

Scripps Miramar Seed Library

“Grow & Share”



Newsletter

First Quarter 25

GRAINS

GRAINS are one of the most tasty, versatile, and nutritious foods available, a pleasure to eat and easy to cook. These incredible natural foods are not only nutritional powerhouses, but also inexpensive and ecologically sound. Grains are even more versatile than beans. They combine well with bold flavored ingredients to make delicious risottos and pilafs. They can provide bulk for the satisfying whole-meal summer salad or a warming winter soup. They can also be cooked with sweet ingredients to make pancakes, breakfast cereals, and desserts.



From beginnings that can be traced back to 12000 BC, and to the Middle East, grains are now eaten in every country of the world. In many of these countries, it is their staple food and provides nearly half the calories consumed.

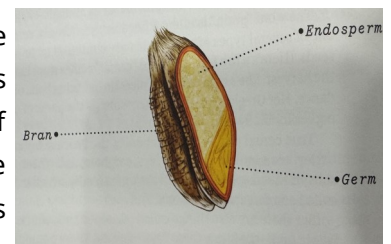
Grains are members of the Poaceae botanical family and include barley, corn, millet, oats, rice, rye, sorghum, and wheat. Within each of these are subvarieties, especially within the wheat family, which includes einkorn, farro, freekeh, Kamut, and spelt. There are also things called

pseudo-grains, which are similar to grains but are seeds from non-grass plants and are prepared like grains. Examples are quinoa, wild rice, millet, buckwheat, and chia. In order to understand both the nutritional benefits and cooking challenges of grains, it's helpful to look at a single grain. The specific components and quantities of vitamins and minerals, fiber, and other compounds vary among grains, but all grains have the same structure.

The **hull** is the tough outer coating that protects the grain when it's out in the fields. It is not edible and needs to be removed, either during harvesting or by some sort of abrasion process afterwards. This is where we get to bring in the old-time terms of “threshing” and “winnowing.” Threshing is when the grains are beaten to crack and loosen the hulls. Winnowing is the process that blows away the loosened hulls, leaving just edible grain behind.



The **bran** layer envelops the entire grain, provides protection and a great deal of healthy fiber as well as some B vitamins with antioxidants for us.



The **endosperm** is the largest part of the grain, and it's the energy source for the grain allowing it to grow into an actual plant. It contains some proteins, vitamins, and minerals, but mostly carbohydrates (starch).

The **germ** is essentially the embryo of the plant. In other words, it is the plant that would grow into another plant, being fed by the endosperm. The germ contains proteins, B vitamins, minerals, and healthy fats. These fats, however, can cause a whole grain to go rancid easily and make it inedible. Thus, while they are beneficial, they must be managed carefully.

When all these components are intact, that grains are a "whole" grain. When any of them are removed, the grain becomes "refined", which is not necessarily a bad thing. However, any sort of refinement does impact the nutritional value of the grain, along with its flavor and cooking characteristics. The term, "hulled", means the hulls have been removed by a process that leaves all of the bran, and "hulless" means that it was grown with a hull that falls off easily. "Pearled" means the bran has been polished off, while "semipearled", means some bran is left intact. A pearled grain therefore contains fewer nutrients but takes less time to cook.

PSEUDOGRAINS

Pseudo grains rank among the latest health-giving ingredients to be found in supermarkets around the globe. Its also known as false grains and do not belong to the Poaceae family of cereal grasses. Quinoa, chia, buckwheat, and amaranth are the seeds of different species of broad-leaved plants. However, they are normally included with genuine grain because of their similar nutrient profile, and they can be used in a very similar way to cereals. They often resemble grain, too.



A "**modern grain**" refers to a grain variety that has been



significantly altered through selective breeding, hybridization, and genetic modification over time, while an "**ancient grain**"

is a grain variety that has remained largely unchanged for thousands of years, with minimal human intervention in its development, often grown just as they were in ancient times. Examples of modern grains include common wheat, corn, and white

rice, while ancient grains include quinoa, amaranth, millet, spelt, and farro. Key points about the difference:

Breeding:

Modern grains have undergone extensive selective breeding to develop specific characteristics, whereas ancient grains have evolved naturally with minimal human intervention.

Genetic Modification:

Modern grains have often been genetically modified to enhance traits like yield or disease resistance,

Nutritional Profile:

Some argue that ancient grains may have a richer nutritional profile due to their less modified nature, potentially containing more fiber and certain vitamins and minerals.

Here is description of few types of grains.

Millet – It ranks as the sixth most important cereal grain in the world, sustaining more than a third of the world's population. Millet is a hardy crop that grows with minimal intervention in less fertile soil and stores well. India produces by far the highest quantity of millet. High in fiber, protein, vitamin, and minerals, millet could and should be included more in our diets.



Millet was one of the first cereal grains to be domesticated, which was in the Neolithic era. It was a prevalent grain in China before rice, dating from 2800BC in China. Millet got popular in 1970 in North America as a delicious, nutritious whole grain that is easy to cook.

Sorghum-

Sorghum is related and similar to millet, but is even more significant as a crop, being the world's fifth most important cereal. This is due largely to the fact that sorghum is naturally tolerant of drought and high temperature and is also very versatile, being used as a foodstuff, animal feed and fuel. The color of grain can be varied from white, pale yellow to red, purple, and brown. Sorghum doesn't have an inedible outer hull, so can be eaten in its entirety. It is also gluten free and contains calcium, potassium, and protein.

It is indigenous to Africa and was first cultivated in Ethiopia round 4000-3000BC. Sorghum was introduced to the United



States from Africa in the early 17th century. It is becoming increasingly popular in both commercial and home-made breads and is often one of the grains used in gluten-free flour.

Barley- A member of the grass family, barely was one of the founding agricultural crops of the Fertile Crescent, and is thought to have been first domesticated in Mesopotamia (modern day Iraq) in around 8500BC. In 1324, Edward II of England wasn't against using it to standardize the inch as equal



to "three grains of barley, dry and round, placed end to end lengthwise." Barley can be cultivated in temperate climates and doesn't need especially rich soils so can be grown almost everywhere. Russia produces the highest quantity in the world.

In its whole form, Barley is available as "hulled" or "pearled." Hulled or whole grain barley is the most nutritious, as the bran layer remains intact, but pearled barley is the most popular since it cooks in half the time and has a better texture.

Rice- Rice is cultivated in over 100 countries and grown on every continent except Antarctica. Around 96 percent of the world's rice is eaten in the area that it is grown. The highest level of consumption is in Asia including China, India, Indonesia and Bangladesh in that order. Unlike wheat, which is grown in large farms and mechanically harvested, all the rice in South and East Asia is grown on small, terraced paddy fields and harvested by hand. Rice is a grass and related to the other cereals, heralding from the Poaceae family of grasses. Its main species is Sativa. Its subspecies and varieties are endless, but two main subspecies are known as Asian rice, Indican and Japonica. There are several characteristics that distinguish the different types of rice, but most significant is components of starch that effect of rice once its cooked.

Indica- long, slender-grained rice that us generally high in amylose and cooks up into fluffy grains that do not stick together. This rice is commonly grown at low elevation throughout tropical Asia. Most of the rice produced in South Asia is Indica rice and it



accounts for more than 75% of global trade. Basmati and Jasmine rice are both Indica variety.

Japonica- short- or medium-grained rice that is low in amylose and produces cooked grains with varying degrees of "stickiness." It is cultivated in temperate and mountainous regions all over the world, Asia to Europe. Wetland rice is often cultivated in paddy fields. The word "paddy" actually refers to the rice once it has been harvested. "**Padi**" is the complete, unhulled seed of rice. As with barley and oats but not wheat, the husks enclosing the grains are inedible and must be removed.



Archaeologists have discovered rice in India, which may possibly date back to around 4500BC, though the first recorded mention originates from China in 2800BC. Rice is often associated with fertility and prosperity, with a great deal of folklore and legend that surrounds the grain

CHIA

Originating in Mexico, this pseudograin is one of the latest



superfood to hit our shelves, becoming increasingly well known for its impressive nutritional profile. Its status as a health food is also boosted by the fact that the tiny seeds swell to nine times

their original size once eaten and therefore curb hunger pangs and snacking between meals. It is believed that Aztec warriors insisted on drinking a mixture of chia seeds and water to give them strength in battle. Chia, an annual summer herbaceous plant and member of the mint family, was domesticated around 2000BC. After conquering Mexico, the Spanish banned the cultivation of chia for the same reason they banned quinoa, because it played a role in non-Christians ceremonies. Chia seeds can be bought whole as flour, or cold-pressed

SEED LIBRARY PICK-RECIPE -RUBY CHIA POWER JUICE

Originally grown by the Aztecs thousands of years ago, chia seeds are tiny nuggets of pure power, packed with omega-3 fatty acids, antioxidants, fiber and protein.

Makes 11/4 cups.

What we need:

½ cup raspberries

½ fresh pomegranate juice

4 large strawberries

1 large orange juice

1 1/2 tablespoon chia seeds

1 tablespoon of wheat or oats bran

A little honey (optional)

3-4 ice cubes

How to make: Put all the ingredients into a blender.

Blend for a minute to thoroughly chop and smooth, then serve.



SEED LIBRARY PICK-PLANT -AMARNATH

This small but mighty seed-grain was, like quinoa and chia seeds, a staple in the diets of the Aztecs. It is super rich in protein and is also gluten-free. With its broad leaves and crimson flowers, amaranth is not a true grain but

member of the Chenopodiaceae family of plants. Therefore, it is related to Swiss chard and spinach, as well as quinoa. Amaranth is fast-growing and a single plant produces dozens of seed heads, each yielding up to 5,000



Seeds. Amaranth originated in America and is one of the world's oldest food crops, with evidence of its cultivation dating back to the 7th millennium BC. The Aztecs and Incas believed that it had supernatural powers. There is a long history of amaranth use in India, though its origins there are unclear.

There are various forms of amaranth available, including whole seeds, flour, and flakes. It is valued for its protein content and contains vitamin C, rarely found in genuine grains. It has five times more iron and three times more fiber than wheat, rice or soybean.

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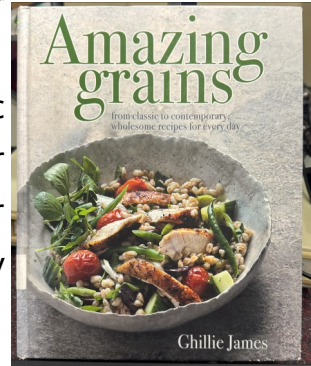
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SEED LIBRARY BOOK SUGGESTION:

Amazing Grains—from classic to contemporary wholesome recipes for everyday

In *Amazing Grains*, Gillie James celebrates grains in their full glory, including their historical, cultural, and culinary significance.

Call no.641.6318/JAMES



Grains for Every Season- Rethinking our way with grains



Author transforms the way we think about and cook whole Grains for Every Season. The recipes are extraordinary, the information is impeccable.

Call no. 641.331/MCFADDEN

GARDEN EVENTS @ Scripps Ranch Library

The library has several events scheduled if you are interested.

Garden Share- 2nd Saturday 2-3:30pm@ Court-yard

References:

James, Gillie (2014) "Amazing Grains". Published by Kyle Books.

This newsletter is composed by Ashu Agarwal and edited by Jeff Lash

For any questions, please contact Ashu Agarwal (seedlibrary@srfol.org)

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TAKE A SEED, GROW A SEED, RETURN A SEED