Forever Green Initiative



2021 UMN Forever Green Kernza®

Commercialization Priorities in MN and the Upper Midwest

Introduction

Kernza® perennial grain is North America's first commercially-viable perennial grain crop. Kernza is the trademark name for products harvested from improved lines of Intermediate Wheatgrass (IWG), a perennial forage grass native to Eurasia that was brought to North America in the early 20th-century. Research to transform IWG into a commercially-viable perennial grain crop for human consumption has advanced rapidly over the last several decades under the vision and leadership of The Rodale Institute, The Land Institute (TLI), University of Minnesota (UMN) Forever Green Initiative (FGI), and others. TLI, a nonprofit research organization based in Salina, Kansas, owns the Kernza trademark.

TLI took leadership to develop Kernza decades ago as part of its vision to develop a 'Natural Systems Agriculture' of perennial polycultures. Through collaboration with TLI, Kernza also became the spearhead of over a dozen perennial and winter annual crops and cropping systems being developed by the UMN FGI to expand "continuous living cover" (CLC) agricultural systems in the Upper Midwest. These new crops will offer growers new economic opportunities, unique sustainable products to industry, and critical ecosystem services to society. UMN FGI started its Kernza breeding program in 2011 using TLI germplasm. In 2019, UMN FGI released the world's first Kernza variety, MN-Clearwater. UMN FGI and TLI continue to work closely on all aspects of Kernza.

As a deep-rooted perennial, Kernza shows potential to improve water quality, reduce soil erosion, sequester carbon, and provide other ecosystem services, all while reducing tillage, input, and seed costs for growers. Kernza is also being promoted to producers as a dual-use crop for grain and forage, as it produces a high-quality hay and high volume of straw annually. Kernza will provide food industry partners a uniquely sustainable grain with wide potential applications in food products, brewing, and distilling. This new small grain has a bold story and big vision for perennial grain crops that improve water quality, soil health, climate, grower livelihoods, and rural vitality, all while meeting industry and consumers' growing demand for holistically sustainable food products.

Context: The State of Kernza® in 2021

Kernza continues to be at a critical early phase of development in MN, the Upper Midwest, and nationally. The Upper Midwest region is now producing roughly 1,500 acres of Kernza total—roughly triple 2019 production, and a third of the world's early commercial production. Recent collaboration among a nexus of researchers, growers, supply chain partners, end-users, and advocates have put MN and the Upper Midwest on the map as an international leader in integrated Kernza research and commercialization. The region is now a global proving ground for Kernza.

In 2020 alone, MN-grown Kernza was sold to consumers and businesses in 46 US states via an award-winning certified B-Corp formed to grow the Kernza and broader perennial supply chain. Kernza has now been featured in the region at signature events (MN State Fair), in restaurants, breweries, online sales, and is soon to appear on grocery store shelves. An MN-based Kernza growers cooperative is developing to provide grower leadership, ensure grower success, deliver a high-quality and reliable grain supply, and an integrated value proposition to buyers. Multiple seed companies in the region are now licensed to grow, buy, sell, and distribute MN-Clearwater variety Kernza seed as well as TLI genetics. Following the 2020 harvest, collaboration between MN growers, supply chain partners, and UMN also resulted in the best data we have to-date on Kernza cleanout rates, mycotoxins pre- and post-dehulling, protein content, purity, and germination.

Despite these gains, the market is still in an early phase of demand and price discovery. Like many areas of the economy, COVID19 has disrupted wholesale and retail markets, restaurants and breweries, household budgets, as well as venues for new market development (trade shows, etc.), all of which are key vehicles for developing the market for a unique product such as Kernza. In short, much progress has been made, but Kernza is still in its commercial infancy.

Big Questions Remain

As one of the world's first perennial grain crops poised to offer a dynamic set of private and public goods, many questions about Kernza's commercialization pathway are yet to be answered, such as:

- How will Kernza deliver social and economic sustainability to growers through fair pricing, while also maximizing environmental benefits to soil, water, and climate through optimal placement and scaling acreage?
- Should the focus be on developing regional value-based supply chains for their various benefits, major industry partnerships with potential to scale quickly, or both?
- How can Kernza commercialization efforts ensure equitable access to new opportunities, including for Black, Indigenous, and people of color across the value chain as producers, supply chain partners, and consumers?
- How might Kernza's ecosystem services be valued and monetized via consumer/industry pricing, creative partnerships, ecosystem service markets, public investment, or otherwise?
- With these many competing priorities and unknowns, how are decisions made among Kernza stakeholders? In other words, how is Kernza governed?

These many priorities must be held at once, and worked through together as the landscape shifts under our feet. Ultimately, specific pathways must be determined. Ensuring major priorities are not neglected in the name of opportunism is critical. Moreover, inaction is not an option, as it will only lead to and tacitly endorse business-as-usual outcomes. Through it all, real and tangible progress needs to be made season-to-season, and the many challenges of commercializing new agricultural technologies and advancing sustainability transitions in agriculture must be confronted daily.

Over the long term, the UMN Forever Green Initiative remains committed to the sustainable commercialization of Kernza and other continuous living cover crops and cropping systems. This means continually and responsibly scaling production, supply chains, and markets for these crops while addressing economic, social, and environmental sustainability.

2021 UMN Forever Green Kernza® Commercialization Priorities

With this broader context in mind, UMN Forever Green's top priorities for Kernza in 2021 are to:

1. Solidify the critical early producers and enterprises involved in Kernza production, processing, and marketing
2. Significantly grow market demand for Kernza regionally, nationally, and globally
3. Continue to site Kernza production in MN for ecosystem services, especially water quality
4. Target and deploy first-wave resources and technical support for early adopters
5. Begin co-developing governance structure for Kernza with its stakeholders
6. Continue expanding supply chain capacity for Kernza seed, grain, ingredients, and products

Notably, these 2021 priorities focus on scaling production in close alignment with sustainable commercialization goals around grower livelihoods, regional economic development, and environmental benefits such as water quality. These 2021 strategic priorities do not include scaling production indiscriminately. New licensed producers will demonstrate clear connection or contributions to the identified social, economic, and environmental priorities.

Importantly, several of these priorities look well beyond scaling production, which has been a significant area of focus since 2019. Kernza growers, licensed seed companies, and supply chain partners are nearly poised to assume leadership of managing this aspect of the Kernza enterprise in the region moving forward, with UMN and TLI continuing to play critical institutional support roles.

Now, early successes to develop the supply-side of the Kernza enterprise in the region must be 1) effectively supported by an array of allocated resources and 2) matched by expanding market demand that will allow production to sustainably scale without undermining grower livelihoods. At the same time, the environmental benefits of Kernza production need to be maximized through creative cross-sector partnerships, innovative policy, and other mechanisms. Finally, a governance system for the multi-faceted Kernza community must be collaboratively developed and deployed.

Taken together, these priorities suggest another intensive and hopefully fruitful year of continued partnership to advance Kernza. UMN Forever Green looks forward to continuing to work with all Kernza stakeholders to develop the Kernza enterprise in 2021 and beyond.

Questions about 2021 Kernza Priorities?

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For more information, the latest news, and more info on Kernza, visit kernza.org.

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