

Food Preservation

Drying Foods at Home



Drying or dehydrating food involves removing its water content to a point where the food is preserved longer than if left fresh.

The lack of water prevents microorganisms, such as mold, from decomposing the food. Foods also contain enzymes, which are naturally occurring proteins involved in the plant's growth, which slow down when food is dried and help lengthen the food's shelf life.

For more information and directions for specific foods, visit the National Center for Home Food Preservation at nchfp.uga.edu.

Food Dehydration

Drying of foods occurs best around 140 F. At higher temperatures, foods tend to cook rather than dry.

How dry should foods be? Dried fruits should reach 20% moisture and be pliable but not sticky. Dried vegetables will be brittle or crisp, with a moisture level of 10%.

Drying Methods

Electric Food Dehydrators

Food dehydrators are an electric appliance. Both horizontal and vertical dehydrators are effective and hold racks or trays of food to be dried. With a fan, warm air blows through and around the food, helping to remove moisture.

Oven and Microwave Drying

Drying using an oven or microwave is useful for households that only want to dry occasionally and in small batches. When using an oven to dry, ensure the oven maintains a low temperature of 140 F. If so, proceed with drying.

Keeping the oven door open slightly and having a fan blowing at the oven can help create a similar environment to an electric food dehydrator.

Microwave drying is only recommended for herbs.

Sun, Solar, and Vine Drying

Sun drying is acceptable for fruits, but not for vegetables or meats. Ideal conditions for drying, temperature, humidity, lack of rain, etc., are hard to maintain. Sun-dried foods also require pasteurization to destroy insects or eggs that may be present.

Solar drying uses a foil surface to increase the temperature where the food is being dried and shortens drying times.

Vine drying is used for legumes and other dry beans. Simply leave the vine alone to let the pods dry and shrivel before harvesting.

Air Drying

Air drying indoors works well for hot peppers and herbs. Create a bundle of hot peppers or herbs and tie them together with a string. Leave in a well-ventilated area until the food dries completely. Consider covering food bundles with a paper bag poked with holes to prevent dust from gathering on the food's surface. Drying outside can lead to a loss of flavor and color.

Pre-Treated Fruits

Treating fruits before drying improves colors and quality.

Pre-treatment options for fruits that brown when exposed to air, such as apples and bananas:

Pre-treatment	Amount	Action
Vitamin C (Ascorbic acid)	2-½ tablespoons per 1-quart cold water	Prepare pre-treatment mixture. Soak fruit for 10 minutes. Drain and add to the dehydrator to begin drying.
Citric acid	1 teaspoon citric acid per 1-quart of cold water	
Lemon juice	1:1 parts lemon juice and cold water	

Pre-treatment options for small fruits with skins and/or pits, such as grapes and cherries:

Pre-treatment	Amount
Boiling	Bring a pot of water to a boil. Add fruit, and boil for 30 to 60 seconds. Remove to very cold water. Place fruit on a clean cloth to dry, then add to the dehydrator.

For full instructions on drying fruits, visit the National Center for Home Food Preservation at nchfp.uga.edu.

Conditioning Fruits

After drying, fruits need an additional step called “conditioning.” Since some pieces of fruit may be larger or smaller and are at different spots in the dehydrator, moisture may vary through each piece of fruit.

To condition fruits:

- Let dried fruit cool.
- Pack loosely into food-safe jars or covered containers.
- Close the containers.
- Let stand at room temperature for 7 to 10 days.

Check the container daily for any condensation or moisture. If condensation is visible, add the fruit back to the dehydrator until dry.

Pre-Treated Vegetables

Some vegetables benefit from blanching in boiling water. This softens cell walls and improves the drying process.

After blanching, add vegetables to very cold water and drain on a clean cloth before drying.

Vegetable	Blanching Time
Carrots	4 minutes
Corn on cob	4 to 6 minutes
Mushrooms	n/a
Potatoes	7 minutes
Tomatoes	n/a

Pumpkin Leather

Ingredients:

- 2 cups canned pumpkin or 2 cups fresh pumpkin, cooked and puréed
- ½ cup honey
- ¼ teaspoon cinnamon
- ⅛ teaspoon nutmeg
- ⅛ teaspoon powdered cloves

Directions:

- Wash hands with soap and water.
- Blend the ingredients well.
- Spread the mixture evenly onto a tray or cookie sheet lined with plastic wrap.
- Dry at 140 F.

Source: [Drying](#), National Center for Home Food Preservation.

Jerky

Jerky refers to dried meat. Meat can be flavored with a marinade before drying. It is dried until the pieces crack but do not break when bent. For food safety reasons, jerky requires treating, which may happen before or after drying. Choose one of the options below to treat jerky:

Pre-Treatment

Heat strips of meat in a marinade to a boil for 5 minutes, then drain and dry. Use a food thermometer to determine that the meat has reached 160 F.

Post-Treatment

If the meat was not pre-treated, post-treat it instead. Heat oven to 275 F. Add dried meat to a baking sheet and heat in the oven for 10 minutes.

Storing Jerky

Jerky can be stored at room temperature for up to two weeks, but fat in the meat will start to go rancid at room temperature, negatively affecting flavors. Move the remaining jerky to a refrigerator or freezer to increase shelf life.

Call Your Local Office

Contact your local Illinois Extension office with your food safety questions:

go.illinois.edu/FindILExtension.

References and Resources

- [So Easy to Preserve](#), University of Georgia Extension
- [Freezing](#), National Home Center for Home Food Preservation
- [What is blanching, and how does it relate to enzyme activity when freezing food?](#), USDA
- [Understanding the Process of Freezing](#), Penn State Extension
- [Home Canning and Botulism](#), CDC.gov
- [General Canning Information](#), National Home Center for Home Food Preservation The Ball® Blue Book
- [What's Cooking with Mary Liz Wright](#), YouTube.com
- [Cottage Food](#), University of Illinois Extension
- [Food Preservation Resources](#), University of Illinois Extension

Jerky Marinade

Ingredients:

- 1-½ to 2 pounds of lean beef, pork, or venison meat
- ¼ cup soy sauce
- 1 tablespoon Worcestershire sauce
- ¼ teaspoon black pepper
- ¼ teaspoon garlic powder
- ½ teaspoon onion powder
- 1 teaspoon hickory smoke-flavored salt

Directions:

Combine all ingredients. Place strips of meat in a shallow pan and cover with marinade. Cover the pan and refrigerate for 1 to 2 hours or overnight.

Products marinated for several hours may be saltier than some people prefer. If you heat the meat before drying to decrease the risk of foodborne illness, do so at the end of the marination time.

To heat, bring strips and marinade to a boil and boil for 5 minutes before draining and drying. If strips are more than ¼ inch thick, the time may need to be increased.

If possible, check the temperature of several strips with a metal stem-type thermometer to determine that 160 F has been reached.

Source: [Drying](#), National Center for Home Food Preservation.

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