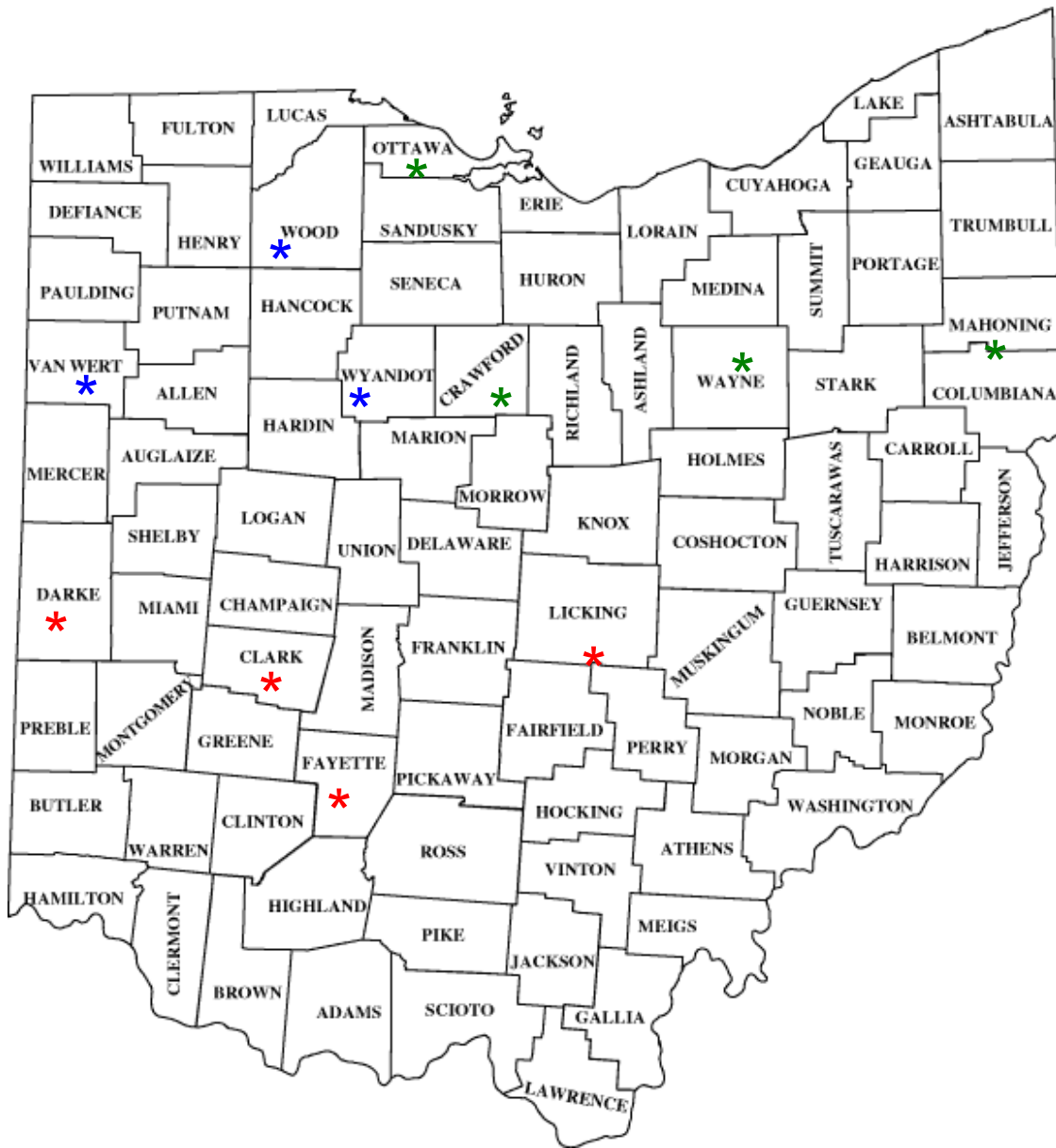


2022 OHIO ORGANIC CORN PERFORMANCE TEST



* Southwest / West Central Region * Northwest Region * North Central / Northeast Region
 Wood – Corn Grain and Silage Wayne – Organic and Conventional
 Ottawa - Organic

www.ohiocroptest.cfaes.osu.edu/organiccorntrials



THE OHIO STATE UNIVERSITY

COLLEGE OF FOOD, AGRICULTURAL,
AND ENVIRONMENTAL SCIENCES

2022 OHIO ORGANIC CORN PERFORMANCE TEST

R.J. Minyo and O. Ortez, Department of Horticulture and Crop Science, College of Food, Agricultural, and Environmental Sciences (CFAES), M.A. Lowe and M. Sword, CFAES Wooster Farm Operations, and D.G. Lohnes, CFAES Information Technology
Ohio State University Extension / Ohio Agricultural Research & Development Center

The purpose of the Ohio Organic Corn Performance Test (OOCPT) is to evaluate certified organic corn hybrids for grain yield and other important agronomic characteristics. Results of the test can assist farmers in selecting hybrids best suited to their farming operations and production environments as well as recommendations made by seed companies and breeding programs. Corn hybrids differ considerably in yield potential, standability, maturity, and other agronomic characteristics that affect profitable crop production. Hybrid selection should be based on proven performance from multiple test locations and years. The presentation of data does not imply endorsement of any hybrid by The Ohio State University.

EVALUATION PROCEDURES

Seed companies marketing organic corn hybrids in Ohio are invited to submit hybrids for evaluation. In 2022, companies were permitted to enter an unlimited number of hybrids and an entry fee is charged to cover operating expenses. The tests were conducted on certified organic fields at Apple Creek (West Badger Farm), Wooster (Fry Farm) in Wayne County and Graytown in Ottawa county. Test sites were intensively managed for nutrients and weed control. Each hybrid entry was evaluated using four replications per site in a randomized complete block design. Hybrids were planted either in an early or full season maturity test based on relative maturity information provided by the companies. The relative maturity of hybrid entries in the early maturity test were 106 days or earlier and the relative maturity of hybrid entries in the full season test were 107 days or later. Hybrids were planted with an Almaco Seed Pro 360 vacuum plot planter with SkyTrip GPS. Each plot consisted of four 30-inch rows 25 feet long with the center two rows utilized for data collection. The planting rates and target final stands are determined by known field history and yield goals. Soil amendments were applied according to recommended cultural practices for obtaining optimum grain yields. Details concerning the establishment and management of each 2022 test are listed in footnotes below the tables.

MEASUREMENTS AND RECORDS

YIELD. The center two rows of each plot were harvested with an Almaco research combine with an integrated weight and moisture data collection system. Yields were reported as bushels of grain per acre (Bu/A) at 15.5% moisture.

MOISTURE (Harv Mst). A grain moisture determination was made from each plot with an electrical conductance moisture meter. Grain moisture was reported as percent grain moisture.

LODGING (Stk Ldg). The number of broken stalks in each plot was determined just prior to harvest. Only those plants with a stalk broken below the ear were considered stalk lodged. Stalk lodging was reported as a percentage of final plant stand.

FINAL STAND (Final Std). Differences between the planting rate and the final stand may be attributed to seed quality and/or environmental conditions present. Populations were reported in hundreds per acre (100/A).

EMERGENCE (Emg). An emergence count was made on each plot after plant emergence. The emergence percentage was computed based on the number of plants and the number of seeds planted and was reported as a percentage of the seeds planted.

TEST WEIGHT (TW). Test weights were recorded in pounds (Lbs.) per bushel on grain samples at field moisture. The results are an average of all sites in each region.

LSD 0.10. Least Significant Differences at probability level 0.10 (LSD 0.10) are reported for yield and other agronomic characteristics. Differences between hybrids are significant only if they are equal to or greater than the LSD value. If a given hybrid out-yields another hybrid by as much or more than the LSD value, then we are 90% confident (i.e., the odds are 10:1) that the yield difference is real, with only a 10% probability that the difference is due to chance variation (such as soil variation, etc.). For example, if Hybrid X is 19 Bu/A higher in yield than Hybrid Y, then this difference is statistically significant if the LSD is 19 Bu/A or less. If the LSD is 20 Bu/A or greater, then we are less confident that Hybrid X is really higher yielding than Hybrid Y under conditions of the test. If “NS” is indicated for a characteristic, then the differences among hybrid entries are not significant at the 10% probability level.

2022 GROWING CONDITIONS

Wet/cool soil conditions in May delayed field preparation and planting. The Organic OCPT fields were planted in the second half of May into conventionally tilled fields with good soil moisture. Some conditions that favored these delays included wet soil (surplus moisture and standing water in many areas) and below-average temperatures (April and early May). The Wooster and Apple Creek organic locations received over 2” of rain within 48 hours of planting which impacted the emergence on most hybrids. The weather presented unique challenges that not only delayed planting but also delayed harvest, with two out of the three locations harvested on December 5th. Low/Moderate levels of Gray Leaf Spot could easily be found in the lower canopy with a few Northern Corn Leaf Blight lesions present. Additionally, tar spot was observed late in the season (R4 and R5 stages) in all locations. When tar spot appears late in the season, less yield impact is expected. Gibberella Ear Rot was present at low to moderate levels in several hybrids.

Wooster: Excellent soil moisture at planting. Growing conditions were favorable for most of the growing season. Minor animal damage was observed at harvest with a few plants pulled down by the local deer herd. Total rainfall 24.4” and 2522 growing degree days (GDD) planting through harvest.

Apple Creek: Soil moisture was acceptable at planting with uniform emergence and early growth. Timely rain events in July and August with minimal crop stress. September rains added TW and site finished strong. Total rainfall 23.1” and 2582 GDD planting through harvest.

Graytown: Excellent soil moisture at planting, even emergence and early growth. Heavy rain events in early June followed by extremely dry conditions late in growing season. Growing season precipitation and GDD information will be available on the web site.

RESULTS

In 2022, Organic OCPT yields were exceptional and exceeded expectations. Averaged across hybrid entries in the early and full season tests, yields were 211 Bu/A. Yields at individual test sites averaged across hybrid entries in the early and full season tests ranged from 193 Bu/A - Graytown, 213 Bu/A – Apple Creek to 226 Bu/A at Wooster.

Results of the 2022 testing program are presented in Tables 1 and 2. The 2 & 3 year averages for the Apple Creek and Wooster locations are presented in Table 3. Yields and other agronomic performance characteristics have been averaged across the individual test sites and shown under the SUMMARY heading for each test. The seed source and table location for hybrids are shown in Table 4. The seed treatments associated with each hybrid entry (information provided by seed companies) are indicated in Table 4. Hybrids are listed in alphabetical order by brand.

Confidence in test results increases with the number of years and the number of locations in which the hybrid was tested. Look for consistency in a hybrid's performance across a range of environmental conditions. Yield, standability, grain moisture, and other comparisons should be made between hybrids of similar maturity to determine those best adapted to your farm. Results are also available online at: <https://ohiocroptest.cfaes.osu.edu/organiccorntrials>. Hybrids can be sorted by yield, brand, and other variables online.

Acknowledgments: Thank you to the organic seed industry for their contributions and supporting the hybrid testing program. We thank our on-farm cooperator, Steve Turnow, for his contributions to the 2022 corn hybrid testing program. We are grateful for the assistance provided by Matt Lowe, CFAES Research Operations at Wooster; Mike Sword and the Farm Operations team assisting with field operations; and Ken Scaife, CFAES Operations Wooster.

CFAES provides research and related educational programs to clientele on a nondiscriminatory basis. For more information, visit go.osu.edu/cfaesdiversity. For an accessible format of this publication, visit cfaes.osu.edu/accessibility.

Table 1. Performance of hybrids in the Organic Early Maturity trial (106 Day RM and Earlier) in North Central / Northeast Ohio, 2022.

Brand	Hybrid	RM	Graytown					Apple Creek					Wooster					Summary					
			Yield	Harv.	Stk.	Final		Yield	Harv.	Stk.	Final		Yield	Mst.	Ldg.	Final		Yield	Mst.	Ldg.	Final		TW
				-----%-----	100/A	--%--	-----%-----		100/A	--%--	-----%-----	100/A		--%--	-----%-----	100/A	--%--		-----%-----	100/A	--%--	Lbs.	
American Organic	AM 2378	103	175.1	15.6	0	303	89	194.0	17.4	15	254	71	221.0	17.5	0	285	80	196.7	16.8	5	280	80	58.1
Blue River	48G35	102	192.0	15.7	0	320	96	188.2	18.4	1	230	65	215.9	18.1	1	287	82	198.7	17.4	1	279	81	57.3
Blue River	49M23	103	177.1	15.7	1	321	97	226.3	17.8	0	311	88	213.0	17.6	0	314	88	205.5	17.0	0	315	91	57.4
Blue River	54C27	105	206.9	15.7	2	318	92	204.6	19.1	5	255	72	221.6	18.7	2	289	82	211.0	17.8	3	287	82	56.9
Merit	O 5454	104	189.6	15.7	2	328	97	245.0	19.9	2	283	81	240.2	19.7	2	320	91	224.9	18.4	2	310	90	55.8
Merit	O 6160	106	199.4	16.1	14	323	97	211.2	18.9	0	276	78	215.0	18.8	0	309	88	208.5	17.9	5	303	88	56.4
Prairie Hybrid	PH 2741	102	175.5	15.9	6	317	93	214.3	17.8	2	267	76	233.5	17.7	1	308	87	207.8	17.1	3	297	85	56.4
Prairie Hybrid	PH 4211	106	200.5	16.6	1	318	95	219.4	19.6	1	281	80	234.7	20.0	0	276	77	218.2	18.7	1	291	84	56.7
Prairie Hybrid	PH 5281	102	152.0	17.7	0	327	95	212.9	20.8	0	292	81	235.5	21.5	16	297	83	200.1	20.0	6	306	86	53.8
Viking	O.18-06UP	106	178.5	15.6	1	333	98	230.7	17.3	1	296	84	222.8	17.2	1	299	85	210.7	16.7	1	309	89	59.1
Viking	O.46-02P	102	177.7	15.6	1	328	95	211.7	17.1	1	285	80	230.8	17.0	2	307	86	206.7	16.5	1	307	87	58.2
Viking	O.51-04P	104	169.0	15.7	2	282	83	203.9	18.8	0	240	69	202.8	18.5	1	257	72	191.9	17.7	1	259	75	56.7
Viking	O.69-01P	101	184.2	16.0	4	316	94	218.2	18.6	1	290	82	215.9	18.4	2	286	80	206.1	17.6	2	297	86	57.8
Viking	O.85-00P	100	171.3	16.1	0	299	89	132.8	17.0	0	259	73	202.6	17.0	0	282	80	168.9	16.7	0	280	81	56.9
Welter Seed & Honey	WS 2260	102	166.0	15.7	2	319	95	216.7	19.3	6	264	75	225.8	18.8	4	292	83	202.8	17.9	4	292	84	56.1
Welter Seed & Honey	WS 2482	104	205.8	16.2	1	319	93	232.1	20.5	2	272	77	233.9	20.6	8	311	90	223.9	19.1	3	301	87	55.4
High			206.9	17.7	14	333	98	245.0	20.8	15	311	88	240.2	21.5	16	320	91	224.9	20.0	6	315	91	59.1
Average			182.5	16.0	2	317	94	210.1	18.6	2	272	77	222.8	18.6	3	295	83	205.2	17.7	2	295	85	56.8
Low			152.0	15.6	0	282	83	132.8	17.0	0	230	65	202.6	17.0	0	257	72	168.9	16.5	0	259	75	53.8
LSD .10			20.6	0.6	6	15	5	19.5	0.7	NS	33	9	17.2	0.8	7	24	7	21.2	0.8	NS	15.3	4.7	1
Soil Type			Hoytville Silty Clay Loam					Canfield Silt Loam					Canfield Silt Loam										
Soil Test (pH,P,K) M-3 ppm			6.9, 77, 269					7.5, 130, 340					7.1, 64, 272										
Previous Crop			Alfalfa					Oats / Cover Crop Mix					Oats / Cover Crop Mix										
Planting /Harvest Dates			May 23 / Nov. 14, 2022					May 25 / Dec. 5, 2022					May 25 / Dec. 5, 2022										
Tillage			Conventional Tillage					Conventional Tillage					Conventional Tillage										
Nutrients Applied (N,P,K)			None					43, 63, 200					43, 63, 200										
Cooperator			Steve Turnov					Mike Sword / Ken Scaife, OARDC					Mike Sword / Ken Scaife, OARDC										
County			Ottawa					Wayne					Wayne										

Table 2. Performance of hybrids in the Organic Full Season trial (107 Day RM and Later) in North Central / Northeast Ohio, 2022.

Brand	Hybrid	RM	Graytown					Apple Creek					Wooster					Summary					
			Yield	Stk.	Final	Emg.	TW	Yield	Stk.	Final	Emg.	TW	Yield	Stk.	Final	Emg.	TW	Yield	Stk.	Final	Emg.	TW	
			Bu/A	%	100/A			Bu/A	%	100/A			Bu/A	%	100/A			Bu/A	%	100/A			
American Organic	AM 2885	114	209.7	17.1	2	318	93	235.6	21.4	1	296	84	236.2	21.5	3	318	90	227.1	20.0	2	310	89	57.5
Blue River	57A30	107	195.1	15.3	13	325	96	206.6	18.2	1	302	86	230.7	18.0	4	323	92	210.8	17.2	6	317	91	56.8
Blue River	62G22	110	201.2	15.4	40	323	96	229.8	18.5	0	296	83	238.4	18.2	0	319	90	223.1	17.3	13	313	90	56.2
Blue River	64K93	111	202.5	16.3	2	315	92	221.0	19.5	2	247	69	232.0	19.1	2	287	81	218.5	18.3	2	283	81	57.3
Blue River	66G25	112	209.7	16.1	16	324	96	206.6	20.1	11	242	68	229.9	20.3	2	304	86	215.4	18.9	9	290	83	57.5
Prairie Hybrid	PH 5141	109	214.5	15.3	2	334	97	214.2	19.2	11	276	78	224.0	18.1	17	318	90	217.6	17.5	10	309	88	56.9
Prairie Hybrid	PH 6341	111	188.5	16.0	4	323	96	222.9	20.5	2	295	82	228.9	19.8	1	316	88	213.4	18.8	2	311	89	56.8
Prairie Hybrid	PH 8751	114	204.5	16.2	2	330	96	227.3	21.3	1	285	81	249.4	21.2	2	321	90	227.1	19.6	2	312	89	55.7
Viking	O.48-08GSP	108	201.3	15.5	2	313	92	191.6	19.4	0	217	61	215.5	19.3	2	282	80	202.8	18.1	1	271	78	56.2
Welter Seed & Honey	WS 4816	108	203.2	15.8	8	303	89	204.4	19.1	3	233	66	205.1	18.5	0	283	81	204.2	17.8	4	273	79	57.7
High			214.5	17.1	40	334	97	235.6	21.4	11	302	86	249.4	21.5	17	323	92	227.1	20.0	13	317	91	57.7
Average			203.0	15.9	9	321	94	216.0	19.7	3	269	76	229.0	19.4	3	307	87	216.0	18.3	5	299	86	56.9
Low			188.5	15.3	2	303	89	191.6	18.2	0	217	61	205.1	18.0	0	282	80	202.8	17.2	1	271	78	55.7
LSD .10			23.1	0.5	14	15	5	22.7	0.5	NS	35	10	14.7	0.5	NS	21	6	15.7	0.6	NS	20	6	0.8
Soil Type			Hoytville Silty Clay Loam					Canfield Silt Loam					Canfield Silt Loam										
Soil Test (pH,P,K) M-3 ppm			6.9, 77, 269					7.5, 130, 340					7.1, 64, 272										
Previous Crop			Alfalfa					Oats / Cover Crop Mix					Oats / Cover Crop Mix										
Planting /Harvest Dates			May 23 / Nov. 14, 2022					May 25 / Dec. 5, 2022					May 25 / Dec. 5, 2022										
Tillage			Conventional Tillage					Conventional Tillage					Conventional Tillage										
Nutrients Applied (N,P,K)			None					43, 63, 200					43, 63, 200										
Cooperator			Steve Turnow					Mike Sword / Ken Scaife, OARDC					Mike Sword / Ken Scaife, OARDC										
County			Ottawa					Wayne					Wayne										

TABLE 3. Two and three year organic hybrid performance in Northeast Ohio, 2020-2022.

Brand	Hybrid	Apple Creek, 2021-2022					Wooster, 2021-2022					Summary, 2021-2022					Apple Creek, 2020-2022						
		Yield	Mst.	Stk.	Final		Yield	Mst.	Ldg.	Std.	Emg.	Yield	Mst.	Ldg.	Std.	Emg.	TW	Yield	Mst.	Ldg.	Std.	Emg.	TW
		Bu/A	-----%	100/A	--%--		Bu/A	-----%	100/A	--%--		Bu/A	-----%	100/A	--%--	Lbs.		Bu/A	-----%	100/A	--%--	Lbs.	
Blue River	54C27	216.9	19.4	3	288	81	222.0	19.3	3	316	89	219.5	19.3	3	302	85	55.3						
Blue River	57A30	215.2	18.8	2	318	90	226.7	19.0	5	333	94	221.0	18.9	3	325	92	55.7	214.7	19.1	3	307	88	55.5
Blue River	62G22	235.0	19.0	2	317	90	223.6	19.2	3	330	94	229.3	19.1	2	323	92	55.2	231.0	19.3	3	312	90	55.1
Blue River	64K93	223.6	20.3	2	282	80	216.5	19.5	7	306	88	220.1	19.9	5	294	84	55.7						
Blue River	66G25	215.1	20.6	8	280	80	219.9	20.7	20	317	90	217.5	20.7	14	298	85	56.1	216.6	21.0	7	283	81	56.1
Merit	O 5454	236.4	19.9	2	288	83	225.1	19.7	5	309	87	230.7	19.8	3	298	85	54.9	236.3	19.8	17	293	85	55.0
Merit	O 6160	209.1	19.2	1	286	81	216.9	19.9	1	292	84	213.0	19.6	1	289	83	55.3	213.8	19.3	2	295	84	55.4
Prairie Hybrid	PH 2741	225.1	18.5	2	301	86	224.7	18.7	1	318	90	224.9	18.6	2	309	88	55.5	222.9	18.4	13	304	88	55.6
Prairie Hybrid	PH 4211	208.9	19.7	2	303	86	228.2	20.2	15	307	88	218.6	20.0	8	305	87	55.4	214.7	20.1	3	307	88	55.7
Prairie Hybrid	PH 5141	224.8	19.0	7	297	84	223.7	19.0	10	330	93	224.2	19.0	8	313	89	55.4	229.2	19.0	6	299	86	55.2
Prairie Hybrid	PH 6341	227.2	20.5	1	314	89	227.6	20.3	3	332	93	227.4	20.4	2	323	91	55.2	227.1	20.4	3	315	90	55.4
Prairie Hybrid	PH 8751	238.3	20.9	2	308	88	233.3	21.0	3	331	93	235.8	20.9	2	319	91	54.3	234.4	20.7	14	306	88	54.1
Viking	O.18-06UP	224.1	18.6	1	297	85	218.7	19.1	5	316	89	221.4	18.8	3	306	87	57.7	224.4	19.2	4	292	84	58.2
Viking	O.46-02P	213.0	18.2	1	283	80	223.6	18.5	1	311	88	218.3	18.4	1	297	84	57.3	219.3	18.5	2	281	81	57.2
Viking	O.48-08GSP	209.6	19.8	1	253	72	222.5	20.1	3	287	81	216.0	20.0	2	270	77	54.9	215.5	19.8	1	264	76	54.7
Viking	O.51-04P	214.0	19.1	1	282	81	209.1	19.7	20	296	84	211.5	19.4	11	289	82	55.5	215.2	19.3	5	292	85	56.2
Viking	O.69-01P	205.9	19.1	2	289	82	203.4	19.0	2	307	86	204.6	19.0	2	298	84	56.7	211.8	19.2	3	291	83	56.4
Welter Seed & Honey	WS 2482	224.5	20.3	2	282	81	223.2	20.5	8	306	88	223.9	20.4	5	294	85	54.6	224.2	20.3	6	284	82	54.5
Welter Seed & Honey	WS 4816	212.8	19.6	3	279	80	206.5	19.6	2	300	86	209.6	19.6	2	289	83	56.1	215.3	19.7	4	284	82	56.3
High		238.3	20.9	8	318	90	233.3	21.0	20	333	94	235.8	20.9	14	325	92	57.7	236.3	21.0	17	315	90	58.2
Average		220.0	19.5	2	292	83	220.8	19.6	6	313	89	220.4	19.6	4	302	86	55.6	221.6	19.6	6	295	85	55.7
Low		205.9	18.2	1	253	72	203.4	18.5	1	287	81	204.6	18.4	1	270	77	54.3	211.8	18.4	1	264	76	54.1

TABLE 4. Seed source, table location and seed treatments for hybrids tested in 2022.

Brand	Seed Source	Hybrid No.	Relative Maturity	Table No.	Seed Treatment
AMERICAN ORGANIC	AMERICAN ORGANIC 1676 CR 2200 EAST ST. JOSEPH, IL 61873 217-469-2351 sunprairieseeds.com	AM 2378	103	1	1R
		AM 2885	114	2	1R
BLUE RIVER ORGANIC SEED	BLUE RIVER ORGANIC SEED 1414 W. MAIN ST. / PO BOX 127 ALBERT LEA, MN 56007 800-352-5247 blueriverorgseed.com	48G35	102	1	ArmorUp
		49M23	103	1	ArmorUp
		54C27	105	1, 3	ArmorUp
		57A30	107	2, 3	ArmorUp
		62G22	110	2, 3	ArmorUp
		64K93	111	2, 3	ArmorUp
		66G25	112	2, 3	ArmorUp
MERIT	MERIT SEED P.O. BOX 205 BERLIN, OH 44610 330-893-3196 meritseed.com	O 5454	104	1, 3	1R Soil Biotics
		O 6160	106	1, 3	1R Soil Biotics
PRAIRIE HYBRIDS	PRAIRIE HYBRID SEEDS 27445 HURD RD. DEER GROVE, IL 61243 815-438-7815 prairiehybrids.com	PH 2741	102	1, 3	Emerge+
		PH 4211	106	1, 3	Emerge+
		PH 5281	102	1	Emerge+
		PH 5141	109	2, 3	Emerge+
		PH 6341	111	2, 3	Emerge+
		PH 8751	114	2, 3	Emerge+
VIKING	ALBERT LEA SEED HOUSE 1414 W. MAIN ST. / PO BOX 127 ALBERT LEA, MN 56007 800-352-5247 alseed.com	O.69-01P	101	1, 3	Soil Biotics 1r + SabrEx LQ
		O.46-02P	102	1, 3	Soil Biotics 1r + SabrEx LQ
		O.51-04P	104	1, 3	Soil Biotics 1r + SabrEx LQ
		O.18-06UP	106	1, 3	Soil Biotics 1r + SabrEx LQ
		O.48-08GSP	108	2, 3	Soil Biotics 1r + SabrEx LQ
		O.85-00P	100	1	Soil Biotics 1r + SabrEx LQ
WELTER SEED & HONEY	WELTER SEED & HONEY 17724 HWY. 136 ONSLow, IA 52321 800-470-3325 welterseed.com	WS 4816	108	2, 3	None
		WS 2482	104	1, 3	None
		WS 2260	102	1	None