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Extension Resources for Farmers Markets



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Virginia Cooperative Extension

- Transfers expertise from Virginia Tech and Virginia State University into Virginia's communities
- Faculty specialists, regional/local agents, program assistants, volunteers
- Collaborative partnership with local, state, and federal governments



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Virginia Cooperative Extension

★ Land Grant Universities Virginia Tech & Virginia State University

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 Departmental Research Center Northern Piedmont

4-H Educational Centers

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VCE/0922/VCE-231NP (VCE-1122NP)









- Estimate 48 millions cases of foodborne illnesses annually
- 128,000 hospitalizations
- 3,000 deaths





Symptoms:

- Diarrhea
- Vomiting
- Nausea
- Abdominal pain
- Fever

Complications:

- Reactive arthritis
- Guillain-Barre syndrome
- Spontaneous abortion, stillbirths
- HUS (kidney failure)
- TTP (blood clots, can lead to stroke)
- Death









 In 2000, Escherichia coli O157:H7 linked to produce samples offered at a farmer's market in Fort Collins, CO

 14 People were ill and two elementary school-aged children required dialysis







 In 2010, Salmonella linked to guacamole, salsa and uncooked tamales at a farmer's market in east-central lowa

 44 People sick and five hospitalized



Farmer's Market Outbreak



 In 2011, Escherichia coli O157:H7 linked to strawberries sold at multiple farm stands and farmer's markets in Oregon

- 12 Illnesses
- 4 hospitalized
- 2 suffered kidney failure
- Linked back to deer on the farm







- In 2017, Salmonella Thompson outbreak linked to shelled peas at Farmers Markets in Wisconsin
 - 11 cases confirmed
 - 3 counties
 - Likely linked to one vendor selling at several markets







Table 1				
Compensation in Court	Cases by	Severity	Category,	1988-97*

Illness Severity	Court Cases with Award Information	Percent Won by Plaintiff	Average Award
Premature death	6	66.7%	\$274,580
Hospitalized & survived	60	31.7%	\$141,199
Other cases	109	29.4%	\$110,916

^{*} Only 175 of 178 court decisions had award information. All awards are in 1998 dollars.

Buzby et al. (2001). Agricultural Economic Report 799. Economic Research Service, USDA,





- Food safety trainings for vendors & market managers
- Factsheets
- Online trainings
- Volunteer programs



Program registration



VCE Factsheets







Farmer/Vendor

- Food safety on the farm
- Land use
- Water use
- Manure & soil amendments
- Hygiene, health & training
- Toilet & handwashing facilities
- Harvesting & Storage
- Transporting produce safely
- Training & certification options
- Food safety at the market
- Current events
- Additional resources

Market Manager

- Market review self-study
- Food safety at the market



Factsheet Example





Farm Worker Toilet and Handwashing Facilities

Promoting good worker hygiene is one of the most important steps tarmers can take to prevent contamination of their hules and vegetables with toodborne disease-causing microorganisms referred to as pathogens. A key step in promoting good hygiene is ensuring that there are hundwashing stations and toilet facilities available on the farm in those proximity (not more than % mild) to the workers.

Setting up a good handwashing station

Thorough handwashing is a "best practice" for keeping food safe. Thorough washing will cut down on the numbers of microorganisms present which in turn helps to enhance the effectiveness of the sanitizer. Hand sanitizers should only be used after proper handwashing, not in place of it.

A good handwashing station should be equipped with the following items:

- # A clean container holding clean water that has been tested to be sure it has no detectable generic F. coll present.
- · Single use paper towels.
- Hand soap or antibacterial soap in a pump dispenser.
- . Trash receptacle.

Additional tips for a good handwashing station

- . Use a large, closed, plastic container such as a carboy that has a spigot to hold the potable water.
- . Use another large plastic container or bucket to catch the wash water, and avoid letting it get into growing areas.
- The handwashing station should be located close to where the workers are working in order for it to be easy for them to use.
- If your farm is large enough, house the handwashing station on a trailer so that it can be moved around your farm as the workers move from plot to plot.
- Include a sign with handweshing instructions or pictures for workers to follow. The instructions should be in English and/or Spanish or other native language.
- The station should be monitored on a regular schedule to ensure that it is clean and stocked with water, soap, paper towels,

Examples of handwashing stations that farmers have created on their properties



A Picture 1. The larmer constructed the station on a arrial itselfer so that it can be moved around on the property it has a sink with a facest and mounted scop and paper level discretizes.



A Picture 2. This is a simpler station, with the ware contained sitting on stacked patters and a furned ordereding the wanth nate into a buckle undermedit. A bothe of adap with a jump dispersion is on the patter. Taper tower are stored in a covered plants commisen beside the patter.



A Picture 3. This solid: A set schold of a packing touse or out aiding and in not mobile. Here a right with furthershing instructions is mounted below the eater source.



A Picture 4. This is a more substantial handweaking station on a holice which also holds the post distribution in civilia.

Setting up adequate toilet facilities

On the farm, the most common toilet facilities are rented portable toilets. One portable toilet for every 15 to 20 workers is recommended. Facilities should be located not more than a 1/4 mile walk from each worker's place of work in the field.

- Facilities should be located next to or in close proximity to the handwashing station so that workers can wash hands after using the toilet.
- The portable facility can be mounted on a trailer so that it can be moved around the farm from glot to glot to make it easier for the workers to use.
- It should be serviced and cleaned on a regular basis.





Very small farm operations may have primarily family or neighbors harvesting product in this case a home toilet is acceptable. However, single use apper sovels are recommended and the toilet foilities should be serviced and cleaned on a regular basis. You mass still train these helpers, just as you would other workers, on proper handwashing and hygiene pinstics for your farm.

Going to the bathroom in the woods or other areas adjacent to growing areas should be avoided due to the risk of run-off or transfer into the fields.

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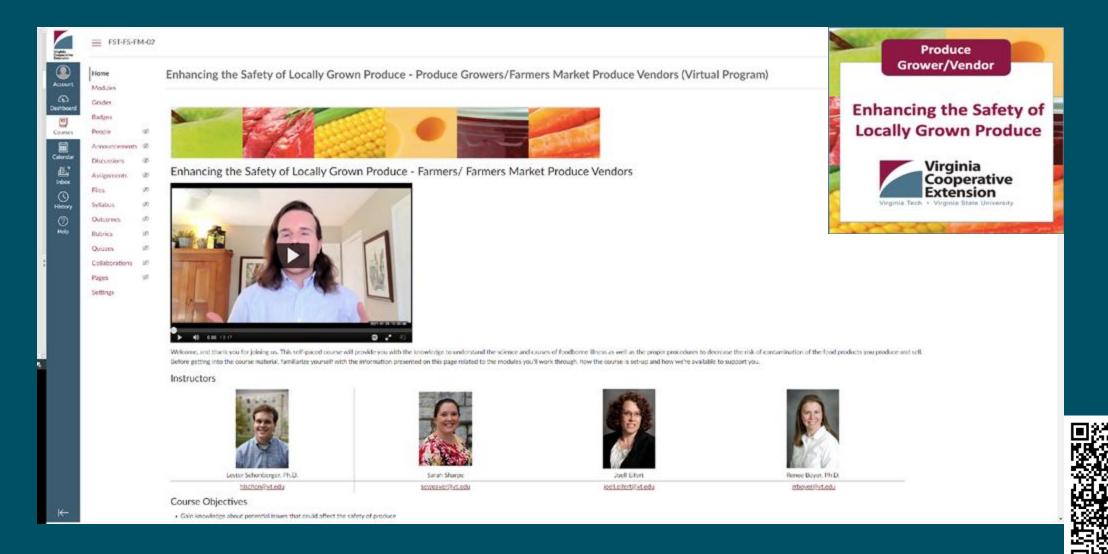








Farmers Market Farmer/Vendor Course:



Covered by the FSMA Produce Safety Rule



- Take a Produce Safety Alliance course (only FDA approved curriculum; satisfies PSR training requirement)
 - Understand required PSR records
 - Classes held throughout the year
 - Scan QR code to see if there are any open classes or contact Istrawn@vt.edu

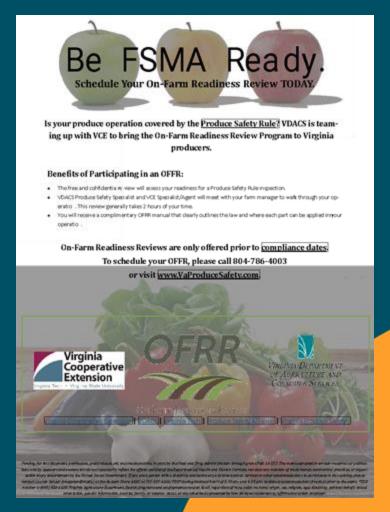
	Water System Inspection Record Template								
Name and ad	idress of farm: _								
	See farm policy for specific water distribution system inspection procedures.								
Date	Time	Water Source and/or Distribution System	Observations	Corrective Actions Taken	Initials				
422/16	7:00 AM	Well 1, north field	Well casing in good shape, backflow prevention device in place, no broken pipes	None	EAB				
422/16	9:00 AM	Pand, south field	Significant geese presence	Introduced swan decoys. Wilf monitor	EAB				
Reviewed by: Title: Date:									
FSMA PSR reference § 112.50(b)(1) Confidential Record									



Covered by the FSMA Produce Safety Rule



- Take advantage of an On-Farm Readiness Review (OFRR)
 - A program/tool to assist in FSMA PSR readiness that can be used to help gauge inspection preparedness
 - Can be performed by local VCE Agent





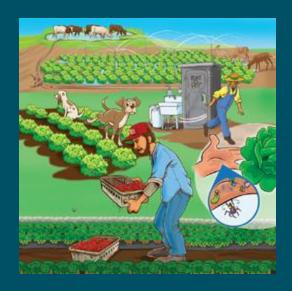
A training guide for farm employees:

Best Practices for Growing, Harvesting, and Handling Produce in the Field and the

Mejores Prácticas de Cultivo, Cosecha y Manejo de Productos Agrícolas en el Campo y en la Empacadora

Packinghouse

A Training Guide Guía de Entrenamiento









Going to Market

- VCE booklet covering basic information for being able to serve/sell a variety of products
- Reviewed and reissued in 2024





Going to Market: A Guide to Selling Raw, Processed, and Prepared Food Products from Your Home, at Farmers' Markets, Stores, and Roadside Stands

Authored by H. Lester Schonberger, Associate Extension Specialist, Department of Food Science and Technology, Virginia Tech; Katheryn Paraga-Estrada, Muscle Food Safety Extension Specialist, Seafood Agricultural Research and Extension Center, Virginia Tech: Melissa Wright, Director, Virginia Food Producer Technical Assistance Network, Virginia Tech; Joell Elfert, Extension Specialist, Department of Food Science and Technology, Virginia Tech: and Renee Boyer, Professor and Extension Specialist. Department of Food Science and Technology. Virginia Tech



Do I need to be inspected? By whom?

This guide will detail the answers to those questions, which vary depending on the type of food product and preparation process used. All food producers should follow the relevant good manufacturing practices (for example, those outlined in <a href="https://doi.org/10.11/21/21.21/2





LOCALLY PREPARED FOODS













Publication FST-310NP

- Jams & Jellies
- Refrigerated/Frozen Meals
- Fermented Vegetables
- Refrigerated Dips, Spreads, Dressings and Salads
- Maple Syrup
- Dehydrated foods
- Acidified foods

- Meats
- Dairy
- Honey
- Baked goods
- Pet food
- Eggs
- Samples
- Labeling





THE SAFETY OF LOCALLY PREPARED FOODS COMMENT





What do I need to know to provide SAMPLES at the farmers market?

Why should I provide samples at the farmers market?

Offering samples at the farmers market allows customers to sample your food before purchasing. This is a great way to promote your business. Even though samples are given away and not sold. vendors should follow safe practices when preparing and offering, these food items.

Where should I prepare my samples?

There are two ways to prepare samples:

- Prepare and package samples in your home kitchen and transport them to the market.
- Prepare samples while at the market.

Regardless of how you choose to prepare your samples, safe food handling and preparation practices, and regulations associated with your business should be followed. This document will provide best practices for sample preparation.

What are some guidelines to follow for preparing and serving samples at the farmers market?

Apply the same food safety practices for preparing your samples as you do when making your product.

- 1. Follow good personal hygiene.
- . Pull your hair back, wear a cap, visor or hairnet.
- · Wash hands frequently with soap and water. (The use of hand sanitizers does not replace good hand-washing). Be sure to wash hands after doing other tasks, like smoking, eating, drinking, handling money etc.
- · Wear food-safe gloves during food handling and preparation to prevent contamination.

- 2. Clean and sanitize surfaces and utensils to prevent crosscontamination.
 - . A good sanitizer to use that is easy to transport to/from the market is a mild bleach solution (1 tsp of regular strength unscented household bleach per gallon of water) in a spray
 - Keep samples that require refrigeration in a cooler on ice.
- . Use a calibrated thermometer to confirm that samples are kept cold at a temperature below 41°F (5°C).
- 4. Hold hot samples at hot holding temperatures.
 - . Use a calibrated thermometer to confirm that your samples are kept above 135°F (57.2°C).
- 5. Limit exposure of your samples to outside temperatures to four hours or less if they require temperature control.
- . After four hours, discard any unceten samples.
- * If outside temperatures are greater than 90°F (32.2°C), then samples should not be left without temperature control for more than 1 hour.
- Protect your samples from the environment, people, and pests,
- . Serve samples with
- Toothpicks (see fig. 1).
- Single-serve disposable utensils (e.g., small spoons or forks; fig. 21.
- Single-use dell paper.
- Single-use cups with lids (see fig. 3).
- · Reep samples covered (with a dome or plastic covering; see



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ENHANCING LOCALLY PREPARED FOODS





What do I need to know to sell HONEY at the farmers market?

What is honey?

Honey is a naturally sweet and viscous food created by honeybees. The flavor of honey is created either naturally from the plants where bees harvest their nectar or through added flavorings. Some varieties of honey include:

- Tupelo honey.
- Orange blossom honey.
- Lavender honey.



Figure 1. There are many different types of honey; honey will appear differently depending on its variety and processing. (Photo courtesy of Pixabay Creative Common License.)

Why produce honey?

Honey is a natural sweetener and can be a value-added product.

Does the honey I produce require state inspection?

It depends on where your honey comes from and how much you produce. You can sell honey without a state inspection if (1) you produce AND process less that 250 gallons per year of pure honey from your own personal hives at your private residence AND (2) you do not produce other food products that require inspection (VDACS

State inspection is required if you (1) produce more than 250 gallons of honey per year, (2) produce a value-added honey product, and/or (3) produce other foods requiring inspection (VDACS 2017).

What is pure honey?

Pure honey is honey that. has not been altered. If you wish to sell honey with added flavors or ingredients, the product becomes a value-added product and is considered an infused honey, If you sell infused honey, your process and product require inspection and may need process validation and product testing to determine safety.

What is raw honey?

Raw honey is pure honey that has not been heatprocessed. Raw honey maintains its original content from the combs (it CC0 public domain.) might still contain pollen, bee parts, honeycomb, and



Figure 2. Honey is a natural sweetener than can also be added to various types of foods. (Photo available at pahere.com:

royal jelly). Raw honey is exempt from inspection.



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THE SAFETY OF LOCALLY PREPARED FOODS COMPETS M.





What do I need to know to sell REFRIGERATED DIPS, SPREADS, DRESSINGS, and SALADS at the farmers market?

What are refrigerated dips, spreads, dressings, and salads?

Many prepared foods such as dips, spreads, dressings, and salads are popular items to sell at a farmers market. Most of these items require refrigeration to ensure safety. These foods contain a lot of moisture and do not have enough acidity to control microbial growth. They require time and temperature control for their safety, and they are often referred to as TCS foods. Some examples include:

- ► Hummus
- Refrigerated salsa
- Pesto (see fig. 1)
- Mayonnaise-based salads (e.g., potato salad; see fig. 2)
- Guacamole (see fig. 3)
- Salad dressings.



Figure 1. Example of a tomato-based pesto refrigerated product. (Photo: "Pesto, Tomatoes, Eat, Food, Healthy" by Einladung zum_Essen, licensed under CCO 10) (Photo courtesy of Pixabay, Creative Commons License.

Virginia



Figure 2. Refrigerated potato salad. (Photo: "Potato Salad Food Meal Healthy Dinner" by kartynas, licensed under CC0 10)(Photo credit: Pixabay, Creative Commons License.)



of guacamole, (Photo courtesy of Susan Chen, Virginia Tech)

Note: All packaged, refrigerated foods require facility inspection by the Virginia Department of Agriculture and Consumer Services (VDACS 2017).

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Cooperative Extension

ENHANCING THE SAFETY OF LOCALLY PREPARED FOODS





What do I need to know to sell KOMBUCHA at the farmers market?

What is kombucha?

Kombucha is a beverage made from brewed tea and sugar that is fermented using a Symbiotic Culture of Bacteria and Yeast (generally abbreviated as SCOBY). Kombucha is slightly sweet and acidic often containing residual carbon dioxide. Some kombuchas also have fruit juice or other flavors added. Kombucha is generally made using the following steps (adapted from Nummer, 2013):

Table 1. General steps to produce kombucha

- Boil water
- Add tea and steep for 10 minutes
- Remove tea leaves and cool
- Add 10% inoculum (SCOBY).
- Ferment at room temperature for 7 10 days
- Refrigerate covered
- 7 Filter or remove culture mass

Why produce kombucha?

It is a beverage consumed in many countries and is quickly becoming a popular beverage in the United States because it has perceived health benefits.

What is the fermentation process and why is it

Kombucha is produced using a two-step fermentation process. In the first step, the yeast in the SCOBY ferments the added sugar and forms alcohol and carbon dioxide. In the second step, the bacteria in the SCOBY ferments the alcohol to produce vinegar (acetic acid). Production practices and fermentation conditions will influence the percent of alcohol and vinegar in the final product.

For this reason, alcohol production must be monitored closely! Food and beverage products that contain greater than 0.5% alcohol are subject to Alcohol Beverage Control Authority (ABC) and/or Alcohol and Tobacco Tax and Trade Bureau (TTB) regulation and taxation. Additionally, if fermentation continues for too long, excess vinegar may be produced making the product too acidic for frequent consumption.



Figure 1. Stirring tea on the stove during preparation of kombucha. Photo by Kevin Rail.

Why does kombucha continue to ferment after the SCOBY is removed?

Your kombucha will continue to ferment after the SCOBY is removed because tiny fragments of the SCOBY will remain in the beverage. If you do not pasteurize (heat treat) your product, the remaining yeast and bacteria will continue the fermentation process until there is no sugar left to ferment. This could lead to a beverage that is high in alcohol and/or dangerously acidic. Additional ingredients like juice or other flavorings could also contain sugar and allow for further fermentation, producing even more alcohol or vinegar.

How do I know if TTB Regulation is required for my product?

Kombucha producers must be aware that fermentation continues unless deliberately stopped. Therefore, the kombucha beverage could have less than 0.5% alcohol by volume when it is bottled, but the fermentation may continue after bottling. As a result the



Publication FST-297P (FST-361P)

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Food Producer Technical Assistance Network

- Provide testing of food products for safety and quality
- Provide guidance on reformulation, if necessary
- Provide product label review for completeness and accuracy
- Create Nutrition Facts Panel graphics







Food Producer Technical Assistance Network: Regulatory Compliance



- Inform clients of potential state and federal regulatory issues
- Act as acidified food processing authority providing clients with FDAcompliant scheduled processes
- Provide scientific rationale behind food regulation
- Facilitate registration for training opportunities, including Juice HACCP, cGMPS, BPCS



Certified Food Protection Manager Certification



- Food establishments (including temporary food establishments) need to have at least one employee with supervisory and management responsibility and the authority to direct and control food preparation and service who is a Certified Food Protection Manager (CFPM).
- VCE offers the ServSafe® Certified Food Protection Manager courses



Additional Food Handler Food Safety Trainings



- ServSafe's Food Handler Program
 - Designed for those individuals who are food handlers under supervision of CFPM
- VCE's Cooking for Crowds
 - Designed for those food handlers serving exempt organizations (nonprofits, religious organizations, etc.) that still benefit from safe food handling training



- Food Allergen Awareness
 - In-depth training addressing Big Nine allergens, symptoms of allergic reaction, etc.



Covered by the Seafood HACCP Regulation

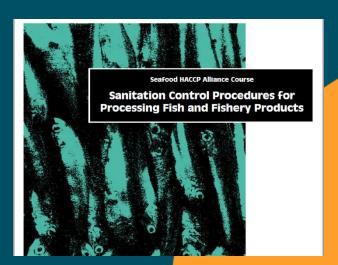
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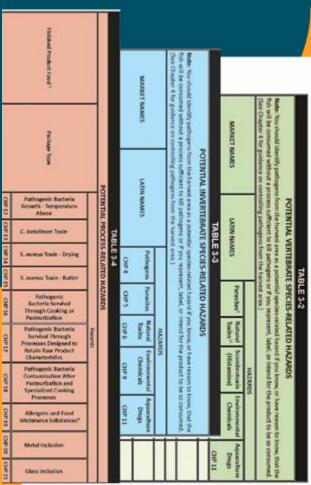
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- Sanitation Control Procedures for Fish and Fishery Products
 - In-person class (1-day)
- Seafood HACCP Certification
 - Basic Seafood HACCP (3-day inperson class)
 - Segment 2 (1-day virtual option)







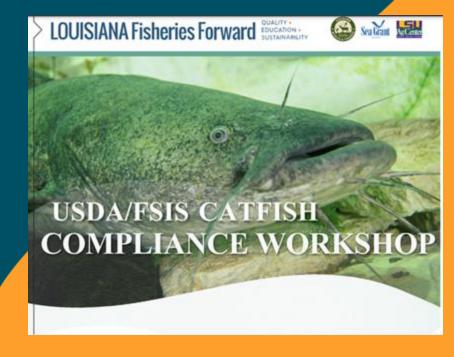


Training in Meat and Poultry HACCP & Siluriformes Order Fish



- Meat and Poultry HACCP
 - In-person (3-day class)
- USDA inspects fish from the order Siluriformes (Catfish)
 - Obtain information about Grant of inspection and how to comply with USDA/FSIS









- Gleaning is the process of recovering unharvested or unsold foods from farms and markets
- VCE is now offering three gleaning-related food safety trainings:
 - Gleaners
 - Farmers
 - Farmers Markets





Virginia Cooperative Extension Master Gardeners

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- Volunteers trained by VCE to deliver gardening-related programming
- Local/regional Master Gardener chapters
- Booths at farmers markets to collect produce for donation
 - Customers who purchase extra
 - Vendors who do not want to take unsold produce





Virginia Cooperative Extension Master Food Volunteers



 Trained volunteers who can deliver food demonstrations and other health and wellness-related programs at the market







Questions?



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