

## Food Safety on the Farm – An Overview of Good Agricultural Practices<sup>1</sup>

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### Introduction

Good agricultural practices (GAPs) and good handling practices (GHPs) encompass the general procedures that producers and packers of fresh fruits and vegetables should follow to ensure the food safety of their product. GAPs usually deal with preharvest practices (i.e., in the field), while GHPs cover postharvest practices, including packing and shipping. We will use the term GAPs to generally cover pre- and postharvest practices associated with the safe handling of produce, both fresh and minimally processed.

This factsheet is intended to review the generally recognized principles of GAPs as they relate to produce, primarily at the farm level. Subsequent Florida Cooperative Extension factsheets under preparation will cover the individual principles in detail, with particular focus on fresh Florida crops and practices.

### Are GAPs Required?

From a regulatory standpoint, GAPs are considered guidelines, and are therefore not

mandatory. However, it is plausible that recent produce-related foodborne illness outbreaks may encourage a shift towards some type of regulatory requirement. From a commercial standpoint, purchasing requirements and approved vendor programs may require that a particular grower or packer have a formal, documented GAPs program in place. This is often true for large, national customers, as well as for product that is intended for export to other countries. Additionally, some states, and some commodities operating under specific Marketing Orders, may have specific requirements related to GAPs or GAPs-like programs.

### Background

In 1998, the U.S. Food and Drug Administration (FDA) published the *Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables* (also referred to as the *Guide*, and available at <http://www.cfsan.fda.gov/~dms/prodguid.html>). This document was intended to assist domestic and foreign producers, packers, and shippers of unprocessed or minimally processed (raw) fresh fruits and vegetables by increasing awareness of potential foodborne hazards and providing suggestions for individual

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operations. The FDA stated that these guidelines were broad-based and voluntary. The topics outlined in the *Guide* form the basis for GAPs, as outlined below.

Concurrently, Cornell University launched a major program called the National GAPs Program (<http://www.gaps.cornell.edu/>) with the objective of serving as the main university-based clearinghouse for GAPs research and extension information. This program's Web site serves as a valuable resource about GAPs for producers, packers, and trainers. Another resource for growers that is based on the *Guide* also can be found at the site. The document, *Food Safety Begins on the Farm – A Grower's Guide*, can be downloaded from [http://www.gaps.cornell.edu/PUBS/FSBF\\_Bk\\_Eng.pdf](http://www.gaps.cornell.edu/PUBS/FSBF_Bk_Eng.pdf). This pamphlet is written in easily understood language and is available in both English and Spanish.

## GAPs Topics

The following GAPs statements and explanatory comments should be considered in any comprehensive produce food-safety program. The accompanying checklist can be used as a preliminary assessment tool for individual operators.

### Water

The quality of the water used in any operation directly impacts the potential for risk of foodborne illness from the product, and must be considered in detail.

- This consideration should include flume water, processing water, and water used for irrigation, mixing pesticides and other foliar-applied products, frost protection, equipment sanitation, product sanitation, and cooling operations.
- The operator should be aware of the source, distribution, and quality of all water utilized.

### Manure and Municipal Biosolids

Properly treated manure or biosolids can be an effective and safe fertilizer if the proper precautions are in place.

- Use treatments to reduce pathogens in manure and other organic materials. Treatments may be active (e.g., composting) or passive (e.g., aging).
- Be aware that siting manure treatment and storage sites close to fresh produce fields increases the risk of contamination.
- Consider factors such as slope and rainfall and the likelihood of runoff into fresh produce production areas.
- Use barriers or physical containment to secure storage and treatment sites.

### Worker Health and Hygiene

Infected and/or unhygienic employees who work with fresh produce can increase the risk of transmitting foodborne illness.

- Train employees to follow good hygiene practices.
- Establish a training program about health and hygiene. Include basics, such as proper handwashing techniques and the importance of using toilet facilities.
- Become familiar with typical signs and symptoms of infectious diseases.
- Offer protection to workers with cuts or lesions on parts of the body that may make contact with fresh produce.

### Sanitary Facilities

Poor management of human and other wastes in the field or packinghouse can significantly increase the risk of contaminating produce.

- Toilet facilities should be properly located.
- Toilet facilities should be accessible.
- Toilet facilities and handwashing stations should be well-supplied.
- All facilities should be kept clean.

## Field Sanitation

Fresh produce can become contaminated from contact with soil, fertilizers, water, workers, and harvesting equipment during preharvest and harvest activities.

- Clean harvest containers or bins prior to use.
- Take care not to contaminate fresh produce that is already washed, cooled, or packaged.
- Use harvesting and packing equipment appropriately and keep it as clean as practicable.
- Assign responsibility for equipment to the person in charge.

## Packing Facilities

Maintain packing facilities in good condition to reduce the potential for microbial contamination.

- Remove as much dirt as practicable outside of packing facility.
- Clean pallets, containers, or bins before use; discard damaged containers.
- Keep packing equipment, packing areas, and storage areas clean.
- Store empty containers in a way that protects them from contamination.
- Establish and maintain a pest control program.

## Transportation

Proper transport of fresh produce will help reduce the potential for microbial contamination.

- Good hygienic and sanitation practices should be used when loading, unloading, and inspecting fresh produce.
- Inspect transportation vehicles for cleanliness, odors, and obvious dirt and debris before loading.
- Avoid leaving harvested crop in the sun and maintain proper temperatures throughout the transportation process.

- Load produce to minimize physical damage.

## Traceback

The ability to identify the source of a product is an important component of food safety programs. Under the Bioterrorism Act of 2002, this is now mandatory for any shipper or packer of fresh fruits and vegetables.

- Documentation should include the source of the product, the date of harvest, farm identification, and a record of who handled the product.
- The product must be traceable from the farm through the packers, distributors and transporters, and retailers.

## References

Cornell University Department of Food Science. 2002. National GAPs Program Web site. <http://www.gaps.cornell.edu/> (accessed October 12, 2006).

United States Food and Drug Administration. 1998. Guide to minimize microbial food safety hazards for fresh fruits and vegetables. FDA/CFSAN Web site. <http://www.cfsan.fda.gov/~dms/prodglan.html> (accessed October 12, 2006).