Food Safety on the Farm: Good Agricultural Practices and Good Handling Practices – Worker Health and Hygiene[1]

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As part of the Food Safety on the Farm series, a collection that reviews the generally recognized principles of GAPs as they relate to produce, primarily at the farm level and with particular focus on fresh Florida crops and practices, this publication focuses on GAPs and GHPs relating specifically to worker health and hygiene. The publications in this series can be found online at the EDIS website at http://edis.ifas.ufl.edu/topic_series_food_safety_on_the_farm.

Introduction

Good agricultural practices (GAPs) and good handling practices (GHPs) encompass the general procedures that growers, packers, and processors of fresh fruits and vegetables should follow to ensure the safety of their product. GAPs usually deal with preharvest practices (i.e., in the field), while GHPs cover postharvest practices, including packing and shipping. This factsheet covers GAPs and GHPs relating to worker health and hygiene. There are seven other UF/IFAS Extension factsheets in the 'Food Safety on the Farm' series that focus on specific aspects of the GAPs program and how they relate to Florida crops and practices.

Under the new Food Safety Modernization Act (FSMA), GAPs are a foundation of the Produce Safety Rule (PSR). Other than for round tomatoes in Florida (T-GAPs regulation), GAPs have mainly been a voluntary program. Additionally the PSR mandates all non-exempt operations to follow these new FSMA federal guidelines (*8*), but for all exempt commodities and for those producers exporting to foreign countries, GAPs may still be required. Both the mandatory PSR and GAPs aim to reduce the foodborne illness burden associated with produce.

Microbial Hazards

Contact between fresh produce and fecal material has historically been the cause of most foodborne illnesses. Pathogenic microorganisms can be found on employees, whether they come from an infectious disease, an open wound, or a lack of basic hygiene. Food workers must fully understand and practice proper hygiene, or they risk unintentional contamination of produce, water, and other workers. Operators should recognize and establish hygiene practices that minimize the risk of contamination between fresh produce and sources of microbial hazards.

Regulatory Backgroud

The federal government regulates standards for worker health and hygiene during the pre- and postharvest handling of produce. Title 21, part 117.10 of the Code of Federal Regulations (CFR) describes general provisions

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for the hygiene of workers in food manufacturing plants (*1*). Previously, these Good Manufacturing Practice (GMP) provisions were located in part 110, but have been reorganized into part 117 since the enactment of the FSMA. New considerations also include protection from allergen cross-contact, which may be a concern for a co-op packing tree nuts (e.g., coconuts, almonds, etc.), and/or peanuts, along with other produce. Additionally, a farm mixed-type facility that creates a distinct raw agricultural commodity (RAC) processed beyond drying, dehydrating, packaging, and/or labeling, such as dried, diced mangoes, must comply with these regulations unless that facility meets the specifications for an exemption or a qualified exemption. Conversely, if a farm or farm mixed-type facility dries or dehydrates a RAC to create a distinct commodity without further processing, such as dried, whole blueberries, that entity can meet the FSMA requirements for packing, packaging, and holding activities by either complying with the PSR found in 21 CFR part 112 or by complying with GMPs in subpart B of the Preventive Controls for Human Food (PCHF). Any activities of a farm mixed-type facility that fall within the farm definition are exempt from GMPs and may have to comply with the PSR (*9, 10*). These provisions can be adapted to other areas of food production, including transport and in small-scale operations like roadside produce stands. Additionally, the Occupational Safety and Health Act (OSH Act) in the CFR lists standards for protecting worker health that supervisory personnel should follow (*2*, *3*).

Considering the FSMA regulations are science-based, minimum standards for safe food practices, growers must be aware and comply with more stringent regulations. State and local regulatory authorities can adopt mandatory and more specific regulations to improve food safety. Tomato operations in Florida must follow sanitary facility standards among other Tomato Good Agricultural Practices (T-GAPs) during all steps of production (*5*). These guidelines found in the Tomato Best Practices Manual have been made into rule (Chapter 5G-6) pursuant to Tomato Inspection Law Section 500.70 of the Florida Statutes, which took effect July 1, 2008 (*4*).

In response to and recognition of growing food safety issues, the FSMA was passed by Congress and signed by the President in January 2011 (*8*). The new law requires companies to implement a food safety program that significantly minimizes potential hazards and risk of foodborne illness. The PSR, one of the main components of the FSMA, establishes standards to ensure safe growing, harvesting, packing, holding, and (to a limited degree) manufacturing and processing of covered produce on farms. GAPs programs are currently intended as guidance, not as a regulation (except for Florida T-GAPs), but are usually mandated or enforced by the buyers. Successful implementation of state-mandated regulations has set the precedent for the recent PSR covering commodities intended to be consumed raw or in their natural state. Currently, the PSR is required for all non-exempt operations that fall under the farm definition (*9, 10*). For example, a co-op that packs RACs from several different locations must comply with the PSR as opposed to the PCHF rule unless a farm does not own the sole majority of the product packed. A coverage and exemptions flow chart is available on the US Food and Drug Administration (FDA) website for operations to help determine compliance with the PSR (*7*).

Subpart C and D of the produce safety rule (Personal Qualifications, Training, and Health and Hygiene) require companies to implement worker health and hygiene practices to prevent or reduce contamination of non-exempt produce and food-contact surfaces. Furthermore, all visitors and personnel must be trained on the operation's food safety and hygiene policies while recording the date, name of person trained, and the specific topics covered (*9*). Whether covered or exempt, taking immediate steps to implement personal health and hygiene GAPs will benefit a company's financial viability and overall produce safety. Morever, even farms exempt from the PSR are subject to the provisions of the Food, Drug and Cosmetic Act (FD&C Act) preventing adulterated food from entering commerce.

How to Control Potential Hazards

For FSMA regulations such as the PSR to be successful, prerequisite programs such as GAPs are necessary to bolster such broad, scalable provisions. Required regulations like the PSR use mandatory verbiage, such as "must", as opposed to suggested verbiage used in GAPs, such as "should". Guidance from GAPs may be used to satisfy a mandatory requirement in the PSR and play an imperative role to reduce potential hazards in food. The FDA identified employee training and the promotion of hygienic practices as major areas to monitor (*6*).

Personal Health and Hygiene

The following GAPs should be considered to ensure all employees working with fresh produce follow personal health and hygiene, whether they have direct contact with the produce or not.

- Establish a training program**.** Make sure all employees understand basic sanitation and hygiene principles

through a training program, one-on-one instruction, or demonstration, such as of proper hand-washing technique. Level of understanding, follow-up, and depth of training can depend on the responsibilities and requirements of the workers. Put hand-washing posters near hand-washing facilities to reinforce proper hand-washing procedures. Ensure that all new employees are trained before they begin working, and that all employees are trained at least once per year or at the beginning of each new packing season. This should be followed up by routine checks to ensure compliance.

- Become familiar with typical signs and symptoms of infectious diseases. Exclude workers who show signs and symptoms of illness from working directly or indirectly with fresh produce. Examples of pathogens that can cause infectious disease through food are *Salmonella*, *Shigella*, *Escherichia coli* O157:H7, and hepatitis A virus. Common symptoms of foodborne disease are fever, diarrhea and vomiting. Instruct employees with illness to tell supervisors. In some instances, workers must be prohibited from working around the product altogether.
- Provide protection from a lesion. Do not allow employees to work with fresh produce or equipment if they have a lesion, such as a boil or wound, that cannot be covered up completely. Open sores must be covered with a waterproof dressing.
- Consider alternative good hygienic practices. Single-use gloves, in combination with hand washing, can be an effective hygienic tool if used properly. Change gloves after eating, smoking, using the toilet, handling materials other than fresh produce, or any time the gloves are damaged or contaminated. Consider installing automatic faucets and paper towel dispensers to avoid recontamination after hand washing.
- Implement a dress code. Employees should wear clean clothes and/or clean protective clothing, such as uniforms or aprons. Protective clothing should be removed prior to using the toilet. Other habits that can minimize contamination of produce by employees include keeping fingernails short, not wearing jewelry, wearing hair restraints or coverings, and not carrying personal items in pockets.
- Ensure good hygienic practices are followed by visitors. Make sure inspectors, buyers, and other visitors to the farm, packing, or transport facilities follow established hygienic practices.

Training

To help guide training of hygience practices, the sanitation standards outlined by the Occupational Safety and Health Act should also be considered in training sessions for fresh produce workers (*2*, *3*). Suggested areas of training are below.

- Have workers understand the importance of good hygiene. All workers need to understand how poor personal cleanliness can affect themselves and consumers of the fresh produce they handle. Unsanitary practices can cause illness in both workers and the public.
- Know the importance of hand washing. Pathogens that cause disease are frequently found in feces. Washing hands thoroughly before work and after using the toilet is important for reducing the risk of contaminating fresh produce.
- Impart the importance of proper hand-washing techniques. Teach workers how to effectively wash hands and exposed portions of arms. Proper technique includes rigorously rubbing hands to dislodge bacteria, using soap with warm water, cleaning under fingernails and between fingers, rinsing, and drying hands with a single-use paper towel or air dryer. Hand washing should last at least 20 seconds.
- Know the importance of using toilet facilities. Instruct workers to use designated toilet facilities to prevent contamination of fields, produce, other workers, and water supplies. Designate specific areas for other employee activities, such as eating, drinking, smoking, breaks, and storing personal effects.

U-Pick Operations and Roadside Stands

Growers who sell directly to customers or allow customers to pick fresh produce in the field should consider the following health and hygiene GAPs:

- Promote good hygienic practices, such as providing handwashing stations for customers in the field.
- Provide clean, properly supplied, and convenient toilets for customers.
- Promote good handling/processing practices, such as encouraging customers to wash fresh produce before eating.

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