

# Nutritious, Delicious, and Cheap

## *Cooking Grains, Beans, and Legumes*



Brought to you by:  
The Sustainable Living Project

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Lets start with some definitions:

**Legume** - is the name of the family under which all peas, beans and lentils fall. Technically anything under these three categories can be called a legume. All these are plants that have pods with tidy rows of seeds inside.

**Beans** - Beans grow well in warmer climates and grow in pods on a bush. Chick peas, black eyed peas, fava beans, pinto beans, navy beans, and black beans are examples of beans.

**Peas** - Pea plants grow well in cooler climates and they grow on vines.

**Lentils** - The lentil can be called a cousin to the beans. All lentils are lens shaped, lens being the Latin word for lentil. The size and appearance of lentils varies depending on the variety.

**History-** Right along with the early grains, legumes were among the first crops cultivated and date back to the Bronze Age. Beans have been discovered in the tombs of the Pharaohs and Aztecs. The ancient Egyptians considered beans to be an emblem of life and had temples dedicated to them. Later, the Greeks and Romans used them in festivals to worship their gods.

**Nutrition-** During the Great depression, beans were also tagged "poor man's meat" because of their protein power at pennies per pound. Beans are a source of niacin, thiamin, riboflavin, B6 vitamins and many other nutrients as well. They are also rich in complex carbohydrates and fiber. All of these nutrients are necessary for normal growth and for the building of body tissues. Beans are high in potassium which is required for the normal functioning of nerves and muscles. A cup of cooked beans contains more potassium than a banana. In fact, beans have more calcium and iron per cup than three ounces of cooked meat but contain no cholesterol and with less calories. Beans are also a good source of folate, essential for cell growth and reproduction. They also have cancer fighting characteristics and have been specifically linked to lowering the risk of colon cancer.

**Why cook your own beans:** not only are dried beans cheaper to prepare than their canned counterparts, they are also more nutritious and easy to store.

## **BEANS / LEGUMES COOKING CHART**

<b>BEAN (1 cup dry)</b>	<b>CUPS WATER</b>	<b>COOK TIME</b>	<b>CUPS YIELD</b>
Adzuki (Aduki)	4	45 - 55 min.	3
Anasazi	2 1/2 - 3	45 - 55 min.	2 1/4
Black Beans	4	1 hr. - 1 1/2 hrs.	2 1/4
Black-eyed Peas	3	1 hr.	2
Cannellini (White Kidney Beans)	3	45 min.	2 1/2
Cranberry Bean	3	40 - 45 min.	3
Fava Beans, skins removed	3	40 - 50 min.	1 2/3
Garbanzos (Chick Peas)	4	1 - 3 hrs.	2
Great Northern Beans	3 1/2	1 1/2 hrs.	2 2/3
Green Split Peas	4	45 min.	2
Yellow Split Peas	4	1 - 1 1/2 hrs.	2
Green Peas, whole	6	1 - 2 hrs.	2
Kidney Beans	3	1 hr.	2 1/4
Lentils, brown	2 1/4	45 min. - 1 hr.	2 1/4
Lentils, green	2	30-45 min.	2
Lentils, red	3	20 - 30 min.	2-2 1/2
Lima Beans, large	4	45 - 1 hr.	2
Lima Beans, small	4	50 - 60 min.	3
Lima Beans, Christmas	4	1 hr.	2
Mung Beans	2 1/2	1 hr.	2
Navy Beans	3	45-60 min.	2 2/3
Pink Beans	3	50 - 60 min.	2 3/4
Pinto Beans	3	1 - 1/2 hrs.	2 2/3
Soybeans	4	3 - 4 hrs	3

Some bean cookery aficionados feel that salt and seasonings added during the cooking tends to make beans cook more slowly. Since beans require lengthy cooking, we recommend adding salt and seasonings during the last few minutes and you will find they absorb flavor quite readily.

There are other factors which contribute to the length of cooking, such as hard water and beans that have been dried for a long period of time. For

some of the longer cooking beans you may need to soak for 24 hours and change the soak water 2 or 3 times to hasten the cooking time. And/or use a pressure cooker.

### **Legumes are Health Boosters**

- An quality source of protein, low in cholesterol and saturated fats
- Excellent source of dietary fiber
- Rich in iron, zinc, calcium, selenium, folic acid and anti-oxidants
- There a low glycemic index (GI) / glycemic load (GL) food
- Research shows they may help reduce the risk of chronic diseases like heart disease, diabetes mellitus, obesity and cancer due to the above advantages

### **How to get all the Essential Amino-Acids (EAA)**

Amino acids are the building blocks that proteins are made up of. Dairy and meat usually contain all of the EAAs and are considered to provide complete proteins. But legumes are lacking in at least one of the EAA and therefore they need to be combined with other seeds or whole grains during the day. Some examples of complementary meals that provide all EAAs are brown rice and beans.

### **Combating the 'gas problem'**

One problem that many people face in eating this group of foods is bloating and intestinal gas due to non-digestion of raffinose sugars. Don't let this prevent you from enjoying this healthy food group. There are ways and means to deal with the gas problem. Starting your bean ventures with small amounts helps to increase your body's enzyme production gradually. Soaking and cooking the beans thoroughly helps to break down the complex sugars (oligosaccharides) which challenge our digestive systems. Some herbs that help the digestion of beans can be added during the cooking process. These include bay leaf, cumin, and winter or summer savory as well as the more exotic asafoetida, a gum from the sap of the roots and stem of the ferula species, a giant fennel, and used in South Asian cooking.

1. Never cook legumes in the water they have been soaked, because this

water is loaded with raffinose. It also has some of the vitamins, so it may not be a bad thing once you develop a tolerance in your digestive system.

2. Add a pinch of baking soda while cooking the legumes. In addition to removing raffinose sugars, it also helps to reduce cooking time.
3. If you are using canned beans, thoroughly rinse them in lots of water - this helps reduce the salt and raffinose content.
4. If you still get into 'trouble', there is always Beano to rely on (it's not cheap but a little goes a long way!)

### **Consider these ways to incorporate more legumes into your diet**

1. Prepare soups, stews and casseroles that feature legumes.
2. Use pureed beans as the basis for dips and spreads.
3. Add chickpeas or black beans to salads. If you typically buy a salad at work and no beans are available, bring your own from home in a small container.
4. Snack on a handful of soy nuts rather than on chips or crackers.

## **HOW TO SOAK BEANS AND LEGUMES**

Beans and legumes are an excellent source of vegetarian protein and a staple of many vegetarian diets. The drawback is that they take a long time to cook, but once you know the techniques, you'll find it's not difficult at all. Most of the time they are just soaking or boiling on their own; your actual "hands on" time is only about 10 minutes.

### **Preparing Beans and Legumes**

Before using beans and legumes, rinse them thoroughly under cool water, then sort through them for any stones or other debris. If using lentils, mung beans, or split peas, skip the soaking section and go right to the cooking instructions. If using anything other kind of beans, continue to the next step: soaking.

### **Soaking Beans and Legumes**

For each cup of dry beans, expect approximately 2-1/2 to 3 cups of cooked

or sprouted beans.

All dry beans and legumes except lentils, mung beans, and split peas should be soaked before cooking. Soaking shortens the cooking time and makes the beans more digestible. To soak, cover the washed beans with three to four times their volume of water (no salt), then choose one of these soaking techniques.

1. **Normal soak:** Leave the beans to soak for at least 6-8 hours (larger beans need more time). This is the traditional and healthier method of soaking beans. (If you put them on to soak at night, they'll be waiting for you whenever you're ready the next day.)
2. **Quick soak:** Bring the beans to a boil for 3 minutes, after boiling, remove from the heat and let them sit in the hot water for 2-6 hours.
3. **Gas-free soak.** In a stockpot, place 1 pound of beans in 10 or more cups of boiling water. Boil for 2 to 3 minutes. Then cover and set aside overnight. The next day 75 to 90 percent of the indigestible sugars that cause gas will have dissolved into the soaking water which should then be discarded or re-purposed.

You can tell that the beans are fully soaked once they are uniformly tender and have doubled or more in size.

Excessive heat can make soaking beans ferment, so when it's hot out, put soaking beans in the fridge, cellar or other moderately cool location.

## **SPROUTING YOUR BEANS**

Sprouting is yet another option you have in regards to your beans. Bean sprouts are said to increase nutrient and protein content as well as absorption.

### **How to Sprout Your Beans**

1. Measure out 1/2 cup of beans, rinse beans to remove debris.
2. Place beans in a bowl (or sprouter), add 2-3 times as much cool water as beans and mix thoroughly. Allow beans to soak for 8-12 hours.
3. Drain off the soak water (water your plants with it), rinse thoroughly with cool water and drain again.

4. Set the beans (in the bowl or container) anywhere out of direct sunlight and at room temperature between rinses. (This is where your sprouts will start growing, a counter top will work).
5. Rinse and drain again every 8-12 hours, repeat this two more times (for a total of 4 rinse and drains) or until your sprouts are at the length you desire.

Store the sprouts in your refrigerator and eat raw on top of salads or sandwiches, or cook the beans and sprouts to add to soups or pizzas.

## **BEAN COOKING BASICS**

Beans can be eaten a multitude of ways, such as; raw, sprouted, or cooked.

### **Cooking Fresh Beans**

Fresh beans are delicious, nutritious, easy to prepare and can often be found at farmers' markets.

There are two methods of cooking fresh beans: boiling or steaming. To boil, drop the shelled beans into boiling water to cover, and boil gently for 5 to 10 minutes. You may want to add some onions, garlic, herbs of your choice, and a dash of salt to the water to flavor the beans.

To steam, put about an inch of water into the bottom of a saucepan, and place the beans into a steamer basket that fits into the saucepan. Cover the pan, and steam over boiling water for 5 to 10 minutes.

### **Pressure Cooking**

For pressure-cooking beans you can choose to soak the beans overnight, use the quick-soak method, or forgo soaking altogether. Generally you need only enough water to cover the beans, but always check the directions given with your pressure cooker. Most soaked beans take between 10 to 20 minutes with the pressure fully established (button popped out or whatever method your cooker uses) to cook at about 10 psi. (Most non-soaked beans take between 20 to 30 minutes to cook at the same pressure.) Generally, with the rocker-style cooker, once the rocker starts going you can adjust the heat to keep it just mildly rocking and let it go for only about 2/3 the time recommended. Turn off the heat but do not move the pot from the warm

burner until the pot is safe to open and the beans will be plenty cooked. Many recipes have you overcook the beans, and that's just not nutritious or delicious!

A small amount of cooking oil will help keep the "froth" from forming as the beans cook, which can clog your relief valve and cause the pot to "explode" open -- not fun to clean up!

(Never open the pressure cooker until it has cooled and the pressure valve is relieved)

### **Crock Pot Cooking**

Soak two to three hours on high, adding water as needed to keep the water level above the beans, then six to eight hours on low.

### **Regular Cooking**

After soaking, drain the beans and add fresh water to the cooking pot (metal pot or saucepan). Bring the beans to a boil, and then lower the heat and simmer for the length of time indicated in the cooking guide, or until beans are tender. Some cooks suggest removing the foam that forms on the top of the water while cooking beans. Check the beans occasionally to ensure there is enough water for continued cooking.

Salt, seasonings, and other added ingredients can disrupt the cooking, so they should not be added while soaking or during cooking.

## **STORING YOUR BEANS**

### **Storing Cooked Beans**

- If chilled immediately and covered, cooked beans will keep for at least three days in the refrigerator. Store in containers where the depth is less than two inches so they will cool quickly. Stir large containers occasionally while cooling to speed the chilling process.

- Cooked beans freeze beautifully in their cooking liquid or in single layers in a Ziploc bag. Beans maintain their shape better if they are slightly undercooked and thawed slowly. Thaw them overnight in the refrigerator or for about an hour in a pan of warm water.

- When the beans can be removed from their freezer container, put

them in a saucepan with the desired cooking liquid to reheat and finish cooking. Bring the beans to a boil slowly over medium heat to avoid scorching. Then reduce the heat and simmer until the beans are tender. The time the beans need to simmer will depend on how undercooked they were when you froze them. If they were fully cooked before freezing, you need only reheat them.

### Storing Un-Cooked Beans

- Soaked uncooked beans can be stored in a tightly closed container in the refrigerator up to 3 days. Uncooked soaked beans can also be frozen-- this tenderizes them by breaking down some cell walls, this decreases cooking time slightly.

### Freshen Up Cooked Beans

- To freshen up days-old cooked beans that have been stored in the refrigerator, provided they are not already going rancid (sniff test!), simply bring them to a rolling boil for 3 minutes. This will add another day or two of good eating to your beans.

## Nutritional Value Beans

Fava Beans:

Nutrition Facts	
Serving Size 1/4 Cup (38g)	
Servings Per Container	
Amount Per Serving	
<b>Calories</b> 130	Calories from Fat 5
% Daily Value*	
<b>Total Fat</b> 0.5g	1%
Saturated Fat 0g	0%
Trans Fat 0g	
<b>Cholesterol</b> 0mg	0%
<b>Sodium</b> 0mg	0%
<b>Total Carbohydrate</b> 22g	7%
Dietary Fiber 9g	36%
Sugars 2g	
<b>Protein</b> 10g	
Vitamin A 0%	Vitamin C 0%
Calcium 4%	Iron 15%

Black Beans:

Nutrition Facts	
Serving size: 1/4 cup (69g)	
Servings Per Recipe 12	
Amount Per Serving	
<b>Calories</b> 68	Cal. from Fat 3
% Daily Value*	
<b>Total Fat</b> 0g	0%
Saturated Fat 0g	0%
<b>Cholesterol</b> 0mg	0%
<b>Sodium</b> 77mg	4%
<b>Total Carbohydrate</b> 13g	4%
Dietary Fiber 3g	15%
Sugars 0g	
<b>Protein</b> 4g	
Vitamin A 0%	Vitamin C 4%
Calcium 4%	Iron 4%

# **GRAINS COOKING CHART**

**Terms:**

Grains -- Grain bearing cereal grasses -- usually refers to small seeded grains such as wheat, barley, rice, and oats.

Groats -- the hulled or husked seed of the grain plant. This inner part of the seed is what we know as grain; such as oats, wheat, barley, or the pseudo-cereal buckwheat (see below ).

<b>GRAIN (1 cup dry)</b>	<b>CUPS WATER</b>	<b>COOK TIME</b>	<b>CUPS YIELD</b>
Amaranth	2 1/2	20 - 25 min.	2 1/2
Barley, pearled	3	50 - 60 min.	3 1/2
Barley, hulled	3	1 hr. 15 min.	3 1/2
Barley, flakes	2	30 - 40 min.	2 1/2
Buckwheat groats *	2	15 min..	2 1/2
Cornmeal (fine grind)	4 - 4 1/2	8 - 10 min.	2 1/2
Cornmeal (polenta, coarse)	4 - 4 1/2	20 - 25 min.	2 1/2
Millet, hulled	3 - 4	20 - 25 min.	3 1/2
Oat Groats	3	30 - 40 min.	3 1/2
Oat, bran	2 1/2	5 min.	2
Quinoa *	2	15 - 20 min.	2 3/4
Rice, brown basmati	2 1/2	35 - 40 min.	3
Rice, brown, long grain	2 1/2	45 - 55 min.	3
Rice, brown, short grain*	2 - 2 1/2	45 - 55 min.	3
Rice, brown, quick	1 1/4	10 min.	2
Rice, wild	3	50 - 60 min.	4
Rye, berries	3 - 4	1 hr.	3
Rye, flakes	2	10 - 15 min.	3
Spelt	3 - 4	40 - 50 min.	2 1/2
Teff *	3	5 - 20 min.	3 1/2
Triticale	3	1 hr. 45 min.	2 1/2
Wheat, whole berries	3	2 hrs.	2 1/2
Wheat, couscous	1	5 min.	2
Wheat, cracked	2	20 - 25 min.	2 1/4
Wheat, bulgur *	2	15 min.	2 1/2

**Cooking Grains**

Basic cooking directions for all grains begins with measuring the grains and water into a saucepan. If you are cooking 1 cup (240 ml) of grains, use a 2-quart (2 liter) saucepan. Add 1/2 to 1 teaspoon salt if desired.

Cover the saucepan and bring to a boil over high heat. Turn the heat down to low, and steam for the recommended cooking time. Lift the lid and test the grains for tenderness. If the grains need more time, cover the saucepan and steam 5 to 10 minutes longer (exception: brown rice -- see below). If the grains need more cooking time and all the water has been absorbed, add up to 1/4 cup (60 ml) of water, cover, and continue steaming.

When tender, turn off the heat and allow the grains to rest 5 to 10 minutes before serving, and fluff.

Buckwheat is the exception to the basic directions. Because it is so porous and absorbs water quickly, it's best to bring the water to a boil first. Then, add the buckwheat. When the water returns to a boil, cover the saucepan, turn the heat down to low, and time the steaming process.

\* **Buckwheat** groats are available un-toasted or toasted (AKA kasha). Cooking times are the same. Despite the name, buckwheat is NOT actually a wheat -- it is gluten-free, when not combined with other grains in flour mixes, and is also a good source of carbohydrate for diabetics keeping check on glucose levels.

\* **Quinoa** should be well rinsed in a fine strainer for 1 to 2 minutes to remove the saponins, a natural, protective coating which will give a bitter flavor if not rinsed off.

\* **Teff** can be enjoyed raw as well as cooked. Sprinkle it on salads or over cooked cereals to increase fiber and nutrition. Other than using teff flour for injera bread (a staple of the delicious Ethiopian diet) and in gluten-free breads, most recipes for teff are for porridge and polenta.

**COOKING:** Use 3-4 parts water (more for porridge, less as a side dish) to one part teff (1/4 cup teff per person minimum) and bring to a boil in a medium saucepan, reduce heat, cover, and let simmer until the water is absorbed (about 20 min), stirring occasionally. Serve in place of conventionally used grains. For a porridge, stir in a little butter and cinnamon (cinnamon makes it REALLY good!) and top with blueberries or other fruit (optional). To reheat, add a splash of water and stir to break up clumps before microwaving or warming in the oven (use more water for the

oven). Some people say that teff tastes like chocolate -- like wow!

\* **Bulgur** wheat can be covered with 1-inch of warm water and soaked for 1 hour to soften. It is then ready to use in raw salads such as tabbouli.

\* **Brown rice** has an intact nutrient-rich outer bran layer that is removed to create white rice. The bran layer means a longer cooking time than white rice and gives the cooked rice a chewier texture and nutty flavor. Short grain versus long grain? Short-grain rice has a plump shape. The outer layer of short-grain or medium-grain rice absorbs water very easily and as a result, cooks up soft and a little sticky. Slight stickiness isn't a bad quality -- it makes it easier to eat and may work better in some recipes. Short grain brown rice is sometimes labeled sweet, glutinous, or sticky brown rice. Long-grain rice tends to cook up firmer, with each of the grains well-separated. Short or long -- it's a matter of preference and often doesn't matter at all, and these differences between the two generally apply to other rices as well (except jasmine rice -- which is long, yet sticky).

**COOKING:** Your brown rice pot must have a well-sealed lid so minimal steam escapes. Sift through rice for stones or debris. Place whatever amount you wish (noting that rice more than doubles in volume when cooked) in the pot and cover with water no more than 1 inch above the level of the rice (the distance from the tip of your index finger to the first joint of your finger, roughly). Stir up the rice that sticks to the bottom of the pan (a wooden spatula is ideal). Bring to a good boil and immediately turn it down to a very slow simmer. Time it for 40-45 minutes and DO NOT open the lid to check it, unless you like your rice really gooey! If you're not sure it's done, carefully tip the pot (holding the lid fast) to see if any water tries to escape -- if so, it's not done. All the water should be absorbed. That's it! You're done. Fluff with fork and let sit a few minutes, re-sealed, before eating. (but see "Storage" below first!)

**TROUBLESHOOTING:** If for some reason the rice is not cooked but all of the water is gone, use very hot water (and not a lot of it) to resume simmering, with the lid tight. Consider turning the flame down a little further or using a thin trivet (similar gauge to clothes hanger wire) to put some remove between the heat source and the pan (especially with electric stoves).

**STORAGE:** Note that rice (and all foods cooked with a lid for at least the last several minutes of cooking) will last longer if the lid is not removed until

need be; it's a microbiological fact. Also, do not store rice in the refrigerator -- the moisture will sour it quickly. Plain cooked rice is fine left at room temperature or a little cooler, often for several days (depending on ambient humidity), without molding or going rancid.

**PORRIDGE:** This is another way to eat healthy, low cost grains...how about getting a really good start to your day, nutritionally, with a hearty morning "gruel" -- which can indeed be grueling when POORLY prepared, but DELICIOUS when well done and topped with nuts, fruits and so on!

Check out the story and video by going to:

[http://www.treehugger.com/files/2011/02/learn-to-make-proper-porridge.php?campaign=daily\\_nl](http://www.treehugger.com/files/2011/02/learn-to-make-proper-porridge.php?campaign=daily_nl)

## Nutritional Value

### Rice

#### Brown Rice

Nutrition Facts	
Serving Size 1 cup (195.0g)	
<b>Amount Per Serving</b>	
<b>Calories</b> 216	Calories from Fat 16
<b>% Daily Value*</b>	
<b>Total Fat</b> 1.8g	<b>3%</b>
Saturated Fat 0.4g	<b>3%</b>
Polyunsaturated Fat 0.6g	
Monounsaturated Fat 0.6g	
<b>Cholesterol</b> 0mg	<b>0%</b>
<b>Sodium</b> 10mg	<b>0%</b>
<b>Total Carbohydrates</b> 44.8mg	<b>15%</b>
Dietary Fiber 3.5g	<b>14%</b>
Sugars 0.7g	
<b>Protein</b> 5.0g	
Vitamin A 0%	Vitamin C 0%
Calcium 2%	Iron 5%
* Based on a 2000 calorie diet	

#### White Rice

Nutrition Facts	
Serving Size 1 cup (158.0g)	
<b>Amount Per Serving</b>	
<b>Calories</b> 205	Calories from Fat 4
<b>% Daily Value*</b>	
<b>Total Fat</b> 0.4g	<b>1%</b>
Saturated Fat 0.1g	<b>1%</b>
Polyunsaturated Fat 0.1g	
Monounsaturated Fat 0.1g	
<b>Cholesterol</b> 0mg	<b>0%</b>
<b>Sodium</b> 2mg	<b>0%</b>
<b>Total Carbohydrates</b> 44.5mg	<b>15%</b>
Dietary Fiber 0.6g	<b>3%</b>
Sugars 0.1g	
<b>Protein</b> 4.3g	
Vitamin A 0%	Vitamin C 0%
Calcium 2%	Iron 11%
* Based on a 2000 calorie diet	

[www.familychoice.com.ph/healthyIdeas.do?id=5071](http://www.familychoice.com.ph/healthyIdeas.do?id=5071)

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