

first TRIALS

INDEPENDENT CORN AND
SOYBEAN YIELD TESTING

Southern Iowa Edition



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FIRST CCB, Inc.
IASC, IAWC, IAEC and IASO Corn and Soybeans



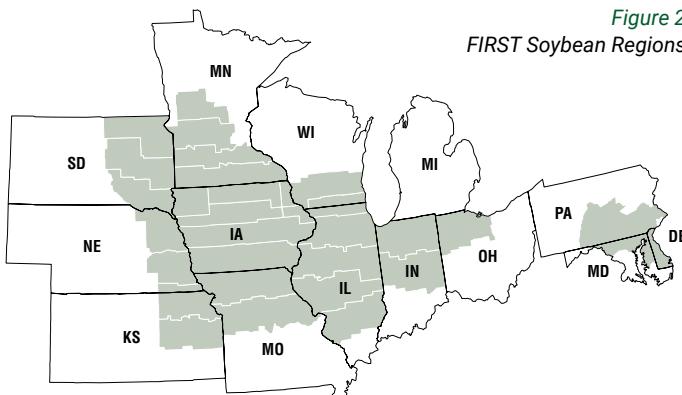
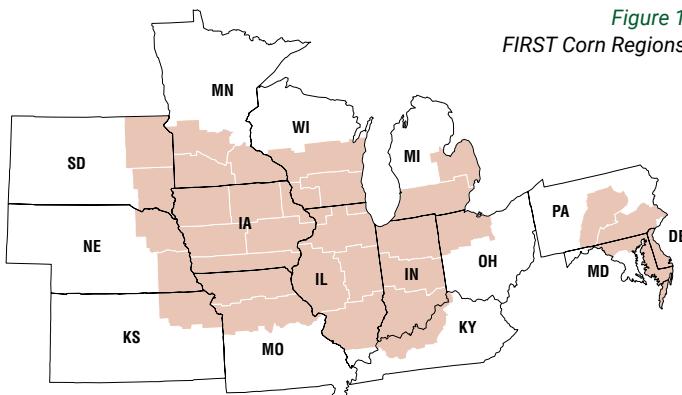
2023 Performance Summary

FIRST Testing Methodology and Procedures

TESTING PROGRAM

Our testing program compares corn and soybean seed product yield and agronomic performance in grower fields across 16 states: Delaware, Illinois, Indiana, Iowa, Kansas, Kentucky, Maryland, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, Pennsylvania, South Dakota and Wisconsin (Figure 1 & Figure 2).

Testing regions have been established to provide similarity by geography and crop maturity. Seed products within a predefined maturity range (e.g., 106 to 116 RM corn or 0.7 to 1.5 maturity soybeans) are pooled into a single, all-season test or split into early- and full-season tests depending on entry volume. Products are planted at five or six corn test locations or four soybean locations within a region.



Test locations are selected to represent the geographic diversity within a region. Ideal sites have uniform, well-drained soils where farmer hosts use standard production practices for the area. Typically, all tests at a location are conducted adjacent to each other to minimize yield variance between tests.

Seed companies and/or seed distributors are invited to submit their most promising seed products within specified test maturity limits to desired test regions. They provide high-quality seed from commercial lots and fees to enter FIRST tests. The only exceptions are check products (CK after product names, i.e. A1234 CK), chosen by FIRST Managers to bridge results between early- and full-season tests, and Grower Comparison products (GC after the product name), often provided by host farmers for their knowledge as test space permits.

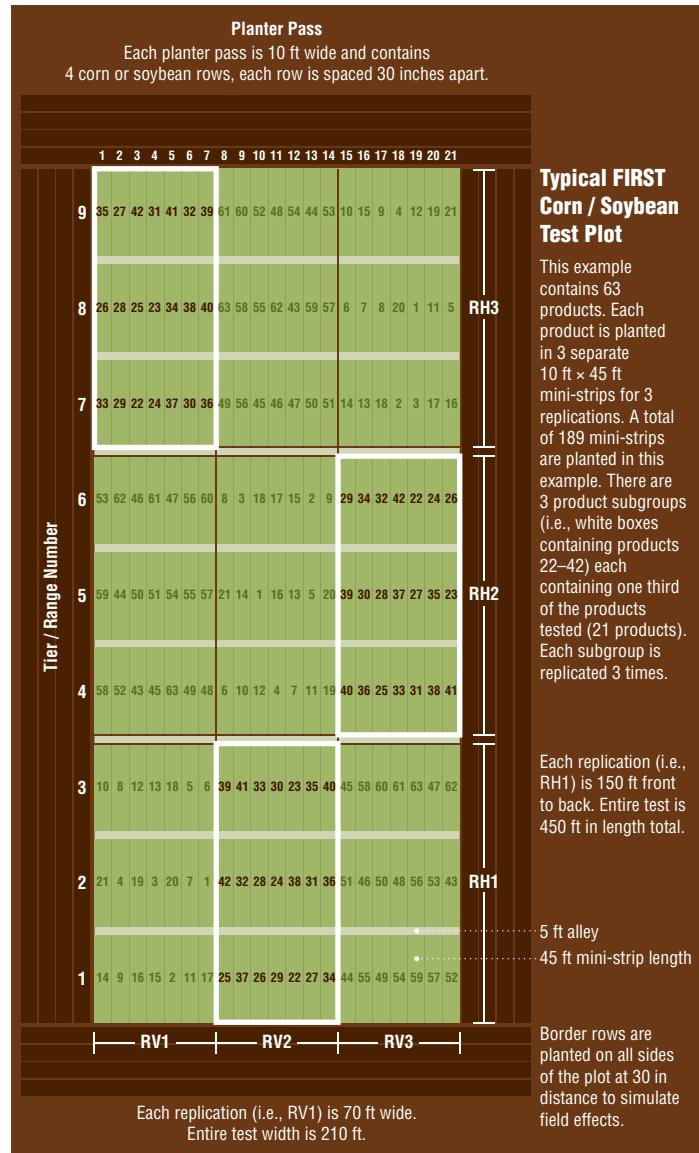
Products are replicated three times minimum per test and grouped in sub-blocks arranged in replication blocks from front to back and side to

side. This provides more precision in yield measurement and flexibility should a disruptive event (i.e., standing water) require elimination of non-uniform test areas.

FIRST Field Managers package, randomize, and plant seeds into host grower fields using slightly modified commercial planting equipment to facilitate mini strip research. Individual plots (a.k.a. mini-strips) contain four corn rows spaced 30-inches apart, 45 feet in length (Figure 3). Soybean is planted in four rows spaced 30-inches apart or seven 15-inch spaced rows. Soil insecticide is typically applied to corn at planting. Seeding rate is based on standard area practices.

FIRST Managers measure yield from the center two corn rows or all soybean rows using customized commercial self-propelled combines. Grain from each plot is electronically weighed and moisture content measured. Soybean grain is sampled from one replicate per test for protein and oil content analysis.

Figure 3 FIRST Test Plot Layout



TESTING METHODOLOGY

PERFORMANCE SUMMARIES

FIRST Corn Grain and Soybean Top 30 Harvest Reports are designed to identify high-yielding products at a single location. These reports are posted to www.firstseedtests.com generally within 2 days of harvest and provide product information, yield and agronomic results.

The *Corn Grain and Soybean Top 30 Region Summary* reports (Figures 4 & 5) identify products that consistently deliver top performance across a region by averaging product results from all test locations. These corn and soybean regional reports display grain Yield (Bu/A), grain Moisture (%), Lodging (%) and Gross Income (\$/A) averaged over all locations, presented alongside individual site yield results. This report is available shortly after the last *Harvest Report* for a region becomes available at www.firstseedtests.com.

In both reports, products are first ranked by Gross Income (\$/A). The 30 highest ranked Gross Income (\$/A) products are sorted by Yield (Bu/A) for public presentation. Nearly all tests include more than 30 products but only the Top 30 products are reported.

Figure 4 Corn Grain Performance Summary

EARLY-SEASON TEST 93-98 Day CRM Top 30 of 56 tested									
Company/Brand	Product/Brand	Technology	Relative Maturity	Yield (Bu/A)	Moisture (%)	Lodging (%)	Gross Income (\$/A)	Rank	Results in BOLD are significantly above test average.
A	B	C	D	E					
CHEVRON	DS-98100	OR8	98	230.2	18.3	1	\$784	4	274.5
FEDERAL	4880 VT2PRIB	VT2PB	98	229.1	18.3	1	\$784	9	273.8
HEETV	H4322V12PRIB	VT2PB	93	228.2	17.0	1	\$788	2	243.5
DARYLAND	DS-3550AM	AM8	95	227.8	17.4	1	\$781	7	259.3
JUNK	47DPA29	VT2PB	97	227.7	16.9	1	\$782	5	252.1
NORTHSTAR	NS 98-513 STXRB	STXB	98	227.2	16.7	2	\$782	6	250.4
WINTER	10000 VT2PB	VT2PB	98	226.7	17.1	1	\$775	8	257.9
PIONEER	P6860R U	OR8	96	224.3	17.0	1	\$771	10	230.5
THUNDER	T6995 VT2PB	VT2PB	96	223.9	16.7	1	\$772	9	248.3
HEETV	H4542VT2PB	VT2PB	95	223.1	16.1	1	\$771	11	238.4
LATHAN	LH 4657 VT2PRIB	VT2PB	96	222.6	16.8	1	\$767	12	264.9
HEETV	H4612VT2PRIB	VT2PB	96	222.3	16.6	1	\$766	13	252.9
INTEGRA	4601 VT2PB	VT2PB	96	222.2	16.8	2	\$765	14	231.6

Figure 5 Soybean Performance Summary

ALL-SEASON TEST MATURITY GROUP 1.8-2.5 Top 30 of 72 tested									
Company/Brand	Product/Brand	Technology	Maturity	Yield (Bu/A)	Moisture (%)	Lodging (%)	Gross Income (\$/A)	Rank	Results in BOLD are significantly above test average.
A	B	C	D						
CREDZEN	C2 212 GTLL GC	LLGT27	2.1	68.8	11.1	6	\$619	72.8	61.8
HEETV	H5000M	RRX	2.0	68.0	10.8	6	\$609	70.7	61.8
GENESIS	G1790GL	LLGT27	2.1	67.5	10.9	8	\$507	73.0	61.7
GOLDEN HARVEST	GH2230X	RRX	2.2	66.8	11.0	5	\$602	64.7	66.9
TITAN PRO	2.234019	E3	2.2	66.7	11.3	9	\$600	65.5	62.4
HEETV	H2623A15X U	RRX	2.2	66.4	11.0	8	\$598	67.9	63.1
CREDZEN	C2 2040GTL GC	LLGT27	2.0	66.4	10.8	6	\$598	71.7	65.8
GENESIS	G2550 E	E3	2.5	66.4	11.1	8	\$598	70.3	62.8
LATHAN	L 2295 R2X	RRX	2.2	65.6	10.8	7	\$595	70.3	64.7
LATHAN	L 2295 R2X	RRX	2.2	65.9	10.6	9	\$594	69.2	61.2
GENESIS	G2350 E	E3	2.3	65.8	11.1	8	\$592	64.0	64.2
DARYLAND	DSR-2590E	E3	2.5	65.8	11.6	12	\$592	62.4	68.2
ASGROW	AG20X U	RRX	2.0	65.7	10.9	12	\$591	57.8	62.0

PERFORMANCE MEASUREMENTS

- A Yield (Bu/A)** – Harvested grain weight and grain moisture are used to convert yield results to bushels per acre at 15% moisture (base moisture) for corn and 13% moisture for soybean. Grain shrinkage is additionally applied to product yields exceeding the base moisture.
- B Moisture (%)** – A calibrated electronic sensor measures moisture content of harvested grain.
- C Lodging (%)** – Estimated percentage of corn plants leaning more than 45° from vertical or stalks broken below the ear at harvest. Encompasses both stalk and root lodging. Estimated soybean plant leaning (0% = all plants vertical, 100% = all plants flat on the ground).
- D Gross Income (\$/A)** – Harvested crop value in dollars per acre is derived by multiplying crop yield and price per bushel minus drying costs, if any, to reach base moisture. Each Harvest Report and Performance Summary details specific crop price and drying costs.
- E Gross Income Rank** – Gross Income values are sorted from high to low then numbered consecutively (1, 2, 3...) from highest to lowest value. Ties are broken based on higher yield, lower lodging and lower moisture values.

For more yield results visit www.firstseedtests.com
FIRST does not make product endorsements.

STATISTICS REPORTED

Least Significant Difference (LSD) is provided on all replicated results to facilitate valid product comparisons. Statistically, the LSD value is the minimum difference needed between two products to declare that one product is greater than another. FIRST calculates LSD at the 10% level ($p = 0.10$). Product yield differences equal or greater than the LSD (0.10) value would have been greater one versus the other nine times out of 10 (90% probability). Typically, low LSD values indicate high-quality test results. However, keep in mind that LSD values increase as: test yield level increases, p values decrease [i.e. LSD (0.05) value > LSD (0.10) value > LSD (0.25) value] and as data variability increases. Just because LSD values are higher in some tests vs. others does not mean the results are low quality. Multiple factors have a role in LSD value magnitude.

Coefficient of Variance (CV) measures the average difference between the replications of a test entry, averaged for all the entries in the test, then divided by the average of all observations recorded and expressed as a percentage. Higher values indicate more unexplained variability in proportion to the test average than lower values. Researchers within the seed industry may drop yield data from consideration when CV's are above 15% because the unexplained variance is high or the yield level is low or both. Low yield levels at a test site do not estimate yield potential well, nor are there as many or as great a difference between hybrids and varieties compared to higher yield conditions.

Data Rejected – If a data table has “Data Rejected” stamped across it, we have deemed this data is highly variable and of very poor quality, typically due to weather or uncontrolled factors. Rejection decisions are based on statistical analysis of yield results. Data with very high CV and/or low F-test values (the ratio of variability between entry averages divided by the variability between entry replications) are often rejected.

OTHER INFORMATION

Estimated Maturity (corn only) – Product maturity is determined by linear regression comparison of harvest grain moisture and company stated relative maturity (RM). Products with estimated maturity exceeding the test maximum by at least 1 RM are identified in italics. These products may have an unfair yield advantage over peers due to later maturity.

Bold Identified Means – These product means are significantly better than the test average for that measured parameter.

Check Product (CK) – When early- and full-season tests are conducted at a site, an identical check product is planted in both tests. Check yield results allow growers to comparatively view product performance in both early- and full-season tests. No product yield adjustments are made based on check performance.

Grower Comparison (GC) products – These products, identified with a “GC” product name suffix, are often supplied by growers hosting test sites and included when space permits. Grower comparison products allow direct comparison to products in our tests.

United Soybean Board (USB) Products (soybean only) – Products identified with a “\$” product name suffix are funded by soybean checkoff dollars. This program strives to gather yield and grain composition results from genetics that otherwise would not be available.

TECHNOLOGY CODE LEGEND

Product Suffix Key

CK	Check product found in early- and full- season tests
GC	Grower Comparison product from farmer cooperator or field manager
S	United Soybean Board sponsored entry

Corn Seed Technology Key

CODE	DESCRIPTION
3010	Agrisure® 3010 (GT,CB,LL), formerly GT/CB/LL
3011	Agrisure® 3011 (CB,RW,LL,GT)
3110	Agrisure® Viptera® 3110 (Vip, CB,LL,GT)
3111	Agrisure® Viptera® 3111 (Vip,CB,RW,LL,GT)
A	Agrisure® Artesian®
AA	Agrisure® Above (CB,HX,LL,GT), formerly Agrisure® 3120
AT	Agrisure® Total (CB,HXX,RW,LL,GT), formerly Agrisure® 3122
AM	Optimum® AcreMax® (YGCB,HX,LL,RR2)
AM1	Optimum® AcreMax® 1 (HXT,LL,RR2)
AML	Optimum® AcreMax® Leptra (Vip,YGCB,HX,LL,RR2)
AMT	Optimum® AcreMax® TRIsect
AQ	Optimum® AQUAmax®
CONV	conventional corn
D	Duracade™ (CB,HX,RW,RW2,LL,GT), formerly Agrisure Duracade® 5122
DV	DuracadeViptera™ (Vip,CB,HX,RW,RW2,LL,GT), formerly Agrisure Duracade® 5222
DVZ	DuracadeViptera™ Z3 (Vip,CB,VTP,RW,RW2,LL,GT), formerly Agrisure Duracade® 5332
DG	DroughtGard®
E	Enlist™ (2,4-D, glyphosate, fop tolerance)
GT	Agrisure® GT
GTA	Agrisure® GTA
PC	PowerCore® (HX,VT2P)
PCE	PowerCore® Enlist® (HX,VT2R, 2,4-D)

QR	Qrome®
RR2	Roundup Ready® 2 Corn
STX	SmartStax® (VT3P;HXX)
STXP	SmartStax® PRO (VT3P;HXX)
TRE	Trecepta®
VT2P	VT Double PRO®
VT4P	VT4Pro™ with RNAi Technology
V	Viptera™ (Vip,CB,HX,LL,GT), formerly Agrisure Viptera® 3220
VZ	Viptera™ Z3 (Vip,CB,VTP,LL,GT), formerly Agrisure Viptera® 3330

Soybean Seed Technology Key

CODE	DESCRIPTION
CONV	Conventional
E3	Enlist E3® (2,4-D, choline, glyphosate, LL)
LLGT27	LibertyLink® GT27®
RR	glyphosate tolerant (formerly Roundup Ready)
RR2Y	Roundup Ready 2 Yield®
RRX	Roundup Ready 2 Xtend®
RXF	Roundup Ready 2 XtendFlex®
ST	Sulfonylurea tolerant

Soybean Cyst Nematode (SCN) Resistance Rating

CODE	SOYBEAN CYST NEMATODE DESCRIPTION
NA	information is not available
S	susceptible
MR	moderate resistance
R	resistant

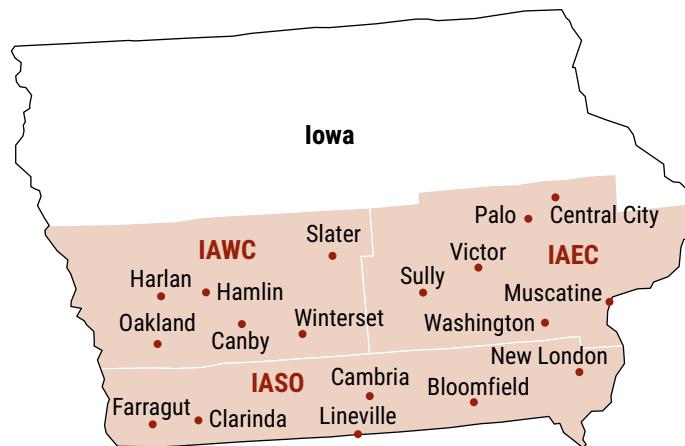
FIRST would like to thank the United Soybean Board for support and funding for the soybean entry and quality reporting program.

PRODUCTS TESTED



For the complete list of products, visit www.firstseedtests.com/archive/national-summary-reports/2023-program-guide/

CORN REGIONS: IAWC, IAEC, IASO



Site Description: IAWC (See corn results table on page 6)

Site	FIRST Farmers	Soil Texture	Tillage	Previous Crop	Total Nitrogen (lbs)	Date Planted	Date Harvested	Average		Yield History	
								Stand x 1,000	Yield	Bu/A	Years
Canby	Scott Steele	silty clay loam	no-till	soybeans	164	May 12	Oct 31	32.7	258	—	new site
Hamlin	Brian Jensen	silty clay loam	no-till	soybeans	160	May 11	Oct 25	34.1	238.9	276.5	3
Harlan	David Reinig	silty clay loam	no-till	soybeans	174	May 5	Oct 24	33.1	255.7	—	new site
Oakland	Mark & Keith Bentley	silty clay loam	no-till	soybeans	180	April 26	Oct 22	33.7	248.7	225.9	14
Slater	Jason Krause	clay loam	conventional	soybeans	160	May 4	Nov 1	32.4	223.9	205.9	18
Winterset	Mike Erdman	silty clay loam	minimum	soybeans	140	May 13	Oct 23	31.7	239.7	193.2	15
								IAWC	209.7	24	

Site Description: IAEC (See corn results table on page 7)

Site	FIRST Farmers	Soil Texture	Tillage	Previous Crop	Total Nitrogen (lbs)	Date Planted	Date Harvested	Average		Yield History	
								Stand x 1,000	Yield	Bu/A	Years
Central City	Jim Greif	silty clay loam	no-till	soybeans	175	May 1	Nov 06	31.1	213.4	207.2	21
Muscatine	Diaan Roos	silty clay loam	no-till	corn	190	May 3	Sep 30	30.6	265	221.8	13
Palo	Jason Kwapil	loam	minimum	soybeans	175	April 29	Nov 5	32.8	162.8	203.3	12
Sully	Lawrence & Mike Van Zee	silty clay loam	no-till	soybeans	154	April 29	Oct 18	32	277.6	227	13
Victor	Dan DeRycke	silt loam	minimum	soybeans	281	May 10	Nov 4	34.3	260.4	230.1	16
Washington	Tom Vittetoe	silty clay loam	no-till	soybeans	89	May 02	Oct 01	32.3	267.1	220.6	21
								IAEC	212.8	24	

Site Description: IASO (See corn results table on page 8)

Site	FIRST Farmers	Soil Texture	Tillage	Previous Crop	Total Nitrogen (lbs)	Date Planted	Date Harvested	Average		Yield History	
								Stand x 1,000	Yield	Bu/A	Years
Bloomfield	David & Ray Boas	silt loam	minimum	soybeans	158	April 14	Sep 22	29.7	218.5	209	6
Cambria	Dan Allred	silt loam	conventional	soybeans	200	April 27	Oct 19	33.3	246.1	217.7	6
Clarinda	Mike & Ben Vardaman	silty clay loam	no-till	soybeans	177	April 27	Oct 28	32.7	238.4	204.6	9
Farragut	Steve Lorimor	silt loam	minimum	soybeans	165	April 26	Sep 21	33.6	219.5	224.8	13
Lineville	Bradley Vogel	silt loam	no-till	soybeans	148	Apr 28	Nov 02	33.6	254.5	204.2	9
New London	Bradley Dodds	sandy clay loam	no-till	soybeans	188	May 3	Nov 3	31.3	251.3	248.8	3
								IASO	221.6	7	

CORN REGIONAL ANNUAL YIELD AVERAGES FOR 2019-2023

FIRST Region	Average Yield by Year (Bu/A)					Since Inception		
	2023	2022	2021	2020	2019	Bu/A	#Years	
IAWC	244.3	221.0	263.2	228.1	238.0	209.7	24	
IAEC	239.9	246.5	245.8	225.6	232.6	212.8	24	
IASO	238.0	211.6	241.6	222.0	201.4	221.6	7	

SOYBEAN REGIONS: IASC, IASO



Site Description: IASC (See soybean results table on page 10)

Site	FIRST Farmers	Soil Texture	Tillage	Previous Crop	Total Nitrogen (lbs)	Date Planted	Date Harvested	Average		Yield History	
								Stand x 1,000	Yield	Bu/A	Years
Central City	Jim Greif	silty clay loam	minimum	corn	26	May 1	Oct 10	151.5	60.7	60.7	9
Hamlin	Brian Jensen	silty clay loam	no-till	corn	—	May 11	Oct 5	151.9	69.9	81.0	3
Slater	Jason Krause	clay loam	no-till	soybeans	—	May 4	Oct 4	NR	NR	51.3	14
Victor	Dan DeRycke	silt loam	minimum	corn	—	May 10	Oct 9	151.5	76.7	72.6	12
								IASC	61.3	22	

Site Description: IASO (See soybean results table on page 11)

Site	FIRST Farmers	Soil Texture	Tillage	Previous Crop	Total Nitrogen (lbs)	Date Planted	Date Harvested	Average		Yield History	
								Stand x 1,000	Yield	Bu/A	Years
Cambria	Dan Allred	silt loam	conventional	corn	—	May 6	Oct 20	143.6	72.3	59.1	6
Oakland	Mark & Keith Bentley	silty clay loam	no-till	corn	—	May 11	Oct 21	143.6	70.1	68.5	14
Washington	Tom Vittetoe	silty clay loam	no-till	corn	—	May 2	Oct 3	150.8	80.3	71.2	14
Winterset	Mike Erdman	silty clay loam	minimum	corn	—	May 13	Oct 18	143.5	65.7	67.3	20
								IASO	66.5	20	

SOYBEAN REGIONAL ANNUAL YIELD AVERAGES FOR 2019–2023

FIRST Region	Average Yield by Year (Bu/A)					Since Inception	
	2023	2022	2021	2020	2019	Bu/A	#Years
IASC	69.2	74.7	81.1	58.3	58.4	61.3	22
IASO	72.0	64.8	73.5	62.4	70.3	66.5	20

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THANK YOU!

American farmers are the heart of Farmers' Independent Research of Seed Technologies (FIRST). Families and farms around the Midwest and Mid-Atlantic host and manage FIRST plots to provide actionable yield data to their fellow farmers and industry professionals. Thank you to all our host farmers!

FIRST is proud to serve the agricultural community each year by organizing corn, soybean, and corn silage trials in 15 states. Find out about more about methodology, results, and how to get involved with the trials at www.firstseedtests.com.



FIRST made some changes this year: come visit the updated website. On your mobile device, choose "Add to my Home Screen" to use it more like an "app".

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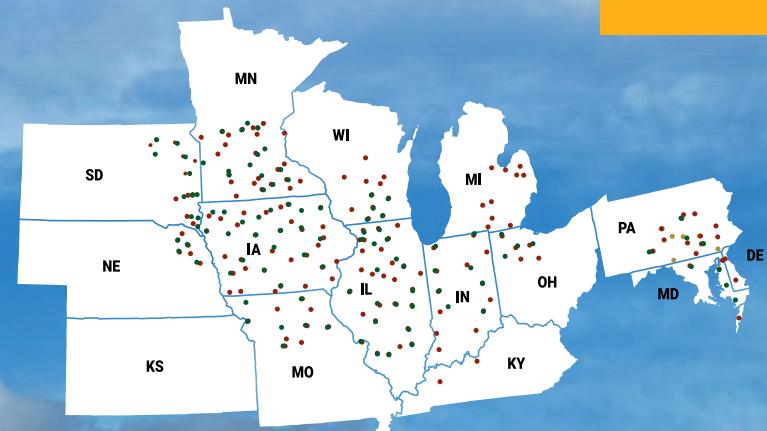


Find the yield results of interest to you on the interactive Reports and Products pages. See the complete trials results for each product tested by FIRST, including summary statistics and maps. Search for a specific seed product on our NEW site search feature.

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