

Section One  
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MISC.SURVIVALISM Table of Contents  
Panel 3A

PRUDENT FOOD STORAGE: Questions and  
Answers.

Section One  
How do I store the foods I've  
chosen?

From the House at Cat's Green  
Alan T. Hagan

"In this work, when it shall be found that  
much is omitted,  
let it not be forgotten that much likewise  
is performed."

Samuel Johnson,  
1775, upon  
his dictionary.  
James T. Stevens

completion of  
Courtesy of

FOREWORD

This work is a compilation of answers to  
frequently asked questions  
(FAQ) concerning long term food storage. Its purpose  
is to promote an  
understanding of the concepts, methods and techniques  
of long term food  
storage. This is a work of several sections; the part

you are now  
reading is SECTION ONE.

There is commonality between food storage and food preservation even though they are not precisely the same thing. Some of the information here may be found in greater or lesser detail in one of the nine sections of the rec.food.preserving (r.f.p.) FAQ compiled by Leslie Basel. If you want the how to's of drying fruit, making jerky, canning beans, fermenting pickles or corning beef then I refer you to her work and the good stuff to be found there.

I will delve a bit more deeply than Leslie into the ins and outs of how to put away your storage foods and have a reasonable expectation of getting something edible back out of the container when you finally do use it. Also covered will be food spoilage -- how to recognize it and how to combat it. A resource list of where to find supplies and in-depth information will be included at the end.

From time to time this file will be updated as sufficient relevant information becomes available. Be of assistance -- point out mistakes, write sections and reviews, provide us with new sources. All contributors, if you wish, will be cited in this file.

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      I -- SHELF LIVES: TIME, TEMPERATURE, MOISTURE
AND LIGHT.
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Since the entire idea of a food storage program is that it should be available for you and yours in times of need, it is desirable to gain an understanding of those conditions that can affect the edibles stored in your pantry.

Your storage program is only as good as the original quality of the food that goes into it. It cannot get any better than what originally goes in, but it can certainly get worse. In the fullness of time, all stored foods will degrade in nutrient content and palatability until they reach the inevitable end where even the dog won't eat them. It's because of this eventuality that every article, book, and teacher concerned with putting food by gives the same advice:

Date all food  
containers and rotate, Rotate, ROTATE.

It is important to remember when discussing the usefulness of various foodstuffs that there are really \*two\* shelf lives to be considered. The first shelf life is the nutrient content of the food. This actually begins to degrade from the moment the food is harvested. Three factors dictate nutritional shelf life: the food's initial nutritional content, the processing steps the food underwent before it was placed into storage, and its storage conditions. Eventually the nutrition will dwindle away to nothing. At some point it will have to be decided the remaining nutrition is not worth the space the food is taking up and it should be rotated out of storage. This is the reason for the "use by" dates on many foods and for shelf lives in general.

The second shelf life to consider is a food's absolute useful life or the point at which you just can't gag it down. This will almost always be far in excess of its nutritive life. We've all heard of people eating many year old preserved foods such as jellies, MRE's and the like. If you don't have anything to replace it with, it's not necessary to throw food out just because it's reached the end of its nutritive shelf life. Do, however, keep in mind that increasing age will only further decrease the useful nutrition and increase the likelihood that something may cause the food to spoil.



Within reason, the key to prolonging the storage life of your edibles lies in lowering the temperature of the area in which they are stored. The storage lives of most foods are cut in half by every increase of 18 F (10 degrees Celsius). For example, if you've stored your food in a garage that has a temperature of 90 F then you should expect a shelf life less than half of what could be obtained at room temperature (70 F) which in turn is less than half the storage life that you could get if you kept them in your refrigerator at 40 F. Your storage area should be located where the temperature can be kept above freezing (32 F) and, if possible, below 72 F.

Ideally, your storage location should have a humidity level of 15% or less, but unless you live in the desert it's not terribly likely you'll be able to achieve this so you'll have to do the best that you can. Regardless, moisture is not good for your stored edibles so you want to minimize it as much as possible. This can be done by several methods. The first is to keep your storage location air-conditioned during the warm and humid times of the year. The second is to package the goods in storage containers impervious to moisture and then to deal with the moisture trapped inside. If you can, there's no reason not to use both. All storage containers should be kept off the floor and out of direct contact from exterior walls to reduce the chances of

condensation.

Once you've gotten temperature and humidity under control, it's necessary to look at light. Light is a form of energy and when it shines on your stored foods long enough it transfers some of that energy to the food. That energy has the effect of degrading its nutritional content and appearance. Fat soluble vitamins, such as A,D and E are particularly sensitive to light degradation. It's a pretty sight to look at rows and rows of jars full of delicious food, particularly if you were the one that put the food in those jars. However, if you want to keep them at their best, you'll admire them only when you turn the light on in the pantry to retrieve a jar. If you don't have a room that can be dedicated to this purpose then store the jars in the cardboard box they came in. This will protect them not only from light, but help to cushion them from shocks which might break a jar or cause it to lose its seal. For those of you in earthquake country, it's a particularly good idea. When "terra" is no longer "firma" your jars just might dance right off onto the floor.

Assuming that it was properly processed in the first place, canned, dried and frozen (never thawed) foods do not become unsafe when stored longer than the recommended time, but their nutrient quality fades and their flavor goes downhill.

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II -- THE TECHNIQUES OF FOOD STORAGE  
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A. GRAINS AND LEGUMES

A.1 GRAIN VARIETIES

One of the most important decisions in planning your long term food storage are the kinds of grains you are going to store. Too many people do not give this adequate thought, and just buy however much wheat they think is necessary to meet their needs and leave it at that. Others rely upon pre-packaged plans made for them by the storage food retailer who put together the food package they've purchased. For many, either decision could be a major mistake.

There are any number of food storage plans to be found by those who take the time to look. Many of them are based on the so-called "Mormon Four" of wheat, milk, honey and salt, with as many additional foods as the planner finds to be desirable. Back in the thirties, when I believe this plan first got its start, this may have been OK, but we've learned a great deal since then. An unfortunate number of people in our society have developed allergies to one kind of food or another. One of the more common food allergens is wheat. Even more unfortunate is the fact that of those with an allergy to this most common of grains, many of them are not even aware of it. They won't become aware of it until they try to

live with wheat as a large part of their diet. This is the reason you should store what you eat and eat what you store: so that ugly surprises such as this don't come up when it's too late to easily avoid them.

A second reason to think about providing a variety of grains in your food storage is appetite fatigue. There are many people who think providing variety in the diet is relatively unimportant and that if and when the time comes they'll eat what they've got and that will be that. For healthy, well-adjusted adults under ordinary circumstances this might be possible without too much difficulty. However, the entire reason for having a \*long term\* food storage program is for when circumstances \*aren't\* ordinary. Times of crisis produce stress -- possibly physical, but always mental. If you are suddenly forced to eat a diet that is both alien and monotonous, it is going to add just that much more stress on top of what you are already dealing with. If your planning includes the elderly, young children and infants they might just quit eating or refuse to eat sufficient amounts and become unable to survive. This is not a trivial problem and should be given serious consideration. Consider the positive aspects of adding some "comfort foods".

In his book, \*Making the Best of Basics\*, James Stevens mentions a post WWII study by Dr. Norman Wright, of the British Food Ministry,

which found that people in England and Europe were more likely to reject unfamiliar or distasteful foods during times of stress than under normal conditions. When it's wheat, day in and day out, then wheat's going to start becoming distasteful pretty fast. Far better to have a variety of foods on hand to forestall appetite fatigue and, more importantly, to use those storable foods in your everyday diet so that you'll be accustomed to them.

[If anyone knows where I may find an actual copy of the study by Dr. Wright, I'd appreciate it if you'd point me to it. Thanks-ed.]

Below is a list of some common and uncommon grains presently available in the marketplace. Because wheat is by far the most common directly consumed grain in the United States I've put it at the head of the list.

WHEAT: Wheat comes in a number of different varieties. Each variety is more or less suitable for a given purpose based on its characteristics. The most common classifications for wheat varieties are spring or winter, hard or soft, red or white.

The hard wheats have kernels that tend to be small, and very hard and have a high gluten content. Gluten is the protein in grains that enables the dough made from them to trap the gasses produced by yeast fermentation and raise the bread. Low gluten wheat

does not produce as good a loaf as high gluten wheat, though they can still be used for yeast breads if necessary. As a general rule, hard varieties have more protein than soft varieties.

The soft varieties have kernels tending to be larger, plumper and softer in texture than hard wheats. Their gluten content is less and these are used in pastries, quick breads, pastas, and breakfast cereals.

Winter wheats are planted in the fall, over winter in the field and are harvested the next summer. Spring wheats are planted in the early spring and are harvested in the fall. Red wheats comprise most of the hard varieties while white wheats comprise most of the soft. Recently, hard white wheats have been developed that are suitable for raised bread making. Some feel the hard white varieties make a better tasting whole wheat bread than the hard red.

The most commonly stored are the hard red varieties, either spring or winter, because of their high protein. They should have a protein content of no less than 12%, with higher the better. The hard white spring wheats are still relatively new and are not yet widespread. They have the same excellent storage characteristics as the hard red wheats.

AMARANTH: Amaranth is not a true cereal grain at all, but is a relative of the pigweeds and the ornamental flowers

we know as cockscomb. It's grown not only for its seeds, but for its leaves that can be cooked and eaten as greens. The grain is high in protein, particularly the amino acid lysine which is limited in the true cereal grains. The grains can be milled as-is, or the seeds can be toasted to provide more flavor. The flour lacks gluten, so it's not suited for raised breads, but can be made into any of a number of flat breads. Some varieties can be popped much like popcorn, or can be boiled and eaten as a cereal, used in soups, granolas, and the like. Toasted or untoasted, it blends well with other grain flours.

BARLEY: Barley is thought by some to be the first grain ever grown by man. It has short, stubby kernels with a hull that is difficult to remove. Excluding barley intended for malting or animal feed, most of this grain is consumed by humans in two forms. The most common is the white, highly processed "pearl" barley that has had most of its bran and germ milled off along with its hull. It is the least nutritious form of barley. The second form it's found in is called "pot" or "hulled" barley and it has been subjected to the same milling process as pearled, but with fewer trips through the polisher. Because of this, it retains more of the nutritious germ and bran. Unless you are prepared to try to get the hulls off I don't recommend buying barley still in the hull. Barley can be milled into flour,