Drying Foods

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Drying or dehydration, the oldest method of food preservation, is particularly successful in the hot, dry climates found in much of New Mexico. Quite simply, drying reduces moisture necessary for bacterial growth that eventually causes deterioration.

Successful dehydration depends upon a slow steady heat supply to assure that food is dried from the inside to the outside. Drying is also an inexact art. Size of pieces, relative moisture, and the method selected all affect the time required to dehydrate a food adequately.

Methods of Drying

Foods may be sun dried with or without a solar dehydrator, in a gas or electric oven, or with a portable electric dehydrator. Dehydrators with thermostats provide better control over poor weather conditions and food quality than sun drying.

An effective solar dehydrator is the shelf above the back seat of a car. Clotheslines are another popular drying rack for ears of corn and strips of jerky. Colorful red chile ristras hung from vigas are practical as well as decorative.

Sun drying. Prepared foods are placed on drying trays. Stainless steel screening and thin wood lath are good materials for home-constructed drying trays. As aluminum screening reacts with acids in the fruit, it is less desirable. Do not use galvanized, copper, fiberglass, or vinyl screening.

Trays measuring about 14" x 24" x 1" are an easy size to handle. If trays are to be used in an oven, they should be 1 1/2" smaller in length and width than oven shelves to allow air circulation.

Place trays of food away from dusty roads and yards. Elevate them at least 1" above the table with spools or bricks to allow good air circulation below the food.

Cover the food with a muslin or cheesecloth tent to protect it from insects. Dry fruits and meats in direct sunlight; move trays periodically to assure direct sun exposure. Place vegetables in the shade to prevent excessive color loss.

If rain threatens or food requires more than one day to dry, cover with a waterproof material or place the food in a sheltered area.

To destroy insects or their eggs that may be on sun-dried foods and to remove additional moisture in thicker pieces, heat foods in a 150 degree oven for 30 min.

Oven drying. Either build trays as described for sun drying or convert oven racks to drying racks by stretching muslin or cheesecloth across the oven rack. Secure with toothpicks or long sewn stitches. Alternate trays in the oven periodically to assure even drying.

Set oven control at its lowest setting, but not below 140-150 degrees. If using an electric oven, wedge a potholder between oven and door to allow a 1" opening. Moisture from the drying food will vent through this opening. Close the door on a gas oven, as into vent will permit moisture to escape.

Dehydrator. There are two types of dehydrators: solar and electric. For each type of dehydrator, prepare food and place on racks. If using a solar dehydrator, adjust the position of the food

throughout daylight hours to keep in direct sunlight.

Follow manufacturer's instructions for the electric dehydrators. When purchasing an electric dehydrator, select one that has a thermostat to regulate temperature and a fan to circulate air.

General Directions for Preparing Foods for Drying. Refer to the tables at the end of this guide for instructions for specific foods.

Vegetables. Choose tender vegetables. Wash, remove any damaged areas, and cut into even pieces. Blanch, then chill as though preparing for the freezer. Note: Do not blanch mushrooms, onions, or sweet peppers.

To blanch in boiling water, use one pound of food for each gallon of boiling water. Immerse vegetable into the boiling water using a wire basket or mesh bag, cover kettle, and boil the recommended time (see table). Blanching water may be reused until it becomes cloudy. Drain vegetables thoroughly.

To steam blanch, place 1" of water in kettle and bring to a rolling boil. Suspend thin layer of vegetables in basket or loose cheesecloth bag. Cover and steam blanch required amount of time (see table).

Fruit. Choose firm, mature fruit. Wash, peel if desired, remove any damaged areas, and cut into even-sized pieces or slices. Some fruits require little or no pretreatment. However, pretreat apples, apricots, bananas, cherries, peaches, and pears by one of the following methods to reduce vitamin and flavor loss, browning, and deterioration during storage.

Immerse fruit in a solution of one of the following to a gallon of water: 1 tbsp of sodium bisulfate or 2 tbsp of sodium sulfite or 4 tbsp of sodium metabisulfite. These pretreatment mixtures are available from some grocery stores, pharmacies, and wine-making shops. Soak fruit pieces for 5 min. and fruit halves for 15 min.

Note: Approximately 5% of asthmatics are sensitive to sulfites. Use one of the following pretreatments if sulfites present a potential health problem:

Dip fruit in a commercial ascorbic acid/water mixture from the grocery store. Follow manufacturer's instructions when preparing and using the solution.

Steam blanch fruit for 5-6 min.; water blanch fruit for 4-5 min. (see information on water and steam blanching above).

Dip prepared fruit in a saline solution composed of 2-4 tbsp of salt and l gallon of water for 10-15 min.

Meat. Choose lean cuts of beef or venison. Partially freeze and remove all visible fat. Slice with the grain of the meat into strips, 1" wide, 1/2" thick and 8-10" long.

Pound strips flat to tenderize and season with salt, chile, or other desired flavors. Marinate and refrigerate overnight for additional tenderness and flavor. Popular marinades include teriyaki, sweet and sour, soy, Worcestershire, and chile sauces.

Fish. Slice salmon filets into thin strips. Place strips in a dish or enamel pan. Salt strips using 2 tbsp. salt per pound. Refrigerate overnight. Oven or dehydrator drying is preferable to sun drying fish.

Drying Times

Drying time varies widely because of the method selected and the size and amount of moisture in

food pieces. Sun drying requires the most time; an electric dehydrator requires the least. Vegetables take from 4-12 hours to dry; fruits take 6-20 hours. Meats require about 12 hours. Making raisins from grapes may require days/weeks when dried outside.

When testing foods for dryness, remove a piece from the center of the drying tray and allow it to come to room temperature. Fruits and meat jerky should be leathery and pliable; vegetables should be brittle.

Conditioning Dried Foods

Food should be conditioned for a week before being packaged for long-term storage. To condition food, place it in a container such as a cloth sack or a clear, covered container and allowing any remaining moisture to redistribute itself through the fruit.

If using a clear, covered container, watch for moisture beads. If they form, continue drying food. If using the cloth bag, hang it in a convenient location and shake the bag daily to redistribute food and moisture.

Storing Dried Foods

Place dried food in freezer-weight plastic storage bags, press out air, and then put in containers with a tight-fitting lid. Store in a cool, dark, dry area.

Dried foods store well at room temperature for a month. Refrigerate foods if they will be used within three months; freeze foods for storage periods between three months and one year. Foods should be used within one year.

Using Dried Foods

Dried meat, commonly called jerky, is normally not rehydrated and is eaten in the dried state. Dried meats and vegetables used in soups rehydrate during the cooking process.

Rehydrate vegetables by soaking them in 1 1/2-2 cups of water for each cup of dried vegetable. If necessary, add more water during the soaking process. Heat and eat.

Cover dried fruit with boiling water and let stand for 5 min. Drain. Dried fruit may also be steamed for 3-5 min. until plump. Fruits may be eaten immediately or used in a recipe.

Making Fruit Leather

Fruit leathers, also called fruit roll ups, can be made from almost all fruits or combinations of fruits. However, peaches, apricots, cherries, and nectarines are ideal. Pears and apples, sufficiently softened, also work well.

Wash well, peel (if desired), cut into pieces, and puree fruit in a blender. Sweeten to taste with sugar or honey. Spread evenly, no more than 1/4" deep, on a cookie sheet. The cookie sheet should either be lightly sprayed with a vegetable shortening or covered with plastic paper.

If using plastic paper, tape edges down to prevent them from folding into the puree. Dry fruit leather until it is slightly tacky to the touch.

When dried, lift leather (including plastic paper if used), and roll or cut into small sections and roll. Storage recommendations are the same as those described previously.

Nutritional Value of Dried Foods

Dried foods retain their protein, mineral and vitamin A content fairly well if soaking water is also consumed. Because they are concentrated into a small mass, dried foods can also be high in calories. It's important to brush teeth after eating dried fruit because they stick to the teeth.

Instructions for Specific Food Drying

VEGATABLES (See text for general directions)

Vegetable	Preparation	Blanching Time(mins.) with Steam	Cooling Time(mins.) with Cool Water	Dryness Test
Asparagus	Wash thoroughly.Halve large tips.	4-6	4-5	Leathery to brittle
Green Beans	Wash. Cut in pieces or strips.	2-3	2	Very dry brittle
Beets	Cook as usual. Cool & peel. Cut into shoe-string strips 1/8" thick.	Included in cooking	Included in cooking	Brittle, dark red
Broccoli	Trim, cut as for serving Wash. Quarter stalks lengthwise.	3-4	2	Crisp, brittle
Brussels-sprouts	Cut in half length-wise through stem.	7-8	5-6	Tough to brittle
Cabbage	Remove outer leaves quarter and core. Cut into strips 1/8" thick.	3	2	Crisp to brittle
Carrots	Select crisp, tender vegetables. Wash. Cut off roots and tops, peel. Cut in slices or strips 1/8" thick.	3-4	4	Tough to brittle
Cauliflower	Prepare as for serving.	5-6	4-5	Tough to brittle
Celery	Trim stalks. Wash stalks and leaves thoroughly, Slice stalks.	2-3	2-3	Very brittle
Green Chile Peppers	Wash. To loosen skins, cut slit in skin, then rotate	None	None	Crisp, brittle, medium green

	over flame 6-8 min. or scald in boiling water. Peel and split pods. Remove seeds and stem.			
Red Chile Peppers	Wash. String whole pods together with needle and cord or suspend in bunches, root side up in area with good air circulation.	None	None	Shrunken, dark redpods, flexible
Corn on the Cob	Husk, trim, blanch until milk in corn is set.	3-5	3	Brittle
Corn, cut	Prepare as for corn on the cob, except cut the kernels from the cob after blanching.	3-5	3	Brittle
Eggplant	Wash, trim, cut into 1/4" slices.	3-4	3-4	Leathery to brittle
Horseradish	Wash, remove small roots and stubs. Peel or scrape roots. Grate.	None	None	Brittle, powdery
Mushrooms *(see note below)*	Scrub. Discard tough woody stalks. Slice tender stalks 1/4" thick. Peel large mushrooms, slice. Leave small mushrooms whole.	None	None	Dry and leathery
Onions	Wash, remove outer "papershells." Remove tops and root ends, slice 1/8-1/4" thick.	None	None	Very brittle
Parsley and other herbs	Wash thoroughly. Separate clusters. discard long or tough stems. Dry on trays or hang	None	None	Flaky

	in bundles in area with good circulation.			
Peas	Shell.	3-4	3	Hard, wrinkled, green
Peppers and pimentos	Wash, stem. Remove core and seeds. Cut into 1/4"-1/2" strips or rings.	None	None	Tough to brittle
Potatoes	Wash, peel. Cut into 1/4" shoe-string strips or 1/8" thick slices.	7-9	6-7	Brittle
Spinach and other greens (kale, chard, mustard)	Trim and wash very thoroughly. Shake or pat dry to remove excess moisture.	2-3 (until wilted)	2	Crisp
Squash, winter	Cut or break into pieces. Remove seeds and cavity pulp. Cut into 1" wide strips. Peel rind. Cut strips crosswise into pieces about 1/8" thick.	3	1-2	Tough to brittle
Squash, summer or banana	Wash trim, cut into 1/4" slices.	3	1-2	Leathery to brittle
Tomatoes	Steam or dip in boiling water to loosen skins. Chill in cold water. Peel. Slice 1/2" thick or cut in 3/4" sections.	None	None	Crisp

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Instructions for Specific Food Drying

FRUITS (See text for general directions.)

Fruit	Preparation	Pretreatment	Drying Procedure
Apples	Wash. Pare, if desired, and core. Cut in rings or slices 1/8-1/4" thick or cut in quarters or	Choose one: Soak 5 min in sodium sulfite solution. Steam-blanch 3-5 min., depending on	Arrange in single layer trays, pit side up. Dry until soft, pliable and leathery; no moist

	eighths Coat with ascorbic acid solution to prevent darkening during preparation (uses 2 1/4 tsp/cup water).	size and texture.	area in center when cut.
Apricots (firm, fully ripe)	Wash. Cut in half and remove pit (do not peel). Coat with ascorbic acid solution to prevent darkening during preparation (1 tsp/cup).	Choose one: Soak 5 min. in sodium sulfite solution. Steam blanch 3-5 min.	Arrange in single layer trays, pit side layer up; pop the cavity up to expose more flesh to air. Dry until soft pliable and leathery; no moist area in center when cut.
Bananas (firm, ripe)	Peel. Cut in 1/8" slices	No treatment necessary; may dip in lemon juice.	Arrange in single layer on trays. Dry until tough and leathery.
Berries (firm)	Wash. Leave whole or cut in half.	No treatment necessary; may dip in boiling water 15-30 sec., to crack skins. Steam blanch 30 sec. to 1 min.	Spread in layer not more than two berries deep. Dry until hard and berries rattle when shaken on trays.
Cherries (fully ripe)	Wash. Remove stems and pits.	No treatment necessary; may dip whole cherries in boiling water 15-30 sec. crack skins.	Arrange in single layer on trays. Dry until tough, leathery and to slightly sticky.
Citrus peel (thick-skinned with no signs of mold or decay and no color added)	Wash. Thinly peel outer 1/16-1/8" of the peel; avoid white bitter part.	No pretreatment necessary.	Arrange in single layers on trays. Dry at 130 degrees 1-2 hours; then 120 degrees until crisp.
Figs (fully ripe)	Wash or clean with damp towel. Peel dark-skinned varieties if desired. Leave whole if small or partly dried on tree; cut large fig in halves or slices.	No treatment necessary; may crack skins of whole figs in boiling water 15-30 sec.	Arrange in single layer on trays. Dry until leathery and pliable.
Grapes (seedless varieties)	Wash, sort, leave whole on stems in small bunches, if desired, May also remove stems.	No treatment necessary; may crack skins in boiling water 15-30 sec. Steam blanch 1 min.	Spread in thin layer on trays. Dry until pliable and leathery with no moist center.
Melons (mature, firm and heavy for size: cantaloupe dries better than watermelon)	Wash. Remove outer skin, any fibrous tissue and seeds. Slice 1/4-1/2" thick.	No pretreatment necessary.	Arrange in single layer on trays. Dry until leathery and pliable with no pockets of

			moisture.
Nectarines and Peaches (ripe, firm)	Peel. Cut in half and remove pit. Cut in quarters or slices if desired. Coat with ascorbic acid solution to prevent darkening during preparation (1-tsp/cup)	Choose one: Soak 5-15 min in sodium sulfite. Steam blanch halves 8-10 min., slices 2-3 min.	Arrange in single layer on trays pit side up. Turn halves over when visible juice disappears. Dry until leathery and somewhat pliable.
Pears (Bartlett variety is recommended)	Wash. Pare, if desired. Cut in half lengthwise wash and core. Cut in quarters or eighths or slice 1/8-1/4" thick. Coat with ascorbic acid solution to prevent darkening during preparation (1-tsp/cup)	Choose one: Soak 5-15 min. in sodium sulfite. Steam blanch 5-7 min.	Arrange in single layer on trays pit side up. Dry until springy and suede like with no pockets of moisture.
Plums and prunes	Wash. Leave whole if small; cut large fruit into halves (pit removed) or slices.	No treatment necessary; may choose: Steam blanch halves or slices 5-7 min. Crack skins in boiling water 1-2 min.	Arrange in single layer on trays pit side up, cavity popped out. Dry until pliable and leathery; pit should not slip when squeezed if prune not cut.

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(1) Blanching times are for 3,000-5,000 ft. Times will be slightly longer at higher altitudes, or if the quantity of vegetable is large.
(2) Dry in thin layers on trays to desired state of dryness.
(3)*WARNING:* The toxins of poisonous varieties of mushrooms are not destroyed by drying or by cooking. Only an expert can differentiate between poisonous and edible varieties.

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