

FOOD PRESERVATION



Drying Fruits

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Making dried fruit can be a fun family activity with a tasty end product. Dried fruit is a portable snack and it also can be used in recipes. Proper and successful drying produces safe food with good flavor, texture and color. Whenever you preserve foods, choose the best-quality fruits and vegetables. As with other food preservation methods, drying does not improve food quality.

The following fruits were rated as “excellent” or “good” by the University of Georgia for their quality after drying: **apples, apricots, bananas, cherries, citrus peel, coconuts, currants, dates, figs, grapes, nectarines, papayas, peaches, pears, pineapples, plums and rhubarb.** Other fruits also are suitable for drying.

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Preparing Fruits for Dehydration

Select high-quality, fully ripe fruit, and discard any fruit with decay, bruises or mold. Thoroughly wash and clean fruits to remove dirt. Cut foods into 1/8-inch to 1/2-inch slices. The higher the water content, the larger the slice size should be. Small slices of high-moisture foods would disappear when all the moisture has evaporated.

Pretreating Fruits

Pretreating light-colored fruits before drying is important for the quality and safety of the final product. Soaking the sliced fruit in an acidic solution preserves the color and texture of the dried fruits, and it increases the destruction of potentially harmful bacteria during drying. These treatment methods are courtesy of Colorado State University Extension.

Acidic Solutions

1. **Ascorbic Acid Pretreatment:** Pure crystals of ascorbic acid (vitamin C) can be found at supermarkets and drug stores. Stir 2½ tablespoons of pure ascorbic acid crystals into 1 quart of cold water. This amount of solution treats about 10 quarts of cut fruit. For smaller batches, adjust proportions accordingly. Soak the fruit for 10 minutes, then remove it with a slotted spoon, drain it well and dehydrate it.
2. **Citric Acid Pretreatment:** Citric acid is available in the canning section of many supermarkets. Stir 1 teaspoon of citric acid into 1 quart of cold water. Add the fruit and allow it to soak for 10 minutes, then remove it with a slotted spoon, drain it well and dehydrate it.
3. **Lemon Juice Pretreatment:** Mix equal parts of lemon juice and cold water. Add the fruit and allow it to soak for 10 minutes, then remove it with a slotted spoon, drain it well and dehydrate it.

Cracking Skins

Some fruits have tough skins. For successful dehydration, the skins must be “cracked” before being dried as whole fruits. To crack the skins of grapes, plums, cherries, berries and other fruits with tough skins, dip the fruits in briskly boiling water for 30 to 60 seconds, then dip them in very cold water. Drain them on absorbent towels before placing them on drying trays.

Drying Fruit

Drying is not a precise method of food preservation, and the amount of drying time will vary depending on the equipment, moisture content of the fruit and the humidity in the air. Spray a cookie sheet or similar flat tray with vegetable spray, or line the tray with plastic wrap or parchment paper and spray with vegetable spray. Another option is to use the specially designed plastic sheets for electric dehydrators, and follow the manufacturer’s directions.

Oven drying: Test your oven to be sure it can maintain a low enough temperature; otherwise, “case hardening” may occur. This is the formation of a “crust” on the food, which prevents the interior from drying properly.

To test your oven, set it to the lowest setting. Place an oven-safe thermometer on the rack where food will be placed. Leave the oven door open 2 to 6 inches. Place a fan near the open door to circulate air. Check the temperature. If your oven can maintain a low enough temperature (140 to 145 F), it may be used for food dehydration. Racks should be 2 inches apart, with at least 3 inches of clearance from the top or bottom to the rack. See Table 1 for approximate drying times.

Note: Oven drying is not a safe procedure to follow if young children and pets are present.

Food dehydrator drying: Follow the manufacturer’s directions.

Table 1: Steps for Drying Fruit.

Fruit	Drying Procedure
Apples	Select mature, firm apples. Wash well. Pare and core. Cut in rings or slices $\frac{1}{8}$ to $\frac{1}{4}$ inch thick or cut in quarters or eighths. Dip in ascorbic acid or other anti-darkening/anti-microbial solution for 10 minutes. Remove from solution and drain well. Arrange in single layer on trays, pit side up. Dry until soft, pliable and leathery; no moist area in center when cut (six to 12 hours).
Apricots	Select firm, fully ripe fruit. Wash well. Cut in half and remove pit. Do not peel. Dip in ascorbic acid or other anti-darkening/anti-microbial solution for 10 minutes. Remove from solution and drain well. Arrange in single layer on trays, pit side up with cavity popped up to expose more flesh to the air. Dry until soft, pliable and leathery; no moist area in center when cut (24 to 36 hours).
Bananas	Select firm, ripe fruit. Peel. Cut in $\frac{1}{8}$ -inch slices. Dip in citric acid or other anti-darkening/anti-microbial solution for 10 minutes. Remove and drain well. Arrange in single layer on trays. Dry until tough and leathery (six to 10 hours).
Berries	Select firm, ripe fruit. Wash well. Leave whole or cut in half. For berries with firm skins, dip in boiling water 30 seconds to crack skins. For berries with soft skins (strawberries), dip in ascorbic acid or other anti-microbial solution for 10 minutes. Remove and drain well. Place on drying trays not more than two berries deep. Dry until hard and berries rattle when shaken on trays (24 to 36 hours).
Cherries	Select fully ripe fruit. Wash well. Remove stems and pits. Dip whole cherries in boiling water 30 seconds to crack skins. Also may dip in ascorbic acid or other anti-microbial solution for 10 minutes. Remove and drain well. Arrange in single layer on trays. Dry until tough, leathery and slightly sticky (24 to 36 hours).
Citrus peel	Select thick-skinned oranges without mold or decay and no color added to skin. Scrub oranges well with brush under cool running water. Thinly peel outer $\frac{1}{16}$ to $\frac{1}{8}$ inch of the peel; avoid white bitter part. Dip in ascorbic acid or other anti-microbial solution for 10 minutes. Remove from solution and drain well. Arrange in single layers on trays. Dry until crisp (eight to 12 hours).
Figs	Select fully ripe fruit. Wash or clean well with damp towel. Peel if desired. Leave whole if small or partly dried on tree; cut large figs in halves or slices. If drying whole figs, crack skins by dipping in boiling water for 30 seconds. For cut figs, dip in ascorbic acid or other anti-microbial solution for 10 minutes. Remove and drain. Arrange in single layers on trays. Dry until leathery and pliable (12 to 24 hours).
Grapes and black currants	Select seedless varieties. Wash, sort, remove stems. Cut in half or leave whole. If drying whole, crack skins by dipping in boiling water for 30 seconds. If halved, dip in ascorbic acid or other anti-microbial solution for 10 minutes. Drain. Dry until pliable and leathery with no moist center (12 to 24 hours).
Melons	Select mature, firm fruits that are heavy for their size; cantaloupe dries better than watermelon. Scrub outer surface well with brush under cool running water. Remove outer skin, any fibrous tissue and seeds. Cut into $\frac{1}{4}$ - to $\frac{1}{2}$ -inch-thick slices. Dip in ascorbic acid or other anti-microbial solution for 10 minutes. Remove and drain. Arrange in single layer on trays. Dry until leathery and pliable with no pockets of moisture (six to 10 hours).
Nectarines and peaches	Select ripe, firm fruit. Wash and peel. Cut in half and remove pit. Cut in quarters or slices if desired. Dip in citric acid or other anti-darkening/anti-microbial solution for 10 minutes. Remove and drain well. Arrange in single layer on trays pit side up. Turn halves over when visible juice disappears. Dry until leathery and somewhat pliable (six to 36 hours).
Pears	Select ripe, firm fruit. Bartlett variety is recommended. Wash fruit well. Pare, if desired. Cut in half lengthwise and core. Cut in quarters, eighths or slices $\frac{1}{8}$ to $\frac{1}{4}$ inch thick. Dip in citric acid or other anti-darkening/ anti-microbial solution for 10 minutes. Remove and drain. Arrange in single layer on trays pit side up. Dry until springy and suedelike with no pockets of moisture (six to 10 hours for slices; 24 to 36 hours for halves).
Plums and prunes	Wash well. Leave whole if small; cut large fruit into halves (pit removed) or slices. If left whole, crack skins in boiling water one to two minutes. If cut in half, dip in ascorbic acid or other anti-microbial solution for 10 minutes. Remove and drain. Arrange in single layer on trays pit side up, cavity popped out. Dry until pliable and leathery (six to 10 hours for slices; 24 to 36 hours for halves).

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Testing for Dryness

Fruits should not be dried to the point of being brittle or hard; they should be leathery and pliable. To test for dryness, remove a few pieces and allow them to cool to room temperature. Squeeze a handful of the fruit. The pieces should spring apart when released. Cut several cool pieces in half. You should not see any moisture, and the fruit should not be sticky.

Conditioning – A Post-drying Treatment

After drying, the “conditioning” process helps equalize moisture among the various-sized pieces of fruit. It lessens the chances of mold growth and other spoilage. To condition, place cooled dried fruit loosely in glass or plastic containers. Lightly cover the containers and store them in a dry, well-ventilated place, stirring or shaking the container(s) daily for four to seven days. If moisture condenses in the jar, return the fruit to the dehydrator or oven for further drying, then repeat the conditioning process.

Packaging and Storing

Pack cooled dried fruits in small amounts in dry glass jars (preferably dark) or in moisture- and vapor-proof freezer containers, boxes or bags. Using glass containers allows you to see moisture buildup on the interior immediately. Put the containers in a cool, dry, dark place or in the refrigerator or freezer. Properly stored, dried fruits keep well for six to 12 months. Discard foods that have off odors or show signs of mold.

Using Dried Fruit

Dried fruit can be eaten as snacks as-is or reconstituted for use in pies and other recipes. To reconstitute, place fruit in a pan and cover with boiling water; simmer covered until tender (about 15 minutes).

For more information about growing, preserving and preparing fruits and vegetables, visit the NDSU Extension website at

www.ag.ndsu.edu/food

Sources

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