

# ENHANCING THE SAFETY OF LOCALLY PREPARED FOODS



Publication FST-321NP



## What do I need to know to sell ACIDIFIED FOODS at the farmers market?

### What is an acidified food?

Acidified foods are foods that have had acidic ingredients (vinegar, citric acid, etc.) added to low-acid ingredients to create a product with a final equilibrium pH 4.6 or below ( $\text{pH} \leq 4.6$ ). Acidified foods also have a water activity ( $A_w$ ) greater than 0.85 ( $A_w > 0.85$ ). The pH scale shown in figure 1 provides examples of the pH ranges of different foods. Examples of acidified foods include:

- ▶ “Pickled” vegetables (vegetables pickled by adding vinegar; see fig. 2).
- ▶ Pickled eggs (see fig. 3).
- ▶ Salsas.
- ▶ Some sauces.

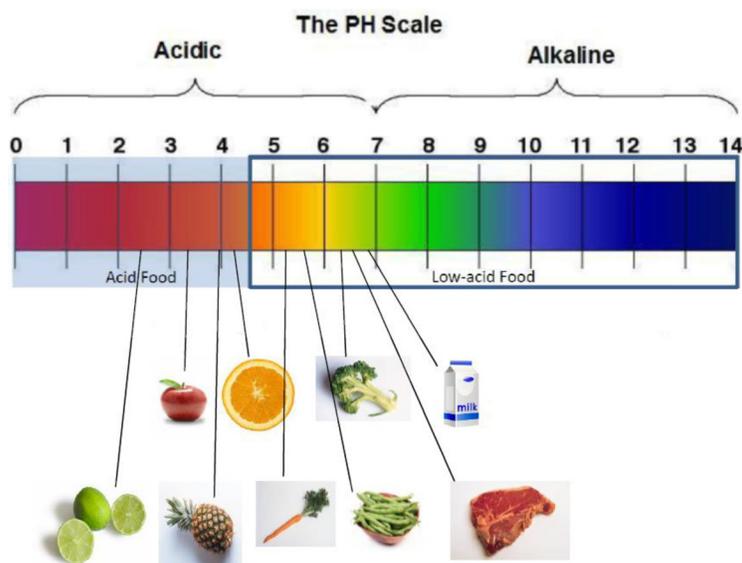


Figure 1. Different foods have different pH ranges. This scale shows the pH of some common foods.



Figure 2. Examples of vegetables that have been pickled by adding vinegar. (Photo available at pxhere.com; CCO public domain.)

### What products are NOT considered acidified foods?

- ▶ Acid foods – foods that naturally have a  $\text{pH} \leq 4.6$  (e.g., apple sauce).
- ▶ Fermented foods – foods that have a  $\text{pH} \leq 4.6$  resulting from bacterial fermentation (e.g., some pickles, kimchi, sauerkraut).
- ▶ Carbonated beverages.
- ▶ Alcoholic beverages.
- ▶ Jams, jellies, and preserves made with acid ingredients (does not include pepper jelly).
- ▶ Refrigerated and frozen foods – foods that will be stored, distributed, and sold under refrigeration.
- ▶ Dehydrated foods – foods with an  $A_w \leq 0.85$ .

“This work is supported by Food Safety Outreach Program [grant no. 2016 0020-25888/project accession no. 1010671] from the USDA National Institute of Food and Agriculture”



Figure 3. Pickled beet egg. (Photo, “Pickled Beet Eggs,” by sk, 2017, is available from flickr.com at [www.flickr.com/photos/irisphotos/37799847022](http://www.flickr.com/photos/irisphotos/37799847022), through a Creative Commons license: <https://creativecommons.org/licenses/by-nd/2.0/>.)

### How do I measure the pH of my food product?

In order to determine if your product meets the safety requirement for an acidified food, you must measure the acidity of your product. The measure of acidity is called pH. It is important to measure pH using a calibrated pH meter. Inexpensive (\$100 or less), reliable, and accurate pH meters are available. For accuracy and reliability, follow the manufacturer’s instructions for use and calibration. For more information on pH, please refer to FST-58NP, “Understanding the pH of Your Food” (FST 2012). The acidified food regulations allow the use of pH paper to measure the pH of a food if the food’s pH is below 4.0 (FDA 2018); however, the use of a calibrated pH meter is more accurate.

For a food to be properly acidified, all portions of the food must be equally acidified. To correctly measure your food’s pH, follow the specific guidelines outlined in the Code of Federal Regulations, Title 21, Part 114.90, “Methodology” (FDA 2018). It is important to check the pH before, during, and after processing to ensure that the product’s pH is maintained throughout the entire process.

### Is the water activity ( $A_w$ ) of my acidified food important?

Yes, water activity ( $A_w$ ) is included in the definition for acidified foods. To ensure a product’s safety, the  $A_w$  should be measured. The  $A_w$  of your product can be measured by a process authority when your product is evaluated. If your product is found to have a water activity of 0.85 or below ( $A_w \leq 0.85$ ), your product does not fall under the definition of an acidified food; therefore, you would not be subject to the acidified foods regulations (FDA 2018).

### Is a state inspection required to sell my acidified food product?

Regulation of acidified foods production is provided by the Food and Drug Administration as described in the Code of Federal Regulations, Title 21, Part 114 (FDA 2018). Some states have “cottage food” laws exempting certain foods from requiring inspection.

In Virginia, pickles and other acidified vegetables (with a  $pH \leq 4.6$ ) produced in someone’s home are exempt from inspection if they

are (1) sold directly to the consumer, and (2) the producer does not exceed \$3,000 in total annual sales of all acidified products (VDACS 2013).

### What steps must I follow to sell my acidified food product under the retail sales exemption?

Selling under a retail sales exemption means you are selling your product out of an uninspected kitchen. Each state may have different requirements. In Virginia, the requirements are as follows (VDACS 2013):

1. The product must have a label that includes all general labeling requirements, including the name, physical address, and telephone number of the person preparing the food.
2. The phrase “NOT FOR RESALE – PROCESSED AND PREPARED WITHOUT STATE INSPECTION” must be displayed prominently on the front label.
3. These products can only be sold directly to a consumer (e.g., at farmers markets, from your private home, or directly to an individual for their own consumption).
4. These products cannot be sold across state lines, on the internet, or in stores (at wholesale).

Even if you sell your product without inspection, you must still produce a safe product and know what makes your product safe. For example, you must know that you have reduced the pH in your product to a level that makes it safe; this includes testing your product’s pH and  $A_w$ .

**Even if your product meets the criteria to be sold with an exemption, you can still sell it with inspection. Some producers prefer to have inspected kitchens so their products do not have to be labeled with the “NOT FOR RESALE - PROCESSED AND PREPARED WITHOUT STATE INSPECTION” label. Additionally, if your kitchen is inspected, you can also sell your product across state lines and at wholesale.**

### What steps should I follow to sell my product under inspection?

1. Have your product evaluated by a process authority to (1) confirm that your product falls under the definition of an “acidified food” and (2) understand the safety parameters of the process. This will include a review of your specific recipe, process (times, temperatures, and methods), and testing of the product’s pH and  $A_w$ . You can find process authorities through the Association of Food and Drug Officials (AFDO 2019).

Your process authority will provide you with a scheduled heat process. For more information, go to [www.pubs.ext.vt.edu/content/dam/pubs\\_ext\\_vt\\_edu/FST/FST-95/FST-95\\_PDF.pdf](http://www.pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/FST/FST-95/FST-95_PDF.pdf).



The acidified food process supplied to you by your process authority will provide you with details of how to manufacture of a shelf-stable product that needs no refrigeration.

2. Familiarize yourself with the regulatory process associated with your product. If producing from a home or commercial kitchen, refer to the VDACS Home & Commercial Kitchen-Based Businesses webpage for more information. If producing from a retail establishment (e.g., restaurant, catering business, food truck, etc.), refer to the Virginia Department of Health.
3. Complete the Better Process Control Schools' course for Acidified Foods Manufacturing. This will educate you on acidified foods regulations (FDA 2018). This certification does not expire and can be completed either in person or online. The Grocery Manufacturers Association maintains a list of universities offering the course, available at [www.gmaonline.org/resources/science-education-foundation/better-process-control-schools/](http://www.gmaonline.org/resources/science-education-foundation/better-process-control-schools/).
4. Decide where you are going to produce your product:
  - Out of your inspected home kitchen?
  - Out of an inspected community or commercial kitchen?
  - Out of your restaurant/catering business/food truck?
5. Complete and submit the correct application that pertains to where you will be producing your acidified food:
  - VDACS – Use either the Application for Home Food Processing Operation or the Application for a Commercial Kitchen Food Processing Operation.
  - VDH – Use the application for inspection of a food establishment (including an application or variance request).
6. After you submit your application, VDACS or VDH will review your application for completeness and contact you with further questions and/or to schedule an inspection.
7. Register your business with the FDA as both a food facility and a food canning establishment. When you do this, you will be provided with a food facility number and a canning establishment number. This allows you to file your recipe and process with the FDA. For more information and to register your business, please see:
  - Facility registration – [www.fda.gov/food/guidance-regulation-food-and-dietary-supplements/registration-food-facilities](http://www.fda.gov/food/guidance-regulation-food-and-dietary-supplements/registration-food-facilities).
  - Canning establishment and process filing – <https://www.fda.gov/food/establishment-registration-process-filing-acidified-and-low-acid-canned-foods-lacf/establishment-registration-process-filing-acidified-and-low-acid-canned-foods-lacf-paper-submissions>.

#### What are some guidelines for producing acidified foods safely?

- ▶ Ensure that you are following the regulations for acidified foods (FDA 2018).
- ▶ Know your product's pH and water activity ( $A_w$ ).

- ▶ Follow the scheduled process provided to you by your process authority (if applicable).
- ▶ Ensure that your product is correctly sealed.
- ▶ Use proper cleaning and sanitation practices.
- ▶ Observe proper personal hygiene, including hand-washing.
- ▶ Wear food-safe gloves during food handling and food preparation.
- ▶ Purchase ingredients and products from approved, reputable suppliers.

#### What are the requirements for my label?

- ▶ Product identity.
- ▶ Net weight in U.S. standard weight units and metric units.
- ▶ Ingredients (by descending weight).
- ▶ List of allergens.
- ▶ Name and address of manufacturer.
- ▶ Consumer storage and preparation instructions
- ▶ Best-by dates. (This is recommended, but not required. Typically, acidified foods have a shelf life of at least 12 months. The best-by date on the label indicates how long the product will be of best quality.)
- ▶ If you are selling your product under the retail sales exemption, you must have the phrase “NOT FOR RESALE – PROCESSED AND PREPARED WITHOUT STATE INSPECTION” displayed prominently on the front label.

#### How should I store my acidified foods at the market?

Acidified foods are shelf-stable and do not require refrigeration. As with all canned foods, store and sell your products in a cool dry location ( $\leq 80^\circ \text{F}$ ,  $\leq 26^\circ$ ). Heat (which includes storing in a sunny location or trunk of a car) can greatly and negatively affect the quality of your products.

#### Additional Resources

Virginia Cooperative Extension. 2012. What Is a Scheduled Process? VCE publication FST 95NP. [www.pubs.ext.vt.edu/content/dam/pubs\\_ext\\_vt\\_edu/FST/FST-95/FST-95\\_PDF.pdf](http://www.pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/FST/FST-95/FST-95_PDF.pdf).

#### References

- Association for Food and Drug Officials. 2019. Food Processing Authorities. Available at: <http://www.afdo.org/foodprocessing>
- FDA (U.S. Food and Drug Administration). 2018. “Acidified Foods.” Code of Federal Regulations Title 21, Part 114. [www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/CFRSearch.cfm?CFRPart=114](http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/CFRSearch.cfm?CFRPart=114).
- VDACS (Virginia Department of Agriculture and Consumer Services). 2013. *Virginia's New Home Kitchen Food Processing Exemptions*. VDACS Food Safety and Security Program. [www.vdacs.virginia.gov/pdf/kitchenbillfaq.pdf](http://www.vdacs.virginia.gov/pdf/kitchenbillfaq.pdf).
- Virginia Cooperative Extension. 2012. Science Basics: Understanding the pH of your Food. VCE publication FST-58NP. [https://www.pubs.ext.vt.edu/content/dam/pubs\\_ext\\_vt\\_edu/FST/FST-58/FST-58NP\\_PDF.pdf](https://www.pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/FST/FST-58/FST-58NP_PDF.pdf)