



Beans:

Agriculture to Health

Jane U. Edwards, Ph.D., LRD
Nutrition and Health Specialist

Bean Production

In the United States, North Dakota ranks first in production of dry beans with 32 percent of the nation's total. In 2006, North Dakota produced 52 percent of the nation's pinto beans and 36 percent of the nation's navy beans. Several other classes of beans are produced. The highest production of beans is found along the Red River Valley in both North Dakota and Minnesota, and in east-central North Dakota.

History

Dry beans are native to North and South America and were an important staple in the Indian food supply prior to the immigration of Europeans. Dry beans are known to have been farmed as far back as 6,000 to 5,000 B.C. Some tribes on the Northern Plains were primarily hunters of bison and other animals. Other tribes were more agrarian and grew beans and other crops and used them for trade. Various Indian tribes in the Americas grew different kinds of dry beans.

Health Benefits

Healthy Weight

Including beans in the diet on a regular basis can help control weight. Beans are low in both fat and calories, and high in dietary fiber and protein. The

dietary fiber in beans helps slow the absorption of carbohydrate, which may prevent hunger from re-occurring as soon. Eating less frequently may help reduce caloric intake.

Diabetes

The high content of dietary fiber in beans, especially soluble fiber, helps slow the absorption rate of carbohydrate. A slower rate of carbohydrate absorption moderates blood sugar peaks related to food intake.

Heart Health

The nutrient profile of beans contributes to heart health. Beans are low in total fat, saturated fat and sodium. They are high in dietary fiber, especially soluble fiber; folate, a B-vitamin; potassium; and other minerals. Beans help maintain normal ranges for several risk factors for heart disease: blood cholesterol, blood pressure and blood homocysteine levels.

Colon Cancer

Beans are a good source of "resistant starch." The breakdown products from "resistant starch" appear to play a role in reducing the risk of colon cancer.

Vegetarians

Beans are an excellent protein source for vegetarians providing more than twice as much protein per serving as cereal grains. Combining beans and cereal grains together provides all the protein building blocks (amino acids) required in the diet. Beans are also a good source of iron and zinc for vegetarians who consume no meat.

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North Dakota State University
Fargo, North Dakota 58105

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Daily Amounts

Including ½ cup of beans several times each week, within a well-balanced diet, resulted in a reduced risk of heart disease in a clinical trial called DASH. In addition to the four to five servings each week from the “nuts, seeds and beans” category, the diet pattern also included other food groups: dairy, fruits and vegetables, grains, and meat.

Rehydration Technique

The “hot soak” method is the recommended procedure to rehydrate beans. Add the beans to boiling water. Simmer for 2-3 minutes. Remove from the heat, cover and soak for 4-16 hours. Drain the rehydrated beans and discard the soak water. Add fresh water to the beans and simmer until tender.

Reduce Gas Formation

Gas is produced from beans when bacteria found in the large intestine break down “non-digestible” carbohydrates. The following methods may help reduce gas formation:

- Eat beans on a regular and frequent basis.
- Discard the soak water used to rehydrate dry beans.
- Utilize a commercial digestive-enzyme product.

Nutrient Composition of Beans (one half cup serving)

115 calories	0 mg sodium
20 gram carbohydrate	400 mg potassium
7 gram dietary fiber	144 mcg folate
7 gram protein	47 mg magnesium
0.5 gram total fat	2.23 mg iron
0 gram saturated fat	0.93 mg zinc
0 mg cholesterol	

For more information on this and other topics, see: www.ag.ndsu.nodak.edu/ag2health.htm



Dakota Calico Beans

- ¼ lb. bacon (20 servings)
1 lb. lean ground beef
1 medium onion, chopped
¼ c. brown sugar
½ c. chili sauce
2 Tbsp. vinegar
1 tsp. dry mustard
2 cans (16-ounce each) baked beans
1 can (15.5-ounce) kidney beans
1 can (15.5-ounce) cranberry beans
1 can (15.5-ounce) navy beans
1 can (15.5-ounce) Great Northern beans
1 can (15.5-ounce) pinto beans

Fry bacon in skillet until crisp. Discard all fat. Drain bacon on paper towels. Brown ground beef and onion in same skillet. Drain beans (do not drain the baked beans). Combine all ingredients.

Bake, covered, at 350 degrees for 45 minutes.

For crockpots: Combine all ingredients as given above. Cook on low for 4-8 hours.

Directions for freezing: Put remaining beans in a microwave/oven-proof casserole, cover and freeze. Reheat in a preheated 350 degree oven. Or cook in a microwave on HI for 4 minutes, stir, and continue until beans are of desired temperature.

Nutrient analysis per serving:

240 calories; 34 g carbohydrates; 8 g dietary fiber; 16 g protein; 5.5 g total fat; 2 g saturated fat.
Exchanges: 2 Starch and 2 Lean Meat

Serving Size: Cooked Dry Beans

Dietary Guidelines:

- ½ cup for Vegetable Group
- 1 cup for Meat Group

Exchange lists:

- ½ cup = 1 Meat Exchange plus
1 Starch Exchange