



# Grains of truth about GRAINS OTHER THAN WHEAT

## Definition

**GRAIN:** A member of the grass family (Gramineae) produces a dry edible one-seeded fruit, "caryopsis," commonly called a kernel, grain or berry.

There are eight grains from cereal grass: wheat, corn, rice, oats, rye, barley, millet and sorghum. Einkorn, emmer, spelt and kamut are known as ancient wheats. All of these grains come from cereal grass, but some grew wild in earlier civilizations.

Other grains that are becoming popular, quinoa (keen-wa), amaranth, flaxseed and buckwheat are referred to as pseudo-grains or false grains. Most of these come from broad leaf plants and therefore are not considered a true grain.

## History—Ancient Grains

**EINKORN:** It has been well documented that einkorn is the first grain to have been domesticated, possibly as early as 12,000 BC. Cultivated einkorn continued to be a popular crop during the Neolithic and early Bronze Age (10,000 – 4,000 BC) giving way to emmer by the mid-Bronze Age. Einkorn cultivation sustained its popularity in isolated regions from the Bronze Age into the early 20<sup>th</sup> century. At present, einkorn is still grown in harsh environments and poor soil in France, Italy, Turkey and Yugoslavia.

Baked goods made with einkorn have a light, rich taste. The flour has 50 to 75 percent higher protein than that of hard red wheats. The gluten strength is similar to soft wheats, with a low absorption.

**EMMER:** The second of the "ancient wheats" appears to have emerged on the scene about 10,000 BC in Egypt. Emmer demonstrates a strong tolerance to various climatic conditions. It is quite similar in characteristics and flavor of einkorn.

The earliest civilizations initially consumed emmer as a porridge before bread making was developed. While emmer flour does produce a satisfactory loaf of bread, the quality is not as good as bread made with common wheat. It is suggested to use half emmer flour and half bread flour.



**SPELT:** To Germans, it is known as dinkel, Italians as farro and Americans as spelt. Whatever the name, spelt has been around since 7,000 BC and of the three "ancient wheats" is the most widely available in the United States.

Saint Hildegard von Bingen was recorded in medieval European manuscripts as having often used spelt as a healing food. Spelt's popularity is due partly to its flavor and partly because it has a great nutritional profile. The rich flavor of this wheat is sweet and nutty. It contains eight of the essential amino acids and is naturally high in fiber. The chewy texture makes a satisfying pilaf or hot cereal. It has a high gluten content and can be substituted for all the wheat flour called for in a recipe.

**KAMUT (Ka-moot):** Nicknamed King Tut's wheat, it was originally cultivated in the Fertile Crescent area which runs from Egypt to the Tigris-Euphrates valley. Kamut is now a modern-day brand name that has been registered by a family in Montana. "Kamut" is an ancient Egyptian word meaning wheat.

It has a buttery, nutty flavor and is an ancient relative to modern-day durum. It is higher in eight out of nine minerals and contains 65 percent more amino acids than other wheats. The protein level can be up to 40 percent higher than hard red wheat.

This wheat can be used as whole-grain or ground into flour. The flour can be substituted equally for whole wheat flour.

**TRITICALE (Tri-ti-cay-lee):** Technically not an ancient grain, triticale is new in agricultural terms, dating back a mere 200 years. Although a true grain, it is a hybrid grain crossed between rye and durum wheat.

Triticale is higher in protein than other non-wheat flours and otherwise nutritionally similar to wheat. The berries can be precooked and mixed into dough, fixed as a side dish or ground into flour. While you can bake bread from the flour, the dough tends to be weak and should be kneaded gently and only allowed to rise once. Better yet, combine with wheat flour to produce stronger dough.

# History–Pseudo Grains:

**AMARANTH:** A staple of the Incas and the Aztecs, this pseudo-grain has been grown for thousands of years. The kernels are tiny—about 4,000 per teaspoon—but their nutritional impact is big. Amaranth contains more protein, iron, potassium, phosphorous and magnesium than other grains and is very high in amino acid lysine. People who are allergic to gluten can eat amaranth with no trouble.

Amaranth has a pleasant, nut-like flavor and toasting before grinding adds to the flavor. The seeds may be used in bread recipes to add texture and flavor, or can be popped like corn. They can also be ground into flour, but, have no gluten for baking purposes, so you will have to mix amaranth with other flours. The ratio would be 1:3 ( $\frac{1}{4}$  amaranth,  $\frac{3}{4}$  wheat = 1 cup)

**QUINOA (KEEN-wa):** A sacred staple of the ancient Incan empire, quinoa is a nutritional powerhouse, providing eight of the essential amino acids, assorted B vitamins, vitamin A, phosphorus, iron and calcium. It has a more delicate flavor than the other grains and can be added to pilafs, stews, salads or bread. Quinoa can be found in the specialty section of supermarkets, gourmet food shops and health food stores.

A botanical fruit of an herb plant, quinoa is not a true grain. Therefore, it too is ideal for people who are allergic to the gluten in wheat.

While quinoa originated from the Andes of Bolivia and Peru, U.S. farmers harvest more than 200,000 pounds of it each year in the Rocky Mountains. It has the whitest color and the sweetest taste if grown above 12,500 feet. Quinoa can be produced at lower elevations, but tends to be more bittersweet in flavor.

**FLAXSEED:** The Babylonians cultivated flaxseed as early as 3,000 BC, and later, Hippocrates used flaxseed for relief of intestinal discomfort. Used as a food and medicine in these earlier times, flaxseed is again gaining favor because scientific findings demonstrate its nutritional benefits in a balanced diet.

Flaxseed provides essential nutrients, including protein, essential fatty acids, and vitamins and minerals; and it contains both soluble and insoluble dietary fiber.

Revised 2007



Flaxseed flour or whole flaxseeds can be found baked into products such as breads, muffins, crackers, bagels and cereals, adding a pleasant, nutty flavor.

Milled flaxseed, which has a fine granular texture, may be substituted for shortening or other oils; a 3:1 ratio in baked goods is suggested. In yeast bread recipes, replace 10 to 15 percent of the flour with milled flaxseed and increase the amount of yeast by 25 percent.

Two cautions: Flaxseed allergy, though rare, can be quite serious, so begin by adding only  $\frac{1}{4}$  teaspoon a day to your food, and increase gradually if no reaction occurs. Flaxseed is high in fiber, so increase water intake with it.

**BUCKWHEAT:** Buckwheat has nourished man since the eighth millennium BC. Buckwheat is used in much the same manner as grain and has many characteristics of grain. It is a fruit that is a distant cousin of rhubarb. Its seed is triangular in shape and has an inedible black shell, which is removed before processing. The kernel inside is known as groat and is most commonly ground into a dark, gritty flour. Buckwheat is used to make everything from pancakes to soba noodles. Buckwheat flour is often mixed with wheat flour to make bread and pancakes with its distinctive nutty flavor.

Groat toasted in oil is commonly called kasha. This method is used to remove buckwheat's natural bitterness and to bring out a sweeter, nuttier flavor. In the Middle East, kasha is a favorite side dish and breakfast cereal.

Buckwheat is a nutritional powerhouse and is about 70 percent carbohydrate. It has a high content of fiber, protein, minerals and vitamins B1 and B2.



*Wheat Foods*  
C O U N C I L

10841 S. Crossroads Drive, Suite 105  
Parker, Colorado 80134  
303/840-8787\*Fax: 303/840-6877  
Mail: [wfc@wheatfoods.org](mailto:wfc@wheatfoods.org)  
URL: [www.wheatfoods.org](http://www.wheatfoods.org)