

REDUCING WEIGHT AND IMPROVING DURABILITY WITH DRIED FOODS

Whether performed at a factory for common items found at the grocery store, or done at home for use on the trail, the reason for drying foods is the same: Water makes up most of the weight of many food items and is an essential prerequisite for spoilage. So by removing the water through the process of drying, the food becomes much lighter and longer lasting. Dried foods are also more resistant to rough handling compared to those with a high water content. For all of these reasons, the process of drying food provides benefits that are ideal for backpackers.

Freeze-drying and dehydrating are the two primary techniques used to dry foods for the trail. Reconstitution is the process of rehydrating dried food back to its original state. On the trail, this is usually done using hot water, although cold water often works, given enough time.

Freeze-drying is performed commercially using expensive equipment to remove moisture through a rapid deep-freezing process. Most of the packaged meal options available at outdoor shops have been freeze-dried. Just like entrees found in the grocer's freezer, freeze-dried meals are a convenient option for the backpacker who is short on time or who prefers to minimize the cooking effort. However, freeze-dried meals have some disadvantages: They are expensive per serving, the packages are often bulky for the quantity of food provided, and the serving sizes can be awkward for the actual group size. While many freeze-dried meals are quite tasty, some aren't; costly surprises can await the backpacker on the trail unless each menu selection has been sampled previously. All of these disadvantages can make freeze-dried meals less desirable, especially when packing for the trail with a large group of Scouts.

Dehydrating is the process of using low heat over a period of hours or days to slowly and gently remove moisture from food. It is a simple and inexpensive process, and it can be performed readily at home using an appliance called a food dehydrator. A high-quality home food dehydrator can be purchased new for about the same cost as a good blender. Dehydrators come in two primary designs: one using stackable round trays with a blower at either the top or bottom of the unit, the other using a rectangular cabinet and slide-out trays over which warm air is blown. Each design has its strong points, depending on the task, but either type will perform well when drying foods for the trail. All models provide some method of adjusting the temperature, and fine-mesh screens are usually included to permit drying of small food items, such as rice, that would otherwise fall through the trays. Additional accessories can make the drying process more convenient but aren't required for the recipes in this book.

Dehydrating foods and ingredients at home allows an endless variety of your favorite recipes to be customized for the trail. Serving sizes and amounts can be tailored to the preferences of your troop or crew.

And to top it off, the ingredients shrink dramatically in size once dry, taking up less volume once packed. For all of these reasons, combined with the cost-effective nature of home drying, dehydrated foods are often a great option when preparing a menu for Scout backpacking trips.

Entire books have been written about the art of food dehydrating, but that doesn't mean you must read one before being successful. The finer



Home-dehydrated peas on the left and commercially freeze-dried peas on the right. *CHRISTINE CONNERS*

points of drying food are certainly worth learning, but they often relate to preparing food for storage times longer than what would be needed for a typical backpacking trip or to foods that are less common on the trail. You should understand the nuances of your own dehydrator, of course, to help assure safe use and predictable results. But by becoming familiar with the following list of tips and recommendations specific to drying foods at home for use on the trail, you'll be ready to tackle most any backpacking menu.

Steps for Maximizing Shelf Life and Improving Food Quality

- Thoroughly clean and dry your hands, preparation surfaces, cooking utensils, and dehydrating trays before commencing to minimize the chance of contaminating your food.
- Properly dried and sealed meats have a shelf life measured in weeks, whereas fruits, vegetables, and grains can last a year or more. Remember: The more moisture or oils remaining in the food being dried, the shorter its shelf life will be. Refrigeration greatly extends the life of foods once they've been dried, freezing even more so. Sealing tightly in high-quality food storage bags is necessary to maximize the longevity and taste of dried foods.
- In very humid kitchen environments, dry the foods as usual, place in airtight containers for a few days to give any remaining moisture time to redistribute, then return the food to the drying trays for another round. This is an effective way of reducing the probability of spoilage due to mold.
- Prior to drying cooked ground beef, begin by using lean meat then allow the fried beef to drain in a colander. Finally, rinse the meat in hot water or pat it with a paper towel. Removing as much fat and oils as possible helps to extend the shelf life of any meat.

- Always closely inspect your dried foods before packing for your trip and before cooking once on the trail. Any patches of discoloration or molding, or an odd aroma, is an indication that the food has begun to spoil and should be discarded.

Planning for Drying

- Many food items can be dried overnight, but as much as a full day or more may be needed to dehydrate some foods, especially thick purees or leathers. If a lot of drying will be required for an upcoming trip, consider the capacity of your dehydrator and be sure to set aside enough time to do the entire job. It can take more than a week to dry food for a troop heading out on a long excursion.
- Dried foods tend to pack a lot of nutrients per ounce, and this is especially true of fruit leathers. Some fruits make better-tasting leathers than others, and some combinations are truly wonderful. Try apple-and-berry combos, for instance. Some fruits, like blueberries, produce a better texture when blended with other fruits before drying.
- The kitchen oven is naturally attractive for drying because of its large capacity, provided that the door can be held open slightly to allow moisture to escape. But the lowest achievable temperature on many ovens is much higher than that recommended for drying nonmeat items. Some ovens do reach down to the range recommended for drying meats, but the unit may not be able to accurately hold the temperatures there. Before using your oven to dry large batches of meats, first understand its capabilities in the required temperature range.
- Foods containing high-fructose corn syrups, such as some canned fruits or pie fillings, can be impossible to dry, forever remaining very sticky to the touch. If attempting to dehydrate these types of foods, the results are likely to be disappointing. Read the ingredient label and avoid drying such foods.

Preparing Foods for Drying

- The more finely chopped the ingredients and the more consistent the sizes of the pieces, the more uniformly they will dehydrate and the better they will reconstitute at camp. Also ensure that pieces are spaced evenly on the drying trays for better air circulation.
- Don't mix different types of highly aromatic foods in the same drying batch to avoid intermingling flavors. Same holds true when mixing odorous foods with less aromatic types. As an example, it would be unadvisable to dry garlic and onions with a batch of fruit leathers.
- When drying sauce for spaghetti or soup on the trail, use a blender to puree chunky blends into a smooth consistency before drying. Texture can be introduced back to the sauces and soups at camp by adding dried vegetables and the like at the time of cooking.
- Thick liquids, such as spaghetti sauces and purees, can be dried in shallow pools on parchment paper, cut to the proper shape for your trays, or on reusable liners specifically designed for this purpose. Depending on the design of your dehydrator, very runny liquids are sometimes best dried in solid plastic trays specially made for your unit.

- Darkening of fruit and vegetables during and following drying naturally occurs due to oxidation. This doesn't affect the taste of the food, but can be surprising to the uninitiated. There are several ways to reduce or eliminate



A fully loaded dehydrator ready for action. From top to bottom: parboiled couscous, brown rice, quinoa pasta, spelt pasta, black beans, kidney beans, and pinto beans. TIM CONNERS

the occurrence of oxidation when drying, but a reasonably effective and easy method is to soak sliced fruits and vegetables for five minutes in a bath of $\frac{1}{4}$ cup lemon juice to 1 quart water prior to drying.

- Blanching is the process of lightly steaming or boiling, but not thoroughly cooking, fruits or vegetables prior to dehydrating. Blanching is beneficial in that it can extend a food's shelf life and improve its appearance once dried. It can also help to speed the rehydration process for some foods. But it is not required, especially if the trip you're preparing for will occur within the next couple of months. Blanching produces no benefit to onions, tomatoes, and mushrooms, which have naturally long shelf lives and stable appearance when dried.
- Precooking, also known as parboiling, pasta and rice then drying in the dehydrator will greatly reduce cooking and reconstitution time on the trail. When parboiling, it even becomes possible to have excellent cold pasta and rice salads on the trail because many parboiled foods can fully reconstitute even with cold water.
- Corn, legumes (peas and beans for example), and root crops (carrots, in particular) should always be thoroughly cooked before drying for the trail. They will not dry or reconstitute satisfactorily otherwise.
- Jerkies generally begin with raw meat and are preserved both through the drying and heavy salting process. Regular unsalted meats can also be dried, but should be thoroughly cooked before doing so. Slice or chop thinly after cooking, rinse under hot water to remove oils, then pat dry before dehydrating.

Maintaining the Proper Drying Environment

- Typical drying temperatures range from the upper 90s to low 100s °F for drying fragile leafy vegetables, through 125 °F for most chopped or sliced vegetables, to 135 °F for fruits and purees, to 155 °F and higher for meat jerkies. Follow the specific guidelines and settings that come with your dehydrator.

• It may be tempting to crank the temperature beyond recommended to hasten the drying process, but there's a good reason for keeping to the specified range. When setting the temperature too high with fruits and vegetables, not only are healthful enzymes potentially destroyed, but the outer surface of the food pieces can rapidly dry and harden, trapping moisture in the interior and leading to rapid spoilage. By drying at lower temperatures, the dehydration process progresses more uniformly from outside to in. But don't take the temperature below the recommended range: The dehydration process can take so long that your food items would actually begin to spoil before drying is completed.

• When drying foods that tend to clump, such as rice, break up the clusters after a half-day or so of dehydrating, then redistribute. This will hasten the remaining process and help ensure more uniform drying. If your dehydrator is new to you, check the progress of the drying every few hours to learn the subtleties. Rotate or restack trays to keep the drying uniform.

• Some foods retain a leathery and pliable texture once fully dried, whereas other types of foods become very crisp. With a little experience, you'll find that you rarely under-dry food. The instruction manual that comes with your dehydrator can help you identify the drying characteristics of a large variety of foods to help you get it right the first time.



Most vegetables, including the salsa shown here, dry best at a moderate temperature, about 125°F.

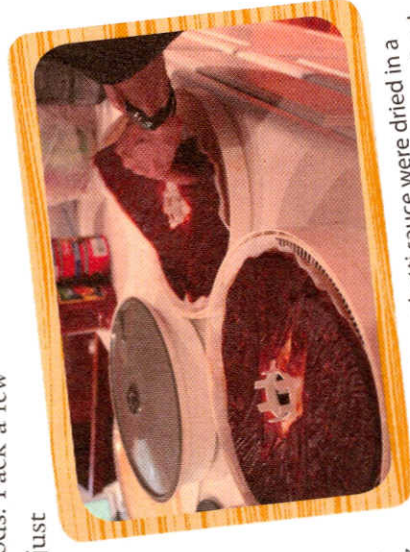
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Packaging Dried Foods

• Quality ziplock bags with a sturdy seal are excellent for storing dehydrated foods. Pack a few extra bags for the trail just in case a seal breaks or a seam ruptures on a bag holding your dried foods.

• Remove fruit leather while it is still warm and pliable but not sticky. If overdried or allowed to cool, the leather may become brittle and more difficult to roll, though certainly still edible. Roll fruit leathers individually on sheets of wax paper to prevent sticking.

• Vacuum sealing is not recommended for storage because the jagged edges of dried foods can puncture the tightly compressed walls of the vacuum bag, defeating the original objective of an airtight seal, and permitting the entry of moisture from the air.



These rings of spaghetti sauce were dried in a round dehydrator and then pulverized in a food processor before packaging in heavy-duty ziplock bags for the trail.

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Bringing Your Dried Food Back to Life on the Trail

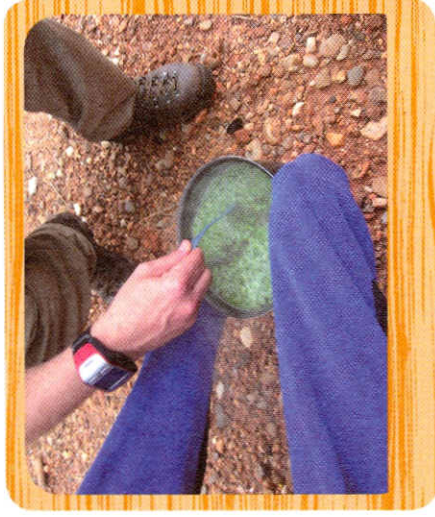
• Some dehydrated foods can be slower to rehydrate than others while cooking. And dehydrated foods tend to rehydrate more slowly than their freeze-dried counterparts. Don't expect all dehydrated foods to return to the same predried state once rehydrated. Many do not, being slightly smaller or chewier. But this is inconsequential to most recipes since the goal is soft and tasty, not pretty.

- The best method for reconstituting your dried food depends on the specific item and how it was dried. An extended simmer or boil is usually required for foods that were not thoroughly cooked prior to drying, such as fresh vegetables. Foods that were precooked prior to drying are usually restored by simply pouring hot water over the dried food in a cup, then setting it aside for an appropriate amount of time, covering the cup to help trap heat. Some precooked foods restore well using cold water, although the time for reconstitution takes longer than when using hot water. The recipes in this book specify the method most appropriate for the foods being rehydrated.

Not all trail recipes require dehydrating foods at home, but many require dried foods of some sort, whether purchased at the grocery store or online. There are several web-based retailers of dried ingredients, and the types of foods now available are truly incredible. Check out the list of suppliers in Appendix B and challenge your creativity.



Dried sauces will fully rehydrate on the trail even when using cold water, as here. *CHRISTINE CONNERS*



Rehydration occurs more rapidly when using hot water, as in the case for this meal in a cook pot just removed from the stove. *DAVID LATTNER*