



RHODE ISLAND GAP PROGRAM GUIDELINES

INTRODUCTION

At the suggestion of health professionals, Americans have increased their consumption of fresh fruits and vegetables by 24% in the past 20 years. However, there has also been a documented increase in foodborne illness outbreaks directly linked to fresh and minimally processed fruits and vegetables. In an effort to respond to this issue and as well as maintain the viability of agriculture in New England, the six land grant universities in the region have developed a research and outreach education program which is funded by USDA. The goal of this program is to use Good Agricultural Practice (GAP) guidelines developed by USDA and the Food and Drug Administration (FDA) to integrate food safety principles into production of fresh and minimally processed fruits and vegetables.

The glossary of terms includes a listing and definition for agricultural and food safety related terms used throughout the project's educational materials.

The program guidelines are based on the October 1998 document- *The Guidance for Industry: Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables* published by the Food and Drug Administration and USDA. The guidance document addresses common good agricultural practices associated with the production of fruits and vegetables-manure/bio-solids, water, worker hygiene and sanitation-from harvesting to packing. The Rhode Island Program Guidelines and the Farm GAP Audit Form are based on those developed for the New England GAP Project. These Guidelines and the Farm Audit Form were reviewed by the program advisory committees in the six New England states. The state advisory committees were comprised of state and federal agricultural agencies, university cooperative extension professionals and farmers.

The guidelines as well as the Rhode Island GAP Program Farm Audit Form have been revised periodically to address new issues of concern.

GLOSSARY OF TERMS

Air Gap is an unobstructed open vertical distance through air that separates an outlet of the potable water supply from a potentially contaminated source like a drain.

Agricultural water refers to water used in the growing environment including water used for irrigation, cooling, frost protection, or as a carrier for fertilizers and pesticides. Typical sources of agricultural water are rivers, streams, irrigation ditches, ponds, reservoirs, lakes, wells, and municipal supplies.

Approved Sanitizer is a sanitizer that has been approved by the FDA for use on food and food contact surfaces.

Backflow is flow of contaminated water into the potable water supply caused by backpressure.

Biosolids are the by-product of human waste treatment by local government that may be used as fertilizer or as a soil amendment. EPA regulations control their use as a soil conditioner because it may contain possible pathogens and heavy metals.

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Clean means that produce and-contact surfaces are washed and rinsed and are visually free of dust, dirt, food residues, and other debris.

Compost is organic residue, or a mixture of organic residues and soil that have been piled, moistened and allowed to undergo biological decomposition. Mineral fertilizers are sometimes added.

Contamination is the unintended presence of harmful substances or conditions in food that can cause illness or injury to people who eat the food.

Cross Connection is any physical link through which contaminants from drains, sewers or waste pipes can enter a potable water supply.

Foodborne Illness is an illness transmitted to people through food.

Food-Contact Surfaces are those surfaces that may come in contact with fresh produce. They include equipment, such as containers and conveyor belts which may be used in harvesting, post harvesting, and packing operations.

EPA Drinking Water Standards are standards for drinking water established by the EPA. These standards indicate that the water meets specific microbial standards.

Good Personal Hygiene Practices are good health habits including bathing, washing hair, wearing clean clothing and shoes and proper hand washing. Also, not working with fresh produce when ill with symptoms including coughing, sneezing, diarrhea or uncovered wounds, lesions and boils.

Good Management Practices refer to general practices to reduce microbial food safety hazards. The term may include both "good agricultural practices" used in growing, harvesting, sorting, packing, and storage operations and "good manufacturing practices" used in sorting, packing, storage, and transportation operations.

Manure is animal feces not composted or incompletely composted. May contain pathogens like Salmonella and E. coli 015:H7.

Manure Slurry is a mixture of manure and water.

Microorganisms include yeasts, molds, bacteria, protozoa, helminths (worms), and viruses. Occasionally, the term "microbe" or "microbial" is used instead of the term "microorganism."

Microbial Hazard means occurrence of a microorganism that has the potential to cause illness or injury.

Pathogen means a microorganism capable of causing disease in humans.

Pest refers to any animal or insect of public health importance including, but not limited to, birds, rodents, cockroaches, flies, and larvae, that may carry pathogens that can contaminate food.

Potable Water refers to water that meets the EPA drinking water standards.

Processing Water means water used for post-harvest treatment of produce, such as washing, cooling, waxing, and product transport.

Trace-back is the ability to track fresh produce items back to their source including growers, packers and transporters. This may be helpful in identifying and eliminating a potential hazard in the farm to table pathway.

Sanitary means the food contact surface is clean and free of harmful microorganisms and other contaminants.

Sanitizing means to adequately treat clean food-contact surfaces by a process that is effective in destroying or reducing the numbers of harmful microorganisms without affecting the quality of the food or its safety for the consumer.

Sanitizer is a chemical compound designed to kill microorganisms.

Rinsing means removing residues, soil, grease, soap and detergents from surfaces by flushing with potable water.

Washing means removing all soil or food residues from surfaces by scrubbing and using potable water and soap.

Worker Training Program includes training and information sharing sessions for all workers. The training focuses on good personal hygiene practices in the field and packinghouse. Also practices in relation to reducing the risk of foodborne illness through good agricultural practices.

REFERENCES AND RESOURCES

- **Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables**<http://www.cfsan.fda.gov/~dms/prodguid.html>
US Department of Health and Human Services, Food and Drug Administration
Center for Food Safety and Applied Nutrition (CFSAN), October, 1998
Food Safety Initiative Staff, HFS-32
U.S. Food and Drug Administration, Center for Food Safety and Applied Nutrition
200 C Street S.W. Washington, D. C. 20204
- **Food Safety Begins on the Farm: A Grower's Guide
Good Agricultural Practices for Fresh Fruits and Vegetables**
Anusuya Rangarajan, Elizabeth A. Bihn, Robert B. Gravani, Donna L. Scott, and Marvin P. Pritts. Cornell University Good Agricultural Practices Program
(607) 254-5383, eab38@cornell.edu
- **Kansas Food *A* Syst- A Food Safety Risk Management Guide for the Producers**
Karen P Penner, Judy Willingham, Department of Animal Sciences and Industry, Kansas State University-<http://www.oznet.ksu.edu>
- McSwane, D., Rue, N., Linton, R., Essentials of Food Safety and Sanitation, Upper Saddle River, NJ, Prentice Hall,

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I. Water Sources for Irrigation and Drinkable Water (potable water)

- A. Wells are protected from outside contamination.
- B. Drinkable water supply and/or wells are tested at least once a year.
- C. Water source(s) used for washing produce are located the distance required by local/state regulations from the manure storage facility, livestock areas, pesticide storage area and septic system drainage field.
- D. Water used to clean and/or sanitize produce and for human consumption meets current EPA drinking water standards.
- E. Records of all water tests on file.
- F. Backflow devices and air gaps are installed at appropriate locations.
- G. Good management practices are in place to protect the quality of irrigation water.
- H. Farm livestock access to ponds and streams used for irrigation is limited.

II. Good Manure/Bio-solids Management Practices

- A. Storage and treatment facilities located as far as practical and possible from growing and handling areas.
- B. Storage and treatment facilities include physical barriers that prevent leakage, run-off or wind spread.
- C. There is a manure management plan in place that meets current USDA standards and includes:
 - 1. A fly control program
 - 2. Manure is incorporated into the soil immediately after application
 - 3. Measures are in place to minimize recontamination of composted manure
 - 4. Fresh manure in any form is kept away from edible plant parts during the growing season.
- D. Use of manure in any form during the growing season should be in accordance with USDA and/or state regulations.
- E. Equipment that comes in contact with manure/bio-solids in any form is cleaned prior to and during harvest and/or transportation of fresh produce.
- F. Biosolids are applied in accordance with local regulations/processor instructions.

III. In the Fields

- A. Worker Health and Hygiene
 - 1. Worker food safety training is in place.

2. Workers and supervisors practice good personal hygiene which includes:
 - a. Clean clothing, shoes/boots
 - b. No smoking or eating in work area
 - c. Hair is covered
 - d. Wash hands as required
 - e. Limited bare hand contact with fresh produce.
 - f. Open wounds are covered with clean bandage and a single-use glove is worn over the bandage.
 3. Field workers have easy access to toilet and hand washing facilities.
 4. Supervisors are aware of the symptoms of foodborne illnesses.
 5. Sick employees and those with open wounds are reassigned to duties where there is no direct contact with produce.
- B. Sanitary Facilities
1. Toilet facilities and hand washing stations are clean and regularly serviced (soap, water, single use paper towels).
 2. Portable toilets are maintained and transported in a manner that prevents wastewater from contaminating fields.
- C. Sanitation
1. Harvest storage containers are cleaned prior to use.
 2. Clean containers are kept covered until used in the field.
 3. Harvesting equipment is kept clean and in good working-order.
 4. Harvested produce does not come in contact with manure/biosolids, nonpotable water, workers with poor hygiene and/or dirty boots and clothing, dirty packaging or storage containers.
 5. Farm livestock, including poultry and/or pets, are restricted from fields or orchards where crops are grown and harvested.

IV. In the Packing/ Processing Facility (check with the local regulatory authority to determine if the facility must be licensed and meet regulatory standards).

- A. Worker Health and Hygiene
1. Worker food safety training in place.
 2. Workers practice good personal hygiene
 - a. Clean clothing and shoes/boots
 - b. No smoking or eating in work area
 - c. Hair covered
 - d. Wash hands as required.
 - e. Limit bare-hand contact with fresh produce.
 - f. Open wounds covered with a clean bandage and single- use glove
 3. Sick employees and those with uncovered open wounds, sores, etc are assigned to other duties having is no direct contact with fresh produce.

B. Sanitary Facilities

1. Restrooms are accessible and well serviced (cleaned regularly and well supplied with water, soap and paper towels)

C. Sanitation

1. Approved sanitizers used to sanitize food contact surfaces.
2. Area and equipment cleaned and sanitized at least once a day.
3. Unused and new packing containers protected from contamination during storage.
4. Pest control system in place.
5. Produce waste is removed daily.
6. Grounds maintained in good condition.

D. Temperature Control

1. Refrigeration storage units are maintained at the correct temperature
2. Refrigeration units not loaded beyond capacity.
3. Ice used for cooling is made of potable water.

D. Storage of Harvested Crops

1. Storage areas are clean and free of contamination.
2. Storage areas are used exclusively for food crops.
3. Depending on the nature of the crop, produce is stored at least six inches off the floor.

F. Washing Operations

1. Sanitizer leveled monitored.
2. Wash water is changed when dirty or after several hours.
3. Wash water changed when dirty or after several hours and maintained at temperature no more than 10 degrees cooler than the produce.
4. Packing lines, conveyer belts and all other food contact surfaces are washed, rinsed and sanitized at the end of the day.

V. Transportation-Farm to Market

- A. Workers loading and transporting produce practice good personal hygiene.
- B. Harvested produce loaded and stored in a manner to minimize physical damage and reduce risk of contamination during transport and to allow for air circulation.
- C. Vehicles used to transport fresh produce to market are clean and well maintained.
- D. Vehicles used to transport produce are not used to transport animals or animal products.

VI. Traceback Systems

- A. Records are maintained for all produce leaving the farm.

VII. Pick Your Own Operations-Field Sanitation (could also apply to those who give farm tours)

- A. Pets and farm livestock are not allowed in "pick your own" area
- B. Toilet facilities and handwashing stations are clean, regularly serviced and maintained in good working order (soap, water and single-use paper towels) and available for customer use.
- C. Clean containers available are for customer purchase and use.
- D. Produce picked by customers not accepted for sale.
- E. Facilities are available for customers to wash hands after coming in contact with farm animals (petting zoo) prior to entering "pick your own" area.

VIII Retail Operations

- A. The facility is clean and maintained in an orderly manner.
- B. The farmstand's walls, ceilings, and floors are maintained and free of major cracks and crevices.
- C. The ambient air temperature in refrigeration units is monitored on a regular basis and temperature logs are maintained.
- D. The area in and around the retail operation is free of debris and litter.
- E. Only foodgrade containers are used to hold produce that is for sale.
- F. The area around the retail operation is free of standing water.
- G. Outside garbage receptacles/dumpsters are closed and located away from the retail operation entrances and the area around them free of debris.
- H. Pets and animals are not allowed in the retail area.
- I. Produce that is normally displayed in water that is clean and changed often.
- J. All sliced fruits are wrapped and displayed on ice or in a refrigerated display case.
- K. There is a pest control program in place

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