



GUIDE TO FREEZE DRYING

The Miracle of Food Preservation

**HARVESTRIGHT**
Long Live Your Food™



WHY PRESERVE FOOD?

Today, almost half of all the food we produce in the world never makes it to a plate. We allow a staggering two billion tons of food to go to waste each and every year. If we eliminated this unnecessary food waste, we could potentially provide 60-100 percent more food to feed the world's growing population.

In America there is another problem. We don't just waste food that never makes it to our kitchens and tables, we end up discarding 40% of what we purchase.

Ira Sager at Business Week recently described this problem: "I am not alone in my wasteful habits. I live in the United States of Food Waste. On average, my fellow citizens throw away 20 pounds of food each month, which amounts to \$2,275 a year for a family of four, according to the U.S. Department of Agriculture."

For thousands of years mankind has had ample reason to waste less and prepare for devastating tomorrows. Our ancestors would likely be amazed at our abundance, appalled at our wasteful behavior, and shocked at our lack of foresight.

\$2,275

**AVERAGE AMERICAN FAMILY
FOOD WASTE PER YEAR**



Some of you may think, like our progenitors did, that we face an uncertain future. It raises a question, "Is there a need to prepare for some sort of minor or major calamity?" What is the chance that such an occurrence will be in the form of one of the following: loss of employment, economic collapse, earthquake, civil unrest, drought, disease or a host of other things?

Our ancestors preserved and prepared, shouldn't we? **One of our most fundamental needs is food.**

What will we do if, for some reason, we can't go to a grocery store and bring home dinner? Does each of us have a fallback plan?



**KEEP FOOD
READY FOR
THE FUTURE**



HISTORY OF FREEZE DRYING

Freeze drying was developed during World War II as a way to keep medication for the wounded from spoiling due to uncertain refrigeration while being transported to war zones. The technology was refined and used extensively during the NASA space program, providing varieties of freeze dried food for astronauts.

One of the advantages of freeze-dried food is its long shelf life. When properly stored, many freeze-dried foods can be eaten 15 to 25 years after they have been prepared. Even after that length of time the food's flavor and nutritional value is as good as it was the day it was preserved.

Because of its long shelf life and nutrition preservation, numerous commercial companies produce freeze-dried food for families, as well as for the military. By just adding water, the food is quickly rehydrated and ready to eat.

ORIGINAL USES OF FREEZE DRYING



FREEZE DRIED FOOD up to 25 years

DEHYDRATED FOOD up to 4 years

CANNED FOOD up to 3 years

FROZEN FOOD up to 2 years

ADVANTAGES OF FREEZE DRYING



This method of food preservation causes little damage to the nutritional value of the food being preserved compared to other methods that use higher temperatures, such as canning or dehydration. Freeze drying does not shrink or toughen the food, and it retains its aroma, flavor, and nutritional content. The pictures at the left were taken of food that has already been freeze-dried. As you can see, the meat, cheese, vegetables and fruits still look fresh. And, in reality they are. Simply add water — it is delicious.

In comparing the various methods of food preservation, it is important to remember that there are three things that cause food to deteriorate: heat, water, and oxygen. Freeze-drying and proper packaging overcome all of those factors to allow long-term storage (15 to 25 years).

Other food preservation methods require heat to be used. For example, during canning, typically 50 to 60% of the nutritional value is lost; and in dehydrating, about 40% is lost. Whereas, only 3% of the food's nutritional value is lost during freeze drying because it is done in an extremely cold environment. As has been mentioned, heat also affects taste, color and texture. Both dehydrating and canning cause food to taste different than fresh food. Freeze-dried food, in contrast, looks and tastes like it did when fresh.

As a general rule of thumb, the shelf life of canned and dehydrated food is approximately two to three years, while freeze-dried food easily lasts eight to ten times as long. Additionally, freeze-dried food is very light, since all the water is removed, and can be easily transported for hiking and camping or when used during longer-term emergency needs.





FREEZE DRYING NOW POSSIBLE AT HOME

Harvest Right has created the world's first high-quality, affordable Home Freeze Dryer.

The entire freeze drying process is automated and will go through its entire process of freeze drying without requiring human interaction, thanks to highly intelligent built-in sensors that know exactly when the food is properly freeze-dried.



Harvest Right's compact and efficient Home Freeze Dryer allows a large volume of food to be freeze-dried at any one time. On its four shelves – which can be used to dry any combination of types of food at the same time – it can produce as much as two gallons of food in each batch. That is the equivalent of two #10 cans. Using the Home freeze dryer just three to four times a week allows a family to produce 300 to 400 gallons of food in a year.



**ONE BATCH OF
FREEZE DRIED FOOD**



**TWO
#10 CANS**

PRESERVING THE FOOD YOU WANT, WHEN YOU WANT

One major reason that many families decide to freeze dry their own food is that they can guarantee that the food is free of preservatives. If they have grown their own fruits or vegetables, or processed their own meat or fish, or have purchased high quality fresh foods, they know that what they preserve is as natural and healthy as possible.

Canned or packaged food from the grocery store, or commercially produced freeze-dried foods, put consumers at the mercy of the ingredients the producer used in the preservation process. Most, if not all, of the major companies distributing and selling processed food (dehydrated, canned, and freeze-dried) add ingredients that could be harmful to your health.

The advantage of preserving your own food through freeze drying is that you can avoid food additives and know that the food you choose to preserve is exactly what you will want to eat months or even years into the future.



FOOD WASTE

Studies have shown that the average family of four throws away 40 percent of the food they purchase each month, either by not taking advantage of leftovers or by not using the food before it spoils. A family that makes a concerted effort to freeze dry food could preserve as much as four months of normally wasted food each year.

For example, ripening fruit could be saved for later use as snacks, in children's lunches, and in treats such as homemade smoothies. Leftovers from meals (steak, roast beef, chicken, spaghetti sauce, and soup, to name just a few) could become the tastiest parts of a family's long-term food supply.



Preserve foods like fresh fruits for use in lunches, snacks, and recipes.

WHAT FOODS WORK BEST FOR HOME FREEZE DRYING?

Nearly every food can be freeze-dried, including meat, cheese, fruits, vegetables, and dairy. In addition, entire meals can be freeze-dried for short or long-term storage.

Fruit is perfect for freeze drying. It is delicious and easy to prepare. From apples to watermelons, all you need to do is cut it into good-sized pieces that fit onto the trays. This picture shows apples that have already been freeze dried. It is beautiful and still looks fresh doesn't it?



Vegetables also freeze dry extremely well. From avocados to tomatoes, they are best preserved raw, and freeze dried in slices about half an inch thick. Poultry, seafood, and red meats are perfect for freeze drying. You may freeze dry raw or cooked meats. Both freeze dry perfectly.

Eggs may also be raw or cooked when freeze dried. Cheese, meat, and vegetables can be mixed in with the eggs prior to drying. Raw, freeze-dried eggs are great for baking and can be used to make great omelets and scrambled eggs.



EGGS



ICE CREAM SCOOP

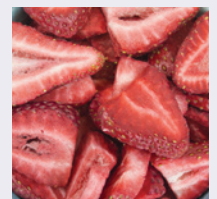
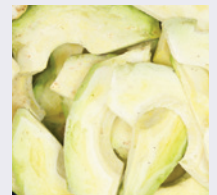
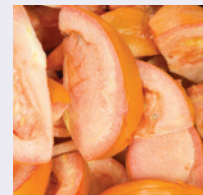


YOGURT DROPS



ICE CREAM SANDWICHES

Freeze-dried yogurt is delicious. All flavors and types dry well. Even ice cream and ice cream sandwiches can be freeze-dried.



COST ADVANTAGE OF HOME FREEZE DRYING

When comparing the expense of freeze drying your own food to the cost of commercially prepared freeze-dried foods, in-home freeze-drying will cost as little as one-fifth as much. That means you could save \$20 to \$50 on each #10 (gallon) can equivalent that you freeze dry yourself. The accompanying table illustrates how a family can establish a good stock of freeze-dried food at a fraction of the commercial price by buying the equivalent amount of food as in a commercial #10 can and then freeze drying it themselves.

COMPARISON TABLE: RETAIL FREEZE-DRIED FOOD VERSUS HOME FREEZE-DRIED FOOD

COST OF RETAIL FREEZE-DRIED FOOD		COST TO HOME FREEZE DRY FOOD				SAVINGS	
FOOD PRODUCT IN A #10 CAN OR ONE GALLON EQUIVALENT	FREEZE DRIED PRICE (LEADING BRANDS)	FRESH FOOD PURCHASED AT STORE	FREEZE DRYER ELECTRICITY COST PER #10 CAN	MYLAR BAG (7.0 MIL) AND OXYGEN ABSORBER	HOME FREEZE DRIED COST EQUIVALENT	SAVINGS	% SAVED
Asparagus	\$55.00	\$8.95	\$1.20	\$0.75	\$10.80	\$44.20	81%
Beef	\$76.99	\$8.41	\$1.20	\$0.75	\$10.36	\$66.63	86%
Chicken	\$52.99	\$6.74	\$1.20	\$0.75	\$8.69	\$44.30	83%
Peaches	\$42.00	\$3.90	\$1.20	\$0.75	\$5.85	\$36.15	86%
Pineapple	\$44.00	\$10.57	\$1.20	\$0.75	\$12.43	\$31.57	72%
Raspberries	\$46.99	\$14.20	\$1.20	\$0.75	\$16.05	\$30.94	66%
Corn	\$29.00	\$4.29	\$1.20	\$0.75	\$6.14	\$22.86	79%
Green Beans	\$34.00	\$3.09	\$1.20	\$0.75	\$4.94	\$29.06	85%
Pork Chops	\$76.87	\$15.60	\$1.20	\$0.75	\$17.55	\$59.32	78%
Cheddar Cheese	\$49.95	\$7.05	\$1.20	\$0.75	\$9.00	\$40.95	82%
Mozzarella Cheese	\$49.95	\$7.05	\$1.20	\$0.75	\$9.00	\$40.95	82%
Blueberries	\$42.99	\$10.92	\$1.20	\$0.75	\$12.77	\$30.22	70%
Bananas	\$29.00	\$2.24	\$1.20	\$0.75	\$4.09	\$24.91	86%



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