

# Storing Dry Beans

## Storing Dry Beans



Legume (Bean) varieties such as: Adzuki, Black, Black-eyed, Black Turtle, Garbanzo, Great Northern, Kidney, Lentils, Lima, Mung, Navy, Pink, Pinto, Small Red, Soy, and Split-pea can all be dried and stored.

### Quality & Purchase

For the most part, dry beans are graded U.S. No.1 (best) through U.S. No. 3, based on defects. Lesser quality beans are generally graded "substandard" or "sample".

### Packaging

Like most stored foods, beans are best stored in the absence of oxygen and light. Oxygen can lead to rancidity of bean oils and light will quickly fade bean color. The packaging choices are #10 cans or Mylar-type bags. Canning jars are suitable for smaller quantities providing the jars are stored in a dark place. Oxygen absorbers should be used to remove oxygen from the packages to extend shelf life and minimize off-flavors.

### Storage Conditions

Beans in normal polyethylene (food-grade) bags have a shelf life of 1 year or more. Like most stored foods, colder storage temperatures will increase shelf life. When packaged in #10 cans or Mylar-type bags, with the oxygen removed, they have a shelf life of 10 or more years. A BYU study indicated that pinto beans did experience a slight loss of quality during storage. However, samples that had been stored up to 30 years had greater than 80 percent acceptance by a consumer taste panel for emergency food use. The study concluded that pinto beans should be

considered acceptable for use in long-term food storage efforts.

### Nutrition & Allergies

Dry beans average about 22 percent protein in the seed, the highest protein content of any seed crop. They contain all essential amino acids, except methionine. Methionine can be obtained from corn, rice, or meat. Beans are an excellent source of fiber, starch, minerals and some vitamins. Some beans have a human digestion enzyme inhibitor. This enzyme can cause a nutritional deficiency if the beans are eaten raw. Cooking destroys the enzyme. Most beans naturally contain cyanogens<sup>4</sup>. These are sugars with a cyanide component attached (C-N). The Environmental Protection Agency (EPA) allows levels of cyanide in dried beans up to 25 ppm. Small amounts can be handled by the human liver and are not toxic. Cooking will also help break down and remove the cyanide. Toxicity levels are hard to reach -- It would require a person eating approximately one pound of beans for each pound of their weight at one sitting.

### Shelf Life

Scientific studies on vitamin loss in dried beans during prolonged storage could not be found. The loss would be expected to follow similar patterns as other long term stored foods where vitamin degradation occurs after 2-3 years and most vitamins are no longer present after approximately five years. Storage at warm temperatures will accelerate vitamin degradation. The other nutritional components (proteins, carbohydrates, minerals, etc) should remain unchanged during long term storage.

### Use from Storage

All dried beans, except lentils and split peas, require soaking in water for rehydration. Typically, 3 cups of water is needed for every 1 cup of dried beans. Allow beans to soak overnight and then rinse them in clean water. To cook beans, cover rehydrated beans with water in a stock pot. Simmer for 2-4 hours until beans are tender. Once tender they can be spiced and used in cooking recipes. As dried beans age the seeds become harder. This results in longer rehydration and cooking times. At some point, the seeds will no longer rehydrate and in that case must be ground as bean flour. One study<sup>3</sup> found that small amounts of baking soda can help soften beans during soaking. Note: There is a quick soak method that boils dry beans for 1 minute then leaves them soak for several hours as they cool. This method is not recommended due to the potential of foodborne illness bacterial spores

growing. The heat activates the spores and the warm temperatures during cooling favors their growth.

## References

- Larson, Sloan, Ogden and Pike. 2005. Effects of long-term storage on quality of retail-packaged pinto beans. IFT Annual Meeting Abstract. 54H-1
- Hentges, D. L., C. M. Weaver, and S. S. Nielsen. 1990. Reversibility of the Hard to Cook Defect in Dry Beans (*Phaseolus vulgaris*) and Cow Peas (*Vigna unguiculata*). *Journal of Food Science*. 55(5):1474-1476
- de León, Elías and Bressani. 1993. Effect of salt solutions on the cooking time, nutritional and sensory characteristics of common beans (*Phaseolus vulgaris*). *Food Research International*: 25: 131-136
- Vetter. Plant cyanogenic glycosides. *Toxicon*. 2000 Jan;38(1):11-36. Abstract available at: [www.ncbi.nlm.nih.gov](http://www.ncbi.nlm.nih.gov)
- Dried Bean Dictionary

## Related Research