

Taking on the Future

**Voluntary Food Safety
Guidelines
for
Fresh Produce**



Scope

- Address major risk areas associated with microbiological hazards on produce
 - Field through shipping point
 - Recognize that safety assurance systems through entire food chain are imperative

Guidance Objectives

- Focus industry's attention on potential sources of microbiological hazards
 - Water
 - Manure
 - Worker, field, facility sanitation
 - Transportation and handling

Guidance Objectives

- Industry consensus on key issues
 - Traceback
 - HACCP

Water

- Risk Potential
 - *Cryptosporidium*
 - *Cyclospora*
 - *E. coli* 0157:H7
 - *Shigella*
- “In general, operations in which produce comes in direct contact with water require a correspondingly high level of attention paid to water quality”

Water

- Risk Awareness

- Irrigation water, crop protection sprays
- Pre-cooling operations: Hydro-coolers, Hydro-vacs, top icing
- Water dump tanks
- Rinse water

In field washing and packing of celery hearts



In field spray washer



Chlorination controls



Well providing water for operations



Hydro-cooler



Well providing water for operations



Water treatment for Hydro- cooler



Hydro-cooler for celery and broccoli



Hydro-cooling asparagus - Gonzales



Manure

- Risk Potential

- Widespread recognition that animal manure can harbor many human pathogens
 - *E. coli* 0157:H7
 - *Salmonella*
 - *Cryptosporidium*

Manure

- Risk Awareness
 - Composted and uncomposted manure as a soil amendment and fertilizer
 - Livestock operations
 - Feral animals and birds

Animals can be a source of contamination



Worker, Field, Facility Sanitation

- “Good sanitation practices provide the foundation upon which any food production, handling and distribution operation supplies quality, safe food.”

Training for Employees

All personnel, including those indirectly involved in fresh produce operations, must comply with hygienic practices. Operating program; to be familiar with infections diseases, lesions, etc., and to assure all workers and visitors follow Good Hygienic Practices.

Hair restraint instructions for foodhandling areas and insect barriers - Philippines



Worker Sanitation and Hygiene

- Risk Potential

- Without proper sanitation, dirty hands continuously gather and spread germs to surfaces they contact

Pathogens that can be spread by dirty hands

Bacteria which cause food-poisoning through cross-contamination via hands:



pathogenic *E.coli*
(often found in raw meat)



Staphylococcus aureus
(often found on human nostrils)



Salmonella
(often found in poultry)



Vibrio parahaemolyticus
(often found in seafood)

CCP (Critical Control Point)

Map of areas frequently missed during handwashing.
Therefore, complete sanitizing of these areas is necessary using alcohol.



Back

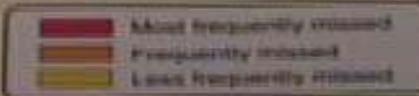


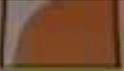
Figure 3.1. *Working Food*, 24, 34, 1979



Front

Sanitizing Hands

Guidelines for effective hand-washing

Back   Front 

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Sanitizing Hands



Apply sufficient sanitizer and rub thoroughly into both hands until dry.

-  1 Rub use sufficient sanitizer to open palms
-  2 Rub fingers in slowly while receiving sanitizer
-  3 Ensure full coverage of fingertips and cuticles
-  4 Rub hands together, palm to palm
-  5 Rub between interlaced fingers
-  6 Rub back of each hand with palm of other hand
-  7 Rub fingertips of each hand in opposite palm
-  8 Rub each thumb clasped in opposite hand
-  9 Rub each wrist clasped in opposite hand
-  10 Continue rubbing until hands are dry

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Best Sanitizers

PENN VALLEY, CA

Bilingual signage - Philippines

**HUGASAN ANG MGA KAMAY
PAGKATAPOS GUMAMIT
NG PALIKURAN.**

**WASH YOUR HANDS
AFTER USING THE
COMFORT ROOM.**



Hand washing and hand drying - Philippines



Hand washing station - automatic shut-off - Thailand



Boot washing facility - Thailand



Soap and towel dispensers for hand washing



Worker sanitation and hygiene

In a statement directed at farm workers, FDA cited the importance of using toilet facilities to reduce the potential for cross-contaminating fields, produce, other workers and water supplies.

Worker sanitation and hygiene

Toilet facility supplies should include toilet paper, basin, water, liquid soap, sanitary hand drying devices, and a waste container.

All facilities should be kept clean and sanitary and should be cleaned on a regular schedule.

In field sanitary units and drinking water



Hand drying with towels -- in field Salinas



Worker Sanitation and Hygiene

- Risk Awareness

- Restroom facilities should be readily available and clean
- Handwashing (gloves are not the answer)
- Employee training

In field toilets being pumped out



Storage of personal items -- in field Salinas



Field and Facility Sanitation

- Risk Awareness
 - Restroom facilities and supplies
 - Waste management
 - Bins, containers
 - Animals

Product on bed of leaves



Transportation and Handling

- Risk Potential
 - Cross contamination from “potentially hazardous foods” may occur

Transportation and Handling

- Risk Awareness

- “Wherever product is transported and handled the sanitation conditions should be evaluated, especially between links in the distribution chain.”

- Preparation for loading

- Condition of produce hauler

- Cold chain maintenance

- Work with distributors and customers

Field packing celery



Icing equipment adjacent to refrigerated storage



Traceback

- Limit liability to the responsible party
- Mitigate unwarranted damage to the reputation of an entire commodity
- Lessen the economic burden on those not responsible

Encourage industry consideration

Applicability of HACCP to the Produce Industry

- HACCP does not have broad applicability
- Hindered by lack of scientific information

Guidelines

The guidelines focus on risk reduction, not risk elimination, by addressing the root causes of food safety problems.

- **Prevention of contamination.**
- **Minimize hazards by using GAP's.**
- **Most contamination by pathogens comes from human and animal feces.**
- **Water source and quality dictate the potential of that water to contaminate produce.**

Guidelines

- **Use of manure or municipal bio-solids should be closely monitored.**
- **Work hygiene and sanitation practices are critical.**
- **All local, state and federal rules related to agricultural practices should be understood and obeyed.**
- **Establish a system for accountability at all levels of your agricultural environment (farm, packing facility, distribution center and transportation operation). This should include growers.**

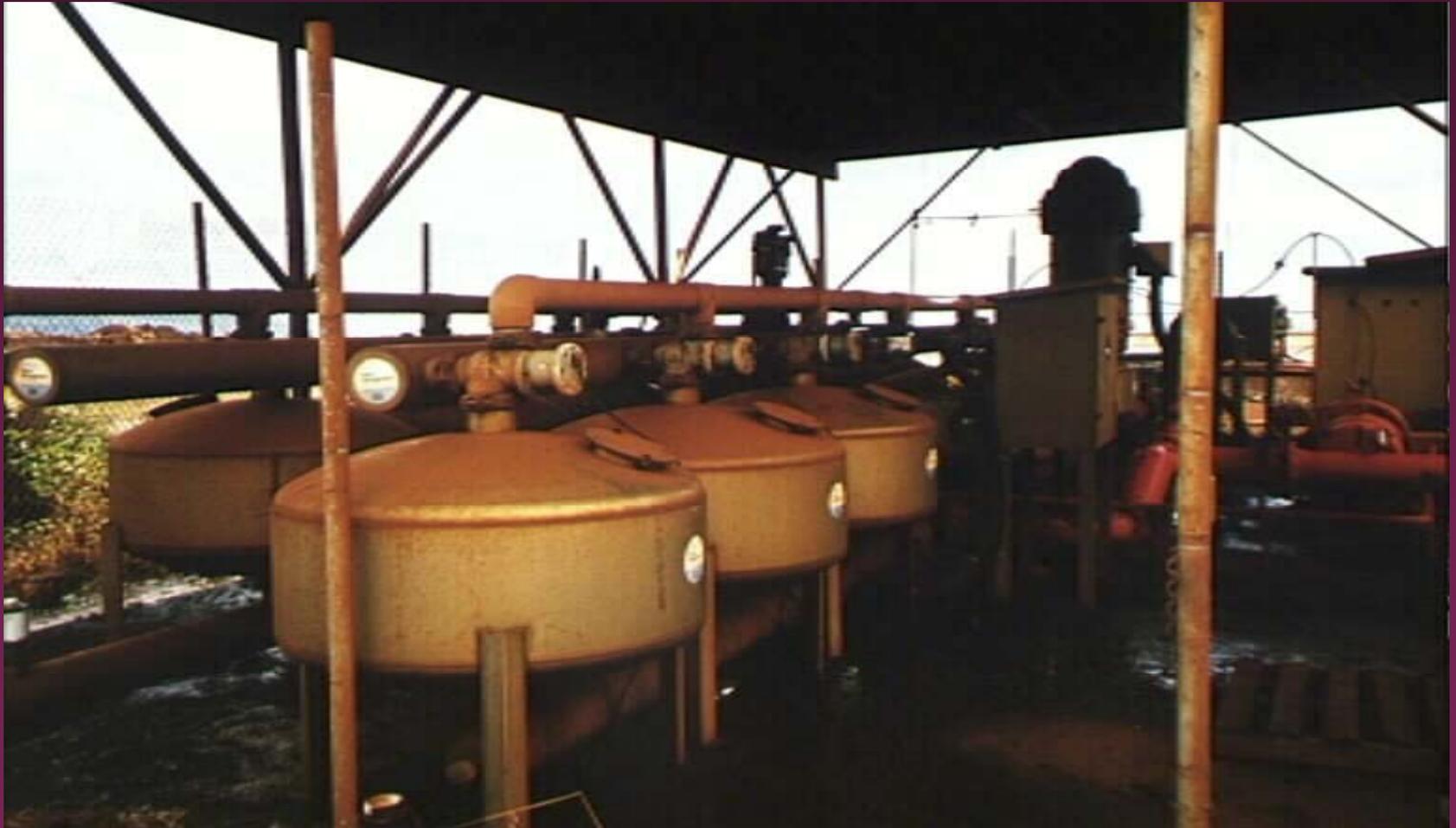
Spreading of cattle manure



Irrigation water pumped from pond through sand filters



Sand filters at a pumping station



Chlorination at sand filters



Setting irrigation by overhead boom



Setting irrigation by overhead boom



Irrigation water in a lined pond



Grower/shipper requirements

- Water Quality -- see general requirements for water
- Field History
- Use of Manure
- Worker Hygiene
- Field Management

Grower/shipper requirements (Continued)

- Facility operation and sanitation
- Temperature Control
- Traceback Mechanisms
- HACCP where applicable

Transportation requirements

- Vehicle condition (cleanliness, prior use, working condition)
- Temperature during loading and unloading
- Appropriate transportation conditions
- Data monitoring for transportation environment
- Visual and data information on product

Water quality

Water is a critical component of many stages. In the distribution system, water can be used for icing, hydro-cooling, backroom and prep areas, misting/fogging, handwashing, restrooms, equipment cleaning, facility cleaning, tool cleaning, and produce cleaning.

Employee hygiene

- Appropriate handwashing
- No jewelry, discourage fake nails
- Disposable gloves must be changed like handwashing
- No infectious diseases (cuts, flu, diarrhea, etc.)
- Hair restraint

Employee hygiene

(Continued)

- Eating, drinking, chewing, smoking (designated areas)
- No spitting
- No pilfering or eating product
- Maintain personal items in designated areas

Product cooling

Hold produce at appropriate temperatures. Fresh cut at 33-41°F. Other products vary with category. Keep thermometers calibrated, check pulp temperatures. Keep temperature logs. If temperature not in range, evaluate and pull, if necessary.

Storage

- Keep produce away from chemicals/ pesticides
- Never store directly on floor
- Prevent cross-contamination
- Use FIFO
- Order volumes appropriate for sales

Storage (Continued)

- Store product at appropriate temperature quickly
- Remove any spoiled or problem product, clean area
- Maintain proper temperature and humidity