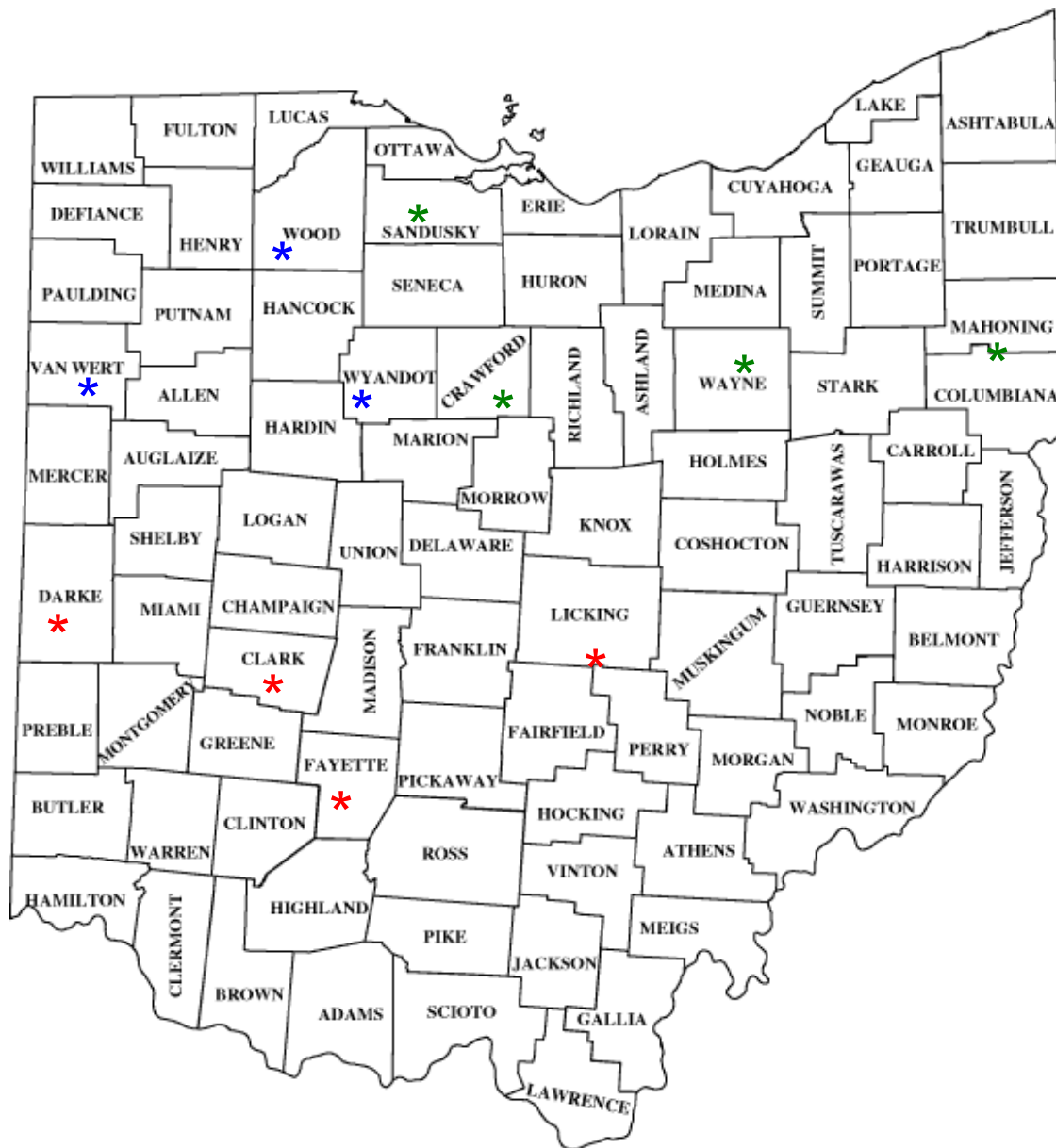


2021 OHIO ORGANIC CORN PERFORMANCE TEST



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

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THE OHIO STATE UNIVERSITY

COLLEGE OF FOOD, AGRICULTURAL,
AND ENVIRONMENTAL SCIENCES

2021 OHIO ORGANIC CORN PERFORMANCE TEST

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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. 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 2021, 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) and Wooster (Fry Farm) in Wayne County and 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 trial based on relative maturity information provided by the companies. The relative maturity of hybrid entries in the early maturity trial were 106 days or earlier; the relative maturity of hybrid entries in the full season trial 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 2021 test are listed in footnotes below the tables.

MEASUREMENTS AND RECORDS

YIELD. The center two rows of each plot were harvested with a self-propelled two-row picker sheller combine. Yields were reported as bushels of grain per acre (BU/A) at 15.5 percent 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). Seed corn producers selected a desired planting rate for each hybrid entered. 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 (100/A) per acre.

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 per bushel on grain samples at field moisture. The results are an average of all sites in the regional tests.

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.

2021 GROWING CONDITIONS

Wet/cool soil conditions in early May delayed field preparations and planting. The Organic OCPT fields were planted in early to mid-June into conventionally tilled fields with good soil moisture. The warm and moist soils conditions were favorable for uniform emergence and early growth. Rain events in July and August were timely with minimal crop stress during pollination and early grain fill. September rains promoted grain fill, added TW and sites finished strong. At the Apple Creek location for planting date #1, total rainfall was 21.2" and 2669 GDD planting thru harvest. Low to moderate levels of Gray Leaf Spot could easily be found in the lower canopy with a few NCLB lesions present. Southern Rust appeared late in the season and did not impact yields. Low levels of Diplodia and Gibberella were observed in a few hybrids.

RESULTS

In 2021, Organic OCPT yields were exceptional and exceeded expectations. Averaged across hybrid entries in the early and full season tests, yields were 201 bu./A. Yields at individual test sites, averaged across hybrid entries in the early and full season tests, ranged from 174 bu./A - Apple Creek (Plant Date #2), 211 bu./A - Wooster to 218 bu./A at Apple Creek (Plant Date #1). The planned Lindsey site in Sandusky County was not planted in 2021 due to saturated soil conditions from late-May through mid-June. An additional field was planted, Apple Creek Plant Date #2, to compare hybrid response to planting dates, soil amendments and field management.

Results of the 2021 testing program are presented in Tables 1 and 2. The 2 & 3 year averages for the Apple Creek location are presented in table 3. 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. Yields and other agronomic performance characteristics have been averaged across the individual test sites and shown under the SUMMARY heading for each maturity group. 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 of the crop performance trials for 2021 are 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 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, OSU-OARDC Wooster.

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Dr. Jacqueline Wilkins, director, OSU Extension.

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Table 1. Performance of hybrids in the Organic Early Maturity trial. (106 Day RM and Earlier) North Central / Northeast Ohio, 2021.

Brand	Hybrid	RM	Apple Creek (Plant Date #2)					Apple Creek					Wooster					Summary					
			Yield	Mst.	Stk. Ldg.	Final		Yield	Mst.	Stk. Ldg.	Final		Yield	Mst.	Stk. Ldg.	Final		Yield	Mst.	Stk. Ldg.	Final		TW
						100/A	--%--				100/A	--%--				100/A	--%--				100/A	--%--	
American Organic	AM 1890	99	162.4	21.3	2	310	89	202.7	18.7	2	302	86	204.0	19.8	6	311	89	189.7	19.9	3	308	88	56.9
Blue River	42C87	98	174.3	20.1	4	307	88	201.2	18.2	2	300	85	211.0	18.6	31	331	94	195.5	18.9	13	313	89	54.2
Blue River	43L96	98	137.4	22.3	4	328	93	185.0	19.4	8	333	95	169.0	20.2	31	338	96	163.8	20.6	14	333	95	52.9
Blue River	54C27	105	181.2	21.7	2	312	89	229.2	19.7	1	322	91	222.4	20.0	4	342	97	210.9	20.4	2	325	92	54.1
Blue River	54PM37	105	156.3	21.3	4	299	86	203.8	18.9	1	326	94	208.2	20.3	0	324	92	189.4	20.2	2	317	91	55.2
Merit	O 3238	98	159.8	20.5	3	330	94	187.6	18.5	3	337	94	198.4	19.6	2	343	95	181.9	19.5	3	337	95	55.5
Merit	O 4800	100	182.8	22.4	1	310	89	219.3	19.6	3	303	88	201.1	20.7	2	309	89	201.1	20.9	2	307	89	55.4
Merit	O 5454	104	166.8	22.4	1	268	77	227.7	19.9	3	293	85	210.0	19.7	7	297	84	201.5	20.7	4	286	82	53.9
Merit	O 6160	106	167.2	23.5	1	260	75	207.0	19.6	1	296	85	218.7	21.0	1	276	80	197.6	21.4	1	278	80	53.6
Merit	O 6765	105	156.8	22.8	0	289	84	202.7	19.0	2	311	90	192.7	19.4	3	306	88	184.1	20.4	2	302	87	53.1
Prairie Hybrid	PH 2741	102	192.3	21.8	4	333	96	235.8	19.1	3	334	96	215.8	19.7	2	327	93	214.7	20.2	3	331	95	53.8
Prairie Hybrid	PH 4211	106	161.2	23.1	7	329	95	198.4	19.8	3	326	93	221.8	20.5	30	339	98	193.8	21.1	13	331	95	53.9
Seed Consultants	SCS 1043N	104	186.4	22.3	1	285	82	221.1	19.4	1	295	85	210.8	20.1	5	318	90	206.1	20.6	3	299	86	55.6
Seed Consultants	SCS 989N	98	157.7	20.8	2	284	81	179.1	18.8	1	278	79	189.7	19.3	3	296	85	175.5	19.6	2	286	82	57.1
Viking	O.18-06P	106	196.3	22.9	1	332	95	217.5	19.8	2	297	85	214.6	21.0	10	333	93	209.5	21.3	4	321	91	55.9
Viking	O.46-02P	102	196.1	21.9	0	312	89	214.4	19.2	2	282	81	216.3	20.1	1	315	90	208.9	20.4	1	303	87	55.5
Viking	O.51-04P	104	177.7	21.7	6	318	90	224.1	19.5	2	323	93	215.4	20.8	39	335	95	205.7	20.7	16	325	93	53.5
Viking	O.69-01P	101	166.0	22.1	3	304	87	193.6	19.5	3	287	81	190.8	19.6	2	329	92	183.5	20.4	3	307	87	55.4
Welter Seed & Honey	WS 2482	104	177.5	21.8	4	278	79	216.9	20.1	3	292	85	212.6	20.4	8	301	87	202.3	20.8	5	290	84	54.0
High			196.3	23.5	7	333	96	235.8	20.1	8	337	96	222.4	21.0	39	343	98	214.7	21.4	16	337	95	57.1
Average			171.4	21.9	3	305	87	208.8	19.3	3	307	88	206.5	20.0	10	319	91	195.6	20.4	5	310	89	54.7
Low			137.4	20.1	0	260	75	179.1	18.2	1	278	79	169.0	18.6	0	276	80	163.8	18.9	1	278	80	52.9
LSD .10			12.0	0.7	4	17	5	14.1	0.4	3	19	6	19.6	0.9	20	16	5	12.2	1	NS	8.9	2.4	1
Soil Type	Canfield Silt Loam					Canfield Silt Loam					Canfield Silt Loam												
Soil Test (pH,P,K) M-3 ppm	6.2, 61, 163					5.9, 49, 136					6.7, 69, 265												
Previous Crop	Red Clover					Alfalfa					Oats / Red Clover												
Planting /Harvest Dates	June 17 / Dec. 4, 2021					June 1 / Dec. 4, 2021					June 11 / Dec. 5, 2021												
Tillage	Conventional Tillage					Conventional Tillage					Conventional Tillage												
Nutrients Applied (N,P,K)	42, 0, 0					43, 63, 200					42, 0, 0												
Cooperator	Mike Sword / Ken Scaife, OARDC					Mike Sword / Ken Scaife, OARDC					Mike Sword / Ken Scaife, OARDC												
County	Wayne					Wayne					Wayne												

Table 2. Performance of hybrids in the Organic Full Season trial. (107 Day RM and Later) North Central / Northeast Ohio, 2021.

Brand	Hybrid	RM	Apple Creek (Plant Date #2)					Apple Creek					Wooster					Summary					
			Yield	Mst.	Stk.	Final		Yield	Mst.	Stk.	Final		Yield	Mst.	Stk.	Final		Yield	Mst.	Stk.	Final		TW
						Bu/A	%				100/A	%				Bu/A	%				100/A	%	
American Organic	AM 2500	110	182.4	24.0	5	315	90	208.8	19.7	4	320	92	220.9	20.8	7	319	91	204.0	21.5	6	318	91	54.9
Blue River	57A30	107	163.6	22.1	10	328	93	223.8	19.4	3	334	95	222.7	19.9	5	342	97	203.4	20.5	6	335	95	53.5
Blue River	60PM11	109	172.3	21.4	19	323	93	222.6	19.8	1	327	93	209.5	20.8	3	334	95	201.5	20.7	8	328	93	54.2
Blue River	62G22	110	174.9	22.3	8	340	97	240.3	19.6	3	337	96	208.8	20.1	5	341	98	208.0	20.7	5	339	97	53.3
Blue River	64K93	111	173.4	23.7	3	325	94	226.3	21.2	2	317	91	201.0	19.9	12	326	95	200.2	21.6	6	323	93	54.1
Blue River	66G25	112	179.9	24.6	17	326	93	223.5	21.1	5	317	91	209.9	21.0	39	329	93	204.4	22.3	20	324	92	54.6
Blue River	66PM19	112	169.8	25.8	8	309	88	215.9	20.9	2	312	89	208.5	20.4	12	316	90	198.1	22.4	7	312	89	53.8
Prairie Hybrid	PH 5141	109	183.8	20.8	2	336	96	235.3	18.9	3	318	91	223.3	19.9	3	342	96	214.1	19.9	2	332	95	54.2
Prairie Hybrid	PH 6341	111	175.0	24.4	6	325	93	231.4	20.5	1	332	95	226.3	20.7	6	349	98	210.9	21.9	4	336	95	53.6
Prairie Hybrid	PH 8751	114	184.8	24.3	2	334	95	249.3	20.5	2	332	96	217.2	20.7	5	341	97	217.1	21.8	3	336	96	53.3
Seed Consultants	SCS 1087N	108	156.1	21.6	19	292	84	225.4	19.1	4	315	90	212.2	19.6	23	308	87	197.9	20.1	16	305	87	54.2
Viking	O.48-08P	108	195.0	23.4	2	282	80	227.7	20.3	1	288	82	229.4	20.9	4	291	83	217.4	21.5	3	287	82	53.2
Welter Seed & Honey	WS 4816	108	186.4	22.8	4	324	92	221.2	20.2	2	324	93	207.8	20.7	3	318	91	205.1	21.3	3	322	92	54.9
High			195.0	25.8	19	340	97	249.3	21.2	5	337	96	229.4	21.0	39	349	98	217.4	22.4	20	339	97	54.9
Average			176.7	23.2	8	320	91	227.0	20.1	3	321	92	215.2	20.4	10	327	93	206.3	21.2	7	323	92	54.0
Low			156.1	20.8	2	282	80	208.8	18.9	1	288	82	201.0	19.6	3	291	83	197.9	19.9	2	287	82	53.2
LSD .10			11.0	0.7	14	15	4	13.8	NS	NS	10	3	16.3	0.5	NS	14	4	11.4	0.6	NS	15	4	1.0
Soil Type			Canfield Silt Loam					Canfield Silt Loam					Canfield Silt Loam										
Soil Test (pH,P,K) M-3 ppm			6.2, 61, 163					5.9, 49, 136					6.7, 69, 265										
Previous Crop			Red Clover					Alfalfa					Oats / Red Clover										
Planting /Harvest Dates			June 17 / Dec. 4, 2021					June 1 / Dec. 4, 2021					June 11 / Dec. 5, 2021										
Tillage			Conventional Tillage					Conventional Tillage					Conventional Tillage										
Nutrients Applied (N,P,K)			42, 0, 0					43, 63, 200					42, 0, 0										
Cooperator			Mike Sword / Ken Scaife, OARDC					Mike Sword / Ken Scaife, OARDC					Mike Sword / Ken Scaife, OARDC										
County			Wayne					Wayne					Wayne										

TABLE 3. Two and three year organic hybrid performance in Northeast Ohio, 2021.

Brand	Hybrid	Apple Creek, 2020-2021						Apple Creek, 2019-2021							
		Yield	Harv.	Stk.	Final	Std.	Emg.	TW	Yield	Harv.	Stk.	Final	Std.	Emg.	TW
		Bu/A	-----%-----	-----%-----	100/A	--%--	Lbs.	Bu/A	-----%-----	-----%-----	100/A	--%--	Lbs.		
American Organic	AM 2500	207.8	21.8	5	297	86	54.5	215.5	22.2	4	290	85	55.1		
Blue River	42C87	210.4	18.2	5	305	88	55.3								
Blue River	57A30	218.7	19.6	4	309	89	55.1	222.5	20.3	3	310	90	54.9		
Blue River	62G22	231.6	19.7	4	320	93	54.8	237.6	20.9	3	322	94	54.4		
Blue River	66G25	221.6	21.4	5	303	88	55.9	226.9	22.5	4	309	90	55.4		
Merit	O 4800	218.7	19.8	4	300	88	57.7								
Merit	O 5454	231.9	19.7	24	299	87	55.0	238.6	20.4	17	301	87	54.8		
Merit	O 6160	215.0	19.5	2	304	88	55.2	222.9	20.5	2	309	90	55.0		
Merit	O 6765	216.5	19.5	17	309	89	54.2	217.9	20.1	13	305	89	54.6		
Prairie Hybrid	PH 2741	227.2	18.8	19	323	94	55.4	228.6	19.2	14	319	93	55.4		
Prairie Hybrid	PH 4211	212.3	20.3	4	320	92	55.7								
Prairie Hybrid	PH 5141	236.7	18.9	4	311	90	55.1								
Prairie Hybrid	PH 6341	229.2	20.4	4	324	94	55.5								
Prairie Hybrid	PH 8751	237.9	20.4	21	316	92	54.0	244.2	21.7	17	315	92	53.7		
Viking	O.18-06P	221.3	20.1	5	289	85	57.6								
Viking	O.46-02P	223.1	19.3	2	280	81	56.9								
Viking	O.48-08P	227.4	20.0	2	288	84	54.6	229.3	21.4	2	295	86	53.7		
Viking	O.51-04P	220.9	19.6	7	318	93	56.1	229.7	19.6	8	319	93	56.0		
Viking	O.69-01P	208.6	19.6	4	291	83	56.0								
Welter Seed & Honey	WS 2482	220.3	20.1	8	290	85	54.6	230.2	20.9	7	289	85	54.3		
Welter Seed & Honey	WS 4816	220.8	20.0	5	310	90	56.2	226.9	20.7	4	308	90	55.6		
High		237.9	21.8	24	324	94	57.7	244.2	22.5	17	322	94	56.0		
Average		221.8	19.8	7	305	88	55.5	228.5	20.8	7	307	89	54.8		
Low		207.8	18.2	2	280	81	54.0	215.5	19.2	2	289	85	53.7		

TABLE 4. Seed source, table location and seed treatments for hybrids tested in 2021.

Brand	Seed Source	Hybrid No.	Relative Maturity	Table No.	Seed Treatment
AMERICAN ORGANIC	CHAMPAIGN COUNTY SEED CO. 1676 CR 2200 EAST ST. JOSEPH, IL 61873 217-469-2351 american-organic.com	AM 1890	99	1	1R
		AM 2500	110	2, 3	1R
BLUE RIVER ORGANIC SEED	BLUE RIVER ORGANIC SEED 2326 230th ST. AMES, IA 50014 515-239-5928 blueriverorgseed.com	42C87	98	1, 3	1R
		43L96	98	1	1R
		54C27	105	1	1R
		54PM37	105	1	1R
		57A30	107	2, 3	1R
		60PM11	109	2	1R
		62G22	110	2, 3	1R
		64K93	111	2	1R
		66G25	112	2, 3	1R
66PM19	112	2	1R		
MERIT	MERIT SEED P.O. BOX 205 BERLIN, OH 44610 330-893-3196 meritseed.com	O 3238	98	1	Gen II PB
		O 4800	100	1, 3	Gen II PB
		O 5454	104	1, 3	Gen II PB
		O 6160	106	1, 3	Gen II PB
		O 6765	105	1, 3	Gen II PB
PRAIRIE HYBRIDS	PRAIRIE HYBRID SEEDS 27445 HURD RD. DEER GROVE, IL 61243 815-438-7815 prairiehybrids.com	PH 2741	102	1, 3	1R
		PH 4211	106	1, 3	1R
		PH 5141	109	2, 3	1R
		PH 6341	111	2, 3	1R
		PH 8751	114	2, 3	1R
SEED CONSULTANTS	SEED CONSULTANTS, INC. 648 MIAMI TRACE RD. SW WASHINGTON C. H., OH 43160 800-708-2676 seedconsultants.com	SCS 989N	98	1	1R
		SCS 1043N	104	1	1R
		SCS 1087N	108	2	1R
VIKING	ALBERT LEA SEED 1414 W. MAIN ST. / PO BOX 127 ALBERT LEA, MN 56007 800-352-5247 alseed.com	O.18-06P	106	1, 3	Soil Biotics 1r + SabrEx LQ
		O.46-02P	102	1, 3	Soil Biotics 1r + SabrEx LQ
		O.48-08P	108	2, 3	Soil Biotics 1r + SabrEx LQ
		O.51-04P	104	1, 3	Soil Biotics 1r + SabrEx LQ
		O.69-01P	101	1, 3	Soil Biotics 1r + SabrEx LQ
WELTER SEED & HONEY	WELTER SEED & HONEY 17724 HWY. 136 ON SLOW, IA 52321 800-852-3325 welterseed.com	WS 2482	104	1, 3	None
		WS 4816	108	2, 3	None