



# Keep Fresh Produce Safe Using Good Agricultural Practices (GAPs)

FOR MORE INFORMATION

**Penn State Extension.** Contact the Penn State Extension office in your county, call one of the farm food safety experts listed below, or visit the Penn State Extension Farm Food Safety website at [extension.psu.edu/gaps](http://extension.psu.edu/gaps) to find additional details on GAPs, the FSMA Produce Safety Rule, and upcoming training opportunities.

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**Pennsylvania Department of Agriculture.** Further information from PDA on their third-party audit program and FSMA regulations is available.

General questions on the PDA/USDA audit program can be answered by Audra Mata at 717-831-6059 or [amata@pa.gov](mailto:amata@pa.gov).

For information on the PDA GAPs audit cost-share reimbursement program, contact Kyle Heffner at 717-836-3973 or [kyheffner@pa.gov](mailto:kyheffner@pa.gov).

For regulatory questions on PDA activities related to the FSMA Produce Safety Rule or to arrange an On-Farm Readiness Review, contact Lynn Zakos at 717-787-4315 or [lzakos@pa.gov](mailto:lzakos@pa.gov).

## **extension.psu.edu**

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## FOOD SAFETY MODERNIZATION ACT (FSMA) INSPECTIONS AND THIRD-PARTY AUDITS



**PennState  
Extension**



**pennsylvania**  
DEPARTMENT OF AGRICULTURE



# Food Safety Begins on the Farm

## INTRODUCTION

Pennsylvania fresh produce growers can be proud of the wholesome and nutritious fruits and vegetables they grow. Unfortunately, recent foodborne disease outbreaks traced to fresh produce have caused consumers to question the safety of our fresh food supply. Most produce-related illnesses have been traced to crops grown in other parts of the United States or in other countries. But microbial contamination can happen anywhere—even in Pennsylvania. Every grower (small, medium, or large) has a responsibility to minimize food safety risks on the farm. All growers should evaluate their farm practices and begin to implement and train workers on Good Agricultural Practices.

## THE CONSEQUENCES OF FOODBORNE ILLNESS

You may have read in the news about food contaminated with *Salmonella*, *E. coli* O157:H7, *Listeria*, or Hepatitis A. These and other pathogenic microbes cause over 75 million people to get sick each year. Most cases are not very serious, but the very young, the elderly, and people with impaired immune systems can become seriously ill and sometimes even die. There is no way to know for sure how much foodborne illness originates on the farm, but the number of illnesses traced to fresh produce has grown faster than for any other type of food.

## GOOD AGRICULTURAL PRACTICES (GAPs)

Growers can help prevent on-farm contamination of fruits and vegetables by using Good Agricultural Practices, or GAPs. GAPs are a proactive way of thinking about food safety. Rather than waiting for a bad situation to occur and then fixing the problem, GAPs are about learning where food safety hazards can occur and taking preventive steps before a product leaves the farm. GAPs protect the public from harm and your farm business from the economic consequences of food contamination.

To ensure fresh produce has been grown under the safest possible conditions, many wholesale buyers now require independent farm food safety inspections, known as third-party audits, as a condition of sale. Usually a written farm food safety plan is required to pass a third-party audit. Several types of GAPs audits are available. Check with your wholesale buyers to determine what, if any, requirements they have for their suppliers.

## THE FOOD SAFETY MODERNIZATION ACT (FSMA)

The Produce Safety Rule under the Food Safety Modernization Act (FSMA) now adds a regulatory component to keeping fresh produce safe. Farms or orchards that grow fruits and vegetables that are likely or intended to be eaten raw and have average annual produce sales of at least \$25,000 must comply with GAPs standards enforced by the U.S. Food and Drug Administration (FDA). Compliance dates and certain exemptions with modified requirements are in place depending on your farm's sales volume and market channels.

## FURTHER INFORMATION ON THIRD- PARTY AUDITS AND FSMA REGULATORY REQUIREMENTS

If your buyers ask that you undergo a third-party farm audit or whether your farm business is covered under the FSMA Produce Safety Rule, help is available.

**Penn State Extension.** Penn State does not conduct audits or inspections, but extension fact sheets, videos, and decision tools are available to help you learn more about farm food safety standards, GAPs third-party audits, and FSMA compliance. Penn State Extension regularly offers workshops on how to write a farm food safety plan as well as FSMA certification workshops required of growers who are covered under the Produce Safety Rule.

### **The Pennsylvania Department of Agriculture (PDA).**

PDA offers the following voluntary, fee-based farm audits developed by USDA:

- The USDA GAP/GHP Audit
- The Harmonized Audit
- The Harmonized GAP Plus Audit (covers the requirements within the Global Food Safety Initiative [GFSI] and the FSMA Produce Safety Regulation)

A GAPs audit cost-share reimbursement program has been established by PDA that offers Pennsylvania growers a substantial reduction in audit costs.

FDA and PDA are dedicated to educating before regulating and are teaming with Penn State Extension to offer non-enforcement, educational On-Farm Readiness Reviews at no cost to Pennsylvania growers. These individualized sessions are designed to help growers understand what an FSMA farm inspection looks like and to provide tips for improving farm food safety practices.

# Minimize Fresh Produce Contamination from Planting to Harvest

There is no way to guarantee that every fruit or vegetable is free of harmful microbes. But one of the most important things you can do to protect consumers, and your business, is to do all that is possible to prevent microbial contamination from occurring.

## BEFORE PLANTING

**Consider previous use, topography, and wind patterns when selecting a growing site.**

- Avoid sites where dumping occurred or that were recently used as animal grazing or holding areas.
- Review land history for prior use or storage of toxic chemicals.
- Choose growing sites that are uphill, upstream, and upwind from areas where animals graze or are housed.
- Be aware of the presence of feed lots, animal pastures, poultry farms, or dairy operations on neighboring properties and their potential to contaminate your crop.
- Know upstream uses of surface water used for irrigation.
- Avoid sites that regularly flood or where excessive runoff occurs.
- If runoff or flooding is likely, construct physical barriers such as berms or swails, or plant non-food-crop vegetative buffer areas.

**Manure and biosolids can contain harmful microorganisms and should be treated before application.**

- Store manure as far away as practical from areas where fresh produce is grown and handled.
- Where possible, erect physical barriers or wind barriers to prevent runoff and wind drift of manure.
- If raw manure is applied to fields, incorporate it into the soil at least 120 days before harvesting, preferably in the fall when soils are warm (>50°F), non-saturated, and cover cropped.
- For applications closer to harvest, use aerobic composting techniques that raise core temperatures to above 130°F for at least five days. Turn the pile several times to ensure even heat exposure to all parts of the pile.



Penn State Extension workshops are offered regularly on how to develop a farm food safety plan, and

**FSMA produce grower certification courses** are available in English and Spanish.

Visit [extension.psu.edu/gaps](http://extension.psu.edu/gaps) to learn more.

## PRODUCTION

**Keep animals and manure away from growing areas.**

- Domestic animals should be fenced so they cannot enter produce fields or have access to surface water used for irrigation.
- Inspect fences regularly to make sure they are in good condition and that animals cannot burrow underneath them.
- Keep dogs, cats, and other pets out of fields and orchards during the growing season.
- Be aware of wild animals in the area and discourage them from entering fields by using fences, soil buffer strips, noisemakers, or other practical means.
- Make sure manure lagoons and sewers do not leak or overflow into fields during heavy rains.

**Do NOT side-dress with manure, manure "tea," or mulches containing fresh manure.**

- If side-dressing is required, use only well-composted or well-aged (greater than one year) manure.
- Manure should be stored so it cannot contaminate produce fields through runoff or wind drift and should be applied on a schedule that does not interfere with the produce growing schedule.

**Consider the safety of water you use that comes into contact with the edible part of the crop.**

- Surface water has the highest food safety risks.
  - Avoid using surface water for overhead irrigation or sprays close to harvest.
  - Use drip or furrow irrigation methods, if possible, since they minimize contact with the edible part of the crop.
- Private well water is a safer alternative if you are sure of its quality.
  - Locate wells away from flood zones and animal holding areas.
  - Test well water before each season for harmful bacteria.
  - Inspect wells annually to make sure they are in good condition.
- Municipal drinking water is the safest source and can be applied at any time using any irrigation or spray method.

## HARVEST

**Provide employees with adequate, readily accessible, and sanitary toilet and restroom facilities.**

- Toilet facilities should be adequate for the number of workers, easily accessible, and have self-closing doors.
- Keep them clean, well maintained, and supplied with toilet paper.
- Each toilet facility should have a handwashing station that has running water, soap, disposable towels, a trash container, and a handwashing sign to reinforce correct behavior.

**Promote good hygiene practices for produce harvesters and handlers.**

- Do not allow workers who show signs of diarrhea, vomiting, fever, sudden yellowing of the skin, or infected wounds to handle fresh produce.
- Prohibit eating, chewing gum, and tobacco use in growing areas.
- Dispense drinking water in single-use cups or by fountains—not in common cups or dippers.
- Make sure workers use the toilet facilities provided.
- Teach them when to wash their hands before starting to work—after each break, after handling unsanitary items such as animals, manure, or decayed produce, and after using the toilet facilities.

**Use field sanitation practices.**

- Keep harvest equipment and tools clean and in good repair.
- Check harvest machinery to see if fluids are leaking or if there are loose or damaged parts.
- Protect exposed glass on equipment with plastic or wire fixtures.
- Use harvest containers and tools that are easy to clean.
- Clean containers before each use and repair or discard damaged ones.
- Remove as much dirt as practical from produce before moving it to packing areas.
- Handle produce carefully to avoid bruising and damage, and do not overfill containers.
- Remove harvested produce from the field quickly and protect it from sources of contamination.

## POSTHARVEST

**Protect harvested produce from contamination.**

- Keep harvest containers covered to prevent overhead contamination.
- Handle produce carefully during unloading to prevent bruising and damage.
- Do not allow boxes of washed produce to directly contact the floor.
- Cool produce quickly to minimize microbial growth.
- Do not overload coolers, and monitor temperatures regularly.

**Use only potable water for transporting, washing, waxing, or cooling harvested produce.**

- Change water in tanks regularly to prevent buildup of soils.
- Add a sanitizer to tank water and monitor concentration and pH as necessary.
- Install vacuum breakers on hoses and maintain air gaps to prevent backflow of water.
- Keep tank water temperature at least 10°F warmer than internal produce temperature to avoid uptake of microbes into the produce.

**Keep areas inside and outside packing houses clean and free of pests.**

- Regularly remove litter, trash, and unused equipment that can attract and hide pests.
- Keep grass short and remove tall weeds regularly.
- Clean loading, staging, and packing areas and sanitize food-contact surfaces each work day.
- Keep doors and loading docks closed when not in use.
- Place rodent traps at entrances and eliminate perching sites for birds.

**Make sure toilet, handwashing, and personal practices rules are followed.**

- Enforce health and hygiene practices.
- Make sure restrooms are well ventilated, cleaned each day they are used, and do not open directly into packing areas.
- Confine eating and drinking to designated break areas.

**Minimize opportunities for contamination and microbial growth during shipping.**

- Inspect trucks for cleanliness and pre-cool refrigerated vehicles before loading them.
- Load carefully to avoid damage to the product.
- Lock or seal the truck door to keep it secure.
- Keep records of where each product was grown and when it was packed and shipped.

FDA and PDA are dedicated to education before regulation and offer **On-Farm Readiness Reviews** at no cost to Pennsylvania farmers. For more information on this program, contact Lynn Zakos at 717-787-4315 or [lzakos@pa.gov](mailto:lzakos@pa.gov).