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## Part I -- Shelf Lives: Time, Temperature, Moisture and Light

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.

The second shelf life to consider is a food's useful life or the point at which it undergoes undesirable changes to taste, texture, color and cooking qualities. This is the reason for the "use by" dates on many foods and for shelf lives in general and will almost always be in excess of good 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.

## Temperature

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.

## Humidity

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.

## Light





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. Think of rotating your food storage as paying your food insurance premiums -- slacking off on rotation cuts back on your coverage. Is your food insurance up to date?

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