

Dehydrating

Home Food Preservation Virtual Series
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Lincoln

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Why Dry?

- Drying is simple to do.
- Adds variety to meals and snacks.
- You have control over ingredients.
- Little storage space is needed.



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How Drying Works:

- Moisture is removed so bacteria, yeast and mold can't grow.
- Enzyme action is slowed.
- The lack of a 'kill step' is a concern.

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Types of Dehydrating

Outside	Inside
• Sun	• Air
• Solar	• Oven
• Vine	• Dehydrator

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Sun and Solar Drying

- Can be used for fruits (high in sugar and acid).
- Weather: Needs to be 90°F or higher, low humidity, low air pollution, and breezy.
- Caution with birds, insects and pets.
- All foods dried out-of-doors should be pasteurized to kill insects and their eggs.
 - Freezer method - 48 hours at 0°F
 - Oven method - 'bake' in preheated 160°F oven for 30 minutes

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Can herbs be dried in the sun?

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Vine Drying

- Dry beans, lentils and soybeans
- Leave bean pods on vine until beans inside rattle.
- If not dried can dry further in oven or dehydrator.



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Air Drying:

- Indoors in a well-ventilated room or screened-in porch.
- Herbs and hot peppers are the most common air-dried items.
- Enclose them in paper bags to protect them from dust or other pollutants.



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Oven drying:

- Takes 2 to 3 times longer to dry food than a dehydrator because ovens do not have built-in fans for the air movement.
- The oven uses a great deal more energy than a dehydrator.
- Usually a minimum of 8 hours.
- Check the oven to see if it has a reading as low as 140 °F or use the 'keep warm' setting – check temperature with an oven thermometer.



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Oven Drying

- An oven thermometer placed near the food gives an accurate reading of the drying temperature.
- Needs to maintain temperature between 130 °F and 150°F.
- Leave the oven door propped open 2-4 inches and place a fan near the outside of the oven door (not safe for small children).
- Convection ovens can be used if it can maintain 140 to 150°F.



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Dehydrators

- Produce the best quality product.
- Most food dehydrators have an electric element for heat and a fan and vents for air circulation.
- Efficient dehydrators are designed to dry foods uniformly and to retain food quality.



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Can food be dehydrated in the microwave?



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Fruits:

- Select fruit at peak flavor and quality.
- Rinse but do not soak.
- Remove stems, pits or seeds and trim.
- Skin?
- Slice or cut fruit into similar-size pieces
- Pre-treatment:
 - Prevent fruit from darkening
 - Reduces vitamin loss
 - Speeds the drying of some fruit
 - Enhances the destruction of harmful bacteria



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Pretreating Fruit:

- Ascorbic acid (vitamin C) crystals or tablets
- Citric acid
- Commercial antioxidant mixtures
- Lemon juice
- Fruit juice or honey dips
- Sulfur and sulfite compounds
- Syrup or steam blanching
- Cracking skins

Drying Fruit, Colorado State Extension: https://nchfp.uga.edu/how/dry/csu_dry_fruits.pdf



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<h3>Excellent for Drying:</h3> <ul style="list-style-type: none"> • Apples • Apricots • Cherries • Figs • Grapes • Nectarines • Peaches • Pears • Pineapple • Plums 	<h3>Not Recommend or Poor Quality:</h3> <ul style="list-style-type: none"> • Avocados • Blackberries • Cantaloupe • Oranges • Rhubarb • Watermelon
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Some of my dried apples have mold on them. Can I pick those out and eat the rest?



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Fruit Leather:

- Select ripe or slightly overripe fruit. Thoroughly rinse or scrub fruits under running water. Remove blemishes, seeds, pits and cores. Peel.
- Cut fruit into chunks. Place in a double boiler. Bring double boiler to a boil. Cover and steam the fruit for 15 or 20 minutes or until soft and a thermometer placed in the fruit mixture reaches 160°F.
- Place the cooked fruit in a blender. Add ½ teaspoon of ascorbic acid crystals or 2 tablespoons of lemon juice per 2 cups of fruit. If desired, add 1 to 2 tablespoons of honey, corn syrup or sugar per 2 cups of fruit.
- Spread puree evenly onto a cooking sheet or drying tray, about 1/8 to ¼ inch thick.

Fruit Leather, North Dakota State Extension: <https://www.ag.ndsu.edu/publications/food-nutrition/making-fruit-leathers/in1586.pdf>



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Vegetables

- Select vegetables at peak flavor and quality.
- Rinse and scrub with a clean produce brush.
- Sort and discard.
- Peel, trim, core, cut, slice or shred.
- Keep pieces about the same size.
- Water blanch, then quickly cool. Drain.
- Citric acid blanch?

Drying Vegetables, Colorado State Extension: https://nchfp.uga.edu/how/dry/csu_dry_vegetables.pdf



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Good for Drying:	Not Recommend or Poor Quality:
<ul style="list-style-type: none"> • Beets • Cabbage • Carrots • Corn • Peas • Peppers • Onions • Potatoes • Mushrooms • Tomatoes • Turnips 	<ul style="list-style-type: none"> • Broccoli • Brussels sprouts • Cauliflower • Cucumbers • Lettuce • Radishes • Spinach • Zucchini



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Herbs

- Rinse and dry with a paper towel or clean cloth towel.
- Do not need to pretreat or blanch.
- Air dry, dehydrator or microwave
- Herbs that dry well: chives, dill, mint, oregano, rosemary, sage, tarragon and thyme.



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Meats:

- Food safety extremely important!
- Whole Meat – slice into strips, trim, flatten
- Ground Meat – flavored, use jerky gun or pressed into a jelly roll pan and sliced into strips
- **MUST** be heated after drying, precooked before drying or use vinegar-soak method
- Don't use vinegar-soak on game meats



Making Jerky Safely at Home: Pacific Northwest Extension Publication: <https://www.extension.uidaho.edu/publishing/pdf/PNW/PNW0632.pdf>

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Is it better to use lean or more marbled cuts of meat for making jerky?



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When are foods “dry”?

- Fruit – should be pliable and leather-like, not sticky or tacky, 20% moisture
- Vegetables – brittle or crisp, 10% moisture
- Herbs – brittle
- Jerky – chewy and leathery, should bend like a “green stick”
- Conditioning – fruit and jerky
- Store dried food in a cool, dark location or in the refrigerator/freezer.



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Sources:

- [Drying Food at Home](#), University of Minnesota
- [Fundamentals of Consumer Food Safety and Preservation](#), Washington State University Extension
- [So Easy to Preserve](#), University of Georgia
- [Drying Fruits](#), Colorado State University Cooperative Extension
- [Making Fruit Leathers](#), North Dakota State Extension
- [Drying Vegetables](#), Colorado State University Cooperative Extension
- [Drying Herbs](#), National Center for Home Food Preservation
- [Making Jerky at Home Safely](#), Pacific Northwest Extension Publication



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