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2017 Small Grains Performance Trials for New York

Enclosed are the results of our 2017 small grains regional trials and the cumulative summaries over years. Because the rankings of the varieties and lines often change from year to year, only the multiple year summaries should be considered to be useful indicators of varietal performance in this region. Reproduction of any table in this report must include the entire table unless we approve the editing. The information herein is provided with the understanding that no discrimination is intended and no endorsement by Cornell University or its employees is implied.

Your comments and suggestions concerning this report are welcome. If you would like additional information or do not wish to receive this report in the future, please contact us. Summaries and information about the Cornell Small Grains Breeding & Genetics Project are maintained on our small grains web page: <http://smallgrains.cals.cornell.edu>

We have continued to develop and test selections from our molecular marker-assisted breeding program in our soft winter wheat breeding program. Our most recent varieties are Medina (soft white) and Erie (soft red). These selections have improved resistance to preharvest sprouting and fusarium head blight combined with excellent agronomic performance. Erie is a soft red winter wheat variety released in collaboration with Ohio State University that has excellent grain yield and disease resistance to powdery mildew, leaf spot, glume blotch, leaf rust, wheat spindle streak mosaic virus, wheat soil borne mosaic virus, and moderate resistance to fusarium head blight (scab). In collaboration with the University of Illinois, we have also released a high-yielding spring oat variety named Corral.

I wish to recognize the contributions of Research Support Specialist, David Benscher, Technical Assistant, James Tanaka, Field Assistants, Amy Fox, Jesse Chavez and Extension Support Specialist Judy Singer and thank them for their dedication.
Sincerely,

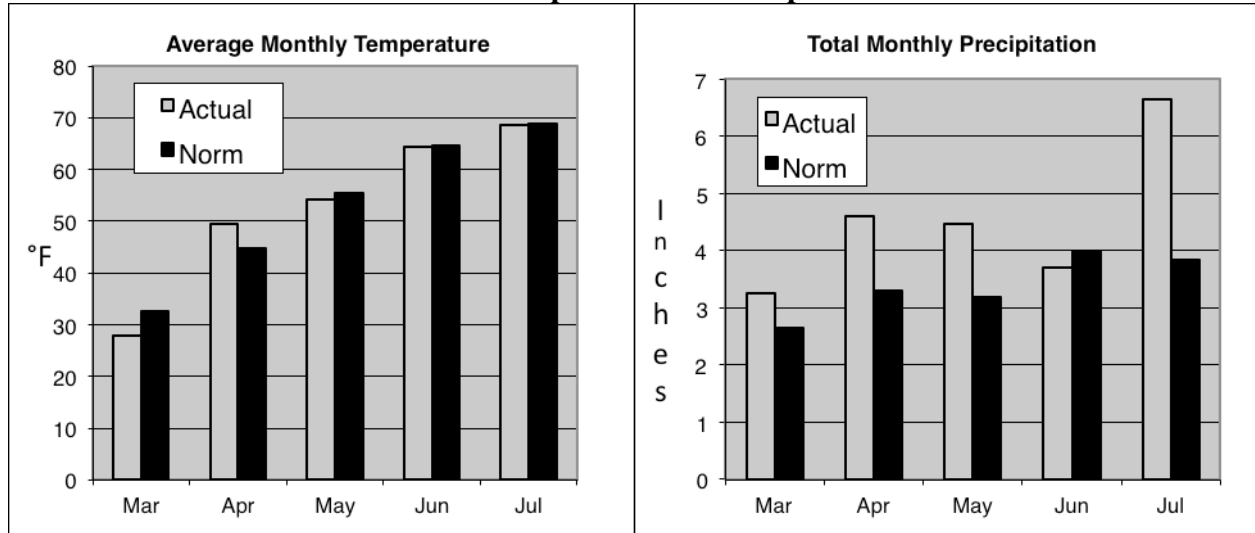
Mark E. Sorrells
Professor of Plant Breeding & Genetics

Testing Procedures:

In 2017, the Soft White Winter Wheat, Soft Red Winter Wheat, Winter Malting Barley, Winter Hybrid Rye, Spring Malting Barley, and Spring Oat regional trials were grown in four locations. The wheat and oat trials near Ithaca consisted of 2 replicates while those out in the state consisted of 3 replicates. All barley and rye trials were grown in 3 replicates at all locations. All trial plots are 6-rows, 4 meters long with 18 cm between rows. Prior to harvest, the plots are trimmed to 3 meters. Disease and lodging notes were recorded on a 0 to 9 scale with 0 being the best and 9 the poorest. All trials are planted in a randomized complete block design and analyzed by

standard ANOVA. If there are indications of within replicate field variation a second ANOVA using a nearest-neighbor adjustment is computed based on the nearest 8-plot mean. If the coefficient of variation was reduced and the variance due to genotypes was the same or increased, those adjusted means were used for the summary. All trials are fertilized according to soil test recommendations for small grains. Winter grains trials generally receive a top dress of 45 kg/h (40 lbs/a) of actual N in the spring. For more information about small grains management see <http://fieldcrops.cals.cornell.edu/>.

2017 Precipitation and Temperature



The winter wheat, winter malting barley and hybrid rye trials were planted on September 28 and October 6 in Ithaca, on September 27 in Monroe County, and October 7 in Seneca County. The spring grains were planted on April 24 and April 28 in Ithaca, May 11 in Genesee County and April 27 in Steuben County. The Hudson Valley winter trials were planted on October 4 and spring trials were planted April 18. The growing season averaged about 0.3 degrees cooler than normal and rainfall was 5.72 inches above average rainfall with a total of 22.7 inches for the growing season in Ithaca. The 2017 growing season was the seventh wettest March 1 to June 30 period since 1873 when records were initiated at the Game Farm weather station near the Cornell Campus.

Acknowledgments:

Our testing program depends on being able to test new varieties in the areas where they will be grown under actual farming conditions. We gratefully acknowledge the many farmers who have provided us with a test site for our regional trials over many years. This year, test sites for winter grains were generously provided by Ron Breslowski - Monroe County, Jeffrey Trout - Seneca County, and Rick Pederson - Ontario County. Test sites for spring grains were provided by Dave Wallace - Steuben County, Ted Hawley - Genesee County, Tom Ryan - Genesee County, and Eddie Clevenger in Ulster County (Farm Hub). Without their support we would not be able to provide accurate, unbiased test results. Extension specialists Mike Stanyard and Kevin Ganoe, Aaron Gabriel and Justin O’Dea have been instrumental in arranging test sites, field days, and information distribution. Also, we thank Drs. Gary C. Bergstrom, William J. Cox, and Margaret E. Smith, extension faculty in Plant Pathology, Crop and Soil Sciences, and Plant Breeding & Genetics for their excellent cooperation and support. We also gratefully acknowledge the financial support from the Genesee Valley Regional Marketing Authority, NY State Ag & Markets, and the USDA NIFA Organic Research and Extension Initiative grant number 2011-51300-30697. Most importantly, a special thanks goes to Judy Singer for her help in proofreading the data and report.

2017 Spring Malting Barley Regional Summary - Cornell University

Entry	Row#	Class	Grain Yield (kg/h)				Test				Lodg	Head Date	Height cm	Preharv Sprout 0-9	Powder) Mild 0-9	Fol Dis 0-9	FHB Inc %	FHB Sev %	FHB Index %	Rank	Kernel DON ppm	on 6/64 %	Malt Extract %	Barley Protein %	Beta Glucan ppm	FAN ppm	Quality Score	
			Regional Locations				Weight																					
			lth-Hel	lth-Ket	SteCo.	GenCo.	Mean	Rank	Kg/hl	Rank																		
1	Conlon	2	Malt	3665	2464	2598	2435	2790	30	61.0	12	N	6/20	69	2.3	22	0	6	57	13	7	13						
2	Quest	6	Malt	4234	1500	2598	3102	2859	29	60.0	25	O	6/21	76	0.6	5	4	4	55	13	7	10						
3	KWS Tinka	2	Malt	3826	2523	3437	2846	3158	20	58.5	30	N	6/26	66	2.1	21	0	5	73	15	11	24						
4	Craft	2	Malt	3934	2680	3034	3477	3281	11	63.8	4	E	6/23	79	0.7	6	2	3	50	11	5	6						
5	Pinnacle	2	Malt	3749	2317	3058	2943	3017	25	60.0	24		6/21	74	1.2	12	0	3	62	15	9	18						
6	ND Genesis	2	Malt	4396	2400	3236	3496	3382	5	61.0	13		6/21	75	2.7	24	0	2	65	17	12	29						
7	ND26891	6	Malt	4417	2441	3049	3414	3330	9	60.5	18		6/22	74	0.3	2	3	4	70	19	13	30						
8	Harmony	6	Feed	3625	2720	3197	2625	3042	24	57.8	32		6/24	96	1.9	18	0	1	62	15	10	20						
9	Oceanik	6	Feed	4670	3038	3758	2763	3557	2	57.5	34		6/24	88	0.7	8	0	2	85	15	13	31						
10	Bastille	6	Feed	2614	909	2604	2296	2106	35	66.0	2		6/29	83	0.7	7	0	2	48	13	7	12						
11	AAC Synergy	2	Malt	4316	2752	3619	3541	3557	3	59.7	27		6/25	74	4.4	30	0	1	40	9	4	1						
12	Cerveza	2	Malt	3780	2454	3383	3477	3274	12	59.8	26		6/27	68	7.0	36	0	1	50	12	6	8						
13	Newdale	2	Malt	3687	2526	3467	2532	3053	23	60.0	23		6/28	69	5.4	33	0	2	63	15	10	21						
14	H55617-11	6	Feed	4635	2527	3576	2763	3375	6	60.1	22		6/22	86	0.3	3	1	1	55	16	9	17						
15	AAC Azimuth(Naked)	6	Food	3551	1196	1998	3126	2468	33	64.5	3		6/22	76	0.3	1	2	4	57	11	6	9						
16	M160	6	Malt	4023	1431	2533	3111	2775	31	60.2	20		6/20	74	0.5	4	7	7	58	14	8	16						
17	09N2-31	2	Malt	4026	2888	3216	2828	3240	14	60.9	15		6/23	68	1.3	13	0	3	60	15	10	19						
18	09N2-96	2	Malt	3749	2438	3529	3192	3227	15	59.1	28		6/22	74	3.9	29	0	2	47	12	5	4						
19	09N2-58	2	Malt	3660	2659	2913	3240	3118	22	60.3	19		6/20	76	3.4	28	0	4	52	10	5	5						
20	09N2-65	2	Malt	3686	2699	3288	3552	3306	10	60.6	17		6/22	81	3.1	27	0	3	62	13	8	15						
21	09N2-68	2	Malt	3614	1217	2544	2832	2552	32	60.1	21		6/24	84	2.8	25	0	2	63	18	11	26						
22	2MS14_3336-002	2	Malt	4457	2224	3454	3190	3331	8	61.5	9		6/22	66	0.9	9	0	3	63	16	10	22						
23	2MS14_3305-002	2	Malt	3698	2399	3314	2591	3000	26	60.9	14		6/25	74	2.0	19	1	4	67	17	12	27						
24	2MS14_3336-018	2	Malt	4253	2408	3280	3834	3444	4	63.5	5		6/21	73	1.3	14	0	3	73	16	11	25						
25	2MS14_3342-026	2	Malt	3940	2594	3481	2801	3204	16	61.9	7		6/22	69	2.4	23	0	5	70	21	15	32						
26	2MS14_3317-015	2	Malt	4150	2553	2953	3052	3177	19	61.2	11		6/25	72	5.5	34	0	3	77	26	20	34						
27	Odyssey	2	Malt	3182	2275	3130	3150	2934	28	57.4	35		6/28	75	0.9	10	0	6	82	27	22	35						
28	CDC Clear(Naked)	2	Food	1829	1185	1604	1505	1531	36	71.4	1		6/28	81	5.2	31	0	1	48	10	5	3						
29	KWS 15/2650	2	Malt	3925	2960	2879	2994	3189	18	58.1	31		6/27	62	2.0	20	0	5	58	26	15	33						
30	KWS 15/3716	2	Malt	3465	2979	3693	2948	3271	13	57.7	33		6/27	62	1.3	15	0	6	35	15	5	2						
31	09N2-67	2	Malt	4301	3004	3962	3048	3579	1	61.7	8		6/25	77	1.4	17	0	1	55	11	7	11						
32	08MT-03	2	Malt	3943	2908	3316	3257	3356	7	63.2	6		6/27	70	1.1	11	0	3	65	18	12	28						
33	09N2-21	2	Malt	4361	2351	2343	2785	2960	27	58.9	29		6/22	68	1.3	16	0	3	70	15	11	23						
34	09N2-66	2	Malt	3551	2513	3369	3064	3125	21	61.4	10		6/26	84	2.9	26	1	1	55	15	8	14						
35	08WA-32	2	Malt	3889	2787	3004	3110	3198	17	60.8	16		6/27	66	5.6	35	0	4	85	29	24	36						
36	07AB-59	2	Malt	2731	1634	2853	1941	2290	34	57.0	36		6/26	71	5.3	32	0	5	50	12	6	7						
Mean				3820	2349	3091	2968	3057		60.8			6/20	74	2.3		0.6	3.2	60.7	15.6	10.0							
CV				5.9	18.7	16.7	14.9																					

Cumulative Summary																											
Entry	Row#	Class	Grain Yield				Test Weight				Head Date	Lodg.	Ht. cm	PreHarv Sprout 0-9	FHB Inc %	FHB Sev %	FHB Indx %	DON ppm	Kernel Wt. (mg)	on 6/64 %	Malt Extract %	Barley Protein %	DP ASBC	Beta Glucan ppm	FAN ppm	Quality Score	
			3 Years		2 Years		2 Years																				
			kg/h	b/a	kg/h	b/a	kg/hl	lbs/b	2 Yr	2 Yr																	2 Yr
1	Conlon	2	Malt	2541	47	2240	42	63.2	49.4	6/19	0	62	4.2	42	11	4.8	1.0	43.4	98	81	12.1	99	454	196	47		
2	Quest	6	Malt	2926	54	2402	45	61.6	48.1	6/20	0	68	2.5	30	11	3.7	0.7	33.0	90	81	11.6	104	367	196	51		
3	KWS Tinka	2	Malt	3308	61	2710	50	61.0	47.6	6/25	0	61	2.9	38	9	5.5	1.0	42.1	96	81	11.0	77	102	185	48		
4	Craft	2	Malt	3257	61	2648	49	65.7	51.3	6/24	0	68	1.6	36	11	4.0	0.9	40.7	95	81	12.3	81	319	172	51		
5	Pinnacle	2	Malt	2900	54	2390	44	62.5	48.9	6/23	0	60	2.8	36	8	4.7	1.1	41.6	97	82	10.9	71	408	181	45		
6	ND Genesis	2	Malt	3125	58	2569	48	62.9	49.2	6/24	0	66	3.5	35	15	9.0	0.9	39.6	96	82	11.2	94	187	214	48		
7	ND26891	6	Malt	3178	59	2620	49	61.3	47.9	6/21	0	64	2.0	55	13	6.9	1.5	34.2	92	81	11.3	95	259	190	49		
8	Harmony	6	Feed	3164	59	2477	46	59.5	46.5	6/24	0	82	3.7	41	8	4.8	0.5	39.4	94	78	12.0	77	330	211	41		
9	Oceanik	6	Feed	3488	65	2852	53	58.9	46.0	6/25	0	76	1.9	31	8	6.5	0.4	37.5	87	79	10.6	59	425	149	27		
10	Bastille	6	Feed	2347	44	1764	33	70.3	54.9	6/29	0	68	0.7	43	13	5.8	0.4	33.9	61	86	12.8	74	557	128	36		
11	AAC Synergy	2	Malt			2824	52	62.0	48.5	6/29	0	65	4.6	42	8	2.1											
12	Cerveza	2	Malt			2553	47	60.9	47.6	6/30	0	59	5.3	24	11	3.8											
13	Newdale	2	Malt			2386	44	62.0	48.5	7/1	0	59	5.6	33	10	5.2											
14	H55617-11	6	Feed			2763	51	61.3	47.9	6/22	0	75	1.9	38	10	4.6											
15	AAC Azimuth(Naked)	6	Food			2080	39	64.8	50.6	6/21	0	69	1.2	32	10	3.7											
16	M160	6	Malt			2420	45	61.7	48.2	6/18	0	67	2.3	35	11	5.0											
17	09N2-31	2	Malt			2752	51	63.6	49.7	6/23	0	61	3.1	40	11	5.3											
18	09N2-96	2	Malt			2500	46	61.4	48.0	6/26	0	63	5.0	38	7	2.7											
19	09N2-58	2	Malt			2577	48	61.6	48.1	6/23	0	68	4.4	25	10	3.8											
20	09N2-65	2	Malt			2506	47	62.7	49.0	6/27	0	67	2.9	39	11	5.9											
21	09N2-68	2	Malt			2073	39	62.1	48.5	6/27	0	68	3.4	51	21	10.8	</										

2017 Spring Malting Barley Fertility Trial - Cornell University

	Grain Yield (kg/h)				
	Nitrogen Rates				
Grain Yield	30	60	90	120	Mean
AAC Synergy	4786	4965	4836	4823	4852
Newdale	4127	4586	4891	4266	4468
KWS Tinka	4793	4840	4802	4964	4850
ND Genesis	4458	4964	5077	5071	4892
Mean	4541	4839	4901	4781	4765
Test Weight	30	60	90	120	Mean
AAC Synergy	52.2	53.1	51.0	51.7	52.0
Newdale	53.5	51.3	51.9	52.0	52.2
KWS Tinka	51.6	50.7	51.5	51.0	51.2
ND Genesis	53.9	53.2	53.9	53.5	53.6
Mean	52.8	52.1	52.1	52.1	52.2
Lodging	30	60	90	120	Mean
AAC Synergy	0.3	0.7	3.3	3.7	2.0
Newdale	0.0	2.7	3.0	2.7	2.1
KWS Tinka	1.7	4.7	2.3	4.7	3.3
ND Genesis	0.3	3.0	3.3	5.3	3.0
Mean	0.6	2.8	3.0	4.1	2.6
Height	30	60	90	120	Mean
AAC Synergy	75	79	84	84	80
Newdale	73	79	80	83	79
KWS Tinka	73	78	79	79	77
ND Genesis	77	82	84	81	81
Mean	75	79	82	82	79
Heading Date	30	60	90	120	Mean
AAC Synergy	24	24	24	25	24
Newdale	26	26	26	25	26
KWS Tinka	24	24	24	23	24
ND Genesis	22	22	22	22	22
Mean	24	24	24	24	24
Powdery Mildew	30	60	90	120	Mean
AAC Synergy	0.0	0.0	2.0	0.0	0.5
Newdale	0.0	0.0	0.3	2.0	0.6
KWS Tinka	0.0	0.0	0.0	0.0	0.0
ND Genesis	0.3	1.7	0.3	1.0	0.8
Mean	0.1	0.4	0.7	0.8	0.5

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Funding Sources: New York State Ag & Markets, Genesee Valley Regional Market Authority