



Preservation: Drying

Drying preserves foods by removing enough moisture from food to prevent decay and spoilage. The key is to remove moisture as quickly as possible at a temperature that does not seriously affect the flavor, texture and color of the food.

Main Steps:

- 1) **Select**
- 2) **Blanch**
- 3) **Dry**
- 4) **Store**

1) Selecting & Preparing Vegetables and Fruits

- Select vegetables at peak flavor and eating quality, usually just as they reach maturity.
- Select fruits at peak ripeness.
- Prepare produce immediately:
 - Thoroughly wash produce.
 - Drain thoroughly, shaking leafy vegetables well.
 - Sort and discard any produce with decay, bruises or mold.

2) Blanching

- Steam Blanch Vegetables & Fruits (recommended method):**
 - Put a minimum of 2 inches water in a large pot.
 - Heat water to boiling.
 - Place a rack or colander in pot to keep vegetables above water.
 - Place prepared vegetables directly in colander or first in a cheesecloth bag, work with small batches vegetables.
 - Cover pot and steam.
 - Half way through - check to see that all pieces are being steamed. Stir or shake if necessary.
 - Replace cover and continue heating.
 - Test vegetables. They should feel limp and heated through, but not cooked.
 - Lift out vegetables and spread on clean cloth or paper towels.
- Water Blanching Vegetables:**
 - Fill large pot half full with water and bring to a boil.
 - Put no more than 3 qts. of vegetable pieces in cheesecloth or mesh bag.
 - Dunk this bag in boiling water, making sure water covers the vegetables. Shake bag so hot water reaches all pieces. Allow vegetables to cook for a few minutes.
 - Adjust heat, so water continues to boil.
 - Remove from boiling water and dunk directly into a cold water bath to stop the cooking.
 - Drain on paper towel or cloth.

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3) Drying Methods

☐ Sun Drying

- Place trays of blanched vegetables in direct sun in a flat or tilted position that allows air to circulate around and underneath. To protect from insects, place netting or screening on both sides of tray without touching food.
- Stir or turn food several times each day to help even drying.
- An electric fan directed onto food speeds up drying and helps keep insects away.
- Do not allow sun to scorch or burn food.
- When food seems about two-thirds dry, take trays indoors or into a shaded area.
- Sun drying may take 12 hours to four or five days, depending on the size of food pieces, amount of food on a tray, and weather conditions. If drying takes more than one day, bring trays in at nightfall to protect food from dew.

☐ Oven Drying

- Either a gas or electric oven may be used. Both require careful watching to prevent scorching.
- Preheat oven at lowest setting (140 to 150 degrees F).
- Prop oven door open to achieve a consistent oven temperature of 140 degrees and to prevent scorching.
- The open door also allows moist air to escape.
- Place trays of prepared food in oven.
 - **For small amounts of food and trial runs**, cheesecloth stretched over oven racks, cake racks, broiler racks or cookie sheets work fine. Attach with clothespins.
 - **For large quantities of food**, use shallow wooden trays with slatted, perforated or woven bottoms (these can be used for sun, oven or room drying). Use wooden fruit crates or make tray frames. For tray bottoms, use thin wooden slats or dowels placed 1/4 inch to 1/2 inch apart, strong curtain netting, or stainless steel screening. (do not use galvanized screening).
 - A light coat of fresh vegetable oil or nonstick substance helps protect wood slats and make cleaning easier.
- Stack trays so there is at least 3 inches of clearance at top and bottom of oven and 2-1/2 inches between trays.
- Shift trays, top to bottom and front to back, every half hour.
- Stir food often if it is 1/2-inch deep or more.
- Single layers need no stirring.
- Turn heat off when drying is almost complete, to prevent scorching and open the door wide for an additional hour or so.

☐ Room Drying

In dry climates, some foods can be dried in a warm room such as an attic or kitchen.

- Herbs – hang herbs (root side up), cover with paper bags if protection is needed from dust.
- String pumpkin rings and red chili peppers on cords and hang near the ceiling.
- Trays of vegetables, half-dried in the sun or oven, can be finished in a warm room. Stack trays 6 inches apart.
- Open screened windows to allow free circulation of air.
- Force a draft across food with an electric fan.

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- ❑ **Solar & Dehydrator Drying**
 - Solar and thermostatically controlled heaters and dehydrators can be purchased or built at various costs.
 - Cold frames, used by some gardeners, work well as solar dryers.

- ❑ **Testing for Dryness**
 - Remove a small handful of food and cool for a few minutes before testing for dryness.
 - Dried vegetables should be hard and brittle.

- ❑ **Post-Drying Treatment** - Foods exposed to insects (including fruit flies and Indian meal moths) before or during the drying process should be pasteurized to destroy insect eggs. Pasteurizing also helps remove excess moisture that may have been reabsorbed during conditioning. Two methods for Pasteurization:
 - **Freezer method.** Seal dried food in heavy freezer containers (boxes or bags). Freeze for 48 hours to kill insects and insect eggs. Remove and package promptly for permanent storage. Do not allow sweating to take place inside bags.
 - **Oven method.** Reheat dried foods on trays at 150 degrees for 30 minutes or 175 degrees for 15 minutes. Remove, cool quickly and package for permanent storage. This method of pasteurizing results in additional loss of vitamins, and, if not done carefully, may scorch food.

4) Packaging & Storage

- ❑ Pack cooled, dried foods in small amounts in dry, scalded glass jars (preferably dark) or in moisture- and vapor-proof containers, including plastic bags.
- ❑ Packaging materials should be moisture- and vapor-proof such as glass jars or rigid plastic containers.
- ❑ Most plastic bags and heavily waxed cartons, are not moisture- and vapor-proof, but are sufficient to use.
- ❑ Paper cartons are not sufficient for quality preservation of food.
- ❑ Use containers that allow the food to be removed easily.
- ❑ Square or rectangular flat-sided containers help make the most of storage space.
- ❑ If moisture collects in the containers but the food has not molded, it can be rescued. Heat foods to 150 degrees for 15 minutes and reseal.
- ❑ Discard all food that shows signs of mold.
- ❑ Label containers with the name of the product, date, and method of pretreatment and drying.
- ❑ Store in a cool, dry, dark place.
- ❑ Properly dried and stored vegetables keep well for six to 12 months.

Source: Mary Bell's Complete Dehydrator. Mary Bell. William Morrow & Co., 1994.
 Garden Way's Guide to Food Drying. Phyllis Hobson. Garden Way Publishing Co., 1980.
 Putting Food By. Janet Greene, Ruth Hertzberg, & Beatrice Vaughn. Plume, 1991.
 Just Food, 2002