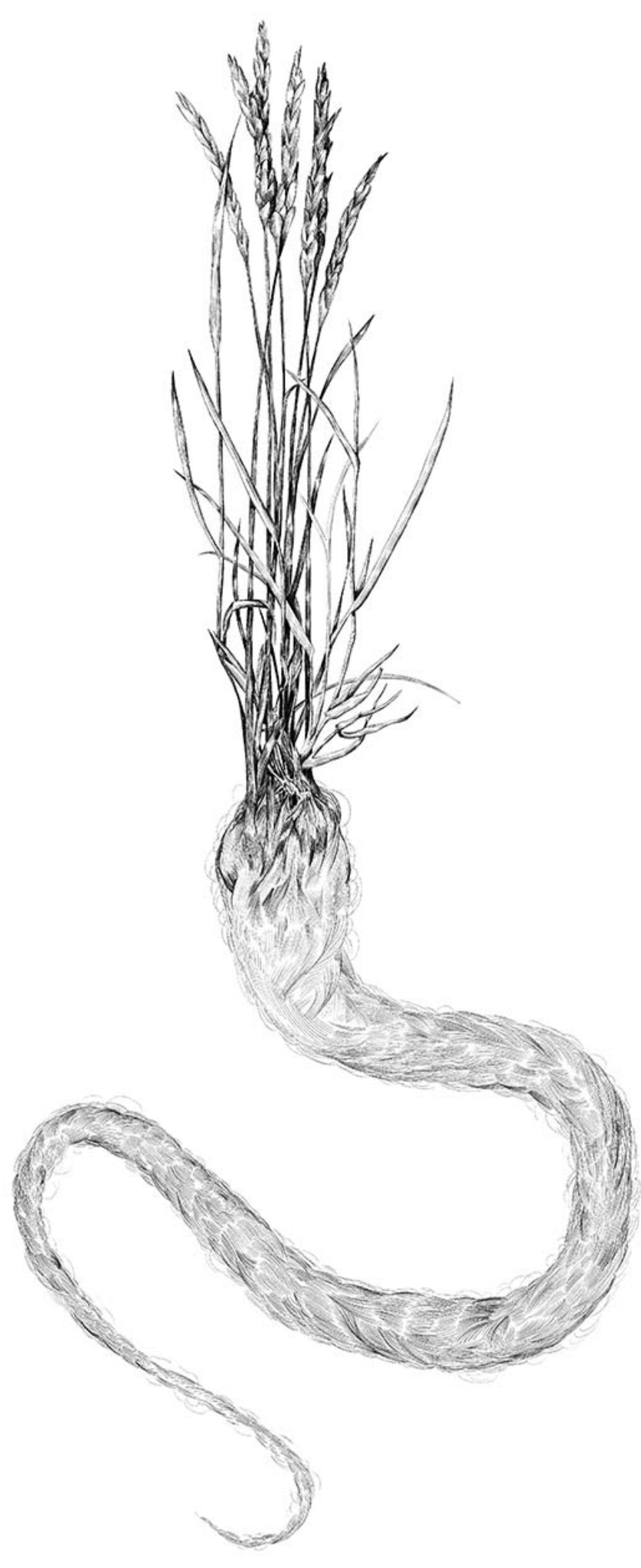


Kernza® and the Reawakened 25

Edited by Dr. Matthew Ryan, Cornell University

THINOPYRUM INTERMEDIUM'S COMMON NAME IS INTERMEDIATE WHEATGRASS but is widely known as Kernza®, the trademark owned by [The Land Institute](#). Kernza is a perennial grain, meaning it can be planted once and produce year after year without tillage and the associated soil degradation and erosion. This nutty, sweet grain has deep roots that allow the plant to store nutrients and resist drought. Kernza's massive root system holds soil in place, prevents erosion, and improves the soil's structure, aiding sustainable landscape management. As a perennial crop, Kernza allows the soil to be undisturbed for years, leading to more carbon stored in the ground and therefore taking it out of the atmosphere. This grain can be used like wheat in many recipes and compared to annual wheat it has more protein and lower quality gluten.



KERNZA®

Thinopyrum Intermedium

Origin: The Land Institute, Kansas, USA
Grown in the Midwest United States
Highly productive perennial grain, allowing for no-till regenerative agriculture

Thinopyrum intermedium's common name is Intermediate wheatgrass but is widely known as Kernza®, the trademark owned by The Land Institute. Its name "intermediate" comes from its height, slightly shorter than the normal wheat. Kernza® is a perennial grain, meaning it can be planted once and produce year after year without tillage and the associated soil disturbance and erosion. This nutty, sweet grain has deep, complex roots that allow the plant to store nutrients and resist drought. Kernza's massive root system holds soil in place, prevents erosion, and improves the soil's structure, aiding sustainable landscape management. Big root systems and undisturbed soil are also leading to more carbon stored in the ground and therefore taking it out of the atmosphere. This grain can substitute wheat in almost every recipe, compared to which it has a lower gluten content.

BOTANY

Kernza is a perennial grain that is being studied as a potential crop to benefit farmers, consumers, and the environment. It is derived from intermediate wheat, a species that originated in Europe and Asia. It has deep roots that can reach up to ten feet underground. Kernza has long slender seed heads which continue to produce an increasing number of seeds. Scientists are working to make the size of the seeds and yield greater with each breeding cycle. They are also hoping to improve shatter resistance, free threshing ability, and grain quality. Currently, the seed size is about 25% that of annual bread wheat, but researchers hope to improve that to 50% in the next 10 years. So far, it is being grown in the USA and some other countries around the world (The Land Institute).

CULINARY USE

Kernza is currently being used to make beer and other common wheat-based products. The Land Institute teamed up with Patagonia Provisions and Hopworks Urban Brewery in Portland, Oregon to make a beer with organic regenerative wheat and hops (Patagonia Beer). It can also be used in baked goods and is currently being sold in restaurants around the USA. Most often, Kernza is blended with annual wheat flour to make bread and can be used as 100% of the flour in different quick bread mixes like muffins and pancakes. It can also be served like rice, barley, or other whole grains (Kernza).

NUTRITION AND MEDICINAL USE

Kernza comes from intermediate wheatgrass, a grass species from Eurasia related to wheat. Therefore, it looks just like wheat but is loaded with protein, antioxidants, and fiber. Kernza does have lower quality gluten than annual wheat, but those with a gluten allergy should remain cautious (The Land Institute). Kernza is eight times higher in insoluble dietary fiber than whole wheat. It is also rich in antioxidants such as carotenoids and has higher amounts when compared to wheat flour. Furthermore, it has a unique taste that has been described as nutty that also makes it a great grain for brewing (Kernza).

AGRICULTURE

Kernza is best planted in the fall between August and September. While it can be planted in the spring, it won't produce in the first year. Once the grain has matured, it can be harvested, typically in late summer or early fall. Kernza can be harvested using a pick-up header or direct-harvested. After Kernza is harvested, the residual leaves and stems can be used as forage for animals. Kernza is still being developed, so the exact conditions in which it can grow are still being discovered. What is currently known is that Kernza needs at least six weeks in temperatures ranging from 32-50 degrees Fahrenheit so that it can grow to produce flowers and grain.

As it is still being grown under experimental conditions, those hoping to grow Kernza have to apply to become an approved grower at [Kernza.org](#) (Kernza). Today, Kernza is being grown across 2,000 global acres by 107 farmers. It is being sold on a small scale and as the genetics and agronomic understanding increases, so will the production scale. Eventually, it will become more widely available in grocery stores and restaurants. It is already in some restaurants and products such as Whole Foods in California, Hopworks Urban Brewery in Portland, OR and Vancouver, WA, and some products sold by Cascadian Farms (under General Mills) (The Land Institute).

HISTORY

In 1983, scientists at the Rodale Institute began studying a Eurasian forage grass called intermediate wheatgrass as a potential grain to become a perennial. Following Wes Jackson's vision to develop perennial crops, researchers with the USDA and Rodale Institute conducted two cycles of selection for desired traits in 1988. Among the selected traits were improved fertility and seed size. Then, in 2003, The Land Institute, guided by Dr. Lee DeHann, began their breeding program for intermediate wheatgrass. They conducted multiple rounds of selection and inter-mating which are currently being studied further at The Land Institute and by collaborators in diverse ecosystems. The Land Institute developed the trademark Kernza to ensure that eating that product means it was grown in a perennial field helping increase soil health, retain clean water, sequester carbon, and enhance wildlife habitats (The Land Institute).

RESEARCH

Kernza is undergoing investigation for its potential to be a profitable perennial grain, sequester carbon, and provide other environmental benefits such as erosion control. So far, researchers have found that it has an extensive root system that reaches over 10 feet underground. Its deep roots sequester carbon in the soil and allow the plant to take up necessary nutrients and water. The yield for Kernza is also being developed so that it increases with the hope that it becomes a profitable grain for farmers. Seed size is also something researchers are focused on. Scientists are focused on developing Kernza specifically as a perennial. That way, farmers can plant it once and it will come back each year, rather than having to replant it, disturb the soil and spend time weeding. Studies suggest that perennial grains like Kernza are one of the most robust and effective solutions known to sequester carbon on our productive lands (The Land Institute).

CUISINE

- [Patagonia Beer](#) - Patagonia Provisions
- [Kernza Pasta](#) - Project grounded

SOURCING

- [Where to buy Kernza® products](#) - Kernza.org
- [How to Grow Kernza®](#) - Kernza.org
- [Buy Kernza® Flour](#) Perennial Pantry
- [Why Beer?](#) - Patagonia Provisions

COMMUNITY RESOURCES

- [Kernza® Grain & Perennial Agriculture](#) - The Land Institute
- [Kernza®.org](#)

RESOURCES

- [Kernza](#)
- [The Land Institute](#)

