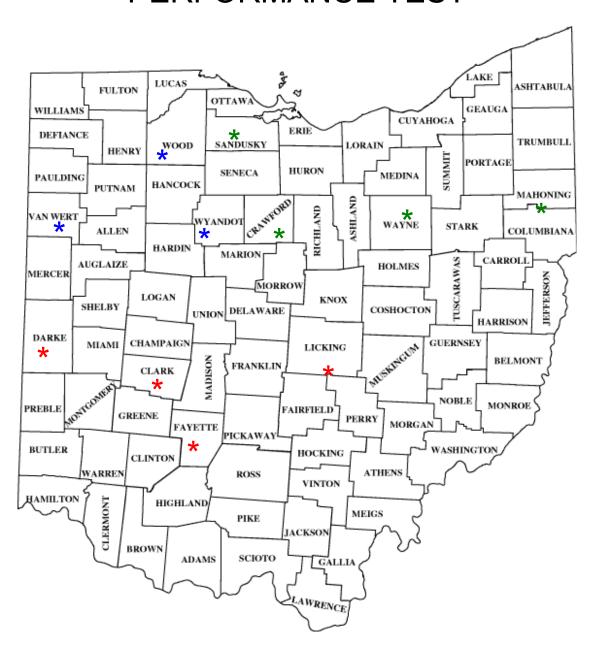
2020 OHIO ORGANIC CORN PERFORMANCE TEST



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

www.oardc.ohio-state.edu/corntrials



2020 OHIO ORGANIC CORN PERFORMANCE TEST

R.J. Minyo, A.B. Geyer, P.R. Thomison, Horticulture & Crop Science, G. Reid, Farm Operations and D.G. Lohnes, 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. 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 enter hybrids in the test. An entry fee is charged to cover expenses. In 2020, companies were permitted to enter an unlimited number of hybrids. The tests were conducted on certified organic fields at Apple Creek (West Badger Farm) and Wooster (Fry Farm) in Wayne County and Lindsey in Sandusky 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 2020 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.

2020 GROWING CONDITIONS

The Organic OCPT fields were planted in late May/early June into fields with good soil moisture. Rainfall was extremely variable from mid-June through mid-August. Adequate rainfall the end of August & early September combined with above average temperatures later in the season were favorable for corn development and extended the grain fill period well into October. Above average temperatures in November promoted the drying process and grain moistures dropped to a manageable level. Foliar diseases (Northern Corn Leaf Blight and Gray Leaf Spot) and ear rots (Diplodia) were observed but were generally present at low levels.

RESULTS

In 2020, Organic OCPT yields exceeded expectations. Averaged across hybrid entries in the early and full season tests, yields were 206 bu/A. Yields at individual test sites, averaged across hybrid entries in the early and full season tests, ranged from 191 bu/A at Lindsey to 222 bu/A at Apple Creek. Results for the Wooster site are not presented due to heavy rains immediately after planting reducing stands and limiting early weed control which created variability within the test plot field.

Results of the 2020 testing program are presented in Tables 1 and 2. Two-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 2020 are available online at: http://www.oardc.ohio-state.edu/organiccorntrials. Hybrids can be sorted by yield, brand, and other variables online.

Acknowledgments: We thank Kevin and Sue Hennis for proposing the Organic Corn Performance Test and for working with their industry contacts to promote hybrid submission. Thank you to the organic seed industry for their contributions and support. We thank our on-farm cooperator, Steve Turnow, for his contributions to the 2020 corn hybrid testing program. We are grateful for the assistance provided by Matt Lowe, Ohio State Farm Operations at Wooster; Gerald Reid, Organic Farm Manager with field operations; and Ken Scaife and Mike Sword, OSU-OARDC Wooster.

All educational programs conducted by Ohio State University Extension are available to clientele on a nondiscriminatory basis without regard to race, color, creed, religion, sexual orientation, national origin, gender, age, disability or Vietnam-era veteran status.

Dr. Jacqueline Wilkins, director, OSU Extension.

TDD No. 800-589-8292 (Ohio only) or 614-292-1868

Table 1. Performance of hybrids in the Organic Early Maturity trial. (106 Day RM and Earlier) North Central / Northeast Ohio, 2020.

					Line	lsey				Apple Creek			Summary							
				Harv.		Final					Stk.				'	Harv.		Final		
Brand	Hybrid	RM	Yield	Mst.		Std.			Yield		Ldg.		Emg.		Yield	Mst.			Emg.	
			Bu/A	%	ó	100/A	%	Lbs.	Bu/A	9	/ 0	100/A	%	Lbs.	Bu/A	%	ó	100/A	%	Lbs.
Blue River	42C87	98	182.0	18.3	9	290	89	55.2	219.6	18.2	8	311	91	55.8	200.8	18.2	8	301	90	55.5
Blue River	48G35	102	199.7	18.7	9	296	91	55.6	219.5	18.8	4	308	91	56.1	209.6	18.7	7	302	91	55.9
Blue River	51T59	103	200.6	19.1	6	310	95	56.6	227.2	19.1	14	305	90	57.0	213.9	19.1	10	308	92	56.8
Merit	O 3238	98	166.9	19.0	14	305	92	57.2	Animal		ge									
Merit	O 4800	100	181.5	20.2	6	288	88	58.4	218.0	20.0	4	298	87	58.5	199.7	20.1	5	293	88	58.5
Merit	O 5454	104	170.9	18.7	14	282	85	55.0	236.2	19.6	45	304	89	54.9	203.5	19.1	29	293	87	54.9
Merit	O 6160	106	203.9	19.1	43	316	97	54.5	223.1	19.4	3	312	91	54.7	213.5	19.3	23	314	94	54.6
Merit	O 6765	105	162.0	17.8	8	291	89	53.9	230.3	19.9	32	307	89	54.5	196.2	18.9	20	299	89	54.2
Prairie Hybrid	PH 2741	102	190.7	18.6	28	304	93	55.3	218.6	18.4	35	312	93	55.8	204.7	18.5	31	308	93	55.6
Prairie Hybrid	PH 3081	104	172.1	19.4	10	302	93	57.9	218.8	20.8	20	316	92	59.0	195.5	20.1	15	309	92	58.4
Prairie Hybrid	PH 4211	106	183.2	20.1	6	302	92	56.2	226.3	20.9	5	314	92	56.0	204.8	20.5	5	308	92	56.1
Viking	O.18-06P	106	178.6	19.6	8	278	86	57.1	225.1	20.4	9	282	84	57.6	201.8	20.0	8	280	85	57.3
Viking	O.46-02P	102	208.6	19.1	5	262	80	56.5	231.8	19.3	3	278	81	57.0	220.2	19.2	4	270	81	56.8
Viking	O.51-04P	104	187.9	19.1	24	297	91	56.0	217.7	19.8	13	313	92	56.5	202.8	19.4	18	305	91	56.3
Viking	O.55-02P	102	152.4	20.3	9	275	85	58.0	217.5	19.9	4	294	87	58.6	185.0	20.1	6	285	86	58.3
Viking	O.69-01P	101	183.4	19.3	3	266	82	55.3	223.6	19.6	4	295	86	55.7	203.5	19.4	3	281	84	55.5
Viking	O.85-00P	100	170.2	18.6	19	306	93	54.5	226.4	18.4	6	304	89	57.0	198.3	18.5	13	305	91	55.8
Welter Seed & Honey	WS 2482	104	177.1	18.8	25	286	87	54.8	223.8	20.2	14	288	84	54.3	200.4	19.5	20	287	86	54.6
High			208.6	20.3	43	316	97	58.4	236.2	20.9	45	316	93	59.0	220.2	20.5	31	314	94	58.5
Average			181.8	19.1	14	292	89	56.0	223.7	19.6	13	302	89	56.4	203.2	19.3	13	297	89	56.2
Low			152.4	17.8	3	262	80	53.9	217.5	18.2	3	278	81	54.3	185.0	18.2	3	270	81	54.2
LSD .10			15.1	0.4	22	17	5	0.9	NS	0.6	24	22	7	8.0	12.3	0.5	16	14	4	0.6
CV			7.0	1.7	125	5	5	1.3	5.6	2.3	138	2	6	1.2	7.2	2.8	139	6	6	1.3
Soil Type			Lenawe	e Silt I	oam				Canfield	l Silt L	nam									
Soil Test (pH,P,K) M-3 ppm			Lenawee Silt Loam 6.1, 82, 127						6.8, 43, 183											
Previous Crop			Soybeans						Alfalfa											
Planting /Harvest Dates			June 3 / Nov. 28, 2020							May 26 / Nov. 29, 2020										
Tillage			Conven						Conventional Tillage											
Nutrients Applied (N,P,K)			NA		J				78, 69, 218											
Cooperator			Steve T	urnow					Gerald		Ken S	caife, C	ARDO	;						
County			Sandus	ky					Wayne											

Table 2. Performance of hybrids in the Organic Full Season trial. (107 Day RM and Later) North Central / Northeast Ohio, 2020.

					Lind	lsey			Apple Creek			Summary								
				Harv.	Stk.	Final				Harv.	Stk.	Final		<u>.</u>		Harv.		Final		
Brand	Hybrid	RM	Yield	Mst.		Std.	Emg.		Yield	Mst.	Ldg.	Std.	Emg.		Yield		Ldg.		Emg.	
			Bu/A	%	6	100/A	%	Lbs.	Bu/A	9	/ ₀	100/A	%	Lbs.	Bu/A	%	6	100/A	%	Lbs.
American Organic	AM 2500	110	199.5	20.7	22	283	87	55.7	206.9	23.8	5	273	81	52.7	203.2	22.3	14	278	84	54.2
American Organic	AM 2785	112	217.6	19.9	12	299	89	54.4	232.1	22.2	10	310	89	51.0	224.8	21.1	11	304	89	52.7
American Organic	AM 2885	114	219.8	22.1	2	287	87	56.4	210.2	22.5	7	309	91	55.1	215.0	22.3	5	298	89	55.8
Blue River	57A30	107	206.1	18.8	25	303	95	55.4	213.7	19.7	4	285	84	54.9	209.9	19.2	15	294	90	55.2
Blue River	62G22	110	191.3	18.9	14	299	92	54.0	222.9	19.7	4	303	89	54.3	207.1	19.3	9	301	91	54.2
Blue River	66G25	112	202.9	20.5	15	301	92	55.6	219.7	21.6	5	288	84	55.0	211.3	21.0	10	295	88	55.3
Merit	O 6869	109	188.9	19.0	11	295	88	54.9	217.8	20.1	5	318	92	53.5	203.3	19.6	8	307	90	54.2
Merit	O 6969	107	181.7	19.6	20	294	90	56.2	217.3	19.8	6	315	93	55.2	199.5	19.7	13	304	92	55.7
Prairie Hybrid	PH 5141	108	216.5	18.8	2	288	89	54.9	238.1	18.9	6	304	89	54.8	227.3	18.9	4	296	89	54.8
Prairie Hybrid	PH 5351	109	197.1	21.2	10	306	94	59.1	210.4	22.4	5	308	91	57.9	203.8	21.8	7	307	92	58.5
Prairie Hybrid	PH 6341	111	202.4	19.4	7	284	86	56.3	227.0	20.2	7	317	93	54.6	214.7	19.8	7	300	89	55.4
Prairie Hybrid	PH 7861	112	191.2	20.5	71	295	91	57.6	204.5	20.5	5	298	87	58.3	197.8	20.5	38	297	89	57.9
Prairie Hybrid	PH 8751	114	207.6	18.7	2	302	92	54.6	226.5	20.3	39	300	87	53.4	217.0	19.5	21	301	90	54.0
Viking	O.48-08P	108	206.3	19.0	6	287	87	56.0	227.2	19.7	3	287	85	54.7	216.7	19.3	5	287	86	55.3
Viking	O.74-10P	110	203.3	20.4	2	284	87	55.2	215.1	21.4	4	273	80	54.1	209.2	20.9	3	278	83	54.6
Welter Seed & Honey	WS 4816	108	175.8	20.3	8	265	82	55.6	220.4	19.8	7	295	86	55.3	198.1	20.0	7	280	84	55.5
High			219.8	22.1	71	306	95	59.1	238.1	23.8	39	318	93	58.3	227.3	22.3	38	307	92	58.5
Average			200.5	19.9	14	292	89	55.7	219.3	20.8	8	299	88	54.7	209.9	20.3	11	295	88	55.2
Low			175.8	18.7	2	265	82	54.0	204.5	18.9	3	273	80	51.0	197.8	18.9	3	278	83	52.7
LSD .10			13.8	0.6	20	15	5	0.7	14.7	8.0	11	21	6	0.7	10.8	0.6	14	14	4	0.7
CV			5.8	2.5	118	4	4	1.1	5.6	3.2	121	6	6	1.1	6.2	3.6	152	6	6	1.4
Soil Type			Lenawe	e Silt L	.oam				Canfield	d Silt L	oam									
Soil Test (pH,P,K) M-3 ppm			6.1, 82, 127					6.8, 43, 183												
Previous Crop			Soybeans					Alfalfa												
Planting /Harvest Dates		June 3 / Nov. 28, 2020						May 26 / Nov. 29, 2020												
Tillage			Conven						Conventional Tillage											
Nutrients Applied (N,P,K)			NA		•				78, 69, 218											
Cooperator	-		Steve T	urnow					Gerald	Reid / I	Ken S	caife, C	DARDO	;						
County			Sandus	ky					Wayne											

TABLE 3. Two year organic hybrid performance in Northeast Ohio, 2019-2020.

			Apple Creek							
			Harv.		Final					
Brand	Hybrid	Yield		Ldg.		Emg.	TW			
		Bu/A	%	6	100/A	%	Lbs.			
American Organic	AM 2500	218.9	23.4	3	275	81	54.5			
American Organic	AM 2785	246.3	23.4	6	317	92	52.0			
Blue River	48G35	232.0	19.5	6	303	90	55.8			
Blue River	51T59	227.6	19.6	14	304	90	56.6			
Blue River	57A30	221.8	20.8	3	299	88	54.6			
Blue River	62G22	236.2	21.5	2	314	92	53.9			
Blue River	66G25	228.6	23.2	3	304	89	54.7			
Merit	O 5454	244.1	20.6	24	304	89	54.6			
Merit	O 6160	230.8	21.0	2	316	92	54.7			
Merit	O 6765	225.5	20.6	18	302	88	54.8			
Merit	O 6869	223.2	21.0	2	315	92	53.1			
Merit	O 6969	222.9	20.9	4	300	88	54.8			
Prairie Hybrid	PH 2741	224.9	19.2	19	312	92	55.6			
Prairie Hybrid	PH 3081	230.0	21.3	11	314	92	58.8			
Prairie Hybrid	PH 5351	210.6	23.3	3	315	93	57.5			
Prairie Hybrid	PH 7861	211.2	21.9	3	306	89	57.6			
Prairie Hybrid	PH 8751	241.7	22.3	24	306	89	53.3			
Viking	O.48-08P	230.2	22.0	3	298	87	53.3			
Viking	O.51-04P	232.5	19.7	10	317	93	56.1			
Viking	O.55-02P	209.1	21.0	2	283	84	57.9			
Viking	O.74-10P	228.4	22.1	3	293	86	54.3			
Welter Seed & Honey	WS 2482	236.9	21.3	10	287	85	54.0			
Welter Seed & Honey	WS 4816	229.8	20.9	6	300	88	54.8			
High		246.3	23.4	24	317	93	58.8			
Average		228.0	21.3	8	304	89	55.1			
Low		209.1	19.2	2	275	81	52.0			

TABLE 4. Seed source, table location and seed treatments for hybrids tested in 2020.

Brand	Seed Source	Hybrid No.	Relative Maturity		Seed Treatment
AMERICAN ORGANIC	CHAMPAIGN COUNTY SEED CO. 1676 CR 2200 EAST ST. JOSEPH, IL 61873 217-469-2351 american-organic.com	AM 2500 AM 2785 AM 2885	110 112 114	2 2 2	1R 1R 1R
BLUE RIVER ORGANIC SEED	BLUE RIVER ORGANIC SEED 2326 230th ST. AMES, IA 50014 800-370-7979 blueriverorgseed.com	42C87 48G35 51T59 57A30 62G22 66G25	98 102 103 107 110 112	1 1 1 2 2 2	1R 1R 1R 1R 1R 1R
MERIT	MERIT SEED P.O. BOX 205 BERLIN, OH 44610 330-893-3196 meritseed.com	O 3238 O 4800 O 5454 O 6160 O 6765 O 6869 O 6969	98 100 104 106 105 109	1 1 1 1 2 2	Gen II PB
PRAIRIE HYBRIDS	PRAIRIE HYBRID SEEDS 27445 HURD RD. DEER GROVE, IL 61243 815-438-7815 prairiehybrids.com	PH 2741 PH 3081 PH 4211 PH 5141 PH 5351 PH 6341 PH 7861 PH 8751	102 104 106 108 109 111 112	1 1 1 2 2 2 2 2	1R 1R 1R 1R 1R 1R 1R 1R
VIKING	ALBERT LEA SEED 1414 W. MAIN ST. ALBERT LEA, MN 56007 800-352-5247 alseed.com	O.18-06P O.46-02P O.48-08P O.51-04P O.55-02P O.69-01P O.74-10P O.85-00P	106 102 108 104 102 101 110	1 1 2 1 1 1 2	Soil Biotics 1r + SabrEx
WELTER SEED & HONEY	WELTER SEED & HONEY 17724 HWY. 136 ONSLOW, IA 52321 800-852-3325 welterseed.com	WS 2482 WS 4816	104 108	1 2	None None