



# Dry Beans and Peas

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FN 207

## Selection, Preparation, Nutrition

### Varieties of Beans

#### **Navy Beans**

Navy beans are also known as pea beans, a small white bean used in navy bean soup, baked beans, casseroles and ethnic dishes. A large portion of the crop is used in canned beans and tomato sauce.

#### **Pinto Beans**

The pinto bean is a variety of the red kidney bean which was first cultivated by the Indians of South and Central America. The pinto bean is grown in Southeastern Utah and Southwestern Colorado. It is used in Mexican dishes, such as refried beans.

#### **Kidney Beans**

The kidney bean is large, has a red color and is kidney shaped. They are frequently used for chili con carne, in salads, main dishes and casseroles.

#### **Black Beans**

Black beans are also known as turtle beans and are used in Oriental and Mediterranean cooking. A rich, thick soup is made with black beans in the Southern United States.

#### **Lima Beans**

There are two classes of lima beans—large seeded, or Ford-hook type, and small seeded, known as baby limas. In the southern part of the United States, the lima bean is called butter bean.

#### **Chick Peas**

Chick peas are also known as garbanzos in Spanish-speaking countries. Chick peas have a nut-like flavor and keep their shape well when cooked. Chick peas are used on salads and in casseroles and soups.

#### **Black Eyed Beans**

Black eyed beans are also known as black-eye peas or cow peas, in different areas of the country. They are primarily used as a main dish vegetable and are traditionally served on New Year's Day in the South as a token of good fortune during the new year. They are small, oval-shaped, and creamy white with a black spot on one side.

## **Split Peas**

Split peas are green and yellow in color. In grocery stores, split peas come cleaned in one-pound packages. Large quantities in bulk might also be available in specialty shops. Split peas are commonly used in soups.

## **Lentils**

As the name implies, the lentil looks like a double lens. Lentils are dried on the plant and go through a number of processes to remove any extraneous plant materials. Therefore, they always need to be looked at carefully before cooking. Lentils are grown in the United States and come in various shades of brown. Almost all are grown at an altitude over 2,000 feet in Washington and Idaho.

## **Selection**

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Dry beans are available in several forms, packaged in transparent packages, loose, or canned. The following are important factors in selection:

- 1. Bright, uniform color.** Color will vary with the variety of bean, but loss of color usually indicates long storage time.
- 2. Uniform size.** Uniformity of size will result in a more evenly cooked product since small beans cook faster than large beans.
- 3. Freedom from defects.** Cracked seed coats, foreign material, and pinholes caused by insects are signs of a low quality product.

About one-third of all dry beans are officially inspected. Federal grades are generally based on shape, size, color, damage and foreign material. The packaged beans, which are on the grocery shelf, are normally the highest grades.

## **Cost**

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Beans provide an economical substitute for meat or other animal protein.

## **Storage**

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Dry beans are an easily stored food. They should be kept in tightly covered container in a dry, cool place (50–70 degrees F). The quality should be good for several months when stored under these conditions. Older beans will require longer soaking and cooking periods than freshly harvested beans, especially in dry climates.

## **Preparation**

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### **Soaking**

All dry beans need to be soaked before cooking to replace water lost in the drying process. Lentils and split peas do not require soaking. They will rehydrate during the cooking process. A cup of beans will require 2 ⅓ to 3 cups of water for rehydration.

### **Overnight Soak**

Add 6 cups of cold water and two teaspoons salt to one pound of dry beans. Allow to stand overnight. Drain. The use of this method results in a more uniform texture, and the beans cook in less time and retain their shape.

## Quick Soak

Add 6 to 8 cups of water to one pound of dry beans. Bring to a boil, cover and cook 2 minutes. Remove from heat and let stand with lid on for an hour or more. Drain.

## Cooking

Place the soaked beans in a large pot, cover with hot water and simmer with the lid slightly ajar until the beans are tender. Add additional hot water if needed. Most beans tenderize in 2 to 4 hours of simmering. Beans which have been stored for long periods of time will require longer cooking time.

## Pressure Cooker

A pressure cooker will save time and energy in cooking beans. Never fill the cooker fuller than about one-third of capacity to allow for expansion and foaming. The foaming can be minimized by adding 1 tablespoon of oil. Approximate cooking time at 10 pounds of pressure is 20 minutes, at 15 pounds of pressure, 10 minutes.

## Slow Cooker

Since slow cookers vary considerably in wattage, it is suggested that you follow the manufacturers directions for cooking beans.

## Microwave

Place one cup of soaked beans in enough water to cover. Always use a large container to allow for expansion and cover with a lid or plastic wrap. Follow the manufacturers instructions for simmering the beans until tender.

Simmering gently and occasional stirring will minimize the bursting of skins.

At high altitudes, or in hard water, the cooking time may be increased.

The addition of acid, such as tomatoes, lemon juice or vinegar, slows the softening process. Always cook beans until tender before adding acid ingredients.

## ***Nutrition***

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The following table shows the nutrient profile of pinto beans:

### **Nutrient Profile of Pinto Beans (½ cup)**

| <b>Nutrient</b> | <b>Amount</b> | <b>Inq</b> | <b>%RDA</b> |
|-----------------|---------------|------------|-------------|
| Calories        | 112.0         | 1.0        | 5.8         |
| Carbohydrate    | 20.3          | 4.4        | 25.3        |
| Fat             | 0.4           | 0.3        | 1.7         |
| Protein         | 7.0           | 2.4        | 14.3        |
| Vitamin A       | 0.0           | 0.0        | 0.0         |
| Vitamin C       | 0.0           | 0.0        | 0.0         |
| Thiamin         | 0.1           | 1.8        | 11.0        |
| Riboflavin      | 0.0           | 0.8        | 5.0         |
| Niacin          | 0.6           | 0.8        | 5.4         |
| Calcium         | 44.0          | 0.8        | 5.5         |
| Iron            | 2.0           | 2.0        | 11.6        |
| Vitamin B6      | 0.2           | 5.4        | 31.2        |
| Magnesium       | 52.2          | 3.0        | 17.2        |

## **Protein**

Beans contain the highest protein content of all commercial seed crops. Beans are somewhat lacking in methionine, one of the eight essential amino acids. The lack of methionine can be compensated for by combining with a grain such as corn or rice, or a small amount of meat, poultry, fish, cheese or egg.

## **Vitamins**

Beans are a good source of several B vitamins, thiamin, pyridoxine (B6), niacin, and folic acid.

## **Minerals**

Iron is plentiful in dry beans as are calcium and magnesium. The INQ for magnesium is 3.0.

As indicated in INQ (Index of Nutritional Quality) column, any value over 1.0 shows a good source of that nutrient based on ratio of the percent of requirement for the nutrient and the percent of requirement for calories.

## **Carbohydrate**

One of the recommendations from USDA's "Dietary Guidelines" is to eat more complex carbohydrate and high fiber foods. Beans are an excellent source of starch and fiber.

## **Flatulence (gas)**

It is a well established fact that the production of flatulence is associated with consumption of legume seeds. The raffinose sugars which are contained in beans are the cause of gas production. These sugars contain three or more simple sugars (sucrose contains two). The digestive enzymes in the gastrointestinal tract are not capable of breaking these sugars apart into simple sugars for absorption so they pass into the colon. In the lower intestine the sugars are metabolized by bacteria and form carbon dioxide, hydrogen and methane gas.

According to recent research at Utah State University, germination (sprouting) or fermentation of the beans reduce the amount of complex sugars and consequently the gas production. Cooking has little effect on the raffinose sugars and flatulence. There is little that can be done in food preparation to minimize this problem unless the beans are sprouted or fermented. There is a great variation in individual tolerance for beans in the diet. Since beans provide nutritious, economical, versatile food, they should be included in weekly menus.

## **References**

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