

Improving the Safety and Quality of Fresh Fruits and Vegetables: A Training Manual for Trainers



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JIFSAN Good Agricultural Practices Manual Section IX-Additional Resources

Introduction

Since the publication of the First Edition of this Manual in 2002, the amount of available literature on the subject of fresh produce safety has increased dramatically. The continuing development of the internet as an information resource has facilitated the search for literature on practically any topic. Most documents containing practical information relevant to the production and handling of fresh fruit and vegetables can now be accessed at no cost to the internet user.

The following list is intended to guide the reader toward useful information related to topics covered in the preceding Sections. The list is not comprehensive and new material becomes available on a regular basis. However every attempt has been made to include sources of relevant guidance documents, audit metrics, commodity-specific information and other materials.

List of Websites and Reference Information

JIFSAN

Joint Institute for Food Safety and Applied Nutrition (JIFSAN)

www.jifsan.umd.edu

This manual and other training program information are available at the JIFSAN site. Recent news and announcements regarding food safety are posted.

U.S. Government Sources

U.S. Food and Drug Administration (FDA)

www.fda.gov

At the FDA home page readers have the option of searching for specific information within the website. Suggested keywords include: fresh produce, fruit and vegetables, guidance documents, training center, or a specific

commodity name. A few important documents from FDA are listed here:

Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables (also available in Spanish, French, Portuguese and Arabic)

Guide to Minimize Microbial Food Safety Hazards of Tomatoes

Guide to Minimize Microbial Food Safety Hazards of Melons

Guide to Minimize Microbial Food Safety Hazards of Leafy Greens

Guide to Minimize Microbial Food Safety Hazards of Fresh-Cut Fruits and Vegetables

Reducing Microbial Food Safety Hazards for Sprouted Seeds

Sampling and Microbial Testing of Spent Irrigation Water During Sprout Production

Guide to Produce Farm Investigations

Guide for Third-Party Audits and Certification

Produce Safety from Production to Consumption: 2004 Action Plan

FDA Rules Implementing the Bioterrorism Act of 2002

Registration of Food Facilities

Prior Notice of Imported Food

Recordkeeping (Traceback and Traceforward)

Administrative Detention

Foodborne Pathogenic Microorganisms and Natural Toxins Handbook

Hazard Analysis and Critical Control Points (HACCP)

U.S. Centers for Disease Control and Prevention (CDC)

www.cdc.gov

The CDC website is an excellent resource for those interested in surveillance, epidemiology, or progress reports regarding ongoing outbreaks. Users can use the keywords fruits and vegetables to go immediately to any significant events related to the fresh produce industry.

The *Morbidity and Mortality Weekly Report* (MMWR) addresses current human health issues, diseases and injuries, topics of international interest and notices of events of interest to the health community. Past issues are archived.

The Food Safety Homepage links users to the following useful sites:

An Index for Foodborne Illnesses provides details about human pathogens and symptoms of illness.

The Laboratory and Surveillance section covers CDC investigative processes, partners and systems such as FoodNet and PulseNet.

U.S. Department of Agriculture (USDA)

www.usda.gov

As mentioned in Section 7, USDA is composed of numerous divisions that fulfill different roles in the various agricultural disciplines. One topic that is common to all divisions of USDA is food safety. From the USDA homepage, users who initiate a search with the keywords food safety will be directed to many locations. Selected sites are listed:

The Agricultural Marketing Service (AMS) provides a document entitled *Good Agricultural Practices and Good Handling Practices Audit Verification Program*. This is an audit metrics document that all growers and handlers of fresh produce should access and utilize for conducting self-audits of their farms and facilities. AMS also is the home for fresh produce quality descriptors.

The Economic Research Service (ERS) posts economic assessments of food safety events domestically and internationally, often providing statements regarding the impact of outbreaks on commerce in fresh produce.

The Food Safety and Inspection Service (FSIS) does not have direct oversight of the fresh produce industries,

however the scientific information provided about food safety practices often applies to fresh fruit and vegetables as well as other food groups.

The Education and Outreach pages contain many fact sheets and other food safety resources that are useful training materials.

U.S. Environmental Protection Agency (EPA)

www.epa.gov

Selected food safety resources available at the EPA site are listed:

Pesticide Tolerances

Pesticides and Food: What the Pesticide Residue Limits are on Food

National Agricultural Assistance Center: Food Safety

Food Quality Protection Act

Agricultural Publications: Food Safety

Analysis of Composting as an Environmental Remediation Technology

Biosolids Generation, Use, and Disposal in the United States

University Sources

In the U.S. land-grant University system, each state has an agricultural program. Almost all of these programs have an Extension component for education in food safety. The following list includes several University programs that have gained prominence in the area of fresh produce food safety. Users of this manual are encouraged to search the sites of other Universities that may address specific commodity interests.

Cornell University

www.gaps.cornell.edu

This is the home of the National GAPs Program for Fruit and Vegetable Safety. It includes GAPsNET, a Good Agricultural Practices Network for Education and Training. Posters, videos and other training materials are available. Selected items are listed:

Food Safety Begins on the Farm: A Grower's Guide

Food Safety Begins on the Farm: A Grower's Self Assessment of Food Safety Risks

Reduce Microbial Contamination with Good Agricultural Practices

Farm and Packinghouse Record Keeping Sheets

Fruits, Vegetables and Food Safety: Health and Hygiene on the Farm (Training Video)

The Cornell Waste Management Institute (<http://cwmi.css.cornell.edu/>) focuses on organic residuals and includes good resources for composting.

University of California - Davis

www.ucdavis.edu

In addition to its robust GAP research and education programs led by the Faculty, UC-Davis is the home of the Western Institute for Food Safety and Security. Selected publications are listed:

Under the heading of 'Key Points of Control and Management of Microbial Food Safety' the following four publications are available:

- *Information for Growers, Packers, and Handlers of Fresh-Consumed Horticultural Products*
- *Edible Landscape Plants and Home Garden Produce*
- *Information for Producers, Handlers and Processors of Melons*
- *Information for Producers, Handlers and Processors of Fresh Market Tomatoes*

Cantaloupe Brochure

Guidelines for Controlling Listeria monocytogenes in Small- to Medium-Scale Packing and Fresh-Cut Operations

Oxidation-Reduction Potential (ORP) for Postharvest Disinfection Monitoring, Control, and Documentation

Ozone Applications for Disinfection of Edible Horticultural Crops

Postharvest Chlorination: Basic Properties and Key Points for Effective Disinfection

Postharvest Handling for Organic Crops

Growers' Compliance Costs for the Leafy Greens Marketing Agreement and Other Food Safety Programs

University of Florida

www.ufl.edu

The University of Florida's Institute for Food and Agricultural Sciences (IFAS) is the home for Extension information. A search of UF/IFAS Extension food safety will direct the browser to the following useful sites:

Produce Safety Center

Electronic Data Information Source

National Food Safety Database

Solutions for Your Life

Iowa State University

www.extension.iastate.edu

The topics of well construction, remedial actions for contaminated wells and numerous other groundwater concerns are addressed at this University site. The following article is recommended as a starting point for researching this important topic.

Coping with Contaminated Wells

University of Georgia

www.uga.edu

The University of Georgia's College of Agricultural and Environmental Sciences is the home for the Center for Food Safety. The Center's homepage contains several options for refining a search, including the following useful links.

The Index link directs the user to an alphabetical index of food safety topics.

The Research link gives access to a series of refereed journal publications available from the Center.

The Hot Topics link give access to current developments in food safety.

Texas A&M University

www.tamu.edu

The Texas A&M University Office of Safety and Security maintains a webpage for Environmental Health and Safety. The following publication is recommended:

TAMU Food Safety Manual includes a section on the Development of Sanitation Standard Operating Procedures (SSOP) with examples of SSOP that are useful training tools.

Clemson University

www.clemson.edu

Search for the Clemson University food safety site for the following manual:

Food Microbiology: An Introduction for Food Safety Educators

Industry Support Organizations

Many organizations have developed food safety information specific to commodities or industry segments. In some cases access to information is for “members only”. Following are a few of the organizations that make information available to the public.

United Fresh Produce Association (UFPA)

www.unitedfresh.org

After accessing the UFPA homepage users should navigate to the Food Safety Resource Center for the following publications:

Microbiological Testing of Fresh Produce White Paper

Audits Benchmarking Matrix. This site provides links to a number of public- and private-sector auditing tools to facilitate side-by-side comparison of food safety auditing standards.

Food Safety Programs and Auditing Protocol for the Fresh Tomato Supply Chain

2009 Global Conference on Produce Food Safety Standards Presentations. Some participants in this conference made their presentations available for public viewing.

Association of Food and Drug Officials (AFDO)

www.afdo.org

AFDO was established in 1896 with the mission of ‘Resolving and Promoting Public Health and Consumer Protection Issues’. From the AFDO homepage, users gain access to numerous documents related to food safety, including position statements on current food safety government and industry policies. For specific information on fresh produce users should access:

AFDO Model Code for Produce Safety

Western Growers Association

www.wga.com

Commodity Specific Food Safety Guidelines for the Production and Harvest of Lettuce and Leafy Greens

Commodity Specific Food Safety Guidelines for the Production, Harvest, Post-Harvest, and Value-Added Unit Operations of Green Onions

National Leafy Greens Marketing Agreement

www.nlgma.org

This Agreement, supported by various industry groups and administered by USDA, is the basis for current food safety guidelines for leafy greens.

California Strawberry Commission

www.calstrawberry.com

Growers and handlers of strawberries should browse this site. Although much of the information is for ‘members only’, there are documents available that address microbial and pesticide food safety.

Florida Tomato Exchange

www.floridatomatogrowers.org

Tomato Best Practices Manual

T-GAP Tomato Good Agricultural Practices

California Tomato Farmers

www.californiatomatofarmers.com

The Fresh Standard for Food Safety

National Watermelon Association

www.nationalwatermelonassociation.com

Commodity Specific Food Safety Guidelines for the Fresh Watermelon Supply Chain

HowToCompost.org

www.howtocompost.org

This site addresses all aspects of composting and has many valuable links to other sites with similar information.

Commercial growers are recommended to navigate from the home page to the page entitled Large Scale for details.

FightBAC

www.fightbac.org

FightBAC is the website for The Partnership for Food Safety Education and is a consumer food safety resource. Many educational documents are available for download at no cost.

ServSafe

www.servsafe.com

ServSafe food safety training is offered through a number of avenues, including some University Extension programs in the U.S.

International Sources

CODEX alimentarius

www.codexalimentarius.net

From the homepage, navigate to Official Standards and initiate a search for any fresh produce commodity of interest to view quality and safety standards. Information about pesticides and microbial food safety is found at various locations. The following articles are of special relevance:

Pesticide Residues MRLs Database

Code of Hygienic Practice for Fresh Fruits and Vegetables

Recommended International Code of Practice for the Packaging and Transport of Fresh Fruit and Vegetables

Global Food Safety Initiative (GFSI)

www.mygfsi.com

From the homepage, navigate to Information Resources to find information about GFSI certification requirements.

GLOBALGAP

www.globalgap.org

From the homepage, navigate to Standards and go to Fruit and Vegetables to find relevant documents.

National Service for Sanitation, Safety and Quality of Agricultural Foods

Servicio Nacional de Sanidad, Inocuidad y Calidad Agroalimentaria

www.senasica.gob.mx

This governmental body in Mexico is responsible for national programs in food safety, pesticide registration and other regulatory affairs for food and agriculture.

International Organization for Standardization (ISO)

www.iso.org

Home for international management standards

