

Cereal Rye Variety Trial 2026

In a Nutshell:

- 12 cereal rye varieties were trialed at four Iowa State University research farms.

Key Findings:

- Across all sites and varieties, hybrid cereal rye varieties averaged 84 bu/ac while open-pollinated varieties averaged 62 bu/ac.
- No one hybrid variety yielded statistically significantly higher than other hybrid varieties across sites.
- Not one open-pollinated variety yielded statistically significantly higher than other open-pollinated varieties. However, ND Gardner, ND Dylan and Elbon were consistently the lowest yielding varieties across sites.

BACKGROUND

This was the eighth year that Practical Farmers of Iowa coordinated cereal rye variety trials at Iowa State University research farms at Nashua (northeast Iowa); the seventh year at ISU research farms at Kanawha (north-central Iowa); and the sixth year of trials at ISU research farms at Boone (central Iowa) and Greenfield (southwest Iowa).

In the previous seven years of rye variety trials on ISU farms, SU Cossani, SU Performer, KWS Receptor and KWS Serafino have been the top yielding varieties across sites [1], [2], [3], [4], [5], [6], [7]. Overall, yields in PFI's small-grains variety trials have varied quite a bit between years due to weather conditions and the retention and addition of higher performing varieties in the trials. In 2025, the average cereal rye yield across the three participating Iowa research farms was 53 bu/ac [7]. Wet conditions throughout late spring and summer led to challenging weather conditions and the experiment at Kanawha was abandoned. In contrast, cereal rye variety trials conducted by the University of Minnesota which included varieties Danko, Hazlet, KWS Receptor, KWS Rixor, KWS Serafino, KWS Tayo and Rymin reported an average yield of 114 bu/ac in 2025 [8]. In 2024, the average cereal rye yield across the four participating Iowa research farms was 89 bu/ac [6]. In 2023, the average cereal rye yield across the four Iowa research farms was 42.6 bu/ac [1].

METHODS

Design

Variety trials were conducted at four locations in 2026: ISU Northern Research Farm in Kanawha; ISU Northeast Research Farm in Nashua; ISU Ag Engineering and Agronomy Farm in Boone; ISU Southwest Research Farm in Greenfield. Production characteristics and some breeding history about each of the trialed varieties can be found in **Table 1**. SU Cossani was trialed only at Nashua, which trialed twelve varieties. Kanawha, Boone and Greenfield trialed eleven varieties. Information on winter hardiness, days to heading, plant height and ergot susceptibility can be sourced from the University of Minnesota [9].

Cooperators

ISU Northern Research Farm
(Matt Schnabel) – Kanawha

ISU Northeast Research Farm
(Ken Pecinovsky) – Nashua

ISU Ag Engineering and Agronomy Farm
(Mike Fiscus) – Boone

ISU Southwest Research Farm
(Matt Schnabel) – Greenfield

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University; KWS; FP Genetics



Rye test plots in Boone, IA. Photo taken June 30, 2026.

TABLE 1: Origin, characteristics and seeding rate of cereal rye varieties trialed in 2026.

VARIETY	AGENT OR BREEDER	PVP ^a	TYPE	SEEDING RATE (lb/ac) ^b
Danko	Danko Hodowla Roślin	None	Open-pollinated	83.2
Elbon	Oklahoma St. Univ.	None	Open-pollinated	59.7
Hazlet	Agriculture and Agri-Food Canada	None	Open-pollinated	92.9
KWS Receptor	KWS	PVP (94)	Hybrid	48.6
KWS Rixor	KWS	PVP (94)	Hybrid	52.1
KWS Serafino	KWS	PVP (94)	Hybrid	59.5
KWS Tayo	KWS	PVP (94)	Hybrid	48.5
ND Dylan	North Dakota St. Univ.	PVP (94)	Open-pollinated	75.6
ND Gardner	North Dakota St. Univ.	PVP (94)	Open-pollinated	66.0
SU Bebop	FP Genetics	None	Open-pollinated	90.7
SU Cossani	FP Genetics	None	Hybrid	67.3
SU Performer	FP Genetics	None	Hybrid	73.3

^a Plant Variety Protection. The PVP Act provides a certificate to the developer of a variety granting exclusive rights for reproducing and marketing the seed.

^b Calculated from seed lot weights (no. seeds/lb) and germination rates (%) to achieve target populations of 25 seeds/ft² (open-pollinated) or 18.4 seeds/ft² (hybrid).

Rye management information is provided with the results from each site. No herbicide, insecticide or fungicide were applied at any location. Rye was planted at seeding rates (lb/ac) listed in **Table 1** to achieve seeding rates of 25 seeds/ft² for open-pollinated varieties and 18.4 seeds/ft² for hybrid varieties. All varieties were planted on 7.5 in. row spacing at 1.25 in. depth. Each location measured grain yield, grain test weight, plant height at harvest and % lodging. Nashua also measured and reported straw biomass. Reported yields are corrected to 14% moisture content. Cumulative monthly precipitation and average monthly temperature during the cereal rye growing season sourced from the NASA POWER dataset are provided for each location [7,8].

We analyze and report variety results separately for each trial location. At each location, the 3-year average yield is provided for individual varieties that have been trialed at the site in previous years. At Nashua, Boone and Greenfield, this average includes the years 2026, 2025 and 2024. At Kanawha this includes the years 2026, 2024 and 2023 due to crop failure in 2025. A “% of site average” is also included to aid in comparing yields of varieties within each location; this is the 2026 yield of a variety divided by the average yield across all varieties grown at the site in 2026. We used Analysis of Variance (ANOVA) followed by a Tukey’s Significant Difference test to determine if there were statistically significant differences in yield, test weight, plant height and lodging across varieties at individual sites. Tukey’s test calculates a statistic called the Minimum Significant Differences (MSD); if the difference in yield, etc. between two varieties is greater than the MSD, we consider the yields significantly different. Statistical significance is determined at the 90% confidence level, meaning that if the experiment were repeated, we would expect to see the same results nine times out of ten.

RESULTS AND DISCUSSION

Winter of 2025-2026 was dry and precipitation levels were almost double the average in April and half average in May at all four sites [10], [11].

Across all sites and varieties, average 2026 rye variety trial yield was 73 bu/ac. This is up from 53 bu/ac in 2025 but down from 89 bu/ac in 2024. No cereal rye varieties made test weight (56 lb/bu) this year at any of the four sites. However, all varieties at Greenfield and Kanawha had test weights of 52 lb/bu or higher and likely could have made test weight after standard grain cleaning procedures. Lodging was higher at Kanawha and Greenfield than at Boone and Nashua, especially among open-pollinated varieties.

Hybrid cereal rye varieties averaged 84 bu/ac while open-pollinated varieties averaged 62 bu/ac across all sites. Hybrid varieties were, on average, about 6 in. shorter than open-pollinated varieties. Hybrid varieties were about 5% lodged at harvest while open-pollinated varieties were about 23% lodged on average.

Across all four sites, hybrids SU Cossani (90 bu/ac), KWS Rixor (90 bu/ac), SU Performer (86 bu/ac), KWS Serafino (83 bu/ac) and KWS Receptor (82 bu/ac) were the numerically highest yielding varieties. These five hybrid varieties yielded statistically significantly higher than open-pollinated SU Bebop (69 bu/ac), Danko (67 bu/ac), ND Dylan (53 bu/ac), ND Gardner (48 bu/ac) and Elbon (39 bu/ac) but not hybrid KWS Tayo (82 bu/ac) or open-pollinated Hazlet (70 bu/ac). There were no statistically significant differences in test weight across varieties. Across sites, lodging was significantly higher in ND Gardner and ND Dylan than all other varieties.

At Nashua and Boone, there were few statistically significant differences in yield between hybrid and open-pollinated varieties. At Greenfield all five hybrid varieties outyielded all or most open-pollinated varieties. At Kanawha, KWS Rixor outyielded all open-pollinated varieties and the other four hybrids outyielded ND Gardner, ND Dylan and Elbon.

There were no statistically significant differences in yield between the five to six hybrid varieties trialed at individual sites, and no consistent differences across sites; no single variety had consistently numerically higher yields. There was similarly no open-pollinated varieties that consistently yielded significantly better than others across sites. SU Bebop yielded significantly higher than ND Gardner, ND Dylan and Elbon at Kanawha. Hazlet and Danko yielded higher than ND Gardner, ND Dylan and Elbon at Greenfield.

ISU Northern Research Farm, Kanawha

Previous crop: Soybeans
Replications: 3
Harvested plot size: 5 ft × 59.5 ft
Fertilizer applied: 27.5 lb N/ac, 130 lb P/ac, 150 lb K/ac applied on Nov. 5, 2025
40 lb N/ac applied on March 30, 2026
Planting date: Oct. 10, 2025
Harvest date: July 30, 2026

Kanawha

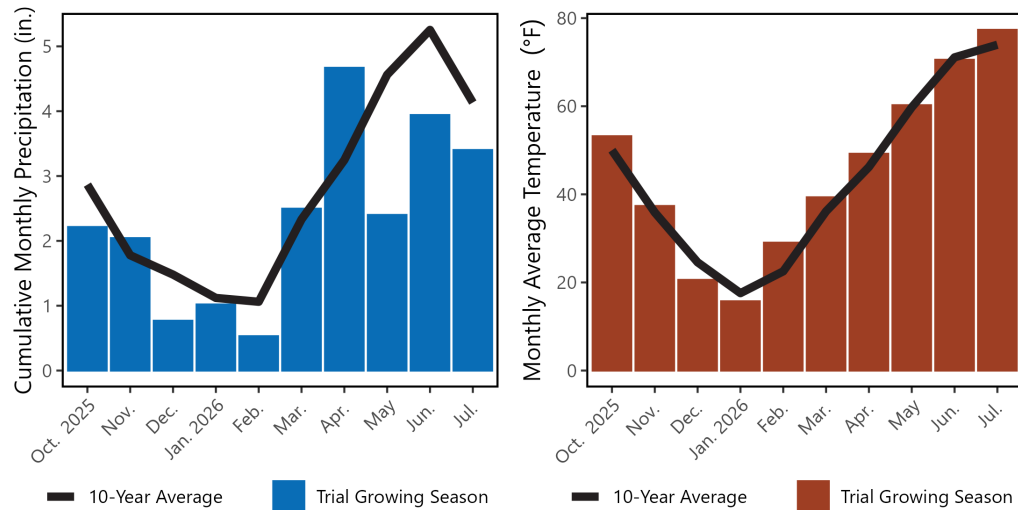


TABLE 2: 2026 Cereal Rye Variety Trial at Northern Research Farm, Kanawha.

VARIETY	YIELD (bu/ac)		YIELD (% of 2026 site mean)	TEST WEIGHT (lb/bu)	PLANT HT at HARVEST (in.)	LODGING (%)
	2026	3-Year Average ^a				
Danko	70	--	97%	54	45	33
Elbon	36	43	51%	55	50	65
Hazlet	76	68	106%	54	46	52
KWS Receptor	74	⁸⁹	103%	54	41	22
KWS Rixor	93	--	128%	55	41	17
KWS Serafino	79	89	109%	54	45	12
KWS Tayo	78	87	108%	53	39	7
ND Dylan	50	50	70%	53	53	80
ND Gardner	51	55	71%	54	52	75
SU Bebop	71	--	98%	53	42	8
SU Performer	87	--	120%	53	40	8
MSD (90%)	19	--	--	1.5	4	35
MEAN	70	69	--	54	45	34

By response variable, if the difference between any two entries is greater than the minimum significant difference (MSD) the entries are considered statistically different with 90% confidence.

^a Average yield of each variety from the past three trial years at Northern Research Farm, including 2026, 2024 and 2023. '—' indicates a variety with less than a three-year history.

ISU Northeast Research Farm, Nashua

Previous crop: Soybeans
Replications: 3
Harvested plot size: 10 ft × 50-57.5 ft
Fertilizer applied: 32.1 lb P/ac and 185 lb K/ac applied on Nov. 3, 2025
32 lb S/ac applied on Jan. 16, 2026
35 lb N/ac applied on March 25, 2026
Planting date: Oct. 9, 2025
Harvest date: July 14, 2026

Nashua

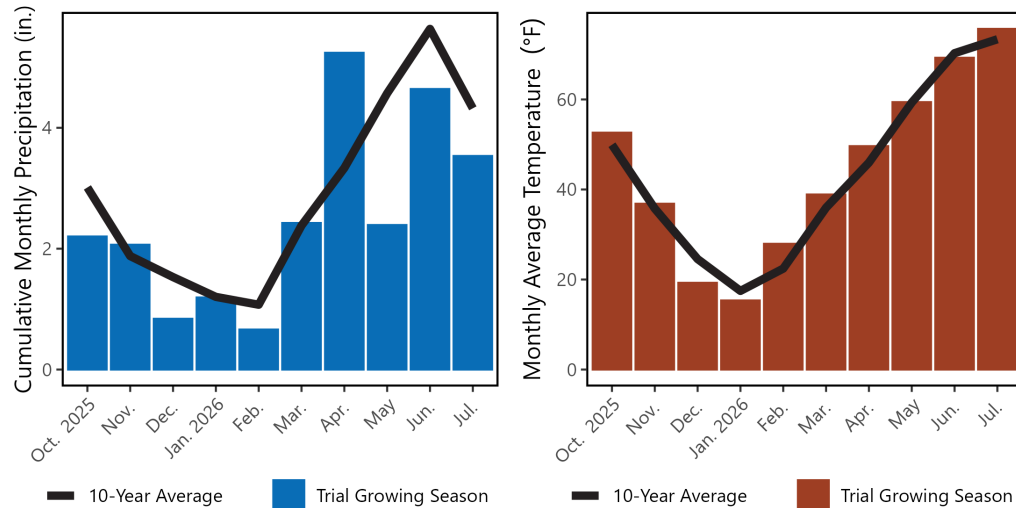


TABLE 3: 2026 Cereal Rye Variety Trial at Northeast Research Farm, Nashua.

VARIETY	YIELD (bu/ac)		YIELD (% of 2026 site mean)	TEST WEIGHT (lb/bu)	PLANT HT at HARVEST (in.)	LODGING (%)	STRAW BIOMASS (tons/ac)
	2026	3-Year Average ^a					
Danko	71	--	98%	36	48	1	6.5
Elbon	51	47	70%	26	50	5	6.7
Hazlet	77	68	107%	40	49	2	6.6
KWS Receptor	90	77	125%	46	44	0	5.9
KWS Rixor	94	--	130%	48	45	1	6.0
KWS Serafino	91	85	127%	47	46	1	6.1
KWS Tayo	87	74	121%	45	43	0	5.8
ND Dylan	70	61	97%	36	59	7	7.9
ND Gardner	59	57	82%	30	54	7	7.3
SU Bebop	81	70	113%	42	49	1	6.6
SU Cossani	90	81	125%	46	47	1	6.3
SU Performer	97	84	135%	50	45	0	6.0
MSD (90%)	42	--	--	21	3	4	0.4
MEAN	79	70	--	41	48	2	6.5

By response variable, if the difference between any two entries is greater than the minimum significant difference (MSD) the entries are considered statistically different with 90% confidence.

^a Average yield of each variety from the past three years at Northeast Research Farm, including 2026. '—' indicates a variety with less than a three-year history.

ISU Ag Engineering and Agronomy Farm, Boone

Previous crop: Soybeans
Replications: 3
Harvested plot size: 59 ft × 13.5 ft
Fertilizer applied: 10 lb N/ac, 5 lb P/ac, 40 lb K/ac and 2.5 lb S/ac applied on Oct. 24, 2025
40 lb N/ac, 45 lb P/ac, 60 lb K/ac and 18 lb S/ac applied on March 30, 2026
Planting date: Oct. 23, 2025
Harvest date: July 28, 2026

Boone

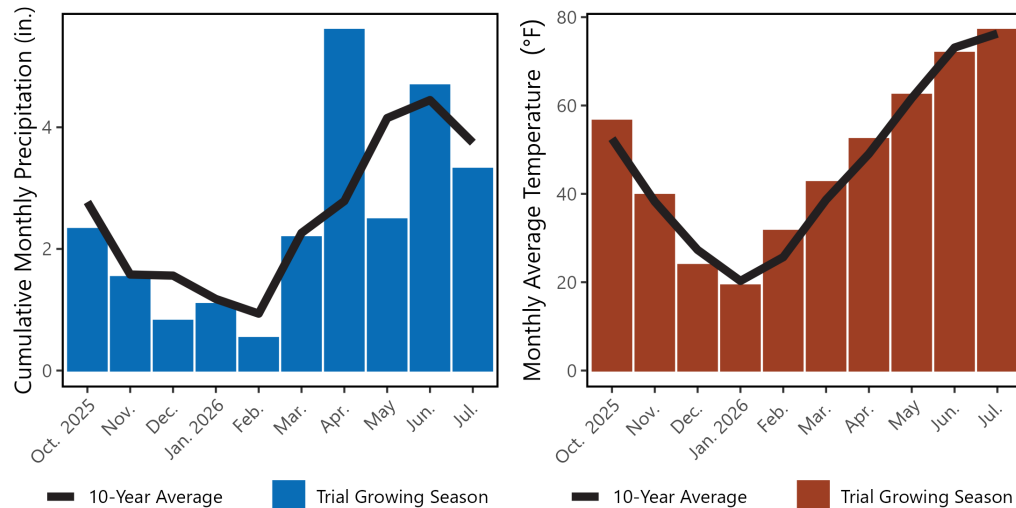


TABLE 4: 2026 Cereal Rye Variety Trial at Ag Engineering and Agronomy Research Farm, Boone.

VARIETY	YIELD (bu/ac)		YIELD (% of 2026 site mean)	TEST WEIGHT (lb/bu)	PLANT HT at HARVEST (in.)	LODGING (%)
	2026	3-Year Average ^a				
Danko	68	--	94%	49	51	5
Elbon	45	52	62%	49	54	8
Hazlet	65	67	90%	49	52	10
KWS Receptor	87	95	120%	48	45	5
KWS Rixor	86	--	120%	49	43	5
KWS Serafino	82	103	114%	49	43	5
KWS Tayo	83	81	115%	49	44	5
ND Dylan	65	59	91%	49	51	18
ND Gardner	52	60	73%	49	59	45
SU Bebop	72	75	100%	49	47	5
SU Performer	87	91	121%	49	45	5
MSD (90%)	22	--	--	1.4	14	28
MEAN	72	76	--	49	49	11

By response variable, if the difference between any two entries is greater than the minimum significant difference (MSD) the entries are considered statistically different with 90% confidence.

^a Average yield of each variety from the past three years at Ag Engineering and Agronomy Research Farm, including 2026. ‘—’ indicates a variety with less than a three-year history.

ISU Southwest Research Farm, Greenfield

Previous crop: Soybean
Replications: 3
Harvested plot size: 5 ft × 50 ft
Fertilizer applied: 35 lb/ac N as urea applied on March 27, 2026
Planting date: Oct. 13, 2025
Harvest date: July 22, 2026

Greenfield

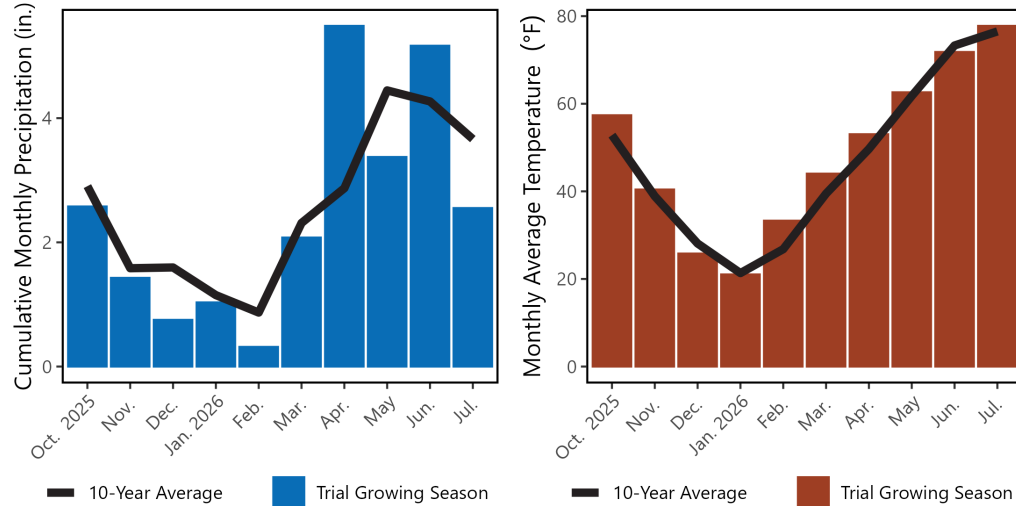


TABLE 5: 2026 Cereal Rye Variety Trial at Southwest Research Farm, Greenfield.

VARIETY	YIELD (bu/ac)		YIELD (% of 2026 site mean)	TEST WEIGHT (lb/bu)	PLANT HT at HARVEST (in.)	LODGING (%)
	2026	3-Year Average ^a				
Danko	58	--	99%	54	59	5
Elbon	26	37	44%	53	60	25
Hazlet	60	53	102%	53	58	10
KWS Receptor	78	80	132%	54	50	5
KWS Rixor	89	--	150%	54	50	5
KWS Serafino	81	86	136%	54	50	5
KWS Tayo	78	81	132%	52	50	5
ND Dylan	27	34	45%	53	61	80
ND Gardner	29	39	49%	53	60	67
SU Bebop	52	72	88%	53	54	5
SU Performer	72	74	123%	54	49	5
MSD (90%)	17	--	--	1.4	9	23
MEAN	58	62	--	53	55	20

By response variable, if the difference between any two entries is greater than the minimum significant difference (MSD) the entries are considered statistically different with 90% confidence.

^a Average yield of each variety from the past three years at Southwest Research Farm, including 2026. ‘—’ indicates a variety with less than a three-year history.

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REFERENCES

1. S. Gailans and S. Carlson, "Cereal Rye Variety Trial 2019," Practical Farmers of Iowa, 2019. [Online]. Available: <https://practicalfarmers.org/research/cereal-rye-variety-trial-2019/>
2. S. Gailans and L. English, "Cereal Rye Variety Trial 2020," Practical Farmers of Iowa, 2020. [Online]. Available: <https://practicalfarmers.org/research/cereal-rye-variety-trial-2020/>
3. S. Gailans and L. English, "Cereal Rye Variety Trial 2021," Practical Farmers of Iowa, 2021. [Online]. Available: <https://practicalfarmers.org/research/cereal-rye-variety-trial-2021/>
4. S. Gailans, "Cereal Rye and Triticale Variety Trial 2022," Practical Farmers of Iowa, 2022. [Online]. Available: <https://practicalfarmers.org/research/cereal-rye-and-triticale-variety-trial-2022/>
5. S. Gailans, "Cereal Rye and Triticale Variety Trial 2023," Practical Farmers of Iowa, 2023. [Online]. Available: <https://practicalfarmers.org/research/cereal-rye-and-triticale-variety-trial-2023/>
6. E. Link and S. Gailans, "Cereal Rye and Triticale Variety Trial 2024," Practical Farmers of Iowa, 2024. [Online]. Available: <https://practicalfarmers.org/research/cereal-rye-and-triticale-variety-trial-2024/>
7. E. Link, "Cereal Rye Variety Trial 2025," Practical Farmers of Iowa, Sep. 2025. Accessed: Aug. 19, 2026. [Online]. Available: <https://practicalfarmers.org/resources/research-reports/cereal-rye-variety-trial-2025/>
8. W. Jochum, "2025 Variety Trials," Winter Rye Field Crop Variety Trials. Accessed: Aug. 19, 2026. [Online]. Available: <https://varietytrials.umn.edu/winter-rye>
9. J. Wiersma, "2023 Winter Rye Field Crop Trial Results: Minnesota Agricultural Experiment Station," University of Minnesota, 2023. [Online]. Available: <https://drive.google.com/file/d/11qo8BPRxJBp2x9rzAeDRTC52UQtXlez/view>
10. A. H. Sparks, "nasapower: A NASA POWER Global Meteorology, Surface Solar Energy and Climatology Data Client for R," *J. Open Source Softw.*, vol. 3, no. 30, p. 1035, Oct. 2018, doi: 10.21105/joss.01035.
11. A. Sparks, *_nasapower: NASA-POWER Data from R_*. (2024). [Online]. Available: <https://CRAN.R-project.org/package=nasapower>



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