

MARCH 2023

KERNZA[®] PRODUCTION BASICS

A non-comprehensive guide
for Growing Intermediate
wheatgrass (IWG) for
Kernza[®] production

Prepared by Tessa Peters
Director of Crop Stewardship

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SITE SELECTION

Choosing where to plant Kernza is important.

Weed considerations:

A field with a high weed seed bank will be less productive in year one due to weed competition. Establishment of the stand will likely require weed management, including mowing. The field cannot be sprayed with herbicides and harvested for grain.

Drainage:

Stand establishment may fail in areas with a high water table or occasional standing water. Intermediate wheatgrass prefers a well-drained soil.

Water usage:

While IWG is relatively drought tolerant, it needs good moisture after planting for stand establishment. Thunderstorms and wind can cause the plants to lodge. Too little water result in reduced grain production.

Rotation considerations:

Following a winter annual grain is not recommended, because volunteer plants will contaminate the grain. Following a legume is a good choice due to the nitrogen that will be available, but spring annual grains or other crops can work well, too.

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PLANTING

Planting Kernza seed too deep seems to be one of the most detrimental actions to stand establishment.

Seed should be planted 1/4" to 1/2" deep in a firm seedbed.

Fall Planting:

Most planting is done in fall, resulting in grain production in the first summer of growth. We recommend planting based on ~2 weeks prior to winter wheat guidelines in your area and/or recommendations for IWG production for forage recommendations. Establishment is usually best if planted prior to a moisture event and dates range from 15 August - 15 September depending on latitude and altitude.

Spring Planting:

Spring planting may be preferable depending on moisture timing and storage in the soil profile. However, no grain production will happen in the first summer. Thus, we do not recommend spring planting for growers with no use or market for hay or forage.

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SEEDING

The chart on the following page provides seeding rate guidance to Kernza growers based on seed germination (%) and row spacing (inches)

Recommendations are based on an optimum seeding rate of 10 lbs/acre pure live seed (100% germination) at 6-inch row spacing

Germination rates of Kernza can vary substantially and should be reflected in pricing. Make sure you know the germination rate of available lots before planning seed needs and finalizing a purchase.

You can find more information on planting equipment and settings at:
<https://kernza.org/wp-content/uploads/Kernza-planting-guide-1.pdf>

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SEEDING RATES

In no way is this chart a replacement for calibrating your equipment to seed the crop.

All calculations are based on a planting density of 18 plants / square foot (78,260 plants / acre) or 10 lbs / acre on 6" rows.

Developed by Colin Cureton and Jake Jungers at University of Minnesota.

KERNZA SEEDING RATES (LBS / ACRE)

		GERMINATION RATE (%)						
		40	50	60	70	80	90	100
ROW SPACING (INCHES)	6	25	20	16.7	14.3	12.5	11.1	10
	7.5	20	16	13.3	11.4	10	8.9	8
	12	12.5	10	8.3	7.1	6.3	5.6	5
	15	10	8	6.7	5.7	4.4	4.4	4
	24	6	5	4	4	3	3	3

Example: Kernza being seeded on 7.5" rows with a germination rate of 80% should be seeded at 10 lbs / acre

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VARIETIES

Approved varieties include:

MN-Clearwater

TLI 701

TLI 703

TLI 704

TLI 801

TLI 3174

TLI C5 has been discontinued for new grain production plantings. This variety is still used for forage plantings.

Some experimental materials are allowed for entry into the Identity Preserved Program and able to be sold as Kernza grain on a case-by-case basis.

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GRAIN HARVEST

Kernza grain can be harvested using several header types. Regardless of header type, take the time to set the combine. Too much air from the cleaning shoe fan can cause grain loss out of the back of the machine. There can also be rotor-loss on newer combines. Rotor speed needs to be fast enough to thresh all seeds from each spikelet.

Dry the grain as soon as possible after harvest.

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GRAIN HARVEST

Direct cutting

Grain/drapper headers -

Timing harvest can be difficult. Seeds may not ripen evenly within the head. The largest grains are usually at the bottom of the head, so harvesting with at least 70% of the head being fully ripe (hard when pressed with a fingernail) is recommended. Waiting for the head to fully ripen could result in shatter-loss with existing varieties.

Stripper header -

We have had growers successfully using stripper headers. Harvest timing is similar to grain/headers, but grain samples, especially in weedy fields, may be improved using a stripper header.

Swathing + Pick-up header

Swathing and using a pickup header can be a good option for growers wanting to prevent shatter-loss or in fields with substantial weed pressure. Swath when all the seeds in the head are brown in color and 30-40% are hard. Waiting longer can result in seed loss beneath the windrow.

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FORAGE HARVEST

Spring grazing - Some extra biomass possible, will likely cause small reduction in grain yield if grazed after the first week of April. Will result in complete grain loss if grazed after elongation. High quality forage. More research is needed to understand the benefits and risks of early spring grazing.

Summer residue - Residue can be swathed and baled immediately following grain harvest. There can be substantial residue yields, but the quality will be only slightly better than oat/wheat straw.

Fall/winter grazing - IWG can be grazed in late fall and throughout the winter. Can be grazed very low after hard freeze. Medium to high quality forage.

09**IDENTITY
PRESERVED
PROGRAM**

If you are growing Kernza, you have to abide by the Identity Preserved Program guidelines. You can find the most recent version here:
<https://kernza.org/growers/>

Grain quality standards are included in the program guidelines.

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TECHNICAL ASSISTANCE TEAM

Kernza technical assistance can be gained by contacting one of the TA team members:

MINNESOTA:

- Carmen Fernholz
<fernholz001@gmail.com>
- Alan Kraus
<alan@cleanriverpartners.org>
- Frank Forcella <forcellafrank@gmail.com>
- Colin Cureton <cure0012@umn.edu>

WISCONSIN:

- Nicole Tautges
<ntautges@michaelfields.org>

KANSAS:

- Brandon Schlautman
<schlautman@landinstitute.org>

OTHER AREAS:

- Tessa Peters <peters@landinstitute.org>