



The Role of HACCP in Fresh Produce Safety

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To a government regulator:

H Hazard
A Analysis
C Critical
C Control
P Point



To a grower/packer:

H Have
A Another
C Cup of
C Coffee and
P Pray



HACCP is

... a management system that evaluates how to

- ✓ identify,
- ✓ control, and
- ✓ document

hazards in food products



Origins of HACCP

- HACCP is not a new idea!
- The HACCP program was developed around 1960 by the Pillsbury company in response | to food safety requirements imposed by NASA for “space foods.”
- 100% inspection not possible
- A pro-active, preventive method for food safety needed



Federal Mandates for HACCP

- Seafood processors, effective 1997
- Meat and poultry processors, effective 1998
- Fresh juice processors, effective 2001
- Fresh-cut produce processors, possibly effective 2010
- Who is next?



The Scope of HACCP

HACCP principles may be applied to all phases of food production:

- ✓ **Production agriculture**
- ✓ **Food preparation and handling**
- ✓ **Food processing**
- ✓ **Food service**
- ✓ **Distribution systems**
- ✓ **Consumer handling and use**



Why should a grower/ packer understand HACCP?

Pending legislation – S. 510 FDA Food Safety Modernization Act of 2010

- ✓ Requires a written HACCP-type food safety plan that:
 - ✓ incorporates hazard risk assessment/preventive control measures for *all facilities that manufacture, process, pack or hold food*;
 - ✓ FDA will have access to plans
 - ✓ FDA can prohibit operation of facilities lacking them.



Why “HACCP–type”?

FOOD PROCESSING

- ▶ Definitive “kill step” (heat, irradiation, etc.)
- ▶ Enclosed facility
- ▶ Controlled environment

FRESH PRODUCE

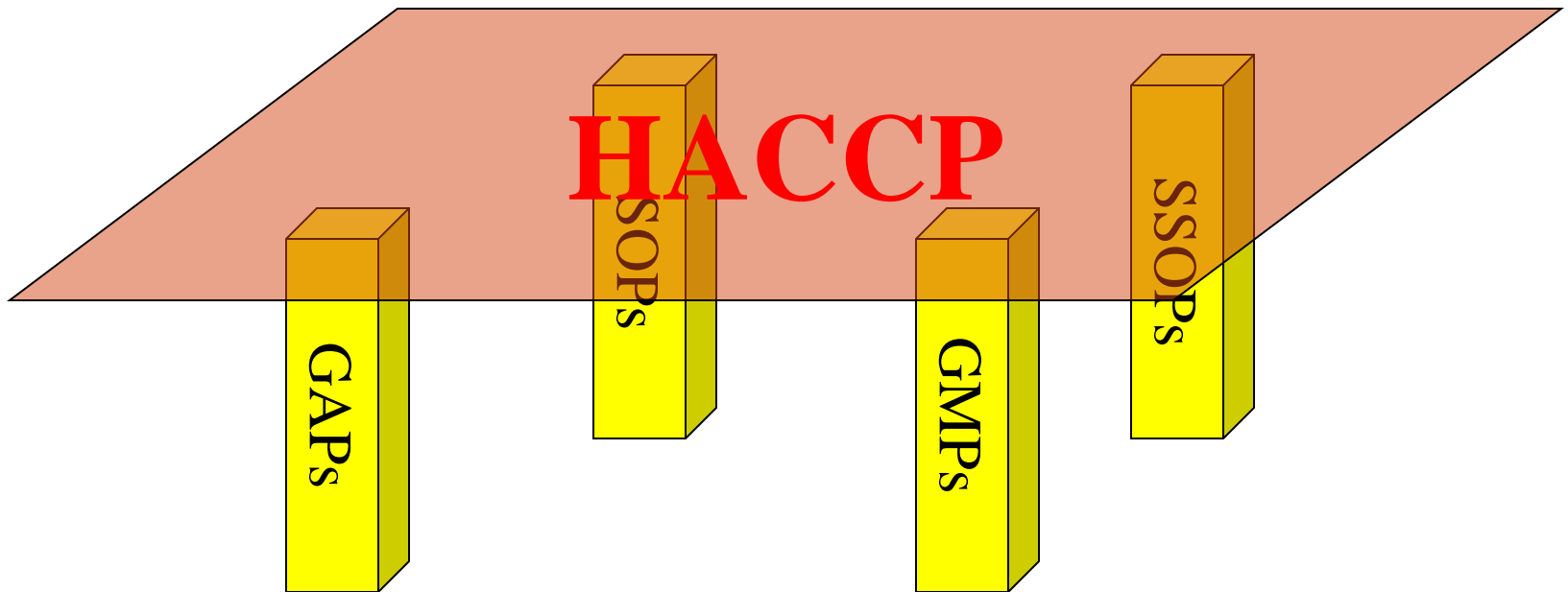
- ▶ No “kill step”
- ▶ Open–air field or packing shed
- ▶ No or limited environmental control



HACCP is not a stand-alone
food safety program



An Effective Food Safety Plan

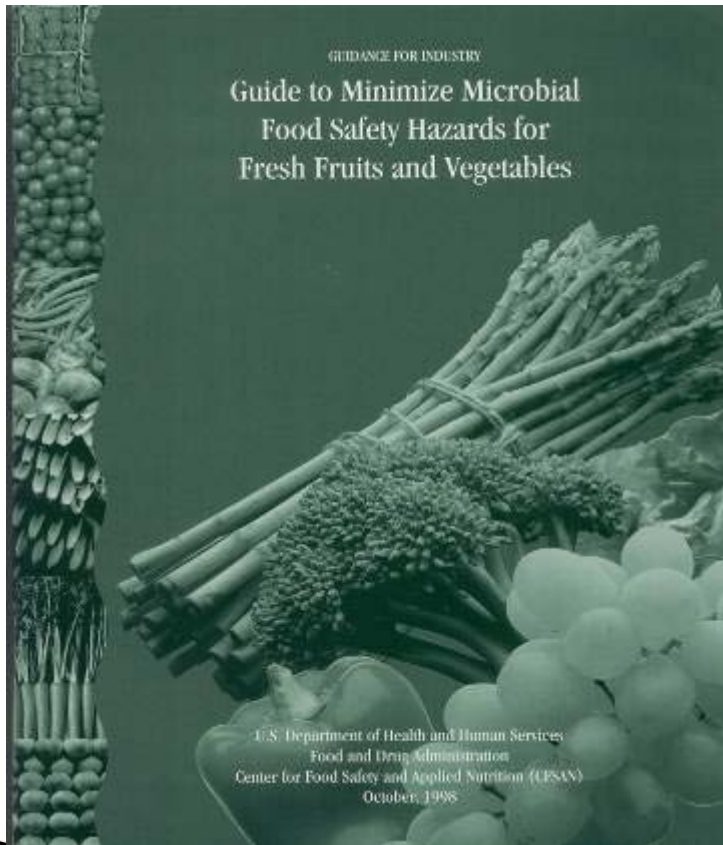


Pre-requisite Programs

Pre-requisite programs (GAPs, GMPs, SOPs and SSOPs) support your HACCP-type plan for effective food safety control and documentation



Good Agricultural Practices (GAPs) Guidelines



- ▶ FDA guidance document (1998)
- ▶ Water quality
- ▶ Fertilizer use
- ▶ Worker health & hygiene
- ▶ Field/packinghouse sanitation
- ▶ Transportation & traceback



A GAP tells WHAT should be done!



Harvest containers & packing lines shall be cleaned daily to prevent product cross-contamination or build-up of human pathogens.



An SOP tells HOW the GAP should be accomplished.



Use a 1% chlorine dip to sanitize harvest containers after washing and rinsing.



Scrub down leafy greens pack-out table at the end of each production day.



STANDARD OPERATING PROCEDURE (SOP)

for

Field Worker Health and Hygiene

(operation)

Date issued: _____

Farm/Facility: _____

SOP #: _____

Owner: _____

Objective:

To minimize produce contamination by practicing good hand washing and enforcing absence of infectious diseases among workers.

Person Responsible: Field Supervisor

Frequency: **Daily.**

Procedure:

1. Train crew bosses on how to look for signs of infectious diseases, cuts or sores on hands, etc., among workers before season begins, and at periodic times during harvest season.
2. Train field crews on proper use of field sanitation toilets and wash stations. Record training attendance on the Personnel Training Form and have field worker sign the form.
3. Train field crews on when and how to wash hands properly - before harvesting, after breaks, after eating, after handling non-produce items, after using toilets, etc.
4. Post signs in appropriate languages (English, Spanish, etc.) on proper toilet use, hand washing, attention to cuts and sores, etc., near field sanitation units.
5. Gloves should be removed before using the sanitation facility. Gloves also must be washed and sanitized on a regular basis as they can also harbor pathogen growth.

Monitoring

Field bosses
signs of in
working w

Field bosses
daily.

Corrective

Designated
use towels

Schedule e

Gloves sh

Corrective

Subcontract

Document

Management

Field super

Reviewed by: _____

Date: _____

What are SOPs?

- ***Standard Operating Procedures (SOPs)*** are detailed, written directions that give specific instructions on how to monitor and document each GAPs requirement.
- Most fresh produce SOPs are directly or indirectly related to sanitation.

How do I start a HACCP-type Food Safety Plan?

- ▶ Owner/management commitment must be assured
- ▶ Select and train food safety plan coordinator and plan management team
- ▶ All prerequisite programs must be established and verified
- ▶ Construct a Process Flow Diagram for each raw product



Step 1

Assess Hazards at each process step



Step 2

Identify Preventive Measures (PMs)



Step 3

Set up Operational Boundaries for PMs



Step 4

Monitor PMs



Step 5

Take Corrective Action when necessary



Step 6

Verify Food Safety Plan is working



Step 7

Set up Record Keeping System to document operations

Steps to Establish a HACCP-type Food Safety Program for Fresh Produce



Definition: HAZARD

- A biological, chemical or physical agent that is reasonably likely to cause illness or injury in the absence of control.



Hazard Risk Assessment

Definition: The science-based evaluation of adverse health effects of potential foodborne hazards

- ▶ Hazard identification
 - Exposure
 - Severity
 - Likely to occur
- ▶ Is a preventive measure needed?



Preventive Measures

- Definition: Physical, chemical or other factor that can be used to control, reduce or minimize a food safety hazard
- ▶ GAPs, GMPs, SOPs or SSOPs can prevent or minimize food contamination

EXAMPLES

- ▶ Irrigation water safety GAPs
- ▶ Employee hygiene GMPs
- ▶ Equipment cleaning and sanitizing SOPs



Monitoring and Record Keeping

- ▶ Keep written, “real time” records of hazard monitoring activities and corrective actions
 - ▶ Records must reflect current operating conditions
 - ▶ The FDA inspector and third-party auditors will require access to your records
- EXAMPLES
- ▶ Chlorine/pH Monitoring Log
 - ▶ Pre-operation Sanitation Checklist

“If you didn’t write it down, it didn’t happen!”



Spray Nozzle Testing Log

Chlorine & pH Daily Water Testing Log

For Cantaloupe Spray Washer

Date: _____

Person Responsible: _____

<i>Time</i>	<i>Chlorine Range = 100 – 150 ppm</i>		<i>pH Range = 6.5 to 7.5</i>		<i>Initials</i>	<i>Comments</i>
	<i>Chlorine Level</i>	<i>Cl Added/ Recheck</i>	<i>pH Level</i>	<i>pH Adj./ Recheck</i>		

Verified by _____

Date _____



Sanitation Checklist

Equipment Cleaning Checklist for Cantaloupe Packing Line

Date: _____

Person Responsible: _____

<i>Item</i>	<i>OK</i>	<i>Needs Attention</i>	<i>Comments</i>
Water Pit			
Inclined Conveyor			
Brush Washer			
Roller Grader			
Sizer			
Transverse Belts			
Packout Tables			

Verified by _____

Date _____



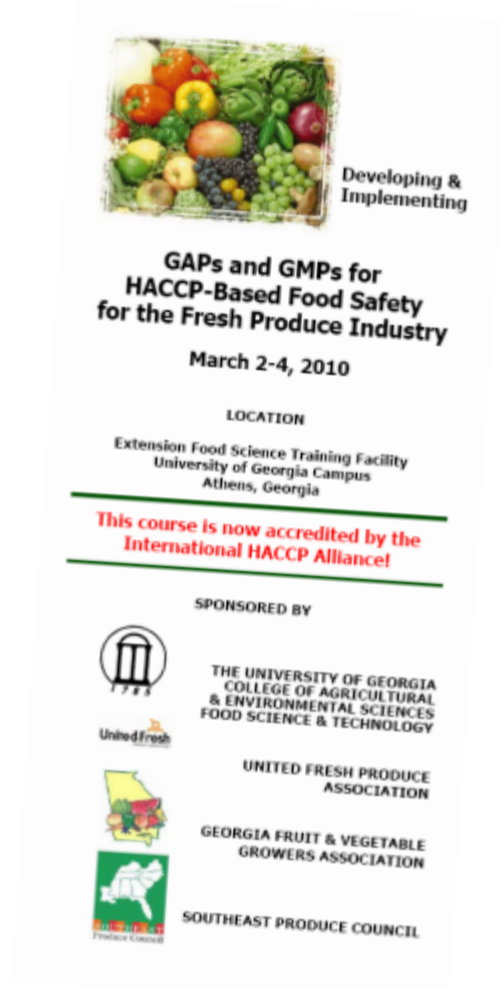
HAZARD ASSESSMENT / PREVENTIVE CONTROL MEASURE WORKSHEET

Product: Fresh Tomatoes				Revision No.: 2	Prepared by: EBM
Location: All–Fresh Packing House				Date: 2/14/09	Verified by: WCH
Production/ Handling Step	Potential Hazards Identified	Risk Assessment: Is potential hazard significant? Y/N	Justification for Significance	What preventive measures (PMs) will be utilized?	Record Keeping Documentation of Hazard Prevention
Dump tank/ flume water	Microbial – <i>Salmonella sp.</i>	YES	Research has demonstrated potential cross-contamination of tomatoes by <i>Salmonella</i> in flume water	SOP for chlorine monitoring and pH adjustment of water	Chlorine & pH Monitoring Log pH Meter Calibration Log
Brush Washer	Microbial – <i>Salmonella sp.</i>	YES	Infrequent and difficult cleaning of equipment	SOP for disassembly and cleaning of bristle brushes every week	Master Cleaning & Sanitizing Schedule Pre-operation Sanitation Check List
Holding Cooler	Microbial – <i>Listeria monocytogenes</i>	No	Microbial swab testing indicates no problem if cleaning procedures are followed	SOP for cleaning/ sanitizing cooler; SOP for temperature control; SOP for preventive equipment maintenance	Master Cleaning & Sanitizing Schedule Cooler Temperature Monitoring Log Preventive Maintenance Schedule



HACCP-type Food Safety Training

- The University of Georgia Fresh Produce Food Safety workshop for 2010 has been updated to follow HACCP principles in setting up a food safety plan.
- See the EFS workshop calendar at www.EFSonline.uga.edu for more information.



A HACCP-type Food Safety Plan

- Should focus on prevention, not inspection
- Should be used on food safety issues, not quality issues
- Can be applied to production agriculture as well as packing operations
- Uses prerequisite programs as preventive measures for hazard control
- Is designed to minimize, not eliminate, food safety risks
- Is not a zero-risk system



Any questions?



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