

Rocky Mountain Seed Alliance Heritage Grain Trials; 2016-2021

Top 20 Heritage and Ancient Cereal Grains

Arabian Blue Barley: (Bearded/Spring)

Arabian Blue barley is an ancient 6-row variety with lineage from the fertile crescent. It came to the states from Western Australia but not before it was used in a cross with Greenough at the Merredin Research Station to create the M119 variety. However, this cross was discarded because of poor yields. This is a very rare variety, very little information can be found on its history or origins. It is a hairless variety, which makes it easy to extract and clean. Easy to grow with a protein level around 11%, it reaches a height of around 3 to 4 feet when mature, and averages about 48 grains per head. It has good flavor when reduced to flour or simply cooked over low heat. The ears and kernels are a beautiful purplish blue.



Black Barley

Black barley is a fairly productive and adaptive hullless barley that has potential of overwintering. Considered to originate in Ethiopia, it has been grown for centuries as a nutritious staple crop throughout the world and more recently in the United States. It has plump grains that are very nutritious and used in pilafs and stews, and is even used in teas.

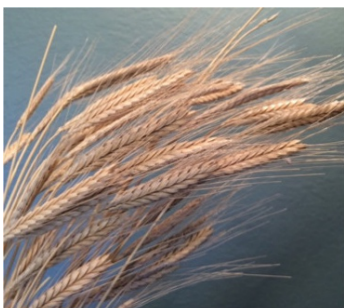
Black Emmer: (Bearded/Winter)



Black Winter Emmer was originally collected by Vilmorin-Andriex & Cie in France in 1903 and introduced to US farmers by the Department of Agriculture in 1904. Black Winter Emmer is a stunner in the garden - reaching over 5 feet, its amber straw carries majestic black awned heads. Its kernels do not thresh free from their hulls, so special equipment for mass threshing is needed. Black Winter Emmer is adaptable to drought or heavy rain. Fusarium resistant. Savored in soups, bulgur, breakfast cereal or flatbreads and pasta. Highly nutritious. 1 cup = 24g protein.

Durum, Iraq: (Bearded/Spring)

Durum Iraq is a free-threshing landrace from Iraq that was popularized in California by Monica Spiller, founder of The Whole Grain Connection. We are enamored with the golden color and mild sweet character it lends to pastas and breads. The complexity and richness of flavors coming from the heirloom wheat varieties make for a rewarding and exciting baking experience.



Einkorn: (Bearded/Spring)

Wild Einkorn was harvested in the late Paleolithic and early Mesolithic Ages, 16,000-15,000 BC. Cultivated Einkorn found in Karaca Dag-Mountains of southeast Turkey. It was cultivated in the Tigris and Euphrates (modern day Turkey and Iraq) of ancient Mesopotamia to ancient Jericho from 7600 BC and gradually spread to Asia Minor and Europe. The first wheat mentioned in the Bible was Einkorn. Einkorn has survived through time in remote village fields due to its ability to draw nutrients from stony soils. It is higher in protein (22.83%) and minerals than modern wheat and higher in phosphorus, potassium, B6, lutein, beta-carotene, and antioxidants. It is very difficult to dehull and requires equipment for farm scale dehulling. Folks used to submerge the grain in water to allow the swelling to burst through the hull.

Einkorn, Black: (Bearded/Winter)

Einkorn wheat grows very similar to other grains seeded in fall for overwintering, but has a lower yield than modern wheat. It can tolerate poorer soils, though is slow in germination. "Einkorn" is German meaning "single grain". It is also known as "littlespelt". *Tricum monococcum* is considered the earliest domesticated wheat, stemming from the wild variety *Tricum boeoticum*. The main difference between the two is how they disperse their seeds. The head of the wild variety of einkorn burst as a way to spread the seeds while the modern einkorn seed heads stay intact. It is assumed that the domestication of this early grain came about due to the conscious or unconscious preference over the seed heads that didn't burst when falling to the ground, as it was easier for early human scavengers to collect and therefore plant. Einkorn flour has become a popular substitute for traditional wheat flour, with significantly more protein content and less starch. Try Einkorn grain milled or in raw granola.



Rocky Mountain Seed Alliance Heritage Grain Trials; 2016-2021

Top 20 Heritage and Ancient Cereal Grains

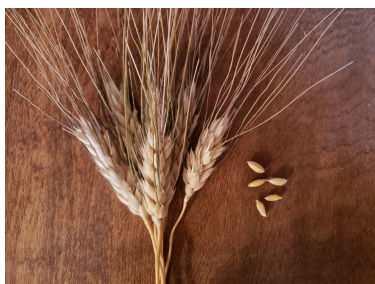


Emmer: (Bearded/Spring and Winter)

Emmer wheat is one of the three-hulled wheats known in Italy as *farro*. It is an awned wheat, and was one of the first crops domesticated after einkorn (14 chromosomes) making it a parent of modern wheat. It is a tetraploid (28 chromosomes). Once widely cultivated in the ancient world, it is now a relict crop in marginal mountainous regions of Europe, Asia, and extensively in Minnesota, North Dakota, South Dakota, and Idaho. Its value lies in its ability to give good yields on poor soils, and its resistance to fungal diseases such as stem rust that are prevalent in wet areas. Its main use is for human food, though it is also used for animal feed. In recent years, Farro has been enjoying a resurgence in popularity among gourmets and the health-conscious, who sing the grain's praises for its high nutritional value and adore the hearty, flavorful taste of the "Pharaoh's Wheat" although it is difficult to remove the hull. Excellent flavor as whole grain. Low in fat, high in iron and dietary fiber.

Ethiopian Blue-Tinged Emmer: (Bearded/Spring)

Two decades ago, Dan Jason of Salt Spring Seeds in BC brought back two seed heads of a variety of emmer wheat from an agricultural visit to Ethiopia. He received them from a farmer about 60 kilometers south of Addis Ababa, grew it out for a few years and sent some to Whole Grain Connection in California. It is now grown on significant acreage all across Canada and the US. An excellent yielding variety that matures about two weeks earlier than other Emmers, it has an interesting bluish hue to the berries and seed heads. The grain has very high protein content at up to 16% but does not generally develop much useable gluten to make it a good stand-alone bread flour. It is wonderfully flavorful cooked as a whole grain and is even being used commercially by at least one company for pasta. Grows to about 4' in height. Unlike other emmers, it is easy to thresh, delicious cooked as a whole grain, and makes great sprouted wheat berries.



Khorasan (Kamut™): (Bearded/Spring) * Taste Trials

The history of the Kamut™ brand traces to a World War II story of a US Airman who received the grain from a man who claimed to take it from an Egyptian tomb. The grain's journey has been an adventure, eventually landing in Montana. Although not thought to have been in commercial production anywhere in the world in the recent past, most scientists believe it probably survived the years as an obscure grain kept alive by the diversity of crops common to small peasant farmers, perhaps in Egypt or Asia Minor. It is thought to have evolved contemporarily with the free-threshing tetraploid wheats. It is a *Triticum turgidum*, which includes durum wheat. It has a very beautiful, silvery blue

seedhead as well as a characteristic gooseneck wave in its stalk. The kernels are twice the size of regular wheat. Khorasan contains 29% more protein and 27% more lipids than common wheat. It measures much higher in vitamins and minerals. As a cooked whole grain, it has a rich corn-like flavor.

Marquis Wheat: (Beardless/Spring/Winter)

Created from a cross between Red Fife (Ukrainian Halychanka) and Hard Red Calcutta, Marquis was developed by Charles Saunders at the Central Experimental Farm in Ottawa, Canada. Introduced around 1903, it quickly became the dominant spring wheat in both Canada and the US by 1918 with North Dakota farmers being the first to import and grow the seeds. The development of the variety, famous for its milling and baking qualities, created great agricultural and economic prosperity and exponentially expanded wheat production at a crucial time in the development of America. This is a high-yielding spring wheat that performs as a winter variety in mild climates. It's one of the best varieties for milling and bread making. Its high yield and popularity are due principally to its early maturity, which has sometimes enabled it to escape stem rust and drought. Matures 7-10 days earlier than Red Fife.



Pima Club Wheat: (Beardless/Spring)

Pima Club is an heirloom wheat of the Akimel O'odham (Pima) Nation on the Gila River in now Arizona. The soft white spring wheat is known for the delicious, fine flour it produces. This heirloom grain is enjoying popularity with both home gardeners and bakers. Pima Club produces compact, flattened, beardless seed heads with plump kernels that are easy to separate from the chaff. For areas with mild winter climates, Pima Club is planted and sprouts in the fall and winter, from approximately November to January and harvested in May or June before the onset of the summer rains. Plant in the spring in other areas. The soft grain grinds easily to a lower gluten flour that's well-

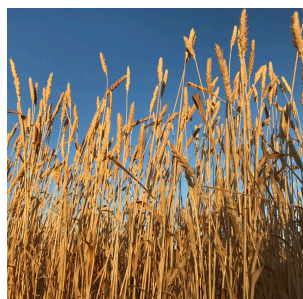
Rocky Mountain Seed Alliance Heritage Grain Trials; 2016-2021

Top 20 Heritage and Ancient Cereal Grains

suited for making delicate cookies and pastries. Requires little attention and is adaptable to a range of soil types. Visit Ramona Farms website (ramonafarms.com) to learn more about the history and uses of this landrace wheat.

Purple Dolma Barley: (Bearded/Spring)

'Purple Dolma' barley is a delicious and beautiful hullless barley. It came to our collection through many hands that received it from the late great seed saver Anpetu Oihankesni who collected it in Kinnaur, India, a Himalayan region in Himachal Pradesh state, bordering Tibet. Barley is a staple of this region in both its solid and liquid form. It is one of the few crops not imported and is instead locally grown and marketed. This barley was a top-performing variety in the Rocky Mountain Seed Alliance's Heritage Grain Trials. It thrives in drier, mountainous regions. This is a high-yielding spring-planted barley, ripening in 90 to 100 days. In warmer climates, it might work as a winter barley as well. Fun fact: "Three grains of barley, dry and round, placed end to end lengthwise" was the model to standardize the size of an inch back in 1324 AD" (snakeriverseeds.com).



Red Fife: (Beardless/Hard Spring) * Taste Trials

Red Fife (Halychanka) was the first heritage wheat nominated into the Slow Foods Ark of Taste, and it's no wonder why. This fantastic heirloom boasts superior flavor and a fascinating history. While the exact origins of Red Fife are unknown, it is believed to have been grown by Mennonite farmers in Poland and brought to Canada in the early 1800s. Red Fife rose to become the favorite wheat of the baking and milling industry during the late 1800s entering the US in the mid 1850's. It was the standard of wheat in Canada from 1860 to 1900, though nearly disappeared. According to Canadian seed grower Dan Jason, it is the grandma of all Canadian wheats. A landrace variety, it has broad genetic diversity, making it widely adaptable to many different growing conditions in North America. This is a superb

bread flour with a nutty flavor and honey overtones. An excellent choice for a gardener's first wheat crop.

Rouge de Bordeaux

A 19th Century French awnless wheat favored for bread for generations in France. It is a hard red variety with a rich, nutty flavor. Not as productive in the trials as the Turkey Red, though still a popular bread wheat for bakers with its high protein content and baking qualities.

Sangaste Rye: (Bearded/Spring/Winter)

Sangaste Rye is currently the world's oldest registered and continuously grown winter rye variety. In Estonia, 1875 Friedrich Georg Magnus Von Berg developed this variety from the cross pollination of local rye landraces and a German rye, Probstei. It won Gold in the 1889 World Fair in Paris and First Prize at the world exhibit in Chicago in 1893. It has since been the basis of multiple breeding programs and is currently a protected cultural staple in Estonia where it is used for both bread and vodka. It made its way into the states through John Sherck who was gifted seeds by a friend in Estonia. This is a tall variety, sometimes reaching up to 7 feet. It has strong stalks, large and light in color seeds, large heads, and is fairly lodge-resistant.



Sin El Pheel: (Bearded/Spring)

Sin El-Pheel is an ancient landrace from Iraq collected by H.W. Springfield in the 1950s. Springfield was part of the US Operations Mission to Iraq following World War II. He collected dozens of seed accessions, many of which can still be requested from the USDA. This sub-species — *Triticum turgidum* subsp. *polonicum*, also known as Polish wheat — is an uncommon species of wheat, found in some seemingly random places around the world including Ethiopia, Portugal, Russia, Iran, Iraq, Hungary, Romania, Chile, Ecuador, Cyprus, and of course Poland. The name means "tooth of the elephant, and it has large seeds, more like khorasan than standard bread wheat. It is said to make excellent pasta, though not as favorable for bread, and

is high in gluten. Plant in spring. About 2"-6" apart in rows about a foot apart. Grows 3 to 5 feet tall.

Sonoran White Wheat: (Beardless/Spring)

Originally brought into the U.S. from Magdalena Mission in northern Sonora, Mexico where it has been grown since around 1670. Common among the Pima and Yuma people who became large-scale



Rocky Mountain Seed Alliance Heritage Grain Trials; 2016-2021

Top 20 Heritage and Ancient Cereal Grains

wheat exporters of this variety. Piman growth of White Sonora is credited with the prevention of starvation among both the Union and Confederate soldiers during the Civil War when millions of pounds were produced and exported east. The flour gave rise to the oversized tortillas used for burritos common in Borderlands cuisine. A beardless spring wheat. The compact head is medium long, with a soft kernel. Highly adaptable, nutritious, delicious, and versatile in the kitchen. The soft kernels are easy to grind and better for using in pastry due to its low protein content. When milled, it produces a light, white flour with a slight sweet taste. For areas with mild winter climates, White Sonora is planted and sprouts in the fall, from approximately November to December and harvested in June before the onset of the summer rains. Plant in the spring in other areas. The hulls are easy to remove without specialized equipment, making it a good option for small garden operations. It is one of only two wheats on the Slow Food Ark of Taste.



Speltz: (Beardless/Winter)

Known as dinkel in Germany, Speltz is an ancient hulled wheat variety originating in the Fertile Crescent over 9,000 years ago. Speltz, once incredibly popular in Europe, fell out of favor once wheat breeding programs increased the yield of bread wheat and as mills became more industrialized and eliminated de-hulling equipment. It has been experiencing a resurgence since the 1980's, with a reviving of landrace varieties, such as Oberkulmer Rotkorn. There are breeding programs in Germany dedicated to speltz improvement. Favored by many for its hearty, nutty flavor, Speltz's higher protein content results in a less glutinous flour compared to other wheats. It is very difficult to thresh. Keep kernels in hulls when planting to assist in germination.

Tibetan Purple Barley: (Bearded/Spring/Winter)

This rare barley is a lower gluten grain and grows 3-4 tall. It comes from Tibet, an ancient center of Barley domestication where it is easy to grow, harvest, and process. Discovered in Tibet, this variety of purple barley was first brought to the United States almost 100 years ago and tucked away for decades in a seed vault. Luckily its reputation spurred a revival in interest for this heirloom grain, meaning we get to enjoy its superior flavor and nutrition today! This Barley is high energy, with iridescent violet grains that are high in phytocyanins, and highly flavored. Grain stalks are prone to lodging when grown too high. Very adaptable. Sow in early August for an overwintering cover crop if your winter is mild enough or wait until early spring.



Turkey Red Winter Wheat: (Bearded/Winter)

Turkey Red can be traced to Crimea between the Black Sea and the Sea of Azov in the early 19th century and earlier to Turkey to the south of the Black Sea. It was introduced to Kansas in 1873, carried by Mennonite immigrants from Crimea in the Ukraine, fleeing Russian forced military service. In the mid-1880s, grainsman Bernard Warkentin imported some 10,000 bushels of Turkey seed from the Ukraine, the first commercially available to the general public. It became the dominant hard red winter wheat in Kansas and throughout the Great Plains in the 1920s. It is responsible for the creation of America's breadbasket. This has a taller growth habit, late maturity, can tolerate poor soils because of larger root system, and excellent and unique flavor very good for milling and baking.