

Good Agricultural Practices

Fresh Produce Safety Plan for Field Practices



This document was developed in workshops with North Carolina growers to provide a framework for them to develop their own food safety plans. Each grower's conditions are different. Some may find that the plan does not adequately address their specific conditions. In those cases, the plan will need to be supplemented.

Developing a food safety plan requires knowledge of farming practices and best management practices training. Don't be afraid to consult with experts. Before attempting to develop a plan, growers should obtain training in Good Agricultural Practices (GAP) offered by NC Cooperative Extension or government and trade organizations. Remember, this is just the written plan. The most important part is implementing, checking, correcting, and documenting the activities.

Food Safety Plan

Farm Name

This plan follows the USDA Good Agricultural Practices and Good Handling Practices Audit Verification Checklist categories of General Questions, Farm Review (Part 1) and Field Harvest and Field Packing Activities (Part 2). Individual questions are indicated at the beginning of each policy section.

Commitment to Production of Safe Foods:

Farm name is committed to the production of safe and high-quality foods. We subscribe to the principle that the appropriate method to accomplish this is to minimize the microbial, chemical, and physical contamination of produce at all points of the production process. It is our goal to produce premium-quality fruit/vegetables using good agricultural practices to maximize quality and productivity. To accomplish this, the following documented food safety plan is implemented and will be followed by all employees, contractors, and visitors to **Farm name** production sites and facilities.

Suggestions to improve this plan are encouraged at any time. This plan will be reviewed and reapproved at least annually or at the beginning of the spring planting season.

Facility Address (Physical and Mailing):

Farm Information:

Farm name is owned by **Owner Name**, and was started in **add year**. **Farm name** is dedicated to the agricultural activities involved in the production, packing, and marketing of **list of all commodities produced**. Currently, we are farming **add number** acres. We own **add number** acres and lease the additional **add number** acres in production. *(Statement of other physical buildings operated in conjunction with this farm's operations could be included here, such as packing house square footage).*

Organizational Chart

| | |
|--------------------------------|---|
| Owners | Click here to enter text. |
| Manager | Click here to enter text. |
| Assistant Manager | Click here to enter text. |
| Food Safety Officer | Click here to enter text. |
| Packing House Manager | Click here to enter text. |
| Packing House Crew Manager | Click here to enter text. |
| Office and Bookkeeping Manager | Click here to enter text. |
| Shipping and Transportation | Click here to enter text. |
| Traceability and Documentation | Click here to enter text. |
| Contact Person | Click here to enter text. |
| Broker | Click here to enter text. |

This plan will be considered current for one year following the date of the last review.
Authorized changes will be made in writing and recorded below.

| Date | Section Changed | Effective Date | Authorized by |
|------|---------------------------|----------------|---------------|
| Date | Click here to enter text. | Date | Add name |
| Date | Click here to enter text. | Date | Add name |
| Date | Click here to enter text. | Date | Add name |
| Date | Click here to enter text. | Date | Add name |
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| Date | Click here to enter text. | Date | Add name |
| Date | Click here to enter text. | Date | Add name |

Farm name authorizes/designates **Name** to make changes and oversee the implementation of this established food safety plan.

Name has participated in GAP/GHP trainings. **He/She** will be responsible for training employees and is provided with the authority and resources to fully accomplish this task.

All required documents are to be maintained at **farm name** offices.

All documentation logs will be maintained accordingly in the appendices.

By signing this document, I agree to adhere to all that is set forth in the Good Agricultural Practices Food Safety Plan.

Signature of Owner and Operator

Date

1.0 Land (Answers P-1, P-2, 1-7, 1-9, 1-23 - 1-25)

Purpose:

To ensure that best management practices and risk reduction methods will be employed while land is engaged for agricultural purposes. To ensure that farm land and adjacent land is suitable for and does not pose imminent risks to agricultural production of commodities intended for human consumption.

Concern:

Contamination from microbial, chemical, or physical contaminants.

Contaminants Introduction:

- Previous land use
- Poor agricultural practices on adjacent land
- Fecal matter from on-farm or adjacent livestock production
- Flooding or unusual rain events

Farm Map (detailed farm map and facility overview available in Appendix 1.1):

Previous Land Use:

Farm name is located on land that has been previously used for **insert previous use here**. Land use history and preventative measures to address risk are recorded in Appendix 1.2. Adjacent properties consist of **insert description of surrounding properties**. There are no sewage treatment facilities or landfills adjacent to the farm and manure lagoons adjacent to the property are well maintained to prevent leakage.

Crop production areas are protected from flooding. However if flooding occurs, affected produce is discarded and the soil is tested for potential microbial hazards. Records of flooding are kept in Appendix 1.3 - Notice of Unusual Events.

Appendix 1.1

Farm Name Facility Map Overview

This is a comprehensive list of fields in production with field designation number, acreage, crops, and physical address. This should include all fields with acreage indicated, any facility location, landmarks that define the property, sanitary facilities, adjacent land use, and water source (including pumps).

| *Field Designation # | Crops in production | Acreage | Physical address |
|-----------------------------|----------------------------|----------------|-------------------------|
| Enter number | Enter text | Enter number | Enter text |
| Enter number | Enter text | Enter number | Enter text |
| Enter number | Enter text | Enter number | Enter text |
| Enter number | Enter text | Enter number | Enter text |
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| Enter number | Enter text | Enter number | Enter text |

*Field Designation # can be the Farm Service Agency number plus the track number.

Insert Map here:

Appendix 1.2

Land Use History and Preventative Measures

Property Description (location and acreage):

Date of site evaluation:

Evaluation done by:

| | | |
|--|--------------------------|---|
| 1. Agricultural activities conducted on this site for last 5 years: | | Check applicable, indicate years |
| | <input type="checkbox"/> | Crop production only |
| | <input type="checkbox"/> | Both crops and animal production |
| | <input type="checkbox"/> | Permanent or temporary living facilities |
| | <input type="checkbox"/> | Fallow |
| 2. Crops grown on this site previously: | | Specify crops |
| | | |
| 3. Adjacent properties | | Check all that apply and proximity (feet) to land |
| | <input type="checkbox"/> | Crop production |
| | <input type="checkbox"/> | Dairy/livestock/poultry operation |
| | <input type="checkbox"/> | Watershed (indicate river, stream, pond, lake, municipality, well, other) |
| | <input type="checkbox"/> | Organic/Synthetic Fertilizer/Manure - dumping, storage, or handling |
| | <input type="checkbox"/> | Municipal or private dumping site |
| | <input type="checkbox"/> | Residential with septic systems |
| | <input type="checkbox"/> | Commercial or industrial development |
| | <input type="checkbox"/> | Golf course |
| | <input type="checkbox"/> | Other operations that might present a risk(specify) |
| 4. Has land been flooded in the past 60 days? | | |
| | <input type="checkbox"/> | Yes |
| | <input type="checkbox"/> | No |
| 5. Application of manure/biosolids? | | Indicate date |
| | <input type="checkbox"/> | Yes |
| | <input type="checkbox"/> | No |
| 6. Evidence of animal risks? | | Please indicate |
| | <input type="checkbox"/> | Downed fencing, tracks, feeding? |
| | <input type="checkbox"/> | Other |

7. Upon visual inspection of site, are there any potential food safety concerns? (for instance, recent dumping, evidence of old septic systems, upstream activities)

8. If any of the above creates a risk, are there pre-existing mitigation factors that should be considered? Examples include: topographical change/slopes, buffers, barriers, ditches, fences, distances to septic fields, inspection for leaks of septic system. (Please explain.)

9. Please explain any steps you will be taking to mitigate the risks addressed above. For instance, if fences need mending, or if flooding occurred within the last 60 days, indicate pathogen testing and documentation.

10. If applicable, try to obtain property owner's signature attesting to above evaluation.

Property Owners Signature:_____
Date

Site Evaluator Signature:_____
Date

Appendix 1.3

Notice of Unusual Events/Problems and Corrective Measures

Date: Time of Event (Approximate):

Description of unusual events/ or problems that could cause risk:

Live trap location and release location (if applicable):

Corrective measures to reduce risk:

Reported By:

Supervisor on Duty:

2.0 Worker Health and Hygiene (Answers G-4 - G-8, G-11 - G-15)

Purpose:

To address proper worker health and hygiene and to reduce the potential of contamination by a worker: either by their actions, hygiene practices, health, or habits.

Concern:

All workers have direct access to the entire food supply chain on the farm and thus have the potential to contaminate or cross-contaminate produce, which may result in increased probability of an adulterated produce and/or food-borne illnesses.

Contaminant Introduction:

- Appropriate drinking-water quality standards help ensure that contaminants are not introduced and promote employee health.
- Proper sanitation, health, and hygiene practices and policies teach employees and visitors to limit contamination of the work environment.

Policies and Procedures:

List what you are doing to avoid introducing contaminants and promote employee health. These are some sample policies.

General Policies and Procedures:

All workers and visitors involved in the production, harvesting, transporting, and marketing of crops on **Farm Name** are to follow the appropriate GAP policies and procedures to maintain food safety at all levels.

Farm name General Employee Policies:

All employees must sign and date the General Employee Policies for Food Safety found in Appendix 2.1. All farm workers and visitors who will be directly handling fresh produce at this facility will conduct themselves according to the general policies and procedures set forth below.

Farm name Procedures:

Farm Workers and Visitors Orientation

All employees will be trained in food safety and personal hygiene based on the Employee Health and Hygiene Training Content in Appendix 2.2. Employees and visitors will be provided with a brochure of food safety requirements in the appropriate language (English or Spanish) located in Appendix 2.3. Each employee will be required to sign a training roster (Appendix 2.4) signifying that they have received, understand, and will comply with these requirements.

All visitors will be required to sign in at the farm office upon entry to production areas. The visitor log is maintained in Appendix 2.5. Visitors will be given an overview of food safety requirements (worker and visitor hygiene training content

and brochure located in Appendix 2.3) in the appropriate language. By signing the log, visitors are certifying that they have received a copy of the Food Safety Procedures for Farm Workers and Visitors brochure and will comply with all policies and procedures, including proper sanitation and hygiene practices.

Worker Health

Workers with intestinal illness or infectious disease (diarrheal symptoms) should not be allowed to work in contact with fresh produce and should be assigned other duties when appropriate. Workers should promptly report any illness, cuts, abrasions, lesions, boils, sores, infected wounds, or other injury or illness to their supervisors and seek prompt attention. Injury or illness is recorded in Appendix 2.6. Produce that has come into contact with feces, blood, saliva or other body fluids will be immediately removed from the field, packing house, or storage area in accordance with the procedures in Appendix 2.7 - Emergency Procedures for Handling Produce That Has Come Into Contact with Blood or Body Fluids. Once the supervisor or crew chief has been notified of any of the above conditions, he or she will take appropriate measures to assign worker to a task that will not contaminate produce or equipment. An appropriate measure for minor cuts or open sores could be a combination of a leak-proof bandage as well as disposable nitrile gloves that completely cover the injury. The employee may return to work at the discretion of the supervisor. An adequately stocked first-aid kit should be available for immediate use.

Worker Hygiene

Workers should bathe and wear freshly laundered clothes daily. Employees must wash their hands with soap and running water before starting work, after breaks, after using the bathroom, and after touching unsafe materials (such as tools, contaminated produce or soil, and human body parts). Readily understandable signs are posted to instruct employees to wash hands before beginning or returning to work. Proper hand-washing procedure involves the following steps:

1. Wet hands with potable water, apply soap, and work up lather.
2. Rub hands together for at least 20 seconds.
3. Clean under the nails and between the fingers.
4. Rinse under the potable running water.
5. Dry hands with single use towel.

Employee Breaks

Break areas will be provided for all employees and will be separated from areas where product is handled. Smoking, chewing gum or tobacco, eating, and drinking are prohibited in the work area.

Potable drinking water will be provided for all employees. Drinking stations will be readily accessible and stocked with single-use cups. A first-aid kit will be accessible in a designated area during each shift. It is the responsibility of the field supervisor

to ensure drinking water containers are filled with potable water and refilled at designated potable water sources.

Application of Pre-/Postharvest Materials

Only employees with a pesticide applicator license or under the supervision of someone holding a pesticide applicator license may apply pesticides. Pesticide training certificates are maintained in Appendix 2.8. All non-regulated materials (such as fertilizer and waxes) will be applied by trained personnel; following all label instructions for quantity, application timing, mixing, application, storage, and disposal.

Appendix 2.1

General Employee Policies for Food Safety on **Farm name**.

1. No jewelry, including rings, watches, bracelets, necklaces, pins, earrings, nose rings, hairpins, or combs, may be worn in the field. A wedding band is allowed if employees wear nitrile gloves.
2. Personal belongings, including sacks, lunch bags, and clothing not being worn, should be stored in a designated area away from the field.
3. Pets are not allowed in the field.
4. Employees should not walk, step, sit, or lie on raw produce, packaging material, or food contact surfaces of equipment.
5. Smoking, chewing gum or tobacco, eating, and drinking are prohibited in the field area where crops are growing.
6. Absolutely no urinating, defecating, spitting, or nose-blowing on the ground or around the fields is allowed. Never allow any body fluid of any kind to come into contact with produce or in any of the work environment where not specifically allowed.
7. Hands must be washed before starting work, after breaks, after using the bathroom, and after touching unsafe materials (such as tools or human body parts). Employees will be regularly observed for compliance with the requirement of washing hands.
8. Proper personal hygiene and sanitation must be practiced by all personnel. Workers should bathe daily and wear freshly laundered clothes each day.
9. Personnel must promptly report and seek treatment for any illness, lesions, boils, sores, infected wounds, or other injury. Sick or injured employees should not come to work or should check with their supervisors before starting work. All workers diagnosed with an illness or workers with diarrheal symptoms are not allowed to work in direct contact with produce or in other work environments, such as the field.
10. Supervisors and employees will be familiar with the "Emergency Procedures for Handling Produce That Has Come Into Contact with Feces, Blood, Saliva or Other Body Fluids" document and procedures.
11. First-aid kits will be kept by field supervisors.
12. Employees should check for appropriate pesticide warning signs before entering a field or starting work.
13. All employees must attend food safety and personal hygiene training before starting work with **Farm name**. All employees will be required to sign a roster stating that they received, understand, and will comply with these requirements.
14. A non-compliance form will be completed up to three (3) times if these policies are not followed.

By signing this document, employee agrees to adhere to all policies set forth.

Signature of Employee: _____

Signature of Supervisor: _____ Date: _____

Appendix 2.2

Employee Health and Hygiene Training Content

Resource to hand out to employees (downloadable for free)(BILINGUAL):

National GAPs Program. Did you know? In the field, there is a need for hygiene too!

Editors Elizabeth A. Bihn, Robert B. Gravani, and Kay Embrey 2005.

<http://www.gaps.cornell.edu/Educationalmaterials/Samples/FieldPhotoNovelSampleEng.pdf>

PROMOTE WORKER HYGIENE

One of the major sources of food-borne pathogen contamination is workers' hands. The single most effective method of preventing produce contamination is proper hand washing.

Hand washing:

- 1. Provide clean restroom facilities and stock them with soap, clean water, and single-use towels.**
- 2. Teach all workers about microbial risk and the importance of good hygiene.**
 - Poor hygiene can cause them to become sick and even die
- 3. Train all workers in proper hand-washing techniques**
 - 20 seconds of vigorous scrubbing with soap and water
 - Thoroughly dry with disposable hand towels
 - Properly wash hands after each visit to restrooms and before handling equipment, machinery, and raw produce

Restrooms and Hand-Wash Stations:

1. Restrooms will be easily accessible and stocked with disposable paper towels and soap in proper dispensers.
2. Portable restrooms will be stationed within ¼ mile or five minutes' walking distance of the work area and will be sufficient to provide one facility per 20 persons.
3. Portable restrooms will be directly accessible to the septic trucks servicing them and located in an area where leakage or spills will not contaminate crops.
4. Employees will always have the opportunity to use the facilities when they require them.
5. Management and employees will monitor all restrooms.
6. Restrooms will be cleaned, sanitized, and maintained, whenever the need arises.

Break Areas and Employee Water:

1. Break areas will be provided for all employees away from the harvest area to prevent contact with produce.
2. Cool, potable drinking water will be provided for all employees daily.
3. Drinking stations will be readily accessible and well stocked with single-use cups.

Injuries and illnesses:

- 1. Do not allow workers with open wounds to work.**
 - Open wounds can contaminate fresh produce.
 - Bandages are necessary to protect wounds but can become contaminated. Restrict workers with bandaged wounds to areas where they do not come in contact with fresh produce.
 - If hand wounds are bandaged, nitrile gloves must be worn to prevent the bandages from becoming a source of contamination. Gloves can also become contaminated. Change and discard gloves periodically, and prohibit gloves with holes or tears.
- 2. Workers who exhibit symptoms of illnesses should not be allowed to work in direct contact with produce.**
 - They can transmit their sickness to others.

Hygiene and Conduct:

1. All employees must shower or bathe daily.
2. Clean clothing should be worn every day.
3. Nails must be clean and trimmed. No false nails or false eyelashes.
4. Always wash hands after coughing and sneezing; after using the restroom, smoking, and taking breaks; before entering the work area; and after using the telephone.
5. No jewelry should be worn, except a wedding band.
6. Pens, pencils, or similar items must be carried in shirt pockets.
7. No bottles, cups, glasses, or any items made of glass are allowed in the work area.
8. Running, horseplay, or improper use of forklifts, tractors, trucks or other equipment is strictly prohibited.
9. Employee policies and procedures must also be followed by visitors in contact with produce or in produce flow zone.
10. Workers are responsible for cleaning up after themselves, including using garbage cans or other trash receptacles in work areas and restroom facilities.
11. Sick or injured employees cannot work without being examined by a physician or authorized by a supervisor to continue work.
12. Open cuts, boils, lesions, or rashes must be covered by pants, sleeves, or gloves.
13. Any product or packaging material exposed to feces, saliva, blood, or other bodily fluid must be destroyed immediately.
14. Short haircuts for men are recommended, but if long hair is worn, it must be tied back in a ponytail or bun.

15. Do not leave tools or parts that need repairing in the field or in production areas.
16. Food and drink are allowed only in designated break areas.
17. Anyone under the influence of drugs or alcohol is not allowed to work.
18. Pets or other domestic animals are not allowed in the work area.
19. Employees should not walk, step, sit, or lie on raw produce, packaging material, or the contact surfaces of equipment.
20. Smoking, chewing gum or tobacco, eating, and drinking are prohibited in the work area.
21. Smoking will be allowed only in designated areas away from where product is handled.
22. Cigarette butts must be disposed of in garbage cans or other trash receptacles.
23. Urinating, defecating, spitting, and nose-blowing onto the ground is never allowed in or around the work area.

Appendix 2.3

Farm Name

Food Safety Procedures for Farm Workers and Visitors

This brochure recaps some important points from your orientation. Please take the time to look over it and become more familiar with its points. Do what you can to prevent contamination of produce, soil, and equipment. If you see something that needs attention, let your supervisor know.

Employee Hygiene

We are in the fresh produce business, and many of our products are going to be consumed without cooking. All employees are expected to practice personal cleanliness. There are many opportunities for food to become contaminated as it is produced and prepared. One of the major sources of food-borne pathogen contamination is worker's hands.

The single most effective method of preventing produce contamination with these organisms is proper hand washing.

We must all do our part to prevent food-borne illnesses to our customers!

Hand-washing

Hand washing is the most effective way to prevent the spread of germs. Wash your hands after coughing and sneezing, using the restroom, smoking, or taking breaks, before entering the work area, and after using the telephone.

Drinking Water, Breaks, and Comfort Areas

- Water in the coolers is from safe drinking water sources and is available to you at all times. Please place cups in the receptacles provided and notify your field supervisor when the cooler needs to be refilled.
- Smoking and eating are allowed only in designated areas. Smoking and the use of tobacco and chewing gum are prohibited outside the break areas.
- Toilets are provided and are clean and properly supplied. Please notify the field supervisor if these need attention. Toilet paper is to be placed directly in the toilet bowl.

Illness

If you have an intestinal illness or symptoms of another infectious disease, you are prohibited from handling produce. Notify your supervisor and you will be assigned other responsibilities.

If You are Injured or Have an Emergency

You are required to seek prompt treatment for cuts, abrasions and other injuries. First aid kits are located at the comfort station. Notify your field supervisor.

Handling and Disposition of Produce or Surfaces That Have Come into Contact with Blood or Body Fluids

In the event of such contamination, notify your field supervisor immediately. The contaminated area should be isolated immediately. It will be the responsibility of the field supervisor to make sure contaminated produce is sealed in plastic bags and removed from the field. Equipment should be decontaminated according to procedures in the food safety plan.

Be Vigilant

Food safety depends on the attention of all employees, workers and supervisors. Be on the lookout for potential sources of contamination such as signs of animal activity and feces. Let supervisors know if there are unauthorized persons or suspicious activities in the field. Be watchful. Report failures in the food safety plan. Our customers are counting on you.



Food safety is the responsibility of every employee!

FARM NAME

Street Address

Address 2

City, ST ZIP Code

Phone:

Fax:

E-mail address

Appendix 2.4

Basic Food Safety, Personal Health, and Hygiene Training Roster

*Registro de Entrenamiento de Seguridad Básica de los Alimentos,
Salud e Higiene Personal*

Name of operation:
Nombre de la operación

Date:
Fecha

Trainer:
Entrenador

Interpreter:
Intérprete

Location:
Lugar

I am committed to working safely to ensure the well-being and health of my family and those who eat this produce. I am informed of and will abide by these safe food-handling practices.

Me comprometo a trabajar de manera segura y responsable para garantizar el bienestar y salud de mi familia y de aquellos que comen estos productos. Yo estoy informado y voy a cumplir con estas praactias seguras de manejo de alimentos.

| Employee Name (please print) <i>Nombre del Empleado (por favor en letra impresa)</i> | Employee Signature <i>Firma del Empleado</i> |
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| 4. | |

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| 11. | |
| 12. | |
| 13. | |

Supervisor Signature: _____
Firma del Supervisor

*Training material found in the Good Agricultural Practice Food Safety Plan.
* *El material del entrenamiento se encuentra en el Plan de Buenas Prácticas Agrícolas de La Seguridad de los Alimentos*

Appendix 2.5

Visitor Log

Farm name

Nombre de la Granja/Finca

By signing this visitors log, you are stating that you have been provided with a copy of the Food Safety Procedures for Farm Workers and Visitors brochure and will comply with all policies and procedures including proper sanitation and hygiene practices.

Al firmar este registro de visitantes, usted está indicando que se le entregó una copia del folleto de los Procedimientos de La Seguridad de los Alimentos para Trabajadores Agrícolas y Visitantes, y que cumplirá con todas las políticas y procedimientos, incluyendo las prácticas adecuadas de higiene y sanidad.

| Date <i>Fecha</i> | Enter time <i>Hora de Entrada</i> | Visitor Name <i>Nombre del Visitante</i> | Business <i>Empresa</i> | Field/Facility Visited <i>Campo/Instalación Visitada</i> | Exit time <i>Hora de Salida</i> |
|----------------------|--------------------------------------|---|----------------------------|---|------------------------------------|
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Revised by:
Revisado por

Date:
Fecha

Appendix 2.6

Illness/Injury Log

[illegible]

Appendix 2.7

Emergency Procedures for Handling Produce That Has Come Into Contact with Feces, Blood, Saliva or Other Body Fluids

1. In the event that a worker becomes ill or injured, seek first aid immediately. Move the worker out of the field, when possible, and away from produce.
2. Clearly mark and isolate the area of the spill and keep other workers and equipment away.
3. Once the supervisor has determined that cleanup should proceed, follow the appropriate procedures listed below:

Field Contamination Procedures:

1. Use shovels to place contaminated soil and produce into doubled heavy plastic garbage bags.
2. Close the bags and move them to the designated area for disposal.
3. Place shovels in separate bags so they will not contaminate workers, soil, or produce, and move them to the designated area for later decontamination.
4. Dispose of the contaminated bags of produce and soil in a manner approved by the county environmental health department. Decontaminate and disinfect shovels in an area that will not re-infect the production area or any work environment associated with produce.

Building Contamination Procedures:

1. Use appropriate cleaning and sanitation methods for the surface involved (concrete, carpet, tile). Remember to wear gloves.
2. Remove surface materials as necessary and dispose of materials in a manner approved by the county environmental health department. Decontaminate and disinfect cleaning equipment (gloves, brushes, and the like) or dispose of properly.
3. Record the incident and cleanup activities and attach it to the Daily Field Supervisor's Checklist.

Appendix 2.8
Pesticide/Regulated Materials Training Certificates

Attach certificates here.

3.0 Restrooms and Sewage (Answers G-9, G-10, 1-6, 2-2 - 2-5)

Purpose:

To ensure that sanitation facilities are properly maintained to minimize the risk of introducing pathogens to produce.

Concern:

Improperly maintained sanitation facilities present opportunities to introduce pathogens that contaminate production areas and compromise workers' health.

Contaminants Introduction:

- Pathogens can be introduced to production fields and employees by improper management of sanitation facilities.

Policies and Procedures:

Growers should list what they are doing to maintain and prevent contamination by restrooms, field sanitation units, and septic systems. These are some sample policies.

1. All Occupational Safety and Health Act 29CFR, 1928.110 rules will be followed where eleven (11) or more employees are engaged on any given day in hand-labor operations in the field.
(http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10959).
2. Sanitation facilities, including restrooms and hand-wash stations, will be located within ¼ mile or five minutes' walking distance from the field.
3. One toilet and one hand-washing station will be provided for every 20 employees.
4. Toilet facilities will be easily accessible and stocked with toilet paper. Hand-washing facilities will be stocked with single-use disposable paper towels, soap, potable water, and a trash receptacle. This is recorded in Appendix 3.1 - Service and Cleaning Log for Sanitation Facilities.
5. Bilingual signs requiring employees to wash hands after using the restroom will be posted.
6. Toilet facility will have a cleaning checklist located inside that indicates each time the facility has been cleaned or restocked. This is recorded in Appendix 3.1 - Service and Cleaning Log for Sanitation Facilities.
7. Sanitary facilities will be directly accessible for septic truck servicing and will be located in an area where leakage or spills will not contaminate crops.
8. No waste from the sanitary facilities will be disposed of in the fields. In the event of a spill, all steps will be taken to minimize the likelihood of crop contamination. Refer to Emergency Response Plan for Spills/Leaks for Sanitary Facilities in Appendix 3.2.
9. All sanitary facilities will follow NC DENR rules and regulations for Septage Management section 800 (<http://www.wastenotnc.org/swhome/rules.asp>) "Septage" includes solid waste that is a fluid mixture of untreated and partially treated sewage solids, liquids, and sludge of human or domestic

origin that is removed from a wastewater system. It includes washings from the interior of septage handling containers, including pumper trucks.

10. Farm sewage treatment and septic systems will be visually monitored daily by the farm manager for evidence of leaking or runoff, using the Daily Field Supervisor checklist found in Appendix 3.3.
11. In the event of a septic systems leakage, the Emergency Response Plan for Spills or Leaks in Sanitation Facilities (Appendix 3.2) will be used to document and contain contamination.
12. Septic systems, sewage treatment facilities, and stormwater discharge areas will be located and assessed for overflow potential.

Appendix 3.1

Servicing and Cleaning Log for Sanitation Facilities

Location of operation

Please see the food safety plan for overall field sanitation unit service procedures.

| Sanitation Unit # | Date of Cleaning | Cleaned By (name) | Date of Servicing | Serviced By (name) | Supplies Stocked** |
|-------------------|------------------|-------------------|-------------------|--------------------|--------------------|
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* See field map for locations of each unit in fields.

** Sanitation supplies are single-use towels, toilet paper, hand- or anti-bacterial soap, potable water for hand washing

If contracted with sanitation company, attach service/cleaning receipt.

Reviewed by:

Title:

Date:

Appendix 3.2

Emergency Response Plan for Spills or Leaks in Sanitation Facilities

Location:

Date:

Explain spill/leak event:

Response Plan for remediation:

1. **Assess the situation** for any additional immediate hazards to field, employees, and water sources. If immediate hazards are assessed, call 911 or other emergency services that can deal effectively with spills. If water sources are affected, call NC DENR Waste Management Division to assess the situation and determine procedures.
2. **Contain and Control the spill.** Your first priority is to protect yourself and others, then stop the leak by righting the sanitary unit if possible. Confine the spill if possible by shoveling a ditch around it to prevent runoff.
3. **Clean up the spill.** Call sanitary facility service provider to immediately respond to this spill. Provide location and time of spill. Service provider will clean up the site.

Appendix 3.3

Field Supervisors Daily Checklist for **Farm name.**

Field Location:

Date:

| √/Date | Item | Comments / Corrections |
|--------|---|------------------------|
| | All new workers complete orientation, get brochure, and sign roster | |
| | Water containers are filled from potable drinking water. | |
| | All employees are clean. Sick or injured employees asked to report to supervisor. Sick workers reassigned. | |
| | Employees wash hands before starting work, after breaks. | |
| | Break areas designated. Restrooms are clean and fully supplied. No leaks. | |
| | First-aid kits available. Supplies for cleanup of contamination and body fluid spills available. | |
| | Visual inspection of water sources and sewage system does not indicate areas at risk for contamination. | |
| | Areas with evidence of animal activity, flooding, or other contamination have been documented with Notice of Unusual Events/Problems and Corrective Measures | |
| | Harvesting tools and containers are properly stored and clean and in good repair. | |
| | Harvesting machinery is clean and free from excessive dirt and mud, dripping lubricants, or fuel. Light bulbs, glass, and plastic are protected to avoid contaminating produce in case of breakage. | |
| | Pesticide spray equipment visually checked for damage. | |

Signed _____ Date _____

List the items needing follow up on the **Notice of Unusual Events/Problems and Corrective Measures** and attach to this document.

4.0 Water (Answers G-3, 1-1 - 1-5, 2-15)

Purpose:

To ensure water used in the field for irrigation, frost protection, or as a carrier for pesticides and fertilizers is of adequate quality for agricultural uses and is free of microbial and chemical risks. To ensure that water available for workers for drinking and hand washing is potable.

Concern:

Water is a vehicle by which pathogens that are associated with food-borne illnesses (such as pathogenic *E. coli* and *Salmonella*) and can contaminate produce.

Contaminant Introduction

- Chemicals or amendments that could pose a risk.
- Harmful pathogens that can cause food-borne illness from either point or non-point sources.

Policies and Procedures:

List what you are doing to protect your water sources from contamination and describe your water testing procedures and frequencies. These are some sample policies.

Water source for irrigation is from **pond, stream, well, municipal, or other specified** for fields **field designated numbers**. Crops are irrigated by **overhead, drip, other specified** for fields **field designated numbers**. Frost protection is accomplished by **overhead or other specified** for fields **field designated numbers**.

Potable water used for drinking, hand washing, and postharvest activities is from **pond, stream, well, municipal, or other specified**.

Water testing results for these sources are available in Appendix 4.1 - Water Sampling Monitoring Log.

1. Water used for irrigation, spraying, mixing pesticides, and frost protection that comes in direct contact with plants will meet foliar-application water standards. A test documenting that the water source is potable will be kept on record in Appendix 4.1 for at least two years.
2. Water sources will be inspected for possible contamination daily and results recorded on the Field Supervisors Daily Checklist (Appendix 3.3). If potential contamination is found, a Notice of Unusual Events/Problems and Corrective Measures (Appendix 1.3) will be completed.
3. Water sources (wells, ponds, surface waters) will be protected from runoff, leaching, spillage, drift to water sources, and livestock or wildlife by constructing necessary measures (diversion berms, runoff control structures, vegetative buffers) to limit fecal and regulated or non-regulated contaminants.

4. Control measures like backflow prevention devices, check valves, and air-gaps in the water distribution system will be installed to prevent regulated (pesticides and non-regulated materials (fertilizers) from contaminating water sources.
5. Sound conservation practices, such as a vegetative buffer, will limit the potential of point and non-point source contaminants.
6. Portable restroom and hand-washing facilities will be located so as to reduce the risk of water contamination from spills.
7. Water sources and irrigation methods that reduce contact between non-potable water and edible portions of produce (drip irrigation) will be used when applicable.
8. Identification of all upstream uses of surface water and any potential sources of contamination will be identified using the Land Use History and Prevention Measures document (Appendix 1.2).
9. Irrigation water will be sampled for quality at the water source at the beginning of the growing season and then quarterly until harvest. Records for all tests will be maintained in Appendix 4.1). Water testing sites will be based on the location of point and non-point sources and additional tributaries coming into the main water sources.
10. Field water samples will be collected from the water sources (and distribution systems) no more than 60 days before the beginning of each production season and continue on a scheduled basis according to the degree of risk associated with the water source:
 - a. Municipal water source – one annual test
 - b. Wells - one annual test
 - c. Surface waters/ponds – tested each month during production season
11. Microbial testing of water samples will be a quantitative analysis for generic *E.coli* using the Clean Water Act of 1972 Bacterial Water Quality Standards for Recreational Waters (Freshwater and Marine Waters) and the Leafy Greens Marketing Agreement Guidance:
 - a. Non-foliar application of water: Water with ≤ 126 MPN geometric mean of 5 samples and $< 576/100$ mL for all single samples.
 - b. Foliar application of water: Water ≤ 126 MPN geometric mean of 5 samples and $< 235/100$ mL for all single samples.

Corrective Measures:

If generic *E.coli* test samples show unacceptable amounts, the following steps will be taken:

- Stop irrigation.
- Stop harvesting.
- Identify the source of contamination and determine remediation actions (flush systems, chlorinate).
- Dispose of any adulterated product in accordance with the FDA's disposal policy (via landfill or incineration)
(http://www.fsis.usda.gov/PDF/Disposal_Decontamination_Guidelines.PDF)
- Resample water sources and individual distribution systems if necessary until acceptable criteria have been reinitiated.
- Resume production activities once acceptable criteria are met.

Other possible mitigation measures:

- Wells
 - shock the well with chlorine.
 - repair casing
 - find an alternative water source (For water sources that are contaminated and no alternative water supplies are available, an automatic chlorination system is a possible mitigation measure.)

Appendix 4.1

Water Sampling Monitoring Log

[illegible]

5.0 Animals (Answers 1-8, 1-11 - 1-13)

Purpose:

To ensure that best management practices are used within agricultural production fields to limit potential contamination by animal activities.

Concern:

Animal feces in agricultural production of fresh fruits and vegetables have been found to be a vehicle for pathogens associated with microbial contaminants and cross-infection.

Contaminants Introduction

- Nearby animal manure sources
- Livestock/animal access to both crop production areas and water sources

Policies and Procedures:

List what you are doing to exclude animals from the field to avoid introducing contaminants. These are some sample policies.

1. Crop production areas and facilities will be located to prevent runoff from animal production.
2. Farm maps (Appendix 1.1) will identify the existing permanent animal production areas, specifically upstream and upwind animal pastures, feedlots, manure lagoons, and uncontrolled animal access to surface waters.
3. NC Wildlife Resource Commission guidelines (http://www.ncwildlife.org/fs_index_04_hunting.htm) will be followed for hunting, trapping, and handling animals.
4. Non-regulated wildlife nuisances will be live-trapped and relocated, and a Notice of Unusual Events/Problems and Corrective Measures will be completed.
5. Domestic nuisances will be identified and owners notified or Animal Control will immediately remove animals from production areas.
6. Production areas will be visually inspected daily for broken fences and other signs that wild or domestic animals have entered the area. Water supplies will also be visually checked. Documentation will be with the Field Supervisor's checklist (Appendix 3.3).
7. When choosing new fields, the location of manure storage and treatment sites will be considered, making sure they are not contributing sources of contamination on produce fields or packing facilities.
8. Natural or physical containment barriers, including berms, buffer zones, and ditches, will be located between the manure lagoons or manure storage areas and will be designed to divert potential overflows, if found to be needed.
9. When possible, physical topography will be utilized to eliminate potential runoff or restrict access to water sources.
10. Unrestricted access by livestock to surface waters will be limited when possible.

Corrective Measures

1. If evidence of animal waste is found, an area (5 feet square) will be quarantined to eliminate potential cross-contamination and prevent accidental harvest. Evidence will be removed and disposed of immediately. This activity will be recorded in Appendix 1.3 - Notice of Unusual Events.
2. All necessary measures to prevent domestic animals from re-entering crop production areas and water sources will be taken, including repairing or installing fences or ditches and advising employees to immediately report incidents.

6.0 Manure (Answers 1-10, 1-14 - 1-22)

Purpose:

To provide effective and safe application of soil amendments while minimizing microbial hazards.

Concern:

Animal manures and other soil amendments are a potential source of human pathogens, which can contaminate the soil and persist for many years.

Contaminants Introduction

- Raw and composted manure and biosolid handling and application methods can introduce human pathogens.

Policies and Procedures:

List what you are doing to properly store and handle manure. These are some sample policies.

All soil amendments, such as manure and biosolids, will be composted properly and handled in ways consistent with best management practices for reducing the risk of contamination to crop production areas and water sources.

1. State whether you use any of the following:
 - a. Raw: Either state *no raw compost used* or state your implemented best management practices with other applicable information, including timing of application (120 days prior to harvest), timing of incorporation, cover cropping practices, storage location, proximity to water source and likelihood of runoff, source and quality, commodity applied to, transport vehicles/equipment cleaning, and sanitation practices. All can help reduce the likelihood that contaminants can exist.
 - b. Composted manure or treated biosolids before land application: See more details below. State which methods you use and what steps you take to prevent contamination. No untreated biosolids will be used.
 - c. No manure or biosolids used: Select if you use other commercially available plant foods—a broad term that encompasses all other soil amendments used for nutrient and soil structure management.
2. Composted manure or treated manure
 - Passive – dependent on passage of time together with environmental factors such as temperature, moisture, UV irradiation.
 - Active – Specified monitoring and requirement for composting from NC DENR rules and regulations will be followed under the section 1400 Composting (<http://www.wastenotnc.org/swhome/rules.asp>). A copy of the composting process with temperature and time will be documented in Appendix 6.1 - Composting Log.

3. When manure or biosolids are purchased, specification analysis reports and other information from the supplier will be kept for each shipment, indicating that the proper procedures were followed, if applicable. These records will be made available in Appendix 5.1 - Composting log.
4. Composted manure will be stored in a site away from water sources, pesticide handling sites, or other possible recontamination sources. Storage sites will also be chosen to minimize runoff.
5. All manure application will be recorded, with location, type of soil amendment, date, rate, date applied, type of plant, and planting date included. These records will be kept in Appendix 6.2 - Manure Application Log.
6. All vehicles and equipment used for manure composting and spreading will be cleaned and sanitized before using.

Appendix 6.1

Composted/Treated Manure Log

| Application Date | Field/Location | Rate | Source of Composted/Treated Manure | Documentation of sufficient composting level* |
|------------------|----------------|------|------------------------------------|---|
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*** Attach compost analysis if purchased or temperature and date taken if supplying your own compost**

Appendix 6.2

Manure Applications Log

[illegible]

7.0 Equipment and Containers (Answers 2-1, 2-6 - 2-14, 2-16 - 2-20)

Purpose:

To ensure that proper harvesting, handling, and transportation procedures will be employed to reduce risk of contamination, including proper cleaning, sanitation, and maintenance of all equipment and containers.

Concern:

Field packing, harvesting and transportation activities all present opportunities to introduce pathogens that contaminate production areas and compromise workers' health.

Contaminants Introduction

- Harvesting vehicles and equipment can serve as a potential vehicle for introduction and cross-contamination of pathogens.

Policies and Procedures:

List what you are doing to maintain equipment and containers during harvesting. These are some sample policies.

Proper harvesting, handling, and transporting procedures will be employed to minimize the risk of introducing human pathogens to workers, harvesting equipment, and tools.

1. A pre-harvest assessment of crop production areas is completed noting risk and possible sources of contamination (Appendix 3.3 - Field Supervisor's Daily Checklist)
2. All equipment and harvesting containers that come into contact with produce are cleaned and sanitized on a scheduled basis. Describe this procedure. Records of these actions are kept in Appendix 7.1 - Cleaning and Sanitizing.
3. Damaged harvesting equipment is promptly repaired or disposed of
4. Harvesting equipment/machinery is properly maintained and kept in good repair
5. Glass/plastic/other physical contamination is recorded in Appendix 7.2 - Contamination During Harvest log, and the contaminated produce is disposed of.
6. Chemical, petroleum, pesticide, or other contamination is recorded in the Notice of Unusual Events log (Appendix 1.3) and contaminated produce is disposed of
7. Harvesting containers are used only for produce items
8. Produce is covered during transportation from field to other areas

If field packing:

1. Only new or sanitized containers are used for packing
2. Containers are properly stored and protected from contamination

Appendix 7.1

Cleaning and Sanitizing Log

[illegible]

Appendix 7.2

Contamination during Harvesting Log

[illegible]

8.0 Traceability (Answers G-1, G-2, 1-26, 2-21)

Purpose:

To ensure that there is a system in place to track produce one step forward and one step backward within the food production chain.

Concern:

Without adequate systems to identify and recall contaminated produce, the occurrence and resultant outbreaks of food-borne illness and other health hazards will continue to be unacceptable.

Contaminants Introduction:

Introduction of bacterial or chemical containments could have adverse health consequences.

Policies and Procedures:

Farm name has instituted a traceback/traceforward system that will allow us to effectively identify and recover potentially adulterated, misbranded, or hazardous foods from trade and consumer channels.

1. **Farm name's** traceability system is as follows:

Insert traceability program here. Be sure to outline how you will identify crops harvested on a daily basis from each other. List all documents and records you keep of these activities in Appendix 8.1 including maps (Appendix 1.1).

A system has been developed to uniquely identify products and trace units of produce back to the:

- Packing facility
- Specific grower*
- Specific orchard/field*
- Harvest Date *
- Packing Date

*Indicate the necessary information required from field-pack operations that will go through an external packing house. The entire list of information is required of field-pack that pack their own produce.

2. **Farm name** has conducted a mock recall and documented its effectiveness:

Describe your mock recall procedures here. Include any documents or records you keep of these activities in Appendix 8.2.

Conduct a mock recall and document its effectiveness.

- Document the date and time of the practiced recall. A product should be able to be traced and accounted for within a maximum of 2 hours.

- Create a recall team complete with names, positions, and multiple contact numbers.
- Create a recall scenario - why the recall is occurring (example: food-borne illness, metal, poor quality)
- Create a step-by-step procedure of the recall.
- Write a summary of the practiced recall including the total percentage of product recalled.

Appendix 8.1

Traceability Log

[illegible]

Appendix 8.2

Mock Recall Log

| Date: | | | Buyer name: | | | Buyer contact info: | | |
|-----------|------|--------------|-------------|----------------|-----------------------------|---|---------------------------------|----------|
| Product | ID # | Harvest Date | Ship Date | Amount Shipped | Date & Time Buyer Contacted | Amount of Product Remaining in Buyer Possession | Amount of Product Sold by Buyer | Initials |
| | | | | | | | | |
| Comments: | | | | | | | | |

***Attach confirmation of successful mock recall.**