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Understanding Produce Safety Programs and Making a Food Safety Plan

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Understanding Produce Safety Programs and Making a Food Safety Plan

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Importance of the Safety of Fresh Vegetables and Fruits

Safety of fresh vegetables and fruits is very important because these products are often consumed raw or are minimally processed. Unlike meats, fresh fruits and vegetables do not always undergo a cooking step to ensure that foodborne pathogens are killed before consuming. For the safety of consumers, farmers who produce our food must know the best practices available to produce, process, handle, and store fresh produce.

Good Agricultural Practices and Good Handling Practices

Good agricultural practices (GAP) and good handling practices (GHP) ensure that fresh produce is produced, packaged, handled, and stored in a manner that will help minimize microbial food safety risks. This audit-based food safety program was derived from the *Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables* prepared by the U.S. Food and Drug Administration (FDA).

Food Safety Modernization Act

The Food Safety Modernization Act (FSMA) is the first mandatory requirement for facilities involved in growing, harvesting, packaging, and holding fresh produce. Through the FSMA, the FDA has set certain minimum science-based standards for growers to follow to ensure that fresh produce is produced, packaged, handled, and stored in a manner that will help prevent food safety risks.

GAP and GHP Audits

Third-party GAP and GHP programs and audits are voluntary, market-driven programs designed specifically to meet buyer requirements. Third-party GAP certification lets a buyer know that the farmer has followed GAP standards to minimize microbial risks associated with fresh produce.

Audit Organizations

Several third-party audit organizations conduct on-farm audits and provide GAP certification. Such organizations include
- USDA (https://www.ams.usda.gov/services/auditing/gap-ghp)
- NSF (http://www.nsf.org/services/by-industry/food-safety-quality/agriculture/farm-audits)
- Primus Labs (http://www.primuslabs.com/services/standardgap.aspx)
- Global GAP (http://www.globalgap.org/uk_en/)

With the exception of the USDA (a federal agency), these third-party organizations or certification bodies are evaluated against recognized standards for their ethical and technical standards and competency in the services they offer. Evaluations are performed by national and international organizations such as the American National Standards Institute (ANSI) and the International Accreditation Service (IAS).

The choice of various audit organizations is either the farmer's or is prescribed by the buyer. The grower should determine if the buyer they are working with requires a particular third-party auditor or company; if not, the grower should decide which third-party organization they want to use based on costs or how well a program matches their farm and buyer requirements.

Produce Safety Programs in Kentucky

Table 1 compares the three types of produce safety programs in Kentucky: the FSMA (a federal regulation), third-party GAP certification (voluntary practice driven by buyers), and the basic GAP training offered by the cooperative extension services (and registered with the KDA).

Table 1. Produce safety programs in Kentucky

Program	Requirement	Requiring Agency/Entity	Assessment	Applies to	Pre-requisite
Cooperative Extension/KDA GAP Training	Sampling certificate	Kentucky Department of Public Health	Cooperative extension training	Producer offering raw samples; some produce auctions; school food services	Farmers marketers listed with KDA; roadside stands certified by KFB
Voluntary Food Safety Practices	GAPs and GHPs	Buyer	Third-party audit	All farms to meet wholesale buyer requirement	Food safety plan/manual; food safety supervisor
Federal Regulation	FSMA	FDA	FDA inspection	Farms with annual produce sales ≥ $25,000 in past three years*	Required: food safety supervisor; recommended: food safety plan/manual

*Not the only criteria for coverage; for other exemptions see http://www.fda.gov/downloads/Food/GuidanceRegulation/FSMA/UCM472499.pdf.

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A one-size-fits-all approach does not work with a food safety plan. Your plan must be specific to your farm, the location, and the commodity you are growing.

Preparing for a GAP Audit

Assess Farm

Before you schedule a GAP audit, assess your farm and practices.

- Identify resources
  - » Human resources (time and people)
  - » Equipment
  - » Infrastructure
  - » Disposables
- Review current produce safety practices
- Review farm environment
  - » History of land use
  - » Adjacent land
- Inspect
  - » Equipment
  - » Facility (restroom, equipment and crop production areas)

Create or Update documents and logs

Create documents that assist you in maintaining safety programs, and review them regularly. Keep records up to date. Include:

- Checklists
- Activity logs
- Labeling
- Farm policy and procedure manual
- Test results (i.e. water)
- Supplier/buyer information
  - » Contacts
  - » Traceability records
  - » Recall plan
- Contracts for service providers (i.e. pest control)
- Field map
- Compost records
- Reminders for food safety practices
- Farm food safety plan (see **Creating a Food Safety Plan**)

Prepare for Audit

- Choose third-party certification organization based on buyer's needs
- Schedule pre-harvest audit according to crop(s), maximizing the varieties
- Estimate cost of audit
- Organize documentation of food safety practices

Creating a Food Safety Plan

A one-size-fits-all approach does not work with a food safety plan. Your plan must be specific to your farm, the location, and the commodity you are growing. A food safety plan will keep you on track as you develop good agricultural practices specific to your farm. Listing risks specific to your farm/facility and prioritizing risks based on severity, likelihood, and frequency of occurrence will help you head off problems. A comprehensive plan keeps you prepared for any produce safety question from buyers and third-party auditors.

To most effectively reduce produce safety risks to your farm and the products you grow, you need someone with food safety training who knows the farm and its practices well to assess your risks. This person may be anyone working on the farm, including the owner himself. This person will be designated as the food safety supervisor in your food safety plan and will be present when a third-party auditor is evaluating the farm. It is also advisable to have a substitute food safety supervisor to stand in when the main supervisor is unavailable.

Farm Information

- Farm name and address
- Brief description of the farm and its history
  - » Farm size
  - » Commodities grown
- Name and contact information of the food safety supervisor and alternate safety officer

Risk Assessment

Assess risks specific to your farm. Identify potential risks and describe how risk is being addressed. Consider anything that impacts the safety of the produce grown on the farm, including:

- Agricultural water
  - » Production
  - » Application methods
  - » Timing of applications
  - » Post-harvest
  - » Testing frequency
- Workers and facilities
- Soil amendments (special attention to raw manure)
- Wildlife and domestic animals
  - » Deterring
  - » Use of working animals
- Postharvest handling
- Adjacent land use
- Agricultural water
  - » Source
  - » Quality
  - » Type of irrigation
- Environment
  - » Soil
  - » Adjacent land
- Personnel
  - » Qualifications
  - » Training
  - » Health and hygiene
- Equipment
  - » Tools
  - » Buildings
  - » Sanitation

Prioritizing Risks

You may have discovered a number of risks while assessing your farm. Table 2 shows how to prioritize or rank these risks based on the severity, frequency, and likelihood of occurrence.

Table 2. Prioritizing farm risks

Risk Assessment				
Severity	Likelihood			
	Remote (R)	Low (L)	Medium (M)	High (H)
High (h)	h-R	h-L	h-M	h-H
Medium (m)	m-R	m-L	m-M	m-H
Low (l)	l-R	l-L	l-M	l-H

Source: Bernard, Scott, and Stevenson, *HACCP, a Systematic Approach to Food Safety*

Practices to Reduce Risk

Analyze the effectiveness of the practices you already have in place to reduce risk, and propose new practices that would more effectively reduce risks. It is important to understand that we are dealing with fresh produce grown and harvested in the field, so complete elimination of risks is not possible. These practices are intended to best reduce the risk.

- Regular employee training
  - » Accommodations for literacy, language, and other challenges

- » Food safety practices
- » Use of toilets and hand washing
- » Injury and illness
- » Clothing
- » Breaks
- » Document employee understanding of food safety policy and procedure
- Emergency plan/contact information
- Mock recall
- Visitor food safety policies
- Monitoring animal tracks
- Keeping compost records
- Sanitation

Record Keeping, Revision and Reassessment

At this stage ensure that you have a method for implementing your food safety plan, and develop a review system to check if the food safety plan is being used. Include recordkeeping, standard operating procedures, and policies, along with every practice that you included in your plan, when ascertaining that your plan is being implemented.

Reviewing records on a regular basis will tell you if practices are effective, and you can use these reviews to decide if your plan needs revision. Remember to revise the plan whenever there is a change of practice or if a practice is not working. Even if your plan is working well, it is advisable to revise and reassess at least annually.

Sources

Bernard, D.T., V.N. Scott, and K.E. Stevenson, eds. 2006. HACCP, a Systematic Approach to Food Safety. 4th ed. FPA Food Products Association.

Cornell University College of Agriculture and Life Sciences. 2015. Produce Safety Alliance (PSA), FSMA Produce Safety Rule. Train-the-Trainer Manual.

United States Department of Agriculture—Agricultural Marketing Services (USDA-AMS). Good Agricultural Practices (GAP) and Good Handling Practices (GHP). https://www.ams.usda.gov/services/auditing/gap-ghp#Listings.

United States Food and Drug Administration. Food Safety Modernization Act (FSMA) Final Rule on Produce Safety. http://www.fda.gov/Food/GuidanceRegulation/FSMA/ucm334114.htm.

United States Food and Drug Administration. 1998. Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables. http://www.fda.gov/downloads/Food/GuidanceComplianceRegulatoryInformation/GuidanceDocuments/ProduceandPlanProducts/UCM169112.pdf.