PSA Curriculum Module References and Resources

Listed in the order of appearance in each printed module.

Module 1 – Introduction to Produce Safety

Visit producesafetyalliance.cornell.edu/mod1 for web links

- FDA Factsheet. Background on the Food Safety Modernization Act.
- Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables.
- FDA Factsheet. Why doesn’t this rule only target fruits and vegetables that are known to have caused outbreaks of foodborne illness?
- FDA Bad Bug Book.
- 2006 E. coli O157:H7 outbreak in spinach.
- 2011 Listeria monocytogenes outbreak in cantaloupes.
- 2014 Salmonella outbreak in bean sprouts.
- Iowa State University Extension and Outreach: Lesson 4 Food Safety—FATTOM.
- 2003 Hepatitis A outbreak in green onions.
- Norovirus Collaborative for Outreach, Research, and Education (NoroCORE).
- EPA Registered Hospital Disinfectants Effective Against Norovirus.
- 2004 Cyclospora in snow peas traced back to Guatemala.


**Module 2 – Worker Health, Hygiene, and Training**

- OSHA Regulation for Field Sanitation.

**Module 3 – Soil Amendments**

- Standards for the Use or Disposal of Sewage Sludge, Subpart D—Pathogens and Vector Attraction Reduction, 40 CFR 503 (2015).
References

- Cornell Waste Management Institute.
References

- Frankenfield, A. Compost: How to make it and how much to use. Pennsylvania State University Extension.


- Natural Resources Conservation Service. Field Office Technical Guides.


Module 4 – Wildlife, Domesticated Animals, and Land Use

- Visit producesafetyalliance.cornell.edu/mod4 for web links


- Co-Management of Food Safety and Sustainability, University of California, Division of Agriculture and Natural Resources.

- Wild Farm Alliance: Healthy Diverse Ecosystems Help Keep Pathogens in Check.


Module 5 – Agricultural Water: Part I
% Visit producesafetyalliance.cornell.edu/mod5 for web links


Suslow, T. (2002). Eliminate Fecal Coliforms From Your Vegetable and Fruit Safety Vocabulary.%

United States Environmental Protection Agency (EPA) 2012 Recreational Water Quality Criteria.%

References

- FD&C Act Chapter IV: Food, Section 342 Adulterated Food.

Module 5 – Agricultural Water: Part II

Visit producesafetyalliance.cornell.edu/mod5 for web links

- Top FAQs about Produce Wash Water Management for Small-Scale and Direct Market Farms (Including the Secchi Disk method).
- University of California Davis: Postharvest Technology Yellow Pages.
- U.S. EPA Antimicrobial Products Registered with the EPA as Sterilizers.

Module 6 – Postharvest Handling and Sanitation
Visit producesafetyalliance.cornell.edu/mod6 for web links

- FSMA Final Rule on Sanitary Transportation of Human and Animal Food.

Module 7 – How to Develop a Farm Food Safety Plan
Visit producesafetyalliance.cornell.edu/mod7 for web links

Produce Safety, Audits, and Regulations:
A Few Short Question and Answers to Help Fruit and Vegetable Growers

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Q. Why should fruit and vegetable growers know something about food safety?
A. Many fruits and vegetables are eaten raw, with no cooking step to kill microorganisms that could be present. Since farmers grow food people eat, they should know something about how to keep fruits and vegetables safe during production and packing. Produce safety is also important for maintaining market access. Many buyers require fresh produce suppliers to be certified by a third party audit organization to verify food safety practices, such as Good Agricultural Practices, are being used on the farms. In addition, the Food Safety Modernization Act (FSMA) Produce Safety Rule will require food safety practices on farms that are subject to the regulation.

**Good Agricultural Practices (GAPs)**
Any agricultural management practice or operational procedure that reduces microbial risks or prevents contamination of fruits and vegetables on the farm or in the packing areas.

**Third-Party Audit Organizations**
An independent organization hired by the farmer (or in some cases, the buyer) to audit their food safety practices. This requires the farm to have a written Farm Food Safety Plan and for a person from the audit company to visit the farm to conduct the audit. Prices for the audit vary and there are many organizations that offer audits (e.g. USDA-AMS, Global GAP, PrimusLabs).

**Food Safety Modernization Act – Produce Safety Rule**
“The FDA Food Safety Modernization Act (FSMA) enables FDA to better protect public health by strengthening the food safety system. It enables FDA to focus more on preventing food safety problems rather than relying primarily on reacting to problems after they occur. As a key element of this preventive approach, FDA was mandated under FSMA to establish science-based, minimum standards for the safe growing, harvesting, packing, and holding of produce on farms to minimize contamination that could cause serious adverse health consequences or death.”
(http://www.fda.gov/Food/GuidanceRegulation/FSMA/ucm334114.htm)
Q. Why would buyers require third-party audits?
A. Third-party audit certification is meant to provide verification to the buyer that the produce they purchase is grown and packed under conditions that result in safe, wholesome fresh produce. Safe food is important for many reasons, primary among them being the health of consumers. Many institutions, such as hospitals, daycare centers and nursing homes, feed individuals who are immunocompromised due to illness or age. It is also important from a liability standpoint to have standards that help assure the produce they buy is safe.

Q. Do all buyers require third-party audits?
A. No. Buyer requirements for food safety practices vary widely. Some have no requirements, some require that growers have food safety training, some require a written Farm Food Safety Plan, and some require a third-party audit.

Q. If I pass an audit, does it mean my produce is 100% microbiologically safe?
A. No. Since fresh produce is not cooked or treated in any way that eliminates all food safety risks, there is no way to guarantee safety. This is why it is important that all fresh produce growers understand food safety risks that exist on the farm and take steps to reduce food safety risks.

Q. Who pays for the third-party audit?
A. Usually the grower. In some cases, buyers will pay for the audit or provide partial reimbursement of expenses associated with being audited. Sometimes there are grants available through state departments of agriculture, non-profit organizations, or grower groups to reduce costs.

Q. What do I need to do to have a third-party audit?
A. First, you need to have a written Farm Food Safety Plan. The plan needs to be implemented on your farm with recordkeeping in place to document your practices. Second, you need to contact the audit organization to schedule an audit. It is extremely helpful to conduct your own self-audit prior to having an audit. The audit questions are available, so no audit question should ever be a surprise.

Q. How do I know what audit company to contact?
A. That depends. Some buyers require a specific third-party audit, so they will specify which audit organization is acceptable. If the buyer accepts any third-party audit, growers tend to select the audit that is most affordable and easiest to understand.

Q. If I pass an audit, does that mean I meet the regulatory requirements outlined in the FSMA Produce Safety Rule?
A. No. First, the FSMA Produce Safety Rule became final on November 27, 2015 so most audits are not yet aligned with the requirements in the audit. It is anticipated that some audit companies may modify their audit checklists to incorporate the final FSMA Produce Safety Rule requirements. If you have passed an audit, it is likely you have many necessary practices in place, but not a guarantee of full compliance.
Q. Will there be farm inspections as part of the FSMA Produce Safety Rule?
A. It is anticipated that farm inspections will be a part of the FSMA Produce Safety Rule, but currently there is no information on how and when these might occur.

Q. What should growers do right now?
A. Every grower should learn about GAPs and understand how produce safety impacts their farm. It does not matter if you have a small farm or a large farm. If you are growing fresh produce that you sell to others, you need to know about produce safety since it impacts the safety and marketability of the crops you grow. All growers also should become familiar with the FSMA Produce Safety Rule, determine if they are subject to the rule, and how it might impact their farm.

Q. How do growers get started and learn more about produce safety and third party audits?
A. There are many ways to get started. There are online trainings, and Produce Safety Alliance trainings available nationally. In addition, there are consultants, third-party audit organizations, and other Land-Grant Universities that offer educational materials and training courses about both GAPs and third party audits. Visit producesafetyalliance.cornell.edu to join the listserv to be notified about upcoming trainings and to find collaborators in your state.

Summary
The key point is that growers should realize that understanding and implementing produce safety practices are important to the safety of the fruits and vegetables they grow and to the viability of their farm business. Produce safety practices may be required by many buyers, as well as by federal regulation if the farm is subject to the FSMA Produce Safety Rule. The good news is that there are resources available to help growers. Please visit the National GAPs Program (gaps.cornell.edu) and the Produce Safety Alliance (producesafetyalliance.cornell.edu) websites for more information.

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