

PERFORMANCE THAT HOLDS

PROVEN ACROSS CONDITIONS,
BUILT FOR WHAT COMES NEXT

HYBRID RYE

2026 YIELD RESULTS





A Look Back at the 25/26 KWS Hybrid Rye Season

Every season tells a different story. The 2025–2026 growing season was defined by contrast, with drought in the Pacific Northwest and South Central, harsh winter conditions across portions of the Red River Valley, delayed fall moisture, periods of elevated spring temperatures, and highly variable growing conditions throughout the Midwest and East Coast.

These challenges tested crop establishment, winter survival, spring recovery, and the ability of each hybrid to maintain performance through harvest. They also created an important opportunity to evaluate what matters most in a modern rye hybrid: not performance under one ideal set of conditions, but the ability to deliver consistently across different environments.

Throughout our nationwide testing program, KWS hybrid rye varieties demonstrated the stability and resilience growers have come to expect from KWS genetics. Results varied by location, as they should have in a season with this much environmental diversity, but the broader picture remained clear. Strong genetics, combined with appropriate local management, helped protect yield potential and maintain dependable performance across regions.

One of the most encouraging stories of the season was the performance of KWS RIXOR, our new grain hybrid. Across locations and contrasting growing conditions, KWS RIXOR showed the yield potential and stability expected from the next generation of KWS hybrid rye genetics. Its performance was not limited to one favorable environment. It demonstrated an ability to compete across a wide range of conditions, making it an important addition to the KWS grain rye portfolio.

For growers, this type of consistency matters. Maximum yield at a single location can be impressive, but reliable performance across environments is what builds confidence. KWS RIXOR represents our continued focus on developing hybrids that combine strong yield potential with the agronomic characteristics needed for commercial production.

The forage results from this season were equally important. Across our forage trials, KWS hybrid rye demonstrated the value of timely harvest management. When harvested early, particularly at the boot stage, the crop produced exceptional forage quality while maintaining meaningful tonnage.

This balance between quality and yield is one of the most valuable characteristics of hybrid rye in a forage system. Early chopping can provide highly digestible forage with strong nutritional value, while the rapid spring growth and biomass production of hybrid rye help preserve the tonnage necessary for a productive feed program. These results reinforce that growers do not always need to choose between high forage quality and practical yield. With the right hybrid, harvest timing, and management, hybrid rye can deliver both.

The early harvest window also creates additional flexibility. Removing the crop at the boot stage can help operations secure high-quality forage earlier in the season and open the field sooner for field operations and establishment of the next crop. This gives hybrid rye value beyond the tons harvested. It becomes a tool for improving the efficiency and flexibility of the entire cropping and feeding system.

The results presented in this booklet reflect our commitment to evaluating KWS hybrids under real production conditions. Not every location experienced ideal weather, and not every trial produced the same outcome. That is exactly why a broad testing network is so important. It allows us to understand how hybrids respond not only when conditions are favorable, but also when moisture is limited, winter injury occurs, or temperatures accelerate spring development.

As you review the 25/26 results, we encourage you to look beyond the highest number at an individual location. Consider performance across locations, environmental conditions, agronomic characteristics, intended end use, and consistency from one trial to another. Together, these factors provide a more complete picture of a hybrid's value.

We are proud of what KWS Hybrid Rye demonstrated this season. From the stability of our established portfolio to the strong introduction of KWS RIXOR and the combination of forage quality and tonnage achieved through early harvest, the results show what modern Hybrid Rye can contribute to U.S. farming operations.

Thank you to the growers, dealers, university researchers, private cooperators, and KWS team members who made this testing program possible. Your work helps us generate practical, transparent information that growers can use with confidence. For more information on KWS Hybrid Rye varieties, growing practices, or to find your nearest dealer, please visit our website: www.kws-us.com.

Dener Lazzari, Product Manager



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Grain Results

When it comes to Hybrid Rye grain, our varieties: KWS Rixor, KWS Receptor, KWS Serafino and KWS Tayo have your back in all situations.

Trial Highlights:

Colorado, Idaho, Illinois, Indiana, Iowa, Kentucky, Michigan, Minnesota, Missouri, Nebraska, New York, North Dakota, Pennsylvania, South Dakota, Texas, Utah, Washington, Wisconsin, Wyoming

** a - denotes no data and that variety was not planted that year.*

Planting recommendations: Trials were planted at KWS recommended rates of 800,000 seeds/acre. Use the seed rate calculator and seed tag to help with proper seeds per foot of row.

Nitrogen recommendation is 1.2 units of N/bushel. Apply a fall application of approximately 1/3 of your needs, then apply remaining nitrogen as early as you can in spring to ensure that nitrogen is available before stem elongation.

TW headers indicate test weight shown in lb/bu.

COLORADO

Trial Highlights

Location: Great Plains Research Station at Akron, CO - Colorado State University.
This location is non-irrigated, dry land.
**Please note the wheat trial is in a different trial area but gives a comparison to wheat yields.*

2026: Extreme drought was experienced throughout the growing season and wheat trials were a complete loss due to heavy virus pressure. Akron was planted on October 16, 2025 and harvested on July 29, 2026.

2025: Akron was planted on September 26, 2024 and harvested on July 10, 2025. Excellent yields in a very uniform trial.

2024: Akron was planted on September 28, 2023 and harvested on July 15, 2024. This location saw excellent yields with adequate rainfall.

2024 - 2026 Colorado Grain Trials (shown in bushel/acre)

Variety	Grain Type	2024	2025	2026	TW lb/bu
KWS Rixor	Hybrid Rye	96.0	109.0	41.0	54.8
KWS Serafino	Hybrid Rye	95.0	104.0	34.0	49.0
KWS Receptor	Hybrid Rye	88.0	-	34.0	50.7
KWS Tayo	Hybrid Rye	92.0	105.0	31.0	50.9
Hazlet	Rye	67.0	80.0	29.0	-
SU Perspectiv	Hybrid Rye	92.0	102.0	-	-
Byrd	Wheat	94.0	50.0	-	-
Avery	Wheat	-	49.0	-	-
Langin	Wheat	-	47.0	-	-

IDAHO

2023 - 2026 Idaho Grain Trials (shown in bushel/acre)

Variety	Grain Type	2023	2024 Average	2025 Average	2026 Aberdeen	TW lb/bu	2026 Kimberly	TW lb/bu	2026 Average
KWS Serafino	Hybrid Rye	211.0	194.5	173.0	127.0	56.3	169.0	56.2	148.0
KWS Tayo	Hybrid Rye	209.0	175.5	183.5	99.0	55.1	169.0	56.1	134.0
KWS Rixor	Hybrid Rye	-	-	188.5	128.0	55.9	133.0	56.5	130.5
KWS Receptor	Hybrid Rye	216.0	206.5	174.5	100.0	55.2	133.0	56.4	116.5
LCS Jet	Winter Wheat	150.0	174.0	146.0	-	-	-	-	-
SY Ovation	Winter Wheat	159.0	163.5	140.0	-	-	-	-	-
Keldin	Winter Wheat	160.0	167.0	131.0	-	-	-	-	-

Trial Highlights

Location: Aberdeen & Kimberly, ID - University of Idaho
Irrigated

2026: Winter cereals experienced extensive damage this year. A very mild winter, turned very cold through April and included many frosts and freezes. Aberdeen location was hit harder than Kimberly and also experienced irrigation issues with skips and irregular patterns. Aberdeen was planted on October 2, 2025 and Kimberly on October 7, 2025.

2025: The Aberdeen location was planted on October 1, 2024 and harveted on August 7, 2025. Kimberly on October 11, 2024 and harvested on August 4, 2025.

2024: These locations are planted next to the winter wheat variety trial. Hybrid Rye yields were tremendous and out-yielded the standard checks in that trial.

2023: Aberdeen location only.

ILLINOIS

Trial Highlights

Location: Champaign, IL - KWS Trial Plots

2026: These plots were located in our KWS Breeder Trial, planted on October 3, 2025 and harvested on July 8, 2026.

2025: These plots were located in our KWS Breeder Trial, planted on October 4, 2024 and harvested on July 3, 2025.

2024: These plots were in our KWS Breeder Trial, planted on October 4, 2023 and harvested on June 21, 2024.

2023: These plots were at the KWS Station. Planted on October 6, 2022 and harvested on July 12, 2023.

2023 - 2026 Illinois Grain Breeder Trials (shown in bushel/acre)

Variety	Grain Type	2023	2024	2025	2026	TW lb/bu
KWS Rixor	Hybrid Rye	-	146.0	152.0	124.0	50.6
KWS Tayo	Hybrid Rye	116.8	133.0	156.0	111.0	49.4
KWS Receptor	Hybrid Rye	127.3	127.0	-	108.0	50.2
KWS Serafino	Hybrid Rye	109.8	138.0	159.0	106.0	50.5
Hazlet	Rye	-	63.0	98.0	77.0	-

INDIANA

Trial Highlights

Location: Bluffton, IN

2026: This trial was planted on October 4, 2025 and harvested on July 7, 2026.

2026 Indiana Grain Trials (shown in bushel/acre)

Variety	Grain Type	2026	TW lb/bu
KWS Tayo	Hybrid Rye	156.0	56.1
KWS Rixor	Hybrid Rye	155.0	56.2
KWS Serafino	Hybrid Rye	146.0	56.7
KWS Receptor	Hybrid Rye	139.0	56.6



FIND A DEALER NEAR YOU

Use the dealer locator map found at www.kws.com/us

Dealer Locations & Information



2024 - 2026 Iowa Grain Trials *(shown in bushel/acre)*

Variety	Grain Type	2024 Average	2025 Average	2026 Boone	2026 Greenfield	2026 Kanawha	2026 Nashua	2026 Sanborn	2026 Average	Avg. TW lb/b
KWS Rixor	Hybrid Rye	-	-	86.0	86.0	87.0	94.0	90.0	88.6	53.8
KWS Receptor	Hybrid Rye	110.0	60.7	86.0	78.0	71.0	90.0	85.0	82.0	53.5
KWS Tayo	Hybrid Rye	104.0	52.7	82.0	78.0	74.0	87.0	89.0	82.0	52.7
KWS Serafino	Hybrid Rye	120.0	68.6	82.0	81.0	75.0	91.0	76.0	81.0	53.3
SU Performer	Hybrid Rye	105.0	64.6	87.0	72.0	82.0	97.0	-	84.5	-
Hazlet	Rye	75.0	49.3	64.0	60.0	72.0	77.0	71.0	68.8	-
SU Bebop			47.0	72.0	53.0	67.0	81.0	-	68.3	-
Danko	Rye	-	-	67.0	59.0	66.0	71.0	-	65.8	-
Dylan	Rye	63.0	63.0	65.0	27.0	48.0	70.0	-	52.5	-
Gardner	Rye	67.0	67.0	52.0	28.0	49.0	59.0	-	47.0	-
Elbon	Rye	57.0	57.0	44.0	26.0	34.0	51.0	-	38.8	-
Aroostook	Rye	74.0	74.0	-	-	-	-	-	-	-

Trial Highlights

Location: Iowa State University

Trials are located at Boone, Greenfield, Kanawha, and Nashua on the ISU Research Farms.

2026: A new location was added for 2026 in Sanborn and is outside of the university trials. Locations were planted from October 3 - 13, 2025 and harvested July 21 - 30, 2026.

2025: After a dry winter, weather conditions during the 2025 growing season were marked by near-record April, June and July rainfalls, making weed management and cereal rye harvest difficult. As a result, field managers at Kanawha were unable to harvest their cereal rye variety trial, and harvests at other sites were somewhat delayed. Lodging was a major issue in all varieties at Greenfield and Boone this year, though most severely in open-pollinated varieties. Locations were planted between October 11 - 16, 2024 and harvested July 21, August 5, and August 13, 2025. Poor plant establishment with a dry fall in Boone and Nashua.

2024: Locations were planted between September 20, 2023 and October 9, 2023. Harvest occurred from July 16, 2024 through August 7, 2024. All locations had excellent, uniform growth and adequate rainfall leading to high yields. All locations followed a soybean crop.

KENTUCKY

2024 - 2026 Kentucky Grain Trials (shown in bushel/acre)

Variety	Grain Type	2024 Average	2025 Average	2026 Lexington	Lexington TW lb/bu	2026 Henderson	2026 Average
KWS Tayo	Hybrid Rye	72.5	97.0	74.0	50.2	82.0	78.0
KWS Rixor	Hybrid Rye	87.0	104.0	73.0	51.5	74.0	73.5
KWS Serafino	Hybrid Rye	80.0	110.0	79.0	51.2	68.0	73.5
KWS Receptor	Hybrid Rye	80.5	85.0	71.0	50.0	68.0	69.5
Hazlet	Rye	45.5	59.5	54.0	-	72.0	63.0
AgriMAXX 525	Wheat	66.0	74.0	-	-	-	-
Danko	Rye	58.0	52.0	-	-	-	-

Trial Highlights

Location: University of Kentucky

2026: Trials include Lexington and Henderson locations. Lexington resulted in highly variable data. Planted on October 17, 2025 and harvested on June 24, 2026. Henderson location was part of a breeder trial. It was harvested very wet with grain testing around 30% moisture. Planted on October 22, 2025 and harvested on June 17, 2026.

2025: Lexington location was planted on October 16, 2024 and harvested on June 25, 2025. The field was in good overall condition despite excess rainfall. Waverly was planted on October 16, 2024 and harvested on June 21, 2025. Excess rainfall damaged several plots at this location.

2024: Average includes the Lexington and Waverly locations. Lexington was planted on October 12, 2023 and harvested on June 20, 2024. Waverly was planted on October 16, 2023 and harvested on June 11, 2024. Fusarium (FHB) pressure was heavy and caused lower yields throughout the trial.

MICHIGAN

2022 - 2024 Michigan Grain Trials (shown in bushel/acre)

Variety	2022 Average	2023 Average	2024 Mason	2024 SVREC	2024 Average
KWS Receptor	112.5	104.5	92.0	111.0	101.5
KWS Serafino	117.0	105.0	95.0	106.0	100.5
KWS Tayo	118.5	98.0	94.0	107.0	100.5

Trial Highlights

Location: Michigan State University

2024: Planted on October 2 & 4, 2023 and harvested on July 8 & 9, 2024.

2023: Average includes Mason and SVREC locations. Planted on September 30, 2022 through October 1, 2022. This trial was visited in May and the Hybrid Rye looked very promising and lush than the winter wheat near it.

2022: Average includes Mason and SVREC locations. Planting date: September 19 & 20, 2021. Harvest date: July 10, 2022.

MINNESOTA

2024 - 2026 Minnesota Grain Trials (shown in bushel/acre)

Variety	Grain Type	2024 Average	2025 Average	2026 Becker	2026 Crookston	2026 Lamberton	2026 LeCenter	2026 Rochester	2026 Roseau	2026 Average
KWS Rixor	Hybrid Rye	-	132.0	117.0	99.0	119.0	142.0	124.0	205.0	134.3
KWS Serafino	Hybrid Rye	133.0	125.0	118.0	109.0	120.0	129.0	118.0	198.0	132.0
KWS Receptor	Hybrid Rye	140.0	115.0	102.0	101.0	125.0	148.0	118.0	191.0	130.8
KWS Tayo	Hybrid Rye	130.0	120.0	113.0	89.0	108.0	159.0	100.0	187.0	126.0
Hazlet	Rye	95.0	102.0	99.0	86.0	94.0	116.0	115.0	161.0	111.8
Danko	Rye	101.0	96.0	83.0	87.0	84.0	133.0	86.0	156.0	104.8
Rymin	Rye	87.0	89.0	80.0	71.0	87.0	96.0	84.0	131.0	91.5
SU Perspectiv	Hybrid Rye	127.0	103.0	-	-	-	-	-	-	-
Gardner	Rye	77.0	81.0	-	-	-	-	-	-	-

Trial Highlights

Location: University of Minnesota
2026: Locations were planted on September 17, 18, 23, 25, and 30 and October 1-2, 2025. They were harvested on July 21, 23, 27, 29, and 30 and August 7, 2026. The Crookston location had an uneven stand because warm periods during the winter caused the snow to melt and refreeze, trapping the plants in ice. Heavy soil and poor drainage at this location further contributed to uneven stands.

2025: All locations except Roseau experienced a very dry fall. Despite this, the Lamberton location put up exceptional yields. The Grand Rapids and Crookston locations experienced severe drought and were not harvested. The Le Center location experienced a herbicide carryover issue that ruined the plot. Locations were planted September 16 - 30, 2024. Becker location was harvested on August 4, 2025, Roseau location harvested on August 15, 2025, and Lamberton was harvested on August 1, 2025.

2024: Average includes Becker, Crookston, Grand Rapids, Lamberton, Le Center, Roseau. Locations were planted from September 14, 2023 through October 2, 2023 and harvested on July 19, 2024 through August 19, 2024. Becker has limited irrigation; all other locations are dryland. A wet spring caused reduction in yield and probably loss of nitrogen at Lamberton location, as plants were in saturated soil for an extended period of time.

Trial Highlights

Location: Lamberton, MN ('23-'25) /Olivia, MN ('26)
2026: Planted on October 7, 2025 and harvested on July 14, 2026.

2025: A very dry fall caused poor establishment at this location, as shown in the yields. It was planted on September 20, 2024.

2024: Planted on September 27, 2023. Harvested on July 30, 2024. A wet spring caused reduction in yield and probably loss of nitrogen as plants were in saturated soil for an extended period of time.

2023: Planted on September 28, 2022 and harvested on July 27, 2023.

2023 - 2026 Minnesota Grain Breeder Trials (shown in bushel/acre)

Variety	Grain Type	2023	2024	2025	2026
KWS Rixor	Hybrid Rye	-	89.0	89.0	137.0
KWS Receptor	Hybrid Rye	128.0	77.0	-	131.0
KWS Serafino	Hybrid Rye	138.0	85.0	96.0	130.0
KWS Tayo	Hybrid Rye	142.0	71.0	92.0	116.0
Hazlet	Rye	94.0	45.0	90.0	90.0

MISSOURI

2026 Missouri Grain Trials *(shown in bushel/acre)*

Variety	Grain Type	2026
KWS Serafino	Hybrid Rye	127.0
KWS Receptor	Hybrid Rye	109.0
KWS Rixor	Hybrid Rye	108.0
KWS Tayo	Hybrid Rye	101.0
Hazlet	Rye	91.0

Trial Highlights

Location: Novelty, MO

2026: This location was planted on October 15, 2025 and harvested on July 6, 2026. There was significant lodging at this location for all varieties.

NEBRASKA

2022 - 2024 Nebraska Grain Trials *(shown in bushel/acre)*

Variety	Grain Type	2022	2023 Average	2024 Sidney	2024 N. Platte	2024 Mead	2024 Average
KWS Receptor	Hybrid Rye	130.0	75.0	56.0	142.0	107.0	101.7
KWS Tayo	Hybrid Rye	110.0	66.0	55.0	159.0	56.0	90.0
KWS Serafino	Hybrid Rye	129.0	64.0	40.0	145.0	82.0	89.0
Wesley	Wheat	-	47.0	-	-	-	-
Ruth	Wheat	83.0	43.0	-	-	-	-

Trial Highlights

Location: Lincoln, NE - University of Nebraska

2024: Sidney location had drought conditions that impacted yields. Planted on September 29, 2023 and harvested on July 22, 2024. North Platte location had adequate rain during pollination and grain fill. Planted on September 21, 2023 and harvested on July 16, 2024. Mead location had uneven stands from oat trash residue. It was planted on September 27, 2023 and harvested on July 10, 2024.

2023: Average includes Sidney and Mead locations. Locations were planted on September 26 - 28, 2022. They were harvested on July 31, 2023. There was good soil moisture at planting. Decent fall stand and winter survival. Tillered well in spring and had rains during pollination and grain fill which helped increase yields.

2022: Includes Lincoln only. It was planted on September 24, 2021 and harvested on July 5, 2022. Overall good yields.

NEW YORK

2022 - 2025 New York Grain Trials (shown in bushel/acre)

Variety	Grain Type	2022 Average	2023 Average	2024	2025
KWS Rixor	Hybrid Rye	-	-	-	126.0
KWS Serafino	Hybrid Rye	123.0	102.5	119.0	122.0
KWS Tayo	Hybrid Rye	127.0	107.5	104.0	118.0
KWS Receptor	Hybrid Rye	132.0	116.5	118.0	110.0
Hazlet	Rye	94.5	74.5	84.0	65.0
Danko	Rye	99.5	88.5	96.0	-

Trial Highlights

Location: Cornell University

2025: Caldwell location experienced a high volume of rainfall all spring and the only location reported. Slight lodging in KWS Receptor. This site was planted on October 2, 2024 and harvested on July 21, 2025.

2024: Only one location in Caldwell, NY. Planted on October 4, 2023 and harvested on July 11, 2024. This field looked chlorotic. Nitrogen was lost because of excess water, which affected the nitrogen applied in the spring. Nitrogen not being available caused a loss in yields.

2023: Average includes Snyder and Caldwell locations and they were planted on October 5 and 12, 2022. These sites had poor emergence from later planting and weather.

2022: Average includes Snyder and Caldwell locations. Some water and winter injury on plots. Planted between October 1 - 8, 2021. Harvested on July 19 and 20, 2022.



NORTH DAKOTA

2023 - 2026 North Dakota Grain Trials (shown in bushel/acre)

Variety	Grain Type	2023 Average	2024 Average	2025 Average	2026 Carrington	2026 Hettinger	2026 Langdon	2026 Minot	2026 Average	TW lb/bu
KWS Receptor	Hybrid Rye	78.5	121.3	111.5	75.0	67.0	122.0	69.0	83.3	53.5
KWS Serafino	Hybrid Rye	73.4	112.3	104.5	74.0	62.0	128.0	66.0	82.5	53.6
KWS Rixor	Hybrid Rye	-	-	113.5	77.0	63.0	117.0	66.0	80.8	54.1
KWS Tayo	Hybrid Rye	74.3	108.7	104.0	67.0	64.0	120.0	59.0	77.5	52.3
Aroostook	Rye	44.4	68.0	79.5	54.0	46.0	89.0	77.0	66.5	-
Hazlet	Rye	60.3	87.6	87.0	54.0	42.0	93.0	76.0	66.3	-
Danko	Rye	53.9	92.3	86.5	45.0	47.0	96.0	72.0	65.0	-
Dylan	Rye	53.0	88.0	71.0	61.0	41.0	97.0	61.0	65.0	-
SU Perspectiv	Hybrid Rye	69.5	115.3	92.0	61.0	-	-	-	61.0	-
Rymin	Rye	52.1	79.3	-	49.0	42.0	87.0	62.0	60.0	-
Gardner	Rye	47.4	70.7	67.5	44.0	40.0	83.0	70.0	59.3	-
Spooner	Rye	49.5	70.3	70.0	44.0	31.0	82.0	69.0	56.5	-

Trial Highlights

Location: North Dakota State University

2026: Plots were planted September 10, 17, 25, 30, 2025 and harvested on July 29, August 8 and 18, 2026.

2025: A dry fall reduced the yields slightly, but the plot was very uniform. Carrington was planted on September 20, 2024 and harvested on August 1, 2025. Minot was planted on October 14, 2024 and harvested on August 15, 2025.

2024: Average includes: Carrington, Langdon and Minot locations. Carrington location was planted on September 20, 2023 and harvested on August 2, 2024. The previous crop was forage barley. Langdon was planted on September 28, 2023 and harvested on August 19, 2024. The previous crop was soybeans. Minot was planted on October 12, 2023 and harvested on August 6, 2024. Previous crop was soybeans. Very uniform plots which resulted in exceptional yields.

2023: Average includes: Carrington, Hettinger, Langdon and Minot locations. They were planted between September 20 and 26, 2022 and harvested July 28 through August 9, 2023. Yields were lower than expected due to hot, dry weather in mid-June through end of July, with little to no precipitation.

2026 North Dakota Grain Breeder Trial
(shown in bushel/acre)

Variety	Grain Type	2026
KWS Rixor	Hybrid Rye	125.0
KWS Receptor	Hybrid Rye	124.0
KWS Tayo	Hybrid Rye	120.0
KWS Serafino	Hybrid Rye	119.0
Hazlet	Rye	115.0

Trial Highlights

Location: Valley City, ND

2026: Planted on October 7, 2025 and harvested on July 14, 2026.

PENNSYLVANIA

2022 - 2025 Pennsylvania Grain Trials (shown in bushel/acre)

Variety	Grain Type	2022	2023	2024 Average	2025 Rock Springs	2025 Landisville	2025 Average
KWS Rixor	Hybrid Rye	-	-	-	78.0	99.8	88.9
KWS Serafino	Hybrid Rye	97.0	126.0	123.0	72.0	100.1	86.1
KWS Receptor	Hybrid Rye	103.0	120.0	122.0	71.0	100.3	85.7
KWS Tayo	Hybrid Rye	102.0	124.0	112.5	68.0	97.9	83.0
Hazlet	Rye	-	-	-	34.0	37.2	-
Aroostook	Rye	57.0	89.0	72.5	-	-	-
Surge	Triticale	79.0	-	-	-	-	-
Gunner	Triticale	58.0	-	-	-	-	-
Thor	Triticale	54.0	-	-	-	-	-

Trial Highlights

Location: Penn State University, Rock Springs Research Farm & Landisville, PA

2025: Both of these locations experienced very wet conditions from spring up through harvest. Locations were planted on October 22 - 23, 2024. Rock Springs was harvested on July 14, 2025 and Landisville on July 24, 2025.

2024: Average includes the Rock Springs & Landisville locations. Planted on October 24 & 26, 2023. Harvested on July 10 & 26, 2024. Rock Springs had uneven emergence and stand, but a mild winter and good rains improved the final yield. Landisville had a wet fall which delayed planting and caused uneven emergence. Rainfall early in April and warm dry weather later finished the drop in yield.

2023: Rock Springs location only. Planted on September 23, 2022. This trial was visited in early May. Rock Springs looked very nice and had received adequate moisture.

Trial Highlights

2026 Pennsylvania Grain Breeder Trial

(shown in bushel/acre)

Variety	Grain Type	2026	TW lb/bu
KWS Rixor	Hybrid Rye	141.0	52.8
KWS Tayo	Hybrid Rye	136.0	53.0
KWS Serafino	Hybrid Rye	134.0	52.3
KWS Receptor	Hybrid Rye	128.0	53.5
Hazlet	Rye	98.0	-

Location: Mt. Joy, PA

2026: Planted on October 11, 2025 and harvested on July 3, 2026.

SOUTH DAKOTA

2023 - 2026 South Dakota Grain Trials (shown in bushel/acre)

Variety	Grain Type	2023 Average	2024 Average	2025 Average	2026 Artesian	2026 Beresford	2026 Average	TW lb/bu
KWS Serafino	Hybrid Rye	50.3	103.0	65.9	84.0	89.0	86.5	56.6
KWS Rixor	Hybrid Rye	-	-	70.8	80.0	85.0	82.5	56.6
KWS Tayo	Hybrid Rye	43.7	105.0	61.9	78.0	85.0	81.5	56.4
KWS Receptor	Hybrid Rye	51.7	116.0	65.9	76.0	82.0	79.0	56.0
Hazlet	Rye	38.7	81.0	50.2	61.0	67.0	64.0	-
Gardner	Rye	40.0	58.0	43.5	52.0	57.0	54.5	-
Danko	Rye	43.7	84.0	53.0	45.4	58.7	52.1	-
Aroostook	Rye	45.0	81.0	51.1	-	-	-	-

Trial Highlights

Location: South Dakota State University - Southeast Research Farm

2026: Planted on October 1 and 2, 2025. Artesian location was harvested on July 16 and 17, 2026 and Beresford was harvested on July 20, 2026.

2025: Just prior to harvest, severe storms laid down plants at all locations. Artesian location was planted on October 10, 2024 and harvested on August 11, 2025. Beresford location was planted on October 2, 2024 and harvested on August 1, 2025. This location had a very dry fall that limited yields. The Clear Lake location was planted on October 2, 2024 and harvested on August 20, 2025. Because of wet soil conditions here, only two replications were able to be harvested. Yields were limited by dry soil conditions in fall and early spring, and by hot dry weather in June 2025.

2024: Average includes Arlington, Beresford, and Clear Lake locations. Trials were planted on September 21, 2023, October 2, 2023 and October 11, 2023. They were harvested on July 22, 2024, August 9, 2024 and August 26, 2024. These trials were excellent with adequate moisture and uniform stands.

2023: Average includes: Arlington, Artesian and Beresford. Planted between October 2 - 11, 2022. Overall drought conditions lowered yields and reduced differences between varieties. Tyndall and Wagner locations had extreme drought, which led to poor stands and no yield data reported.

Trial Highlights

2023 - 2026 South Dakota Grain Breeder Trial (shown in bushel/acre)

Variety	Grain Type	2023	2024	2025	2026	TW lb/bu
KWS Tayo	Hybrid Rye	25.0	121.0	73.0	114.0	56.8
KWS Rixor	Hybrid Rye	-	132.0	62.0	114.0	57.7
KWS Receptor	Hybrid Rye	50.0	122.0	-	107.0	56.4
KWS Serafino	Hybrid Rye	34.0	116.0	60.0	99.0	56.7
Hazlet	Rye	30.0	93.0	50.0	95.0	-

Location: South Dakota State University - Beresford, SD
2026: Planted on September 29, 2025 and harvested on July 21, 2026. It was dry over the winter/early spring with little snow cover. The residue management was poor and plots were patchy.

2025: Drought hit this location hard, especially in the fall. Severe storms prior to harvest caused lodging across the entire trial. Location was planted on October 2, 2024 and harvested on August 1, 2025.

2024: Planted on October 9, 2023 and harvested on August 7, 2024. Excellent trial with adequate moisture and uniform stands.

2023: Planted on October 3, 2022. South Dakota overall was extremely dry this year, which reduced yields.

TEXAS

Trial Highlights

Location: Groom, TX

2026: Planted on October 23, 2025 and harvested on June 19, 2026. This is irrigated ground. There was very poor establishment, and soil runoff from irrigation which resulted in seeds being buried too deep. Despite the stand issues, the crop recovered well. The crop received a total of 14.5 inches of water during the season from irrigation and precipitation combined.

2026 Texas Grain Breeder Trial

(shown in bushel/acre)

Variety	Grain Type	2026
KWS Serafino	Hybrid Rye	97.0
KWS Receptor	Hybrid Rye	91.0
KWS Rixor	Hybrid Rye	90.0
KWS Tayo	Hybrid Rye	83.0
Hazlet	Rye	74.0

UTAH

Trial Highlights

Location: Brigham City and Tremonton, UT

2026: Planted on October 22, 2025. There were uneven plots at the Brigham City location, and a lack of water dropped the yields.

2026 Utah Grain Breeder Trial (shown in bushel/acre)

Variety	Grain Type	2026 Brigham City	2026 Tremonton	2026 Average	Avg. TW lb/bu
KWS Receptor	Hybrid Rye	112.0	86.0	99.0	57.7
KWS Rixor	Hybrid Rye	97.0	89.0	93.0	57.3
KWS Tayo	Hybrid Rye	94.0	82.0	88.0	56.4
KWS Serafino	Hybrid Rye	83.0	77.0	80.0	57.6
Hazlet	Rye	77.0	58.0	67.0	-

WASHINGTON

Trial Highlights

2024 Washington Grain Trials (shown in bushel/acre)

Variety	Grain Type	2024
KWS Tayo	Hybrid Rye	109.0
KWS Serafino	Hybrid Rye	102.0
KWS Receptor	Hybrid Rye	94.0
LCS Shine	Wheat	95.0

Location: Washington State University - Pullman, WA

2024: Planted on October 17, 2023 and harvested on September 18, 2024. Later harvest in Washington resulted in some lodging. KWS Tayo stood well and did not lodge. KWS Serafino and LCS Shine winter wheat each had 1 plot lodged at a 90% level. KWS Receptor had 3 plots lodged at a 50-100% level.

WISCONSIN

Trial Highlights

Location: University of Wisconsin - Arlington, WI

2023: Planted on September 23, 2022. Harvested on July 21, 2023. There were some stand issues due to corn residue and clumpy soils, followed by a season of limited moisture reduced yields, but still a very uniform stand and respectable yields.

2022: Planted on September 28, 2021 and harvested July 30, 2022. Excellent growing conditions.

2022 - 2023 Wisconsin Grain Trials (shown in bushel/acre)

Variety	Grain Type	2022	2023
KWS Serafino	Hybrid Rye	106.0	98.0
KWS Tayo	Hybrid Rye	110.0	95.0
KWS Receptor	Hybrid Rye	110.0	79.0
Hazlet	Rye	83.0	72.0
P25R74	Wheat	96.0	-

WYOMING

Trial Highlights

2026 Wyoming Grain Trials (shown in bushel/acre)

Variety	Grain Type	2026	TW lb/bu
KWS Receptor	Hybrid Rye	82.0	55.3
KWS Serafino	Hybrid Rye	82.0	56.6
KWS Rixor	Hybrid Rye	76.0	57.0

Location: Powell, WY

2026: Planted on September 8, 2025. Powell location experienced an unusually warm and dry winter.



Why KWS Hybrid Rye?



Yield Potential

KWS Hybrid Rye has a very high yield potential. Yields have reached over 200 bu/acre in prime conditions, management, and regions. This makes KWS Hybrid Rye the highest yielding small grain on the market.



Uniformity

Compared to open-pollinated rye varieties, KWS Hybrid Rye has a uniform crop height and time to maturity.



Drought Tolerance

20% less water usage compared to winter wheat¹. 18 gal/lb less than corn. 12 gal/lb less than wheat.



Ergot Protection and Disease Resistance

Built-in ergot protection with KWS' patented PollenPLUS® technology, high disease resistance to fusarium, strip rust, leaf blotch (scald), take-all (*gaemannomyces graminis*), wheat streak mosaic, and triticum mosaic-virus.



Sustainability Qualities

Increased crop residue produced to reduce erosion. CO₂ efficient and lower greenhouse gas footprint than other small grains and corn. Produces 5 lbs less CO₂/bu than wheat and 6.7 lbs less than corn².



Lodging Tolerance

Better straw stiffness which provides excellent lodging tolerance. Excellent straw tonnage and quality. 1/3 more straw than wheat and barley. This can be an additional income stream if straw is not needed for livestock.



Lower Inputs

KWS Hybrid Rye is planted at a lower seeding rate than most cereals. It needs less fertilizer and chemicals and has minimal to no drying requirements resulting in lower crop input needs and costs.



Crop Rotation Benefits

Adding KWS Hybrid Rye into a crop rotation could result in: increases in yield in subsequent corn and soybean crops³, increased soil organic matter, and breaking disease and pest cycles including mitigating the impact of corn rootworm resistance.



Manure Utilization

KWS Hybrid Rye utilizes excess manure well in the fall and spring, and reduces soil nitrate levels following fall-applied manure. Spreads seasonal workload and allows earlier manure application.



Forage Source

KWS Hybrid Rye is an excellent forage source of protein and highly digestible fiber.



Hybrid Vigor

Simply put, KWS Hybrid Rye has more growth above and below the soil surface. The more robust root system improves drought tolerance.



Winter Hardiness

KWS Hybrid Rye is the most winter hardy cereal crop. It can germinate in temperatures as low as 33°F in the fall. In the spring it will begin to grow at 38°F.



Adaptability

KWS Hybrid Rye can be established in a variety of soil types and qualities, including rich organic soils and poor sandier soils.



Weed Control

Trials have shown KWS Hybrid Rye competes intensely against weeds, reducing the viability of weed seed up to 60%. It exhibits an allelopathic effect on weeds. The hybrid vigor allows the KWS Hybrid Rye plant to move through stem elongation faster than any other cereal which outpaces and shades weed growth.



¹ Sparing use of resources | Nitrogen requirements (draft Fertilizer Ordinance, Dec. 16, 2015, N uptake for wheat 2.51 kg/dt, N uptake for rye 1.96 kg/dt); Water requirements (Lower Saxony State Authority for Mining, Energy and Geology 2011); Need for pesticides (LFL contribution margins and calculation data, LFL Bavaria, 2016); CO₂ footprint (averages for the German NUTS 2 regions (BMEL, 2009))

² University of Netherlands <http://webapplicaties.wur.nl/software/feedprintNL/index.asp>

³ https://practicalfarmers.org/2024/09/crop-rotation-analyzer-case-study-hybrid-rye-pencils-out/?utm_source=sgn&utm_medium=email+&msdyntrid=cCtsjavNrcJ1tr1gKSMD07NxupOzZ5MFtm_kWgQ2ydE

Agronomy Trial Results



Our KWS team takes great pride in investing in research and development of our varieties so that we can offer the best recommendations and practices for our customers to be successful in the field. The following trials represent data collected in agronomy research trials funded by KWS in collaboration with universities and third-party vendors.

TRIAL HIGHLIGHTS:

Nitrogen Rate Study - IA

Multi-Year Nitrogen Rate Study - OH

Multi-Year Nitrogen Rate Study - MN

Seeding Rate Trial - CO

Seeding Rate Trial - WA

Long-Term Rotation and Tillage - SD

NITROGEN RATE STUDY

Iowa State University
(Hybrid Rye vs OP Rye) X Nitrogen Rate Study
ISU Northeast Iowa Research Farm
Funded by KWS Cereals, USA and Iowa State University



2024 Yield Summary

Variety	Nitrogen (Rate/Acre)	Yield (Bu/ac)	Harvest Moisture %	Test Weight	% Lodge	Plant Height (in)	Straw Yield (Tons/acre)
KWS Serafino	30 lbs N	100.1	14.4	54.6	1.1	48.7	2.7
KWS Serafino	80 lbs N	130.3	14.4	54.2	2.8	51.1	3.0
Hazlet	30 lbs N	76.2	14.5	54.3	5.0	56.0	2.9
Hazlet	80 lbs N	90.5	14.4	53.6	5.0	55.5	3.0

DETAILS and FIELD OPERATIONS

Hazlet was seeded at 93.9 lbs/ac, and KWS Serafino at 53.9 lbs/ac. The previous crop was soybeans. Plots were planted on October 6, 2023. On October 17, 2023 all plots showed 95% emergence after a large rain event on Oct. 12 & 13. 31 lbs P205/ac as DAP and 200 lbs of K20/ac as 0-0-60 applied on November 7, 2023. 150 lbs S/ac of Supercal SO4, to get 25.5 Sulfur/ac applied on November 19, 2023. On March 7, 2024, 30 lbs N per acre was applied as urea to all plots. On April 1, 2024, 50 lbs N/ac applied as urea to all the 80 N/ac plots. Plant heights were gathered on July 12, 2024. Harvested on July 24, 2024 and individual grain samples from each rep were evaluated.

COST/PROFIT ANALYSIS

Assumptions:

Nitrogen Price/Ton - \$600.00

Nitrogen Price/Unit - \$0.65

Price/Acre of additional 50 Units of N - \$32.61

SUMMARY

KWS Serafino with a 30 bu/ac increase valued at \$5.00 per bushel with 50 units of additional N =

Hybrid Rye Profit - \$117.39 more profit/acre

OP Rye with a 14 bu/ac increase valued at \$5.00 per bushel with 50 units of additional N = **OP Rye Profit - \$37.39**

With the previous crop of soybeans supplying some nitrogen and the applied nitrogen at 120 units, the corresponding 130 bu/ac yield on Hybrid Rye, the KWS nitrogen recommendation of 1.2 lbs of Nitrogen/Bushel supports this recommendation with the help of the tremendous standability of Hybrid Rye.



MULTI-YEAR NITROGEN RATE STUDY

Ohio State University
Hybrid Rye and Nitrogen Rate Study - 2024-2026
Northwest Agricultural Research Station and Western Agricultural Research Station
Funded by KWS Cereals, USA and Ohio State University - Laura Lindsey, Matthew Hankinson, Pedro Henrique Gimenes

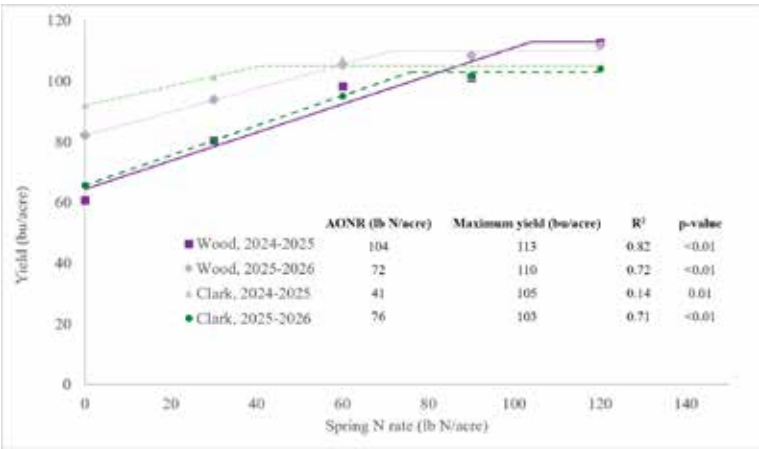


Figure above: Grain yield response to spring nitrogen application across Ohio State University research locations. Maximum grain yield was generally achieved between 70 and 100 lbs N/acre, depending on environment. All the details of this study can be found at stepupsoy.osu.edu/hybrid-rye.

Researchers from Ohio State University evaluated three KWS hybrid rye varieties (KWS Receptor, KWS Serafino and KWS Tayo), across multiple spring nitrogen rates at the Northwest Agricultural Research Station (Wood County) and Western Agricultural Research Station (Clark County) over two growing seasons.

KEY FINDINGS:

- Hybrid rye consistently responded to nitrogen application, with optimum nitrogen rates ranging from 41 to 104 lbs N/acre depending on site and growing conditions.
- In three of four site-years, maximum yields were achieved with approximately 70 to 100 lbs N/acre.
- Grain yields exceeded 110 bu/acre at the highest-yielding location.
- Increasing nitrogen rates generally increased grain yield and head density.
- Higher nitrogen rates also increased lodging risk, emphasizing the importance of balancing yield potential with standability. Lodging only occurred at one site in the 2024-2025 growing season.
- No significant interaction was observed between hybrid and nitrogen rate, indicating similar nitrogen management recommendations can be applied across the tested KWS hybrids.
- Environmental conditions, including rainfall and planting date, were major drivers of nitrogen response and overall productivity.

DETAILS:

Planting dates: 24/25: Wood County - October 10, 2024 & Clark County - October 9, 2024, 25/26: Wood County - September 27, 2025 & Clark County - October 3, 2025.
Harvest dates: 24/25: Wood County - July 14, 2025 & Clark County - July 11, 2025, 25/26: Wood County - July 16, 2026 & July 9, 2026.

Grain yields were consistent across the three hybrids in Wood County for both growing years. However, there was more variation at the Clark County location both years, with KWS Serafino out-yielding the other two varieties.

MULTI-YEAR NITROGEN RATE TRIAL

Magnusson Farms - Roseau, MN

Multi-Year Hybrid Rye Nitrogen Rate Trial

Funded by KWS Cereals, USA and University of Minnesota



Nitrogen Rate ¹	Yield (Bu/ac) ²			3 year average	Test wt. #/Bu.	Harvest Ht (in.)
	2022	2021	2020			
0	36.8	50.9	29.2	39	53.9	44
40-0-0	76.9	78.3	69.7	75	54.2	48
80-0-0	95.5	93.3	83.0	90	54.2	50
120-0-0	89.1	103.8	85.7	93	53.7	48
160-0-0	83.5	103.9	86.2	91	53.4	50
200-0-0	91.6	101.3	94.1	96	53.7	50
200-0-0+PGR ^a	94.4	n/a	n/a	n/a	52.6	46
120-0-0-30S	93.4	103.7	90.8	96	53.7	51
LSD@5% level	15	13.1	9.8	9	0.6	3
CV (%)	12.4	9.7	8	8	0.8	4

¹Nitrogen Rate-All N rates are #N/acre- urea source. Trt#8 has 30# sulfur (AMS) added.

^aPalisade 1EC 12 oz./ac + .25%NIS applied 5/27/2022 - Feekes 4-12" height.

²Yield adjusted to 12% moisture.

Variety = KWS Tayo 2022; KWS Serafino 2021; KWS Brasetto 2020

DETAILS and FIELD OPERATIONS

Experimental Design = Randomized Complete

Block design with 4 reps

Nitrogen Fertilizer applications made May 10, 2022.

Previous Crop - Canola

Soil Test - October 2021:					
0-6"	6-24"	(Soil test depth = 0-6")			
nitrate	nitrate	P	K	%OM	PH
13	na	4L	145M	3.4L	7.7

SUMMARY

Current KWS Cereals nitrogen recommendation is 1.2 units of N/bu.

Treatment of 120 units aligns with current recommendations for 100 bu/ac Hybrid Rye.

Magnusson Farms - Roseau, MN - 2020 Hybrid Rye Nitrogen Rate Trial

Funded by KWS Cereals, USA and University of Minnesota

Nitrogen Rate ¹	Yield (Bu/ac) ²	Test wt. #/Bu	Frost ²	Stem Breakage ³	Harvest Ht (in.)	Heading Date	Tissue Sample - Early Heading 6-7-2021			
							%N	%P	%K	%S
0	131.0	57.8	10	0.5	44	June 3	3.9	0.23	1.27	0.30
40-0-0	138.0	57.9	13	1.0	44	June 3	4.1	0.23	1.25	0.31
80-0-0	141.0	57.7	20	0.5	43	June 4	4.5	0.24	1.25	0.33
120-0-0	138.0	57.9	17	0.8	42	June 4	4.5	0.25	1.26	0.33
160-0-0	148.0	58.0	10	0.0	43	June 4	4.6	0.25	1.50	0.34
200-0-0	132.0	58.0	15	0.0	44	June 4	4.8	0.26	1.44	0.35
LSD@5% level	10	NS	NS	NS	NS	-	0.3	0.02	NS	0.03
CV (%)	5	0.4	104	186	4	-	5	5	14	6

¹Yield adjusted to 12% moisture

²Frost damage 6/10-(white heads)- % of total

³Stem breakage 7/12- 0=none; 5= >30% stem breakage. Broken stems may not be picked up with combine.

Variety = KWS Serafino 2020

DETAILS and FIELD OPERATIONS

Planted September 15, 2020. Fertilizer applied April 25, 2021. Harvested

July 29, 2021. Previous crop - soybeans in 2020.

SUMMARY

This trial differs from the multi-year nitrogen trial (*above*) in that the KWS Serafino was planted and out-yielded the KWS Brasetto planted at the location above. Treatment of 120 units applies to the current recommendation of 1.2 units of N/bu.

Soil Test					
0-6"	6-24"	(Soil test depth = 0-6")			
nitrate	nitrate	P	K	%OM	PH
10	15	10M	128M	2.5L	8.2



SEEDING RATE TRIAL

Colorado State Soil and Crop Sciences

2024 Seeding Rate Trial - Akron, CO - 1 year data

Funded by KWS Cereals, USA and Joel Schneekloth - Extension Crop Production

Variety	Seeding Rate (seeds/acre)	Yield (Bu/ac)	Test Weight	Protein	Group*
KWS Tayo	1,100,000	93.3	53.8	11.3	A
KWS Tayo	800,000	86.5	53.8	11.6	AB
KWS Tayo	500,000	85.9	54.3	11.4	AB
KWS Serafino	1,100,000	84.3	54.2	11.4	AB
KWS Serafino	800,000	84.3	55.1	11.1	AB
KWS Serafino	500,000	82.8	54.6	11.4	AB
KWS Receptor	1,100,000	87.4	54.8	11.2	AB
KWS Receptor	800,000	81.4	54.3	11.6	B
KWS Receptor	500,000	78.9	54.7	11.8	BC
Hazlet	1,100,000	67.3	54.9	12.0	D
Hazlet	800,000	70.4	55.2	11.7	CD
Hazlet	500,000	69.5	55.2	11.8	CD

*Similar letters are statistically the same

TRIAL HIGHLIGHTS:

Precipitation from September 29 to July 25 was 11.9 inches.

Irrigation total was 5 inches.

Fertility was 70 lbs N and 40 lbs P.

Planting date was September 29, 2023.

Harvest was July 24, 2024.

SUMMARY

This initial trial suggests that KWS Serafino and OP rye Hazlet, tend to have a lower response to higher seeding rates than KWS Receptor and KWS Tayo. This data further supports the KWS seeding rate recommendations of 800,000 seeds per acre as higher seeding rates offered only a minimal impact on yield and in most instances does not offset the additional cost of seed.



SEEDING RATE TRIAL

Conducted by Highline Grain - Mansfield, WA
2025 - 2026 Seeding Rate Trial
Funded by KWS Cereals, USA and Highline Grain



Citation needed

2025-2026 Washington Seeding Rate Trial					
(shown in bushel/acre)					
Variety		Seeding Rate (seeds/acre)	2025 Mansfield	2026 Mansfield	2026 Waterville
KWS Serafino	Hybrid Rye	750,000	71.0	77.0	75.0
KWS Serafino	Hybrid Rye	500,000	76.0	74.0	73.0
KWS Serafino	Hybrid Rye	250,000	70.0	75.0	78.0
Piranha	Wheat	500,000	34.0	71.0	68.0

TRIAL HIGHLIGHTS:
Planted on August 29, 2024 at a depth of 4".
43lbs N, 6lbs P, 6lbs S applied per acre at planting.
25 lbs N, 10lbs S applied in fall.

SUMMARY
This experiment aimed to evaluate the performance of Hybrid Rye at lower plant populations and deeper seeding depths, practices commonly used in dryland regions of Washington State to place seed closer to subsurface moisture. Despite high snow mold pressure at this location, Hybrid Rye demonstrated excellent stand establishment, outperforming even the most tolerant wheat varieties typically grown in the area.

This trial was replicated in 2025 as shown above. It was planted on August 29, 2025 and harvested on July 29, 2026 at a seeding depth of 3.5".



LONG-TERM ROTATION & TILLAGE STUDY



South Dakota State University
Long-Term Rotation and Tillage Study: Observations on Corn and Soybean Yields
Peter Sexton, Brad Rops, Ruth Stevens, Garold Williamson, and Chelsea Sweeter*

INTRODUCTION

"In 1991 Dale Sorensen initiated a long-term rotation study at the Southeast Farm, including comparison of no-till and conventional till under two year (corn-soybean), three year (corn-soybean-small grain) and a 4-year rotation (currently corn-soybean-oat-winter rye); note the three and four-year rotations have not been consistent over the years. In previous years, sometimes field pea was substituted for small grain, and sometimes soybeans were raised twice within the four-year rotation. Corn has consistently only been raised once per cycle in a given rotation. Therefore, the rotation length has been consistent for corn, but not for soybean." (Station, South Dakota Agricultural Experiment, "Southeast South Dakota Experiment Farm Annual Progress Report, 2023" (2023). Agricultural Experiment Station and Research Farm Annual Reports. 284. https://openprairie.sdstate.edu/agexperimentsta_rsp/284)

SUMMARY

"Corn yields showed a strong response to rotation length, yielding about (22 bu/ac) more going from a two year to a three-year rotation. Soybean in a two-year corn/soybean rotation showed a significant yield increase (3 bu/ac) with addition of a rye to the system." (Research Farm, Southeast South Dakota and South Dakota Agricultural Experiment Station, "Southeast South Dakota Experiment Farm Annual Progress Report, 2019" (2019). Agricultural Experiment Station and Research Farm Annual Reports. 280. https://openprairie.sdstate.edu/agexperimentsta_rsp/280)

Corn				
Rotation	Moisture %	Test Wt (lbs/bu)	Stand (plts/ac)	Yield (bu/ac)
2	15.8	57.3	27,769	173.3
3	16.0	56.1	27,987	195.9
4	16.8	56.9	28,859	195.8

Soybeans						
Rotation	Moisture %	Test Wt (lbs/bu)	Stand (plts/ac)	Height (in.)	100-Seed Wt. (g)	Yield (bu/ac)
2	12.7	54.9	81,893	31.7	15.8	45.8
3	12.6	55.0	85,378	32.1	16.3	47.7
4	12.7	54.7	90,387	31.7	16.4	47.9

Forage Results

Our forage varieties, KWS Progas and KWS Aviator, are known for their unique combination of tonnage and quality. If you are looking for the ultimate forage solution, then look no further than KWS Hybrid Rye!

Trials Featured:

- Eastern US Forage Summary - *9 locations over 5 years*
- Michigan, New York, Pennsylvania, Virginia
- Central US Forage Summary - *10 locations over 5 years*
- Colorado, Illinois, Kansas, Kentucky, Missouri, Minnesota, Nebraska, North Dakota, and South Dakota
- Western US Forage Summary - *4 locations over 4 years*
- Idaho, Montana, Oregon, Utah

**all yields adjusted to 35% DM yield*

Understanding harvest timing: Some forage trials were harvested at multiple different timings within the same location. The first harvest represents when Hybrid Rye reached the target harvest stage. The additional harvests represent when the comparison cereal(s), such as triticale or wheat, reached their target harvest stage. Because Hybrid Rye typically reaches the desired stage earlier, the number of days between harvests varies by trial and location. These later harvests allow yield to be compared at the time each crop would typically be ready for harvest.

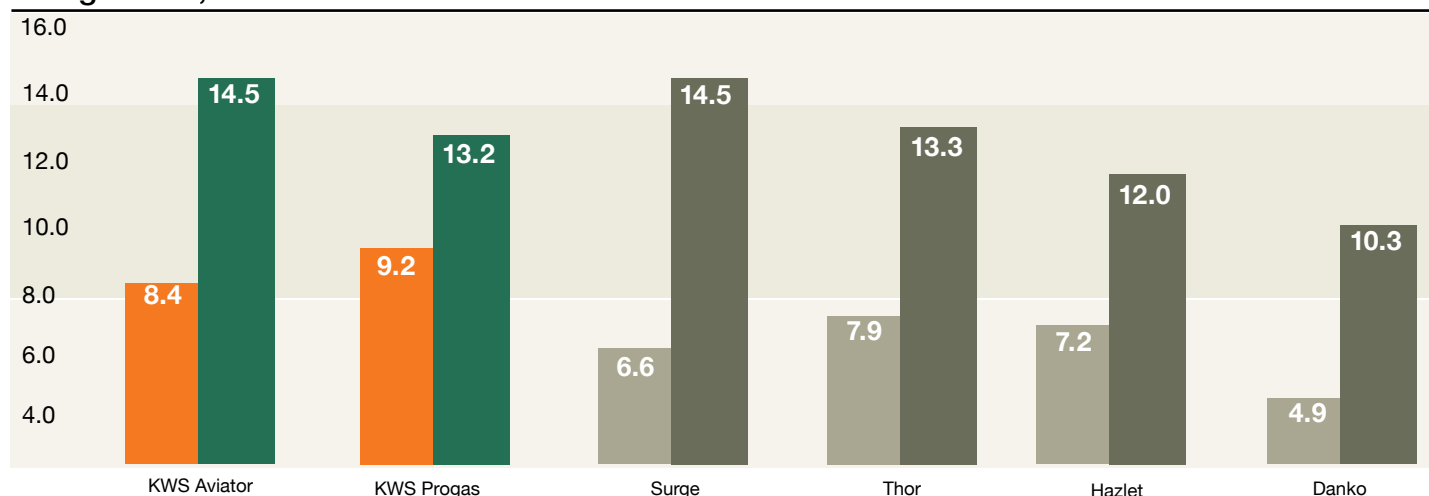
HYBRID RYE - EASTERN US FORAGE RESULTS

**Summary from 9 locations over 5 years showing consistent high yields and quality*

KWS



Forage Yield, Tons/Acre



Eastern US Forage - Tons/Acre shown at 35% DM and harvested at boot and milk stage. Left bar of each variety is boot stage, right bar is milk stage. Chart represents a five-year data (2022 - 2026) average across the following locations: Lansing and Mason City, MI, Caldwell, NY, Pennsylvania Furnace, Landisville, Hamburg, and University Park, PA and Orange, VA. **KWS Aviator and KWS Progas are hybrid rye, Surge and Thor are triticale, Hazlet and Danko are cereal rye.

Forage Quality

	CP	ADF	aNDF	aNDFom	Lignin	NDFd, 30	NDFd, 48	NFC	TDN	RFV
	%DM					%aNDFom				
BOOT CUT										
KWS Aviator	16.20	33.93	56.63	55.07	3.35	61.75	71.30	19.59	63.10	104.62
KWS Progas	15.11	33.60	57.12	55.56	3.76	62.30	71.66	20.50	63.90	104.26
Surge	15.73	31.09	52.28	50.89	1.98	65.00	72.85	23.20	65.38	115.67
Thor	17.34	32.95	55.03	53.45	2.38	66.35	71.95	19.76	64.24	107.47
Hazlet	16.28	32.75	55.86	54.54	2.45	66.06	71.79	19.78	64.28	105.72
Danko	15.40	34.31	58.57	57.24	3.30	63.88	70.55	18.46	63.46	98.60
MILK CUT										
KWS Aviator	11.06	38.87	62.71	60.94	6.99	43.00	50.71	18.83	62.71	87.40
KWS Progas	8.47	39.08	63.30	61.79	7.07	43.16	50.73	20.20	64.28	86.39
Surge	9.15	36.32	61.85	59.90	6.03	47.74	53.68	23.12	62.77	91.14
Thor	9.54	38.60	64.67	63.13	6.73	47.92	56.90	18.97	61.85	84.87
Hazlet	8.32	38.90	64.56	62.58	6.09	43.02	53.76	21.38	60.82	84.60
Danko	8.24	39.66	64.19	62.05	6.93	40.85	49.12	21.57	60.59	84.13

Forage quality data from Caldwell, NY in Cornell University Trials in 2023 and 2024. Samples were analyzed at Dairyland Labs, Arcadia, WI.

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MICHIGAN

2024 & 2026 Michigan Forage Trials (shown in tons/acre)

Variety	Forage Type	2024	2026
KWS Progas	Hybrid Rye	10.82	9.54
KWS Aviator	Hybrid Rye	10.61	9.17
2021U03	Triticale	-	7.66
13503	Triticale	-	5.17

Trial Highlights

Location: Lansing, MI

2026: Trial was planted on October 6, 2025. The Hybrid Rye was harvested on May 15, 2026 at boot stage, and the triticale was harvested on May 18, 2026.

2024: Trial was planted on September 22, 2023 and harvested on May 6, 2024 at boot stage. This was a very uniform trial with minor lodging. No triticale varieties were included in the trial in 2024.

NEW YORK

2024 New York Forage Trials (shown in tons/acre)

Variety	Forage Type	2024 Early Cut	2024 Late Cut
KWS Aviator	Hybrid Rye	6.30	14.20
KWS Progas	Hybrid Rye	6.80	12.80
Hazlet	Rye	5.70	11.70
Danko	Rye	4.90	10.10

Trial Highlights

Location: Cornell University, Caldwell Field - Ithaca, NY

2024: Trial was planted on October 4, 2023 and the early cut date was May 9, 2024 and late cut was June 11, 2024.

PENNSYLVANIA

2024 - 2026 Pennsylvania Forage Trials
(shown in tons/acre)

Variety	Forage Type	2024	2025	2026 Rock Springs	2026 Germansville - Hybrid Rye at Boot Stage	2026 Germansville - Comparison Cereals at Boot Stage (+13 days)	2026 Hamburg
KWS Progas	Hybrid Rye	5.94	5.94	7.66	10.74	15.26	8.41
KWS Aviator	Hybrid Rye	11.87	7.23	5.31	9.99	14.86	8.22
Triticale	Triticale	-	-	-	5.06	10.86	-
Grazemaster II	Rye	4.80	4.80	-	-	-	-

Trial Highlights

Location: Pennsylvania State University - Rock Springs, PA Research Station

2026: We added two new locations this year; Germansville and Hamburg, PA. There were two cutting dates at Germansville to show the difference from when Hybrid Rye was ready to harvest vs. most other cereals 13 days later. The first harvest date was May 1, 2026 and second on May 14, 2026. Germansville showed very uniform stands and was planted on October 17, 2025. Rock Springs was planted on October 3, 2025 and harvested on May 1, 2026. The winter was very harsh and created damage to all crops in the plot. Hamburg was planted on October 17, 2025 and harvested on April 27, 2026. The winter was colder than normal and the snow stayed on the plot through February.

2025: Trial was planted on October 10, 2024 and the varieties above were harvested on May 8, 2025. The trial was very delayed in April, due to a cold spring and a dry fall.

2024: Planted on September 27, 2023 and harvested on May 1-2, 2024. Excellent growing conditions this year.

VIRGINIA

2023 - 2024 Virginia Forage Trials
(shown in tons/acre)

Variety	Forage Type	2023	2024
KWS Aviator	Hybrid Rye	6.47	4.6
KWS Progas	Hybrid Rye	9.15	4.1
Nomini	Barley	7.16	3.4

Trial Highlights

Location: Orange, VA

2024: All cereals were planted at a rate of 1,900,000 seeds per acre. Trial was planted on October 27, 2023 and the Hybrid Rye varieties above were harvested on April 16, 2024. The barley was harvested on April 8, 2024. A later planting date with dry soils reduced emergence and staggered plant stages and reduced yields. Plots were harvested by hand. Precipitation from October to April was 22.27 inches.

2023: Planted on October 19, 2022 at 1,900,000 seeds/acre and harvested on April 13, 2023.

HYBRID RYE - CENTRAL US FORAGE RESULTS

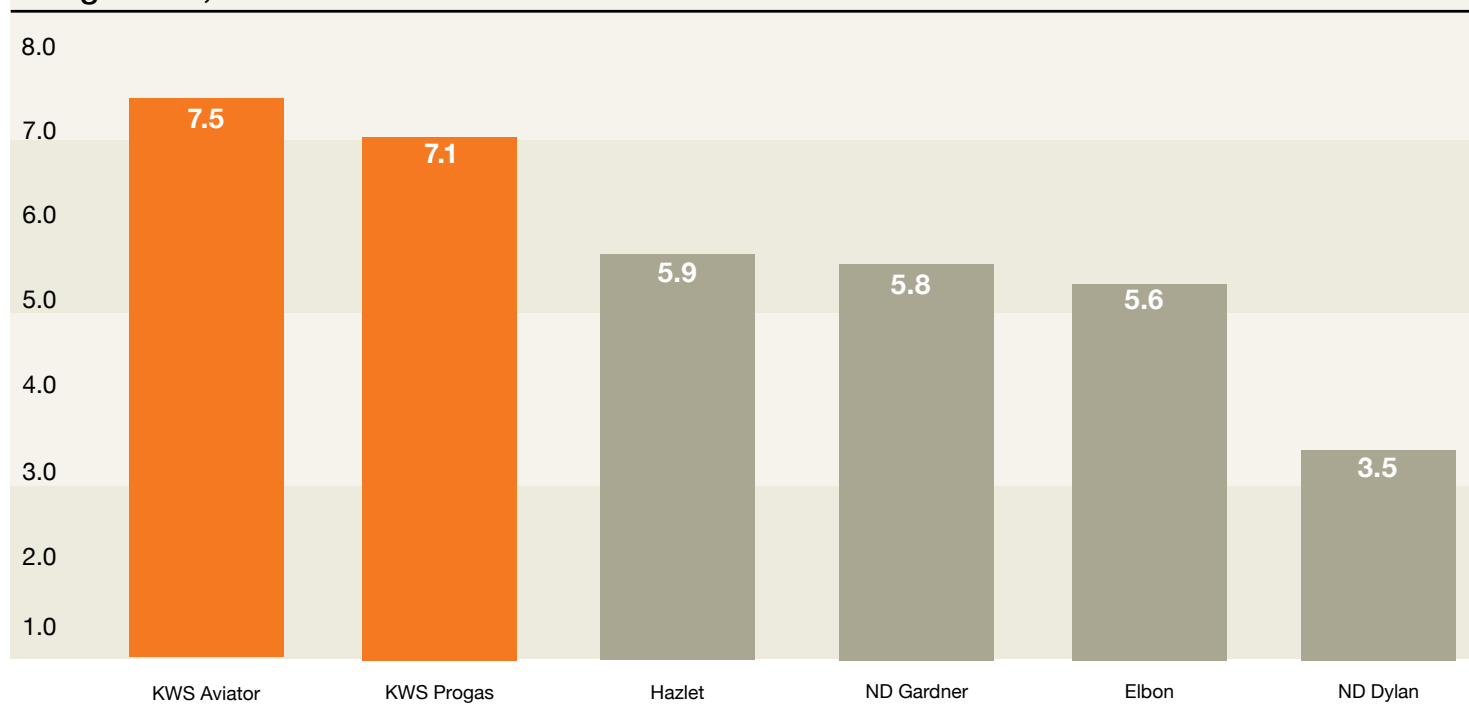
**Summary from 10 locations over 5 years showing consistent high yields and quality*

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KWS



Forage Yield, Tons/Acre



Central US Forage - Tons/Acre shown at 35% DM and harvested at boot stage.

Chart represents a five-year data (2022-2026) average across the following locations: Aurora, Beresford and Wagner, SD, Carrington, ND, Garden City, KS, Sidney, NE, Amarillo and Vernon, TX, Akron and Rocky Ford, CO.

**KWS Aviator and KWS Progas are hybrid rye, ND Gardner, Hazlet, Elbon, and Danko are cereal rye.

Forage Quality

Experience the KWS Hybrid Rye difference. The forage choice preferred by livestock across the globe.

By pairing the KWS Hybrid Rye breeding process with top tier genetics, consistent and stable performance can be expected year over year. From hybrid vigor, to greater water use efficiency, and everything in-between; All benefits align to generate optimal ROI for your operation by utilizing KWS Hybrid Rye as a forage source.

	CP	ADF	aNDFom	Lignin	NDFd, 30	NDFd, 48	NFC	TDN	RFV
	%DM			%NDFom					
KWS Aviator	15.87	33.16	53.49	3.83	58.69	62.23	19.94	63.45	109.33
KWS Progas	15.28	33.39	55.09	3.43	58.33	62.44	19.47	63.11	110.63
Aroostook	18.46	31.88	55.46	3.91	40.59	64.79	13.02	60.73	103.75
ND Gardner	16.45	35.55	57.52	4.60	37.67	56.58	10.89	57.79	95.53
Hazlet	17.72	33.13	56.39	3.67	36.60	59.71	8.32	58.93	103.07

Forage quality data from University Trials at Beresford, SD, Carrington, ND, Garden City, Hays and Scandia, KS and Sidney, NE. Samples were analyzed at Dairyland Labs, Arcadia, WI. Aroostook with cereal rye, others are identified above.

COLORADO

2025 - 2026 Colorado Forage Trials
(shown in tons/acre)

Variety	Forage Type	2025 Akron	2026 Akron	2026 Rocky Ford	2026 Walsh	2026 Average
KWS Progas	Hybrid Rye	15.10	15.70	15.10	3.40	11.40
KWS Aviator	Hybrid Rye	14.30	13.70	13.10	4.30	10.40
OK Corral	Wheat	12.30	9.40	13.70	1.70	8.30
Big Country	Wheat	14.30	-	-	-	-

Trial Highlights

Location: Colorado State University - Great Plains Research Station at Akron, CO

2026: We added two more locations in 2026 to this trial set - Rocky Ford and Walsh. All locations were harvested in late cut or milk/soft dough stage. Akron was planted on October 1, 2025 and harvested on June 15, 2026. This location had 5.79" precipitation (rain and snow) from planting date to harvest date. Rocky Ford was planted on September 19, 2025 and harvested on June 1, 2026. Walsh was planted on September 23, 2025 and harvested on June 3, 2026. This location was dryland with severe winter conditions and extreme drought. Hybrid Rye withstood this to still produce a harvestable crop while many other cereals did not.

2025: Trials were planted on September 26, 2024. Hybrid Rye was harvested on May 12, 2025 at boot stage. Other crops mentioned above were harvested on May 21, 2025. KWS Hybrid Rye was planted at 800,000 seeds/acre. All other crops were planted at 900,000 seeds/acre.

ILLINOIS

2026 Illinois Forage Trials *(shown in tons/acre)*

Variety	Forage Type	2026
KWS Aviator	Hybrid Rye	6.36
KWS Progas	Hybrid Rye	5.73

Trial Highlights

Location: Champaign, IL

2026: Trial was planted on October 3, 2025 and harvested on May 4, 2026 at boot stage. Triticale varieties were not chopped due to poor winter survival as very dry conditions occurred following seeding.

**This trial is not included in a forage summary in the book.*

KANSAS

At the Garden City location KWS Hybrid Rye was harvested 12 to 16 days earlier than other cereals during the early cut in 2024, and 8 to 11 days earlier in 2025.

2024 - 2025 Kansas Forage Trials (shown in tons/acre)					
Variety	Forage Type	2024 Garden City		2025 Garden City	
		Early Cut	Late Cut	Early Cut	Late Cut
KWS Progas	Hybrid Rye	7.1	16.8	5.53	16.07
KWS Aviator	Hybrid Rye	7.2	15.8	4.57	14.65
OK Corral	Wheat	-	15.6	-	12.65
Jackalope	Rye	6.5	15.4	6.84	11.91

Trial Highlights

Location: Kansas State University

2025: The Garden City location was planted on October 24, 2024. The Hybrid Rye was harvested 8 - 11 days earlier than other cereals in the trial at boot stage. Late cut was harvested on June 13, 2025.

2024: The Garden City location was planted on September 25, 2023. The Hybrid Rye reached boot stage faster than triticale and wheat, which lowers their biomass potential without the extra days. On average, Hybrid Rye was harvested 12 - 16 days earlier than other cereals at the early cut stage. Late cut was harvested on June 4, 2024.

KENTUCKY

2023 - 2024 Kentucky Forage Trials (shown in tons/acre)					
Variety	Forage Type	2023	2023	2024	2024
		Early Cut	Late Cut	Early Cut	Late Cut
KWS Aviator	Hybrid Rye	7.20	19.00	13.60	19.30
KWS Progas	Hybrid Rye	7.70	19.00	12.80	19.30

Trial Highlights

Location: University of Kentucky, Lexington, KY

2024: Trial was planted on October 3, 2023. It had excellent uniform stands. The early cut date was April 14, 2024 and late cut date was May 16, 2024.

2023: Planted on October 6, 2022 with early harvest occurring on April 19, 2023 and late cut occurring on May 18, 2023. Excellent stands with reduced early rainfall.

**This trial is not included in a forage summary in the book.*

MISSOURI

2026 Missouri Forage Trials (shown in tons/acre)

Variety	Forage Type	2026 Novelty - Hybrid Rye at Boot Stage	2026 Novelty - Comparison Cereals at Boot Stage (+9 days)	2026 Linneus - Hybrid Rye at Boot Stage	2026 Linneus - Comparison Cereals at Boot Stage (+9 days)
KWS Aviator	Hybrid Rye	11.28	11.68	2.45	4.82
KWS Progas	Hybrid Rye	10.01	10.37	2.28	4.42
Triticale	Triticale	6.24	6.47	2.10	4.14

Trial Highlights

Location: Novelty and Linneus, MO
2026: We have two locations with two cut dates. Novelty was planted on October 15, 2025. KWS Hybrid Rye was planted at 800,000 seeds per acre, and triticale was planted at 1,200,000 seeds per acre. Early triticale plots were affected by frosts in March. Novelty was harvested on May 4, 2026 and May 13, 2026. Linneus was planted on October 6, 2025 and had same planting rates. This trial was heavily grazed by livestock through early Spring. Linneus was harvested on May 4, 2026 and on May 13, 2026. The reason behind the two dates was to show difference in yields when Hybrid Rye is ready to harvest vs. the 9 days when most other cereals are usually ready to harvest in boot stage.
**This trial is not included in a forage summary in the book.*

MINNESOTA

2026 Minnesota Forage Trials (shown in tons/acre)

Variety	Forage Type	2026
KWS Aviator	Hybrid Rye	11.06
KWS Progas	Hybrid Rye	10.86

Trial Highlights

Location: Olivia, MN
2026: Trial was planted on October 7, 2025 and harvested on May 30, 2026 at boot stage.
**This trial is not included in a forage summary in the book.*

NEBRASKA

2024 - 2025 Nebraska Forage Trials (shown in tons/acre)

Variety	Forage Type	2024 Early Cut	2024 Late Cut	2025 Late Cut
KWS Aviator	Hybrid Rye	15.00	16.02	13.75
KWS Progas	Hybrid Rye	15.70	15.52	12.74
Surge	Triticale	-	-	12.20
Montech	Triticale	13.60	14.47	-
Wesley	Wheat	12.80	12.09	-

Trial Highlights

Location: University of Nebraska, High Plains Ag Lab at Sidney, NE
2025: Trial was planted on September 23, 2024 with very dry soil at planting. Due to persistent drought, irrigation was applied in small doses 3 different times. This made for average growth and limited tillering compared to prior years. Plots were harvested at soft dough stage on June 19, 2025.

2024: Planted on September 29, 2023 with early harvest occurring on May 20, 2024 and late cut occurring on June 11, 2024.

NORTH DAKOTA

2025 North Dakota Forage Trials (shown in tons/acre)

Variety	Forage Type	2025
KWS Aviator	Hybrid Rye	9.40
KWS Progas	Hybrid Rye	6.40
Hazlet	Rye	9.00
ND Dylan	Rye	7.10
SU Perspectiv	Hybrid Rye	6.40

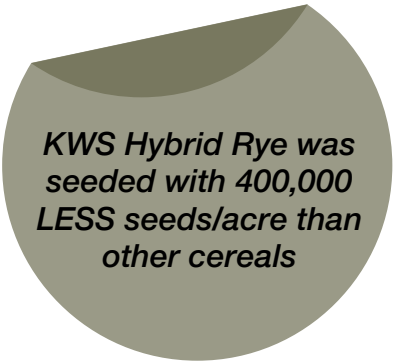
Trial Highlights

Location: North Dakota State University - Carrington, ND
2025: Trial was planted on September 20, 2024 and harvested on June 2, 2025. Harvest occurred no later than 2 days after head emergence. Hybrid Rye was seeded at 800,000 seed/acre and other cereals at 1,200,000 seeds/acre.

Forage Quality

	CP	ADF	aNDFom	Lignin	TDN	RFV	RFQ
		%DM					
KWS Aviator	13.20	36.40	60.00	3.89	60.50	93.90	153.10
KWS Progas	12.90	36.70	60.60	3.87	60.30	92.60	143.50
Hazlet	14.50	33.80	57.60	3.26	62.60	101.10	157.60
ND Dylan	16.00	33.50	57.52	4.60	62.80	103.80	154.80
SU Perspectiv	15.70	33.70	57.60	3.36	62.60	101.10	150.10

Forage quality data from North Dakota State University in Carrington, ND. Samples were analyzed at Dairyland Labs, Arcadia, WI.



SOUTH DAKOTA

2025 - 2026 South Dakota Forage Trials
(shown in tons/acre)

Variety	Forage Type	2025	2026
KWS Aviator	Hybrid Rye	4.00	5.90
KWS Progas	Hybrid Rye	2.70	5.10
Flex 719	Triticale	1.64	0.73

Trial Highlights

Location: Beresford, SD
2026: Poor residue management reduced stands. There was sufficient moisture to establish the plots, but overall soil moisture was low in the Fall of 2025, limiting crop development going into winter. The winter in turn was open, with very little snow cover which resulted in limited soil moisture going into spring. Planted on September 25, 2025 and harvested on May 15, 2026. Hybrid Rye was planted at 800,000 seeds/acre and all other cereals planted at 1,200,000 seeds/acre.

2025: Dry conditions in the fall of 2024 delayed establishment of the winter cereals and left little residual moisture for early spring growth, which resulted in low dry matter forage yields. Planted on October 2, 2024 and harvested on May 2, 2025. Hybrid Rye was planted at 800,000 seeds/acre and all other cereals planted at 1,200,000 seeds/acre.

2026 South Dakota Breeder
Forage Trials *(shown in tons/acre)*

Variety	Forage Type	2026 Beresford	2026 Aurora	2026 Average
KWS Aviator	Hybrid Rye	4.71	6.86	5.79
KWS Progas	Hybrid Rye	3.55	6.20	4.87
Hazlet	Rye	4.45	6.25	5.35

Trial Highlights

Location: Beresford and Aurora, SD
2026: The Beresford location was planted on October 9, 2025 and harvested on May 15, 2026. There was poor establishment at this location due to bad residue management and triticale varieties were all winterkilled. Aurora location was planted on October 6, 2025 and harvested on May 21, 2026. At both locations Hybrid Rye was planted at 800,000 seeds per acre and other cereals were planted at 1,200,000 seeds per acre.

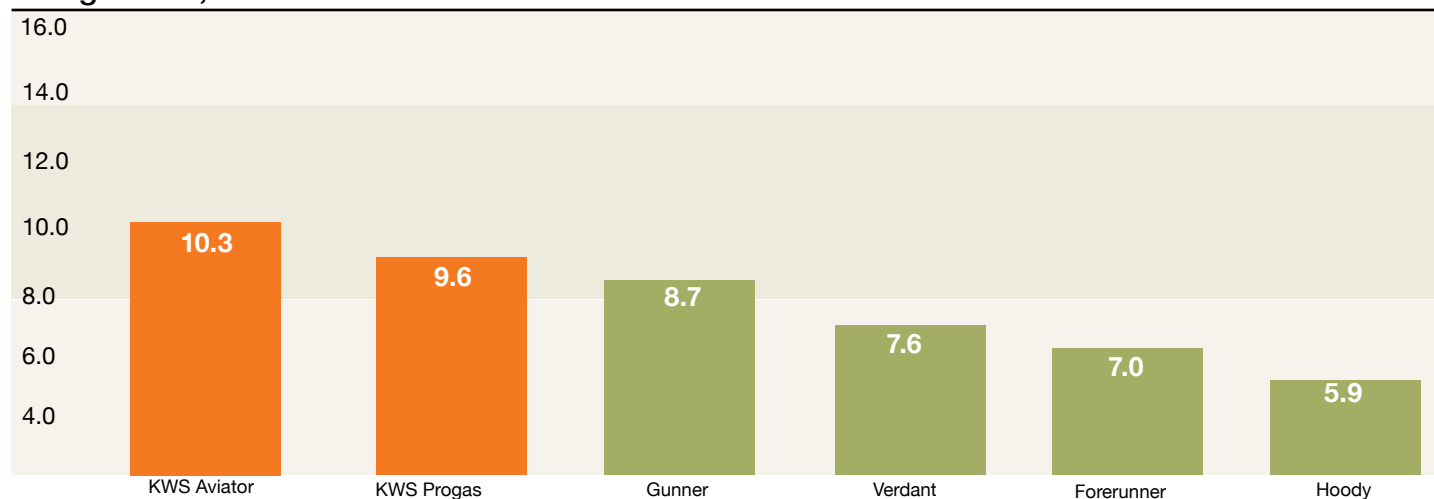
HYBRID RYE - WESTERN US FORAGE RESULTS

**Summary from 4 locations over 4 years showing consistent high yields and quality*

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Forage Yield, Tons/Acre



Western US Forage - Tons/Acre shown at 35% DM and harvested at boot stage

Chart represents a four year data (2023 - 2026) average across the following locations: Aberdeen and Kimberly, ID, Brigham City, UT, and Madras, OR.

**KWS Aviator and KWS Progas are Hybrid Rye, Forerunner and Gunner are triticale, Hoody and Verdant are barley.



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Forage Quality

	CP	ADF	aNDF	Lignin	NDFd, 30	NDFd, 48	TDN
	%DM				%aNDF		
KWS Aviator	14.18	22.72	47.98	2.60	41.13	71.91	78.36
Forerunner	17.33	27.53	56.91	3.37	41.90	70.83	68.83
Gunner	17.55	29.48	59.22	3.60	38.49	64.12	65.37
Hoody	14.61	29.86	52.23	2.19	42.85	73.54	67.64
Surge	10.33	31.21	59.21	3.88	25.17	56.72	64.21
Verdant	12.06	19.53	39.79	1.58	44.63	78.76	80.44

Forage quality data from Aberdeen, ID locations. Samples were analyzed by NIR at the University of Idaho. Surge is triticale, all others are identified above.

2026 Idaho Forage Trials (shown in tons/acre)

Variety	Forage Type	2026 Hybrid Rye at Boot Stage	2026 Comparison Cereals at Boot Stage (+10 days)	2026 Comparison Cereals at Boot Stage (+20 Days)
KWS Aviator	Hybrid Rye	8.50	10.60	13.80
KWS Progas	Hybrid Rye	7.70	10.10	13.20
Hazlet	Rye	7.30	9.20	10.90
Triticale	Triticale	7.50	8.90	10.80
Triticale	Triticale	7.50	9.90	12.00

Trial Highlights

Location: Kimberly, ID
2026: This trial was planted on October 7, 2025 with Hybrid Rye being planted at 800,000 seeds per acre and all other cereals at 1,200,000 seeds per acre. It was harvested in three stages with the first cutting date on May 5, 2026, second date on May15, 2026 and final harvest on May 25, 2026. The trial was severely affected by volunteer Spring Barley throughout the plots, however the KWS Hybrid Rye did the best to suppress this pressure, as seen in the results.

2025 Montana Forage Trials (shown in tons/acre)

Variety	Forage Type	2025 Moccasin	2025 Kalispell	2025 Average
KWS Aviator	Hybrid Rye	16.30	19.70	18.00
KWS Progas	Hybrid Rye	15.90	14.90	15.40
FX 1001	Triticale	12.70	15.10	13.90
Ray	Forage Wheat	11.80	12.20	12.00

Trial Highlights

Location: Montana State University - Moccasin (CARC) and Kalispell (NWARC), MT Research locations
2025: The Moccasin location was planted on October 10, 2024 and harvested on July 2, 2025. This location received 10.42" of rainfall from April through August 2025. The Kalispell location was planted on October 10, 2024 and harvested on June 19, 2025. This location received 9.12" of rainfall from April through August 2025.
**This trial is not included in a forage summary in the book.*

OREGON

2026 Oregon Forage Trials (shown in tons/acre)

Variety	Forage Type	2026 Early Cut	2026 Late Cut
KWS Progas	Hybrid Rye	4.50	6.10
KWS Aviator	Hybrid Rye	4.50	5.60
ND Gardner	Rye	4.70	4.90
Surge	Triticale	3.40	4.90

Trial Highlights

Location: Klamath Falls, OR
2026: Hybrid Rye was planted on October 20, 2025 at 850,000 seeds per acre. The early cut harvest date for Hybrid Rye was May 7, 2026, ND Gardner on May 8, 2026 and Surge on May 15, 2026. All varieties were harvested on June 24, 2026 for the late cut date.

UTAH

2026 Utah Forage Trials (shown in tons/acre)

Variety	Forage Type	2026 Tremonton	2026 Brigham City
KWS Aviator	Hybrid Rye	9.03	19.43
KWS Progas	Hybrid Rye	7.60	15.29
Triticale	Triticale	10.00	13.77
Triticale	Triticale	7.40	13.66
Hazlet	Rye	8.57	12.49

Trial Highlights

Location: Tremonton and Brigham City, UT
2026: Tremonton location was planted on October 22, 2025 and harvested on May 22, 2026. A lack of water dropped yields across the whole trial. Brigham City was also planted on October 22, 2025 and harvested on May 21, 2026. Uneven plots were observed at this location. Both locations Hybrid Rye was planted at 800,000 seeds per acre and other cereals at 1,200,000 seeds per acre.

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