



\$2.00

"Preserve today, Relish tomorrow"

Preserving Garlic, Onions, and Shallots

Canning, Dehydrating, Freezing and more!



It is the policy of the University of California (UC) and the UC Division of Agriculture & Natural Resources not to engage in discrimination against or harassment of any person in any of its programs or activities (Complete nondiscrimination policy statement can be found at <http://ucanr.edu/sites/anrstaff/files/215244.pdf>).

Food Safety:

To maintain safety and quality, several factors must be considered when drying fruits, vegetables, and herbs. Keep in mind that specific food products often have recommendations unique to them. Drying removes the moisture from food so microorganisms such as bacteria, yeasts, and molds are less likely to grow; however, drying does not effectively destroy them. Because there is not a heat treatment that effectively destroys disease-causing microorganisms, it is critical to use safe food-handling practices when growing and handling fruits, vegetables, and herbs for drying.

The optimum drying temperature is 140°F. At higher temperatures, food will cook instead of drying. When the food cooks on the outside and the moisture cannot escape from a solid piece of food, “case hardening” can occur. This, in turn, will lead to a moldy food product. Therefore, do not rush the drying process.

Low humidity is also needed when drying foods. If the surrounding air is humid, the food will not dry effectively. Increasing the air movement away from the food will assist in the drying process.

Foods can be dried in the oven, under the sun, on the vine, or indoors using a dehydrator. There are several resources that provide tested methods for dehydrating vegetables, fruits, and herbs at the end of this document.

When dehydrating foods, using good sanitary practices is critical in reducing the risk of contaminating foods with pathogens and spoilage microorganisms:

- After harvesting produce or herbs, place them in containers and locations free from additional contamination. (For example, some place pets and wild animals will not have access.)
- Begin the dehydration process soon after harvesting.
- Clean and sanitize all utensils, containers, the food-contact surfaces of dehydrating equipment, and work surfaces. To effectively clean, wash with warm, soapy water; rinse thoroughly with warm water; and sanitize using one of the following methods:
 - Immerse utensils and drying trays in a chlorine bleach solution (1 ½ tsp of bleach per gallon of water) for 10 seconds, then air dry (do not use a towel).
 - Or prepare a sanitizing spray solution of ½ tsp of household bleach per quart of water, and spray on food-contact surfaces. Let air dry.
- Always wash hands before handling foods—that includes harvesting.
- Consider wearing disposable gloves when preparing foods for dehydrating. Wash hands before putting gloves on, and always remove gloves whenever you change a task (such as answering the phone or preparing another food item). If your gloves become soiled or torn during food preparation, replace them before resuming food preparation. Do not wash gloves to reuse—dispose of gloves after use. Gloves can give a false sense of security. Change gloves as recommended—do not contaminate food with gloves used incorrectly.

**Household chlorine bleach is a common sanitizer. Use an unscented and unconcentrated bleach for food-contact surfaces and utensils.*

Dehydrating

The overall objective is to remove moisture before the food spoils.

Garlic

Dry only fresh, firm garlic cloves with no bruises. To prepare, separate and peel the cloves and cut them in half lengthwise. No additional pre-drying treatment is necessary. Follow the drying instructions supplied with your dehydrator or use the following method. Dry prepared cloves in a dehydrator at 140°F (60°C) for 2 hours, then reduce heat to 130°F (55°C) and continue drying for another 4 to 6 hours until brittle or crisp. The clove halves should not be pliable but should break if bent. Pack dried garlic in an airtight container and store it at room temperature or in the freezer. If desired, make garlic salt from the dried

garlic. To prepare, process dried garlic in a blender or food processor until fine. Add 4 parts salt to 1-part garlic powder and blend 1 to 2 seconds. If blended longer, the salt will become too fine and will cake together in clumps.

Onions

Drying onions is easier than it may initially sound. Simply wash the onions and peel off the outer "paper" layers. Cut off the ends of the onions, and slice into 1/8- to 1/4-inch slices. No blanching is required before drying. If using an electric dehydrator, allow onions to dry for an estimated 3-9 hours. If using a conventional oven to dry, the drying time may be up to two times longer than in an electric dehydrator. Since onions have such a strong odor, be sure to not dry them with other items at the same time to prevent the other foods from absorbing the onion odor. Lastly, foods dry much faster toward the end of the drying period; so watch them closely at the end of the drying period to avoid scorching.

Test for dryness

Most vegetables will be hard and brittle when dried. Produce may dry unevenly and some pieces may need to be removed before others.

Finishing: All dried foods should be conditioned before packing. Too much moisture left in a few pieces may cause the whole batch to mold. Place dried foods in a tightly closed large container. Stir or shake each day for a week. This will equalize the moisture. If moisture forms on the inside of the container the food has not been dried sufficiently. Return the food to the dehydrator for a few more hours.

Pasteurizing is necessary for any food products that could have been exposed to insect infestation or larva prior to handling or during the drying process. The food should be frozen after it has been conditioned. Pack the food in airtight containers, removing as much air as possible; place in a freezer at 0°F for at least two days.

Storage:

Moisture must be kept from dried foods when they are in storage. Containers suitable for the freezer work well for storing dried food.

Rehydrate:

There are three basic methods used to rehydrate dried foods: 1. Soak in liquid, 2. Boil in water, and 3. Cook in liquid. Do not add salt or sugar during the first 5 minutes of rehydration as salt hinders the water absorption process. Vegetables may be reconstituted in consommé, bouillon, vegetable juice, water, or milk. Refrigerate during rehydration. Allow plenty of time - from 1 to 2 hours up to 8 hours, depending upon the vegetable.

Freezing

Garlic - Garlic can be prepared in several ways for freezing.

- Chop garlic and wrap it tightly in a plastic freezer bag or in plastic wrap, and freeze. To use, grate or break off the amount needed.
- Place garlic bulbs or cloves (peeled or unpeeled) in a freezer bag or container and freeze; remove cloves as needed.
- Peel the cloves, purée them with oil in a blender or food processor using 2 parts oil to 1-part garlic, and pack the mixture into an airtight container. (The puree will stay soft enough in the freezer to scrape out portions to use in sautéing.) Freeze this mixture immediately—**do not hold or store it at room temperature**. The combination of the low-acid garlic, the exclusion of air (by mixing with oil), and room-temperature storage can support the growth of *Clostridium botulinum* (see the "Botulism Warning").

Onions - While freezing is not the best preservation method for onions, it is one of the easier methods. Onions can be frozen by simply dicing them and then allowing them to freeze in a dry pack or on a tray, no

blanching required! Package up the frozen onions, making sure to eliminate as much of the air from the package as possible when storing in the freezer. Frozen onions are best if used within a few months. They are great in any cooked dishes such as soups, stews, casseroles, or sautéed vegetables for a stir-fry or other festive food!

Canning

Garlic - CAUTION: Canning only garlic is not recommended. Garlic is a low-acid vegetable that requires a pressure canner to be properly processed. Garlic loses most of its flavor when heated in this way. For this reason, adequate processing times have not been determined for canning garlic.

Onions - Onions require pressure canning as a low-acid vegetable. Step-by-step directions for small onions (1 inch in diameter or smaller) are available in the University of Georgia *So Easy to Preserve*. Follow all pressure canning safety procedures, including packing and filling the jars, venting the canner before pressurizing, and cooling. Read [Preserving Food: Using Pressure Canners](#) to learn more about pressure canning procedures and safety. To learn more about the principles behind canning, read [Guide 1: Principles of Home Canning](#) from the USDA *Complete Guide to Home Canning* at <http://nchfp.uga.edu>.

Other: Garlic

Storing Garlic in Wine or Vinegar and Refrigerating

Peeled cloves may be submerged in undiluted (full-strength) wine or vinegar and stored in the refrigerator. Adding wine or vinegar to garlic provides an acidic environment (less than pH 4.6) so *Clostridium botulinum* cannot grow. A dry white or red wine is suggested; white or wine vinegars also work well, but balsamic vinegar may be too strongly flavored. You may also add a small amount of dried spices, such as peppercorns, hot chili flakes, cumin seeds, or bay leaves, if desired. The garlic-flavored liquid and the garlic cloves may be used to flavor dishes. The garlic-liquid mixture should keep for about 4 months in the refrigerator. Label the refrigerated garlic-liquid mixtures to show the preparation date and a “best before” date. Longer storage should not result in an unsafe product, but mold growth may develop, and flavors may change. **Do not store the garlic-liquid mixture at room temperature because it will rapidly develop mold growth.** Discard both the cloves and the liquid if there are signs of mold or yeast growth on the surface of the wine or vinegar.

Storing Garlic in Oil

Take extreme care when preparing flavored oils with fresh garlic or when storing fresh garlic in oil. Peeled garlic cloves may be submerged in oil and stored in the freezer for several months or in the refrigerator for no more than 4 days. Label refrigerated garlic in oil mixtures to show the preparation date (or preferably with a “discard after date” label). **Do not store garlic in oil at room temperature.** Garlic in oil mixtures stored at room temperature provide an ideal environment for *Clostridium botulinum* to grow and produce toxin (low acidity, no free oxygen in the oil, and warm temperature). The same hazard exists for roasted garlic stored in oil. At least four outbreaks of botulism associated with garlic in oil mixtures have been reported in North America.

BOTULISM WARNING

Regardless of its flavor potency, garlic is a low-acid vegetable. The pH of a clove of garlic typically ranges from 5.3 to 6.3. As with all low-acid vegetables, garlic will support the growth and subsequent toxin production of the bacterium *Clostridium botulinum* when given the right conditions. These conditions include improper home canning and improper preparation and storage of fresh herb and garlic-in-oil mixtures. Moisture, room temperature, lack of oxygen, and low-acid conditions all favor the growth of *Clostridium botulinum*. When growing, this bacterium produces an extremely potent toxin that causes the illness botulism. If untreated, death can result within a few days of consuming the toxic food. It is important to follow the directions carefully to make sure your preserved garlic is safe to eat.

RECIPE: Chive Vinegar

Yield: about 1 ½ cups

- 1 cup fresh chive blossoms
- 1 1/2 cups white or white wine vinegar
- 1/4 cup chopped chive leaves, optional.

Crush blossoms to release scent and flavor. Loosely pack them in to clean jar. Pour the vinegar over the blossoms until they are completely immersed in the liquid. Stir the chopped chives into the vinegar with a spoon or chopstick. Tightly cover jar and label it with the date. Store at room temperature away from direct light or heat for 2 weeks. Strain vinegar into a clean, attractive glass container. Compost or discard solids.

Quick Hot Vinegar Method

Place the chive blossoms and optional chive leaves in a clean, heat-proof glass jar (it is not necessary to sterilize the jar). Heat the vinegar until it comes just to a simmer (don't let it get to a full boil), then pour the hot vinegar over the chives. Cover tightly and label the jar with the date. Store at room temperature away from direct light or heat for 3 days. Strain the vinegar into an attractive, clean glass bottle and then cork or seal. Compost or discard the spent blossoms.

Tips: For best results, pick chive blossoms when they are fully opened but have not yet started to fade or go to seed.

Source: *Serious Eats*

RECIPE: Double-Onion Marmalade

Yield: about 6 half-pint jars

A little dab of this sweet onion marmalade is all you need to jump-start an amazing appetizer or main dish.

- | | |
|--|------------------------------------|
| • 1 ½ cups thinly sliced red onion | • Cheesecloth |
| • 1 ½ cups thinly sliced Vidalia onion | • Kitchen string |
| • ¼ cup firmly packed light brown sugar | • 2 ½ cups unsweetened apple juice |
| • ⅓ cup apple cider vinegar (5% acidity) | • ½ cup raisins |
| • 1 Tbsp. black peppercorns | • 6 Tbsp. Ball® Classic Pectin |
| • 2 bay leaves | • 4 cups sugar |

Combine first 4 ingredients in a 6-qt. stainless steel or enameled Dutch oven. Cook, stirring often, over medium heat 13 minutes or until liquid evaporates.

Place peppercorns and bay leaves on a 5-inch square of cheesecloth; tie with kitchen string and add to onion mixture. Add apple juice and raisins; stir in pectin. Bring mixture to a full rolling boil that cannot be stirred down, over high heat, stirring constantly. Hold spice bag to one side of Dutch oven with tongs. Add sugar, stirring until dissolved. Release spice bag. Return mixture to a full rolling boil. Boil hard 1 minute, stirring constantly. Remove from heat; remove and discard spice bag. Skim foam, if necessary.

Ladle hot marmalade into a hot jar, leaving 1/4-inch headspace. Remove air bubbles. Wipe jar rim. Center lid on jar. Apply band and adjust to fingertip tight. Place jar in boiling-water or atmospheric steam canner. Repeat until all jars are filled.

Process jars in a boiling water or atmospheric steam canner for 15 minutes at 0-1000 ft., 20 minutes at 1001-6000 ft., and 25 min at 6001 ft. and above. For boiling water canning, turn off the heat, remove canner lid and wait 5 minutes. For atmospheric steam canning, turn off the heat, leave canner lid on and wait 2-3 minutes. Remove jars, cool 12-24 hours, wash, and store in a cool dark place.

<https://ucanr.edu/sites/camasterfoodpreservers/files/334004.pdf>

RECIPE: Red Onions in Vinegar

Yield: about 7 half-pint jars

These onion rings are a perfect addition to fresh salads. Try adding them to a bed of romaine lettuce or spinach. Add strawberries and candied walnuts and dress with a mild vinaigrette.

- 4 cups red wine vinegar
- 1 clove garlic
- 10 cups sliced peeled red onions, 1/4 - inch thick rings

In a large stainless-steel saucepan, combine vinegar and garlic. Bring to a boil over medium high heat. Reduce heat and boil gently for 5 minutes, until garlic flavor has infused the liquid. Add onion rings, increase heat to medium-high and bring to a boil. Reduce heat and boil gently, covered, for 5 minutes, until onions are heated through. Discard garlic.

Pack hot onion rings into hot jars to within a generous 1/2-inch (1 cm) of top of jar. Ladle hot pickling liquid into jar to cover onions, leaving 1/2-inch (1 cm) headspace. Remove air bubbles and adjust headspace, if necessary, by adding hot pickling liquid. Wipe rim. Center lid on jar. Screw band down until resistance is met, then increase to fingertip tight.

Process jars in a boiling water or atmospheric steam canner for 10 minutes at 0-1000 ft., 15 minutes at 1001-6000 ft., and 20 min at 6001 ft. and above. For boiling water canning, turn off the heat, remove canner lid and wait 5 minutes. For atmospheric steam canning, turn off the heat, leave canner lid on and wait 2-3 minutes. Remove jars, cool 12-24 hours, wash, and store in a cool dark place.

Source: Ball Complete Book of Home Preserving 2006/2012

RECIPE: Cajun-Spiced Dried Onion Rings

Yield: about 3 cups

- 6 small onions 2 T sweet paprika
- 1 teaspoon salt
- 1 teaspoon finely crumbled dried thyme
- 1/2 teaspoon cayenne pepper
- 1/4 cup red wine vinegar or white vinegar

Cut onions crosswise into rings about 1/8-inch thick. Carefully separate layers into individual rings.

In a shallow dish, combine onions, paprika, salt, thyme, cayenne, and vinegar. Cover and let stand for at least 1 hour or up to 4 hours.

Drain onions, discarding marinade. Place onions on mesh drying trays, setting smaller rings inside larger rings to save space. Dry at 130°F for 8 to 10 hours or until rings are dry and crisp with no signs of moisture inside. Let cool completely on trays or transfer to a container. Store in an airtight container at room temperature for up to 6 months.

RECIPE: English Pub-style Pickled Onions

Yield: about 1 quart

- | | |
|--|--------------------------------------|
| • 1/2 cup Pickling Salt | • 2 cups malt vinegar |
| • 2 quarts water | • 1 tsp. whole black peppercorns |
| • 1 1/2 lbs. very small onions, pearl onions or shallots, unpeeled | • 1/4 tsp. whole allspice berries |
| • 2 Tbsp. light brown sugar | • 1/4 tsp. hot pepper flakes |
| | • 1 Mediterranean bay leaf, crumbled |

In a bowl, dissolve 1/4 cup salt in 1 quart of water. Add the onions. Weigh them down gently with a plate that fits inside the bowl. Let them stand at room temperature for 8-12 hours.

Drain the onions and peel them. Return then to the bowl. Make a brine with the remaining salt and water, pour over the onions, and weight them down gently again. Let them stand at room temperature for 2 days.

In a saucepan, bring sugar and vinegar to a boil. Let the liquid cool,

Drain the onions, rinse them, and drain them well again. In a sterilized quart jar, layer them with the peppercorns, allspice, hot pepper flakes, and bay leaf. Cover them with cooled, sweetened vinegar. Close the jar with a non-reactive cap and refrigerate the jar for at least 1 month before eating the onions.

Source: The Joy of Pickling

Resources:

Garlic: Safe Methods to Store, Preserve, and Enjoy <http://ucfoodsafety.ucdavis.edu/files/250352.pdf>

Drying Fruits and Vegetables <https://ucanr.edu/sites/camasterfoodpreservers/files/341229.pdf>

National Center for Home Food Preservation: <http://nchfp.uga.edu/>

Complete Guide to Home Canning. 2015. http://nchfp.uga.edu/publications/publications_usda.html
Also available in paper copy from Purdue Extension (online store is located at https://mdc.itap.purdue.edu/item.asp?item_number=AIG-539)

So Easy to Preserve, Sixth Edition. 2014. Bulletin 989. Cooperative Extension/The University of Georgia/Athens

Ball Blue Book Guide to Preserving. 2020. Jarden Corporation.

Ball Complete Book of Home Preserving, 2020. Jarden Corporation