

# Nutritional Adequacy and Shelf Life of Food Storage

Dean Eliason and Michelle Lloyd

## What can I do to maximize shelf life?

Your food will store better if kept away from **Humidity** (moisture), **Air** (oxygen), **Light** and **Temperature** (heat)<sup>1</sup>. All of these factors cause food to lose its quality (flavor, appearance, texture, vitamins) more quickly. Although all of these factors are important in preserving food, storage temperature is the one that will likely have the greatest effect on the quality of your food. Store your food in the coolest

To preserve your food storage, keep it away from...

- Humidity (moisture)
- Air (oxygen)
- Light
- Temperature (heat)

**Good seams make an airtight seal to help preserve your food**



location possible. If you do not have a cool storage location, be aware that your food won't last as long.

If you pack or buy your food in cans, make sure that the cans have an airtight seal. A good way to tell if your can is sealed tightly enough is to compare the can seam that you sealed to the seam of the other end of the can to make sure they look the same. If the can seam looks loose, it is.

## If properly stored, how long can I expect my food to last?

Food	Recommended Packaging/Storage	Shelf-Life
Salt	Original container	No known limit, if properly stored
Baking Soda	Original container	
Baking Powder	Original container	
Granulated Sugar	Can, foil pouch, or bucket	
Wheat	Can, foil pouch, or bucket	30+ years
Rice	Can, foil pouch, or bucket	
Powdered Milk	Can or foil pouch with oxygen absorber	15-30 years
Oats		
Instant Potatoes		
Dried Apples		
Macaroni Pasta		
Pinto Beans		
Wet-pack canned foods	Original container; acidic foods such as tomatoes may cause the cans to corrode if stored too long	Several years
Yeast	Original container; stores much longer if kept in the freezer	1 ½ years
Cooking oil	Original container; store in a <b>dark</b> place; oil will go rancid more quickly if exposed to light	
Powdered Eggs	Can or foil pouch with oxygen absorber; may store longer if kept in the freezer	1 year

<sup>1</sup> See Oscar A. Pike, "Storing Fats and Oils," *Ensign*, June 1999, 71

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## Is my food storage still edible? How is the nutritional value?

In the Department of Nutrition, Dietetics and Food Science at BYU, we have conducted research on long-term storage of food. We have collected samples of dry food stored in No. 10 cans for up to 30 years at room temperature or cooler. So far, we have following food products: powdered milk, rice, baking powder, instant potatoes, dried apples, all-purpose flour, pasta, pinto beans, wheat and powdered eggs.



From this testing, we can generally conclude that if properly packaged and stored, all of these foods store fairly well, except for the powdered eggs.

In general, the vitamins we have measured (thiamin, riboflavin, vitamin C, vitamin E) in properly stored foods are fairly stable over time.

If you think your food storage is getting too old, the best test would be for you to try a sample and decide if it is edible to you. Some people are more picky than others about the food they eat.

## What is the nutritional value of basic food storage?

A year supply of basic food storage (400 lb wheat, 60 lb dry beans, 60 lb sugar, 16 lb powdered milk, 10 qt oil, 8 lb salt) provides adequate calories but is lacking in calcium as well as vitamins A, C, B<sub>12</sub>, and E.

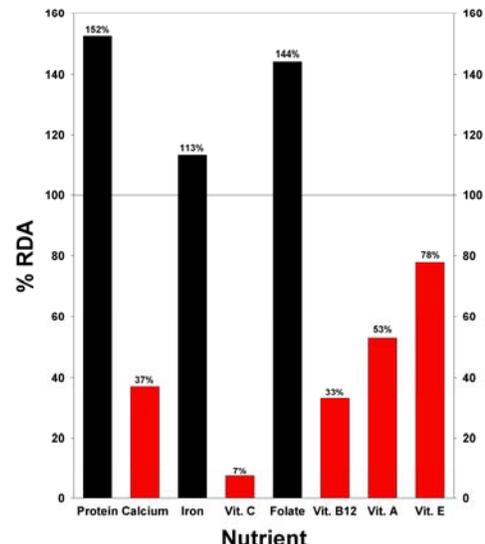
**Vitamins A and C** can be found in canned or bottled fruits and vegetables as well as in some fruit drink mixes. Most vitamin C is destroyed during dehydration of fruits and vegetables, but some vitamin A remains. Good sources of vitamin A include canned pumpkin and dehydrated carrots.

**Vitamin B<sub>12</sub>** comes from animal sources and can be found in canned meats and jerky.

**Calcium** comes mainly from dairy products such as powdered milk, hot cocoa mix, and pudding mix (containing dried milk).

**Vitamin E** is found in fats and oils and can be found in nuts such as sunflower seeds and almonds.

Basic Food Storage Nutrient Content



## Where can I find more information?

For practical ideas on storing and using food storage, go to the Provident Living section of lds.org at <http://www.providentliving.org>. For further information about food storage research at BYU, go to <http://ndfs.byu.edu/foodstorage>.