructions
- Spinach should be dried so that they are slightly damp but not wet

Packing
- Packed in 3 lb new food grade bags
- Leave air in the bags to buffer the spinach

sanitation steps **before processing** your product in a commerical kitchen.
1. Test surfaces to make sure that there is no quaternary ammonium contamination (**quat**) residue. If the surface tests positive for quat residue, wash the surface with a solution of water and soap, followed by bleach solution, then rinse with water and test again. Test until there is no quat residue detected.
2. Record and document both "bleach" reading and "quat" readings in the certified kitchen logbook.

Sanitizing Salad Spinner and Tools:
1. Fill a 3 basin sink with hot water. In basin #1 add soap. In basin #2 just hot water. In basin #3 add 1 tablespoon of bleach per gallon of water. Use the label instructions to determine the ppm.
2. Remove internal parts and lid of the salad spinner as well as any tools (i.e. strainers).
3. Add each internal piece in basin #1 and wash with a clean rag.
4. Transfer each piece from basin #1 to basin #2 for rinse process.
5. Transfer each piece from basin #2 to basin #3 for sanitizing.
6. Allow items to air dry for at least 15 mins.

Washing Produce Procedure:
1. Wash hands with soap and warm water.
2. Prepare and sanitize workspace and tools using the **Sanitizing Washing Surfaces** procedure (pg 5).
3. Fill two wash basins with **cold water.** In the 1st wash basin, add ½ teaspoon of bleach solution for 1 gallon of water. In the 2nd basin, add cold potable water. Test water in 1st basin for bleach levels (should be between 50 and 100ppm). **Water in 2nd basin should have a bleach reading of 0 ppm.**
4. Submerge product in water for at least 1-2 minutes.
5. Transfer the product to the potable water and dry product using appropriate drying methods.
6. If you are using wash water more than once to process products, the minimum testing frequency for free chlorine should be 30 minutes. Document readings.

SECTION 4: Packing

Product should be packed to meet buyer specifications. Typically buyers will require that produce be packed in either **new food grade plastic bags**, **new waxed/un-waxed cardboard boxes** or **used cardboard boxes with new food grade plastic liners**.

Packaging Procedures

Appendix H — Product Specifications for Santa Fe Public Schools (pg 23-26)

Put on food grade, disposable gloves (vinyl, latex, or nitrile) to avoid bare hand contact. If applicable, bunch product using rubber bands or twist ties. Handle product with care as you place in appropriate container. Weigh to desired

weight. Tie bag or secure box lid shut with packing tape and label with the following information:

- **Business name**
- **Order #** (Same order # on the harvest log and invoice)
- **Delivery Date**
- **Name of Product**
- **Total weight of the box or bag**

SAMPLE BOX LABEL

Business Name: _____
Order#: _____
Delivery Date: _____
Name of Product: _____
Total lbs: _____

Invoicing Procedures

The following information should be present on your invoice:

- **Business name and billing address (same as on W-9 from bid)**
- **Vendor contact person and contact information**
- **Order#** (Same order # on the box label and harvest log)
- **Delivery Date**
- **Name of product**
- **Price per unit**
- **Total weight of product**
- **Number of boxes/pallets in order**
- **Total price of invoiced goods**

SECTION 5: Storing

Procedure for storing product

Appendix I — Product Temperature Chart (pg 27-29)

1. Refer to the **Product Temperature Chart** to determine the appropriate temperature for storing each product
2. Set cooler to desired temperature
3. Make sure that all boxes are labeled properly
4. Place product in the cooler immediately after packing

SECTION 6: Transporting

Procedure for transporting product

1. Check to see that the delivery vehicle is clean, functional and free of objectionable odors.
2. Pack bagged produce into coolers with ice packs. **NOTE: Make sure that product is not**

Cucumbers

Description	Specification	Case Weight
Cucumbers, large	U.S. Extra No 1	20#/40#
	2" diameter, 8" length	

Quality: U.S. Extra No 1

- Firm and well-colored
- No scar or sun scald

Harvest: Harvest tips

- Harvest when dry
- Use knife or scissor to harvest; avoid pulling off stem-end of cucumber
- Clear any dried flowers from the end
- Wear clean gloves while harvesting

Handling and Packing

Cooling and Storage: Stored at 50-55 F

Washing

- Dunk in clean potable water
- Rub cucumbers with gloved hands to remove any dirt/debis

Packing

- Pack in clean 10, 20 or 40# boxes
- Line boxes with new food grade plastic lining. Do not seal the boxes
- Pack like sardines

Carrots

Description	Specification	Case Weight
Carrots, Med	U.S. No 1 Grade Standard	25#
	3/4 diameter, 8"-10" length	

Quality: U.S. No. 1. Grade Standard
- Similar sized Carrots
- No cracks, firm and clean

Harvest: Harvest tips
- Clear dirt at base of leaves to determine size
- Loosen with fork before harvesting
- Discard hairy roots, these are bitter
- Remove carrot tops in the field

Handling and Packing
Cooling and Storage: Refrigerate at 45 F

Washing
Wash in fresh potable water and scrub off mud and dirt. Towel or drip dry

Packing
- Pack in clean or new 25 lb boxes
- Line boxes with new food grade plastic linings
- Apply packing labels to each box

touching ice directly. Ice should be made from potable water.
3. For refrigerated vehicles, make sure that refrigeration is functional.
4. For non-refrigerated vehicles, deliver early in the morning and cover the boxes with a clean tarp.

SECTION 7: Resources

Here are some AFSC reccomendations of where to purchase needed supplies, such as, sanitation buckets, testing strips, gloves, hair nets, etc.

New Mexico

Aztec Discount Supplies
1421 Broadway NE
Albuquerque, NM 87102
(505) 873-5075
(800) 742-7442
SWS@AztecDiscountSupplies.com
www.aztecdiscountsupplies.com

McComas Sales, Inc.
2315 Fourth Street NW
Albuquerque, NM 87125
(800) 388-3456
www.mccomassales.com

Online

Uline
(800) 295-5510
customer.service@uline.com
www.uline.com

Webstaurant Store
(717) 392-7472
help@webstaurantstore.com
www.webstaurantstore.com

Farm Wholesale Ag
Laurie Stribling
Territory Sales Manager
(877) 476-5399
Laurie@Solexx.com
www.farmwholesaleag.com

Ecolab
(800) 352-5326
www.ecolab.com

Notes

Harvest Checklist

Task	Yes	No	Documented
All employees are in good health			
All employees have washed their hands			
Employees clothing does not pose a health hazard			
Employees have removed possible hazardous objects from their person			
Harvesters have initialed the Harvest Log			
Harvesting tools and totes are sanitized			

Washing Checklist

Task	Yes	No	Documented
All washing equipment has been sanitized			
All surface areas have been sanitized			
Any product that has come into contact with the ground has been disposed			
Employees are following health and hygiene policies and procedures			

Storing

Task	Yes	No	Documented
Cooler is set to the appropriate temperature			
All boxes are labeled properly			
Products are placed in the cooler immediately after packing			

Transporting

Task	Yes	No	Documented
Vehicle is clean			
Product is packed in cooler with ice packs			
Product is covered with a clean tarp			
Product is delivered during the coolest temp of the day			

Date	Equipment or Tool(s)	Cleaned	Disinfected	Initials

Appendix

Sample Farm Map from Satellite Photo

Policies should contain information on the following:

- Hand Washing
- Personal Hygiene
- Health and Sickness
- Personal Belongings
- Risks Associated with Blood and Bodily Fluid
- Eating and Drinking
- Restroom Use

Below is the policy created and used by La Plazita Institute

When to Wash: Food processors must wash their hands and exposed portions of the arms after touching bare human body parts, using the toilet room, handling animals, coughing/sneezing, using a handkerchief, using tobacco, eating/drinking, handling soiled equipment/utensils, as often as necessary to prevent cross-contamination, when switching between raw and ready-to-eat food, and after engaging in other activities that contaminate the hands.

How to Wash: Proper hand washing facilities should be equipped with non-perfumed soap disposable paper towels. Food Processors shall clean their hands and exposed portions of the arms by vigorously rubbing together the surfaces of the lathered hands and arms and thoroughly rinsing with clean water. Employees shall pay particular attention to the areas underneath the fingernails and between the fingers.

Hygiene: Food Processors shall maintain a high degree of personal cleanliness and shall conform to good hygienic practices during all working periods. Food employees shall have clean outer garments and wear effective hair restraints. Smoking, eating, and drinking are not allowed by food employees in the food preparation and service areas. All non-working unauthorized persons must be restricted from the food preparation and service areas.

Personal Belongings: Personal clothing and belongings must be stored at a designated place away from food, equipment, utensils, linens, and single service articles. When employees use the restroom, they shall remove outer garments; gloves, aprons, etc, before entering the restroom.

Procedures on Health and Sickness: When a food processor is sick they may be excluded or restricted from the work area depending on their symptoms below are the guidelines we follow to insure best practices.

Restricted from work Area: Food service processors with fevers or sore throats must be restricted from direct contact with food. This means that such employees should not be allowed around food, even with safety precautions such as clean hands, gloves, aprons and hair coverings. Some food service employers allow workers on restricted duty to perform tasks such as setting tables, sweeping and other non-kitchen related duties. Workers with these symptoms should not be allowed to work around high-risk populations in any capacity.

Excluded from work area: If processors exhibit any, or a combination, of the following symptoms, they should not be allowed to work in any capacity: vomiting, jaundice or diarrhea. Additionally, those who have contracted food-borne illnesses such as salmonella, hepatitis A, shigella or E. coli should not be allowed in the kitchen or any food service area. Managers must receive written clearance from such employees' health care providers before allowing them to return to work.

Corrective Action Log

This form should be filled out any time a recall occurs. This form is to verify that a corrective action was taken to address the problem and to mitigate future risks.

1. Why was there a recall? (E.g., What was the source of the problem?)

_____
_____
_____

2. What corrective action(s) was/were taken? (list and describe)

_____
_____
_____

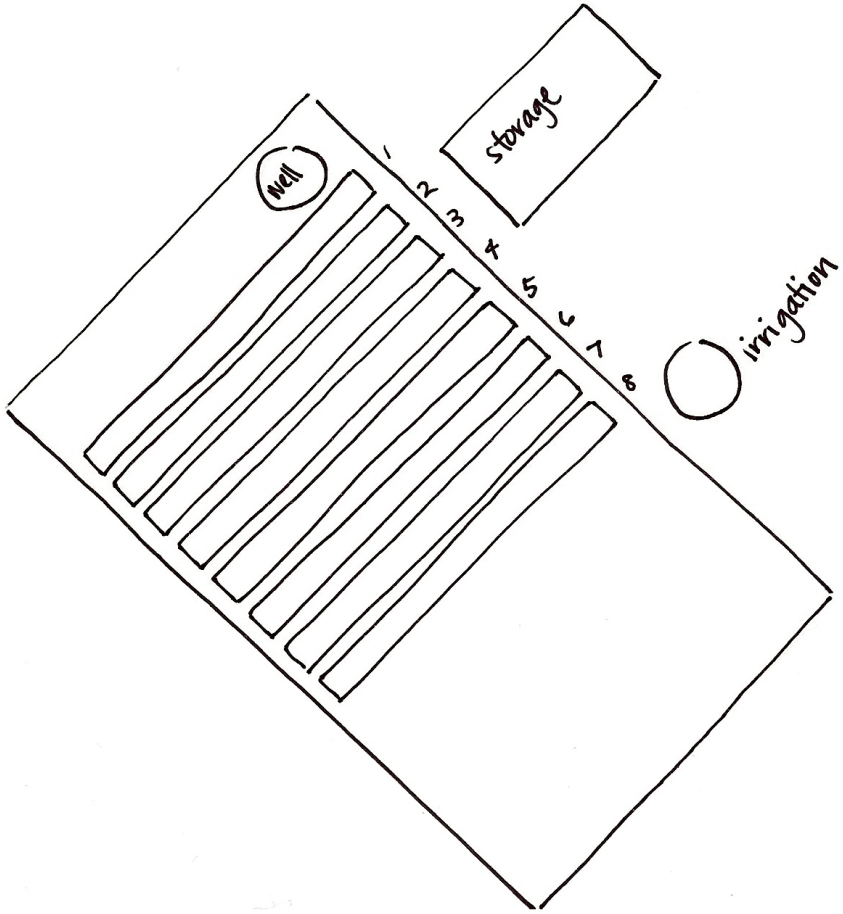
3. What ongoing procedures did you put in place to prevent the recurrence of the problem?

_____
_____
_____

4. Identify the person(s) responsible for ensuring the above actions and procedures are monitored and implemented.

_____
_____
_____

Person on Charge of the Recall Program:_____
Date: _____



Sample Farm Map from Drawing

Appendix B — Example Harvest Log

Product	Pounds	Field #	Harvest Date	Harvester (initials)	Washer (initials)

Date Delivered	Nature of Complaint	Qty Delivered and Requiring Recall	Corrective Action Taken (complete attached form)

Appendix D — Product Recall Log

Date/ Time of incident	Product	Order #	Order Qty	Business/Buyer Name & Contact Info

Packer (initials)	Destination	Pounds per Order	Order #	Delivery Date

Appendix C — Example Buyer Contact Information

Business Name/Buyer	Contact Person	Emergency Contact Phone Number	E-mail