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2019 Small Grains Performance Trials for New York

Enclosed are the results of our 2019 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).

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

Sincerely,

Mark E. Sorrells

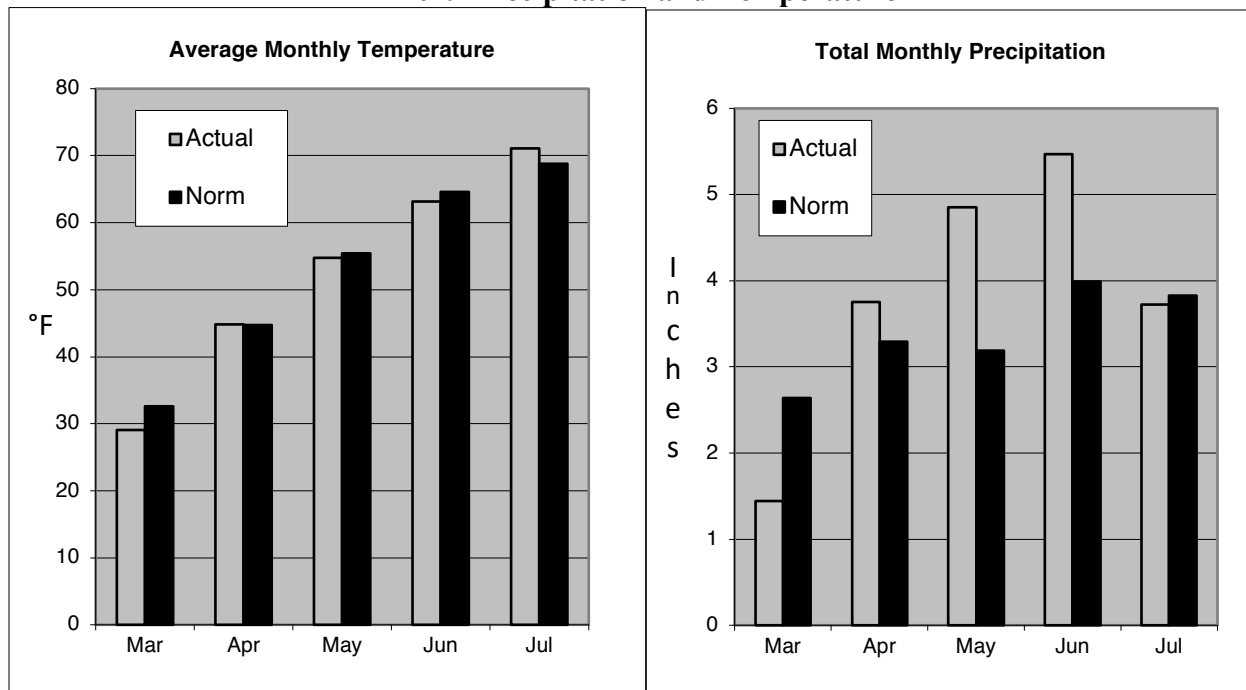
Professor of Plant Breeding & Genetics

Testing Procedures:

In 2019, 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/>.

2019 Precipitation and Temperature



The winter wheat, winter malting barley and hybrid rye trials were planted on October 10 and 26 and November 8 in Ithaca and on October 22 in Seneca County (Trout farm). The spring grains were planted on April 10 and 18 in Ithaca, April 23 in Steuben County and May 8 in Genesee County. The Hudson Valley winter trials were planted on October 17 and spring trials were planted April 17. The growing season averaged about 0.6 degrees cooler than normal and rainfall was 2.3 inches above average rainfall with a total of 19.2 inches for the growing season (March – July) in Ithaca.

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, the test site for winter grains was generously provided by Jeff Trout in Seneca County. Test sites for spring grains were provided by Dave Wallace - Steuben County, Ted Hawley - Genesee County, Jeff Trout in Seneca 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 Ganoë, Aaron Gabriel and Christian Malsatski 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, Soil and Crop 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.

2019 Cornell Small Grains Regional Trial Entries

Soft White Winter Wheat Regional				Red Winter Wheat Regional					
Entry Name	Years Tested	Mkt Class	Pedigree/Origin - Contact	Entry Name	Years Tested	Mkt Class	Pedigree/Origin - Contact		
1	Houser	41	SWW	B/N10/82A1/3/H-HR/YW/4/GE/CI 12658/Alaskan/3/Avon (Cornell)	1	Otsego	14	SRW	Ohio State U. (OH751)
2	Caledonia	29	SWW	Offtype selection out of Geneva (Cornell)	2	Erie (OH02-12686)	10	SRW	Foster/Hopewell/OH581/OH569
3	Cavuga	27	SWW	Reselection of NY262-37-10W (Cornell)	3	Pioneer 25R40	7	SRW	Pioneer Hybrid International
4	Medina	17	SWW	MD286-21/Harus	4	IL04-8445-440	6	SRW	
5	Hopkins	15	SWW	NY7387/Caledonia/Caledonia-2//Caledonia 9-10 (BC2F4select)	5	Pioneer 25R25	5	SRW	Pioneer Hybrid International
6	NY99056-161	9	SWW	NY85020-395/Pio25W33 (10+6)	6	NY11013-10-72-1314	3	SRW	10011-6 x Ava = OH02-12686/Ava-6//Ava
7	NY94052-6090B-1074	7	SWW	CaledoniaReselect - selected white kernels	7	NY11013-10-15-1312	3	SRW	10011-6 x Ava = OH02-12686/Ava-6//Ava
8	NY11025-07-08-1369	3	SWW	10080-1 x Pio25w36 = 03179-10/Pio25w36-1//Pio25w36	8	NY12015-2-1-4	2	SRW	211
9	NY11014-9-25-1319	3	SWW	10061-4 x Ava = 03179-10/Ava-4//Ava	9	NY11013-10-6-1311	2	SRW	1311
10	NY12006-2-1-7	2	SWW	Medina x 03180-10	10	SW70SR	2	SRW	Seedway, Hall NY
11	NY10102-1-08-1274	2	SWW	09019-1 x 03179-10=(OH02-12678/03179-10-3//03179-10-1//03179-10-1)	11	SW64SR	2	SRW	Seedway, Hall NY
12	NY12030-1-1-1	2	SWW	99021 x 94025	12	L11719 (DH)	2	SRW	Limagrain - Ken McClintok
13	NY12006-2-1-10	2	SWW	Medina x 03180-10	13	NY11024-01-11-1363	2	SRW	
14	NY11014-9-60-1320	2	SWW	10061-4 x Ava = 03179-10/Ava-4//Ava	14	OH12-228-42	2	SRW	
15	NY12006-2-1-20	2	SWW	10061-4 x Ava = 03179-10/Ava-4//Ava	15	NY11030-5-12-1341	2	SRW	
16	NY10102-1-04-1273	2	SWW	09019-1 x 03179-10=(OH02-12678/03179-10-3//03179-10-1//03179-10-1)	16	OH13-49-22	2	SRW	
17	NY01003-1184	2	SWW	Caledonia x Pio25W60	17	NY11029-10-24-1340	2	SRW	
18	NY12401-1-17-09	1	SWW	94052-6090W x 09107-24 = Pio2737w/Harus/Pio25w41/Richland/NY73	18	L11617	1	SRW	Limagrain - Ken McClintok
19	NY12030-1-1-3	1	SWW	99021 x 94025	19	L11718	1	SRW	Limagrain - Ken McClintok
20	NY12007-2-4-13	1	SWW	Pio25R39 x 03180-10	20	L11820	1	SRW	Limagrain - Ken McClintok
21	NY12006-2-1-1	1	SWW	Medina x 03180-10	21	L11815	1	SRW	Limagrain - Ken McClintok
22	NY12512-1-6-17	1	SWW	05158-864 x 94052-6090B = Va97w-375ws/NY7388/Pio2737w/Harus	22	LW 2937	1	SRW	Local Seed Co. - Charlie Robinette
23	NY12508-1-7-15	1	SWW	10011-6 x Ava = OH02-12686/Ava-6//Ava	23	LW 2848	1	SRW	Local Seed Co. - Charlie Robinette
24	NY12003-1-5-22	1	SWW	E2041 x 03180-10	24	LW 2958	1	SRW	Local Seed Co. - Charlie Robinette
25	NY12377-1-5-11	1	SWW	05158-848 x 07020-147 = Va97w-375ws/NY7388/Whatford/Caledonia/	25	LW 2867	1	SRW	Local Seed Co. - Charlie Robinette
26	NY12513-1-12-06	1	SWW	05158-864 x 94052-6090B = Va97w-375ws/NY7388/Pio2737w/Harus	26	LWX19D	1	SRW	Local Seed Co. - Charlie Robinette
27	NY12512-1-6-05	1	SWW	05158-864 x 94052-6090B = Va97w-375ws/NY7388/Pio2737w/Harus	27	NY12302-2-14-01	1	SRW	09067-2-4 x 09067-2-48R = OH02-12686/Cal-Res-L/0
28	NY12508-1-7-06	1	SWW	05158-840 x 94052-6090B = Va97w-375ws/NY7388/Pio2737w/Harus	28	NY12302-2-14-08	1	SRW	09067-2-4 x 09067-2-48R = OH02-12686/Cal-Res-L/0
29	NY12457-1-8-18	1	SWW	94052-6090B x 09095-22 = Pio2737w/Harus/Pio25w41/Whatford/NY73	29	NY12325-1-10-18	1	SRW	09063-11-64 x 09068-5-19 = OH02-12686/NY8138/03
30	NY12457-1-8-02	1	SWW	94052-6090B x 09095-22 = Pio2737w/Harus/Pio25w41/Whatford/NY73	30	NY12300-1-6-15	1	SRW	09067-2-4 x Va08w-176 = OH02-12686/Cal-Res-L/03
31	NY12513-1-16-06	1	SWW	05158-864 x 94052-6090W = Va97w-375ws/NY7388/Pio2737w/Harus	31	OH12-293-29	1	SRW	
32	NY12051-1-1-7	1	SWW	99038 x U1254-4-9-5	32	NY12298-1-8-22	1	SRW	09067-2-4 x Shirley = OH02-12686/Cal-Res-L/03179-
33	NY12397-1-4-13	1	SWW	09107-24 x 05158-848 = Pio25w41/Richland/NY7388/Madsen/Va97w-3	33	NY12299-1-3-14	1	SRW	09067-2-4 x Va05w-251 = OH02-12686/Cal-Res-L/03
34	NY12028-1-1-8	1	SWW	96030 x 94025	34	NY12299-1-3-20	1	SRW	09067-2-4 x Va05w-251 = OH02-12686/Cal-Res-L/03
Spring Oat Regional Trial				Winter Malting Barley Regional Trial					
Entry Name	Years Tested	Mkt Class	Pedigree/Origin - Contact	Entry	Years Tested	Row No.	Breeder		
1	OGLÉ	41	Brave/Tyler/Egdolon 23 (Astro/PI 193027)	1	Charles	7	2	USDA - Gongshe.Hu@ars.usda.gov	
2	NEWDAK	34	ND810104=RL 3038/ Goodland/ Ogle	2	Saturn	7	6	goetz@breun.de	
3	Corral	13	IL95-4774/IL95-8346	3	KWS Scala	6	2	KWS - Germany	
4	MN09255	8	SA050128/ND020965	4	SY Tepee (209-66)	6	2	Malt Europe	
5	SD111946	6	IL99-1338/ND011054/SD020835	5	Endeavor	6	2	USDA - Gongshe.Hu@ars.usda.gov	
6	Hayden	4	Seedway	6	Nectaria	5	2	Secobra	
7	Buff	4	SDSU - M. Caffé	7	AC 07/041/8 (Flavia)	5	2	Ackermann Saatzzucht GmbH & Co. KG	
8	IL12 - 9020	2	8024, 8044 (fill plots umopn17)	8	KWS Somerset (KW2)	4	2	KWS - Germany	
9	WIX 10169-5	2	8017, 8057	9	KWS-430	4	2	KWS - Germany	
10	OT 7086	1	OT596/OT7055//ACMorgan/Stainless	10	SU-Mateo	3	2	BRGD 2448 x Malwinta	
11	SD152037	1	SD091510/SD100940/SD060130	11	10/069/1	3	6	Ackermann Saatzzucht GmbH & Co. KG	
12	SD150015	1	SD081108/SD100940/SD060130	12	DH130910 (Fac)	3	2	(OSU) SHORT 11-7 (TC6W265)/HERZ 29494/2991	
13	ND131603	1	ND080101/CRRSRR2	13	LCS Calypso	2	2	Limagrain	
14	SD141133	1	SD080015/SD070110/SD060130	14	LCS Violetta	2	2	Limagrain	
15	OT3094	1	SA080443/Atejo	15	Wintermalt	2	6	Cornell	
16	SD140327	1	SD080611//Shelby427/ND051306	16	DH131055 (Fac)	2	2	OR818/KW2-042	
17	ND130237	1	Furlong AC/ND080368	17	DH131738 (Fac)	2	2	OR910/05-5401/05	
18	SD140741	1	SD070394/SD080611	18	DH130935 (Fac)	2	2	OR818/KW2-042	
19	MS-190T1	1	Meridian Seed Co, Martin Hochholter	19	Buck	2	6	Strider/Doyce	
20	PGR-N14-090	1	Cereia, Quebec, CA, Pierre Lanoie	20	#STRKR	2	6	Maja/Legacy/Maja/3/Doyce	
				21	10.1150	2	6	Fridericus x Maja/Legacy//Maja/3/Doyce	
				22	10.1618	2	6	Fridericus x Maja/Legacy//Maja/3/Doyce	
				23	LCS Casanova	1	2	Limagrain	
				24	LCS Nenea	1	2	Limagrain	
				25	DH120304	1	2	(OSU) Maris Otter/Full Pint	
				26	DH130939	1	2	(OSU) Full Pint/Violetta	
				27	2W115-8688	1	2	(BARI) CHARLES / W08-0039	
				28	Hirondella	1	6	Ackermann Saatzzucht GmbH & Co. KG	
				29	ACT11/341/28	1	2	Ackermann Saatzzucht GmbH & Co. KG	
				30	06ARS617-25	1	2	Endeavor / 2B99-2763-10	
Spring Malting Barley Regional Trial									
Entry Name	Row No.	Years Tested	Pedigree/Origin - Contact						
1	Quest	2	7	K. Smith					
2	KWS Tinka	6	6	S. Bruns					
3	ND Genesis	2	5	R. Horsley					
4	AAC Synergy	2	4	B. Legge					
5	Newdale	6	4	F. Selles					
6	09N2-67	6	3	K. Smith					
7	KWS Jessie	2	2	KWS					
8	KWS Chrissie	2	2	KWS					
9	LCS Opera	2	2	Limagrain					
10	Explorer	2	2						
11	DH130910	2	2	P. Hayes					
12	DH130935	2	2	P. Hayes					
13	Esmá	2	1	Ackermann (Germany)					
14	Eifel	2	1	Secobra (France)					
15	Expo	2	1	Secobra (France)					
16	Sanqria	2	1	Ackermann (Germany)					
17	OS13-16.21	2	1	Pierre Lanoie					
18	OS14-13.38	2	1	Pierre Lanoie					
19	CU127	2	1	Cornell					
20	CU198	2	1	Cornell					

2019 Soft White Winter Wheat Summaries - Cornell University

Entry	Grain Yield (kg/h)							Test Weight kg/hl	Lodg. Score 0-9	Head Date 2 Loc	Winter Surv %	Height cm	Preharvest		FHB Incid. %	FHB Sev. %	FHB Index %	Rank		
	Regional Locations												0-9	Rank						
	lth-Sny	lth-Ket	SenCo	lthMcG	Mean	Rank	kg/hl													
1	Houser	4761	4243	4806	3410	4305	19	68.1	16	N	6/8	88	115	4.3	23	NA	NA	NA	NA	
2	Caledonia	5090	3934	4475	2279	3945	28	66.9	25	O	6/6	80	97	2.6	2	38	17	6.6	17	
3	Cayuga	3369	3393	4218	3053	3508	34	69.0	6	N	6/9	81	120	3.0	7	NA	NA	NA	NA	
4	Medina	4393	3523	4056	3369	3836	32	66.6	27	E	6/8	89	109	4.5	29	43	28	11.7	27	
5	Hopkins	4898	3769	4893	2921	4120	25	61.7	34		6/7	79	98	4.9	33	NA	NA	NA	NA	
6	NY99056-161	4811	4141	5138	3895	4496	6	69.2	5		6/9	82	98	4.0	19	21	15	3.1	3	
7	NY94052-6090B-1074	5039	3884	4526	2608	4014	26	62.8	32		6/9	76	102	3.2	11	29	21	6.0	14	
8	NY11025-07-08-1369	4753	4343	5212	2858	4291	21	66.9	26		6/7	83	91	2.6	3	49	19	9.0	20	
9	NY11014-9-25-1319	5654	3701	5362	2859	4394	12	68.7	9		6/7	81	104	4.3	24	43	18	7.7	18	
10	NY12006-2-1-7	4703	4123	4986	3388	4300	20	68.4	11		6/9	85	104	2.6	1	58	29	16.5	30	
11	NY10102-1-08-1274	5217	3974	4717	3578	4372	15	66.0	30		6/8	87	99	2.6	4	53	12	6.2	15	
12	NY12030-1-1-1	5369	3872	4287	2200	3932	30	65.6	31		6/9	73	95	4.8	32	46	25	11.6	25	
13	NY12006-2-1-10	4929	4342	5525	3055	4463	7	67.5	23		6/10	89	102	3.8	18	75	30	22.5	31	
14	NY11014-9-60-1320	5468	4565	4879	3083	4499	5	69.5	2		6/7	84	106	5.0	34	35	11	3.9	7	
15	NY12006-2-1-20	4299	4161	4971	4115	4387	14	67.6	22		6/10	90	101	4.2	22	56	18	10.1	23	
16	NY10102-1-04-1273	5681	4881	5348	3659	4892	1	68.6	10		6/7	88	100	3.1	9	43	15	6.4	16	
17	NY01003-1184	5263	4246	4900	3238	4412	11	68.1	15		6/9	88	100	3.5	12	58	24	13.5	29	
18	NY12401-1-17-09	5654	4535	4913	1976	4270	22	67.6	21		6/7	77	93	4.5	30	51	21	10.5	24	
19	NY12030-1-1-3	5194	4296	5499	3093	4520	3	66.1	29		6/7	77	99	2.9	6	53	17	8.8	19	
20	NY12007-2-4-13	4445	3760	4559	2406	3793	33	61.8	33		6/7	77	97	3.7	16	30	16	4.8	10	
21	NY12006-2-1-1	4064	4490	5584	2933	4268	23	67.2	24		6/9	85	93	4.4	26	56	16	9.0	21	
22	NY12512-1-6-17	4800	4478	5324	2760	4341	17	69.3	3		6/9	74	92	4.2	21	21	10	2.1	1	
23	NY12508-1-7-15	4742	4304	4356	2368	3943	29	67.8	20		6/6	80	88	4.4	28	29	11	3.2	4	
24	NY12003-1-5-22	4220	3633	4536	3068	3864	31	68.2	13		6/11	86	104	4.3	25	48	25	11.6	26	
25	NY12377-1-5-11	5436	4279	4747	2591	4263	24	71.5	1		6/8	72	87	3.2	10	50	12	5.9	13	
26	NY12510-1-12-06	5239	4564	4898	2993	4424	8	68.1	14		6/6	89	87	4.1	20	34	15	4.9	11	
27	NY12512-1-6-05	4635	4634	5087	3684	4510	4	67.9	17		6/9	84	93	3.7	17	40	11	4.5	9	
28	NY12508-1-7-06	5093	4298	5227	2628	4312	18	69.2	4		6/5	84	86	4.4	27	26	13	3.3	5	
29	NY12457-1-8-18	6192	4650	4554	1985	4346	16	68.9	8		6/7	76	103	3.0	8	28	13	3.6	6	
30	NY12457-1-8-02	5588	4087	5307	2580	4391	13	67.8	19		6/8	77	92	2.7	5	35	12	4.1	8	
31	NY12513-1-16-06	5768	4359	5408	2666	4550	2	68.9	7		6/11	74	97	3.6	15	43	14	5.8	12	
32	NY12051-1-1-7	5293	4222	5025	3132	4418	9	66.5	28		6/11	79	98	4.7	31	31	29	9.1	22	
33	NY12397-1-4-13	5793	4328	5127	2400	4412	10	68.2	12		6/6	82	82	3.6	14	26	9	2.4	2	
34	NY12028-1-1-8	4298	3654	5124	2979	4014	27	67.8	18		6/8	85	92	3.5	13	46	28	12.7	28	
	Mean	5005	4167	4929	2936	4259		67.5			6/8	82	98	3.7		42	18	7.8		
	CV	4.9	8.8	8.8	21.6															

Entry	Grain Yield						Test Weight			Lodging		Head Date	FHB %Inc	FHB %Sev	FHB Index	DON ppm	Preharv Sprout	Height cm	Winter Surv		
	6 Year		3 Year		2 Year		6 Yr	lb/b	2 Yr	6 Yr	2 Yr										
	kg/h	b/a	kg/h	b/a	kg/h	b/a															
1	Houser	5189	77	5184	77	5134	76	72.0	56.7	71.5	56.3	3.1	3.2	6/6	NA	NA	NA	NA	4.9	115	92
2	Caledonia	5461	81	5293	79	4987	74	71.5	56.3	71.0	55.9	0.2	0.0	6/5	64	29	22.8	23.8	4.2	94	88
3	Cayuga	5004	74	4872	72	4654	69	75.1	59.1	72.8	57.3	3.3	1.7	6/7	NA	NA	NA	NA	2.4	121	89
4	Medina	5499	82	5328	79	4980	74	73.0	57.5	71.3	56.1	0.7	0.8	6/6	52	23	11.3	10.7	3.9	106	92
5	Hopkins	5708	85	5545	82	5199	77	71.1	56.0	68.7	54.1	0.6	0.3	6/4	NA	NA	NA	NA	5.0	94	89
6	NY99056-161	5740	85	5525	82	5308	79	73.1	57.5	72.6	57.2	1.3	1.5	6/7	26	14	3.6	16.1	4.7	99	89
7	NY94052-6090B-1074	5610	83	5356	80	5099	76	71.9	56.6	69.2	54.5	0.5	0.0	6/7	35	19	6.4	12.9	3.8	103	88
8	NY11025-07-08-1369			5507	82	5142	76			70.3	55.3		0.0	6/5	54	19	10.5	10.6	3.2	91	85
9	NY11014-9-25-1319			5652	84	5410	80			72.2	56.9		0.5	6/5	36	17	6.6	6.1	4.1	100	79
10	NY12006-2-1-7					5258	78			72.3	56.9		1.5	6/7	64	27	17.1		2.9	104	91
11	NY10102-1-08-1274					5248	78			70.3	55.4		1.3	6/5	51	14	7.1		3.4	98	91
12	NY12030-1-1-1					5025	75			69.8	55.0		1.3	6/8	51	22	11.4		4.4	93	84
13	NY12006-2-1-10					5268	78			71.2	56.1		0.5	6/8	68	27	18.5		4.1	98	91
14	NY11014-9-60-1320					5291	79			72.4	57.0		0.2	6/5	31	16	4.2		5.3	99	86
15	NY12006-2-1-20					5351	80			71.4	56.2		0.0	6/7	59	22	12.7		4.3	101	93
16	NY10102-1-04-1273					5456	81			72.1	56.8		2.2	6/5	50	14	7.1		3.6	96	89
17	NY01003-1184					5172	77			71.3	56.1		0.0	6/7	59	33	19.9		3.9	96	66

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2019 Red Winter Wheat Summaries - Cornell University

Entry	Grain Yield (kg/h)						Test		Lodg. 0-9	Head Date	Preharvest		Winter		FHB			Rank		
	Regional Locations						Weight kg/hl	Rank			Sprouting 0-9	Rank	Surv. %	Height cm	Incid. %	Sev. %	Index			
	lth-Sny	lth-Ket	SenCo	lth-McG	Mean	Rank														
1	Otsego	4602	4539	5321	4062	4631	25	70.2	18	N	6/7	1.0	7	78	99	NA	NA	NA	NA	
2	Erie (OH02-12686)	6077	5194	5151	3067	4872	15	69.9	21	O	6/9	3.6	34	77	86	45	16	7.1	25	
3	Pioneer 25R40	6353	5469	5712	5106	5660	1	71.9	2	N	6/5	1.6	16	80	69	43	12	5.2	15	
4	IL04-8445-440	5754	4163	5110	2602	4407	30	70.3	17	E	6/5	0.5	2	66	76	26	20	5.2	16	
5	Pioneer 25R25	5388	4534	5361	3452	4684	20	69.3	27		6/7	1.7	19	64	74	39	14	5.4	18	
6	NY11013-10-72-1314	6075	4606	5452	3498	4908	14	70.5	14		6/9	1.0	9	71	94	39	26	9.9	32	
7	NY11013-10-15-1312	5800	5109	6036	3924	5217	5	70.8	9		6/7	1.5	15	79	91	31	15	4.6	12	
8	NY12015-2-1-4	5316	4765	5342	4738	5040	9	71.3	5		6/8	1.0	8	83	86	46	14	6.6	23	
9	NY11013-10-6-1311	5948	5246	4769	3690	4913	13	70.4	15		6/9	2.1	27	70	91	28	15	4.2	10	
10	SW70SR	5439	4990	5847	2253	4632	24	69.6	24		6/7	1.0	10	67	71	35	11	3.7	8	
11	SW64SR	4672	4593	5277	3342	4471	29	68.8	29		6/5	2.0	26	66	79	28	10	2.7	2	
12	L11719 (DH)	6623	5471	5218	2574	4972	11	69.5	25		6/5	1.6	17	57	75	49	17	8.3	28	
13	NY11024-01-11-1363	5501	4492	4559	2771	4331	31	69.9	22		6/7	2.7	33	70	96	48	21	10.1	33	
14	OH12-228-42	5555	4200	4969	3826	4637	23	69.4	26		6/5	1.8	20	85	84	29	12	3.4	6	
15	NY11030-5-12-1341	5830	4233	5492	3723	4819	19	70.5	13		6/9	2.6	30	67	90	50	19	9.5	31	
16	OH13-49-22	5922	4151	5259	3112	4611	26	70.6	10		6/7	2.6	31	69	84	26	20	5.2	17	
17	NY11029-10-24-1340	5120	4537	5060	4004	4681	21	71.5	4		6/11	2.5	29	74	96	30	22	6.7	24	
18	L11617	6998	5491	5734	3115	5335	3	70.6	11		6/6	1.1	11	64	73	41	13	5.5	20	
19	L11718	5964	5938	5285	3913	5275	4	67.8	32		6/5	1.4	14	70	82	35	13	4.6	13	
20	L11820	5593	4703	4983	4044	4831	17	70.2	19		6/5	0.9	6	75	73	49	15	7.2	26	
21	L11815	6314	5179	5777	4575	5461	2	69.9	23		6/6	0.5	1	76	74	40	15	5.9	22	
22	LW 2937	5397	4035	4215	3448	4274	33	67.9	31		6/6	1.6	18	86	71	44	12	5.4	19	
23	LW 2848	5695	4742	5135	3911	4871	16	70.5	12		6/7	2.6	32	78	77	28	10	2.8	3	
24	LW 2958	5730	5170	5567	3924	5098	7	71.1	6		6/5	1.4	13	82	78	20	8	1.5	1	
25	LW 2867	5494	4170	5155	2445	4316	32	70.3	16		6/8	0.6	3	70	80	41	11	4.5	11	
26	LWX19D	6462	5456	5063	3383	5091	8	70.9	8		6/6	0.8	5	62	71	66	14	8.9	29	
27	NY12302-2-14-01	4993	4293	5238	1775	4075	34	67.4	34		6/9	1.9	24	58	80	44	12	5.1	14	
28	NY12302-2-14-08	5655	4408	5239	2686	4497	28	67.8	33		6/10	1.9	25	75	86	28	12	3.3	4	
29	NY12325-1-10-18	5905	4476	5726	3610	4929	12	71.6	3		6/10	1.1	12	76	85	40	23	9.2	30	
30	NY12300-1-6-15	6266	4914	5113	4238	5133	6	73.4	1		6/8	0.7	4	73	75	41	13	5.5	21	
31	OH12-293-29	5392	4608	5788	4303	5023	10	70.1	20		6/5	1.8	21	83	81	50	16	7.8	27	
32	NY12298-1-8-22	5243	5010	4638	3362	4563	27	71.0	7		6/6	1.9	22	70	81	34	12	4.0	9	
33	NY12299-1-3-14	6218	5060	4503	3524	4826	18	68.5	30		6/8	1.9	23	69	71	34	10	3.5	7	
34	NY12299-1-3-20	5922	4675	4972	3114	4671	22	68.9	28		6/8	2.1	28	68	77	23	15	3.3	5	
	Mean	5742	4783	5237	3503	4816		70.1			6/7	1.6		72	81	38	15	5.6		
	CV	6.6	6.3	9.9	19.7															

Cumulative Summary																		
Entry	Grain Yield						Test Wt(2Yr)		Lodg. 0-9	Height cm	Head Date	Winter Surv. 2 Yr	Preharv Sprout 2 Yr	wssmv 1Yr	FHB Incid. 2 Yr	FHB Sev. 2 Yr	FHB Index 2 Yr	DON ppm
	5 Year		3 Year		2 Year		kg/hl	lb/b										
	kg/h	b/a	kg/h	b/a	kg/h	b/a												
1	Otsego	5548	82	5351	80	5108	76	73.3	57.3	N	100	6/6	85	1.0	NA	NA	NA	NA
2	Erie (OH02-12686)	6043	90	5955	89	5482	82	72.7	56.8	O	89	6/8	78	3.9	48	15	7.4	4.1
3	Pioneer 25R40	6707	100	6603	98	6325	94	74.0	57.8	N	75	6/4	84	3.0	58	14	8.1	7.2
4	IL04-8445-440	6198	92	5954	89	5395	80	74.1	57.9	E	83	6/4	77	1.6	38	19	7.1	5.7
5	Pioneer 25R25	6313	94	6034	90	5780	86	72.0	56.2		81	6/6	77	2.9	53	14	7.6	5.4
6	NY11013-10-72-1314			5795	86	5615	83	72.6	56.7		98	6/8	79	1.7	36	18	6.8	3.0
7	NY11013-10-15-1312			6114	91	5833	87	73.7	57.5		97	6/6	83	1.7	26	16	3.9	3.5
8	NY12015-2-1-4					5614	83	74.0	57.8		87	6/7	85	1.2	51	15	8.0	
9	NY11013-10-6-1311					5630	84	73.0	57.0		96	6/8	76	2.5	39	15	5.5	
10	SW70SR					5625	84	73.3	57.2		79	6/6	80	1.4	46	12	5.8	
11	SW64SR					5572	83	71.6	56.0		82	6/3	76	3.2	50	11	5.9	
12	L11719 (DH)					5966	89	72.9	56.9		78	6/4	74	3.0	59	15	8.9	
13	NY11024-01-11-1363					5182	77	74.0	57.8		99	6/5	82	3.6	39	22	9.0	
14	OH12-228-42					5553	83	72.6	56.8		93	6/4	89	3.0	33	10	3.3	
15	NY11030-5-12-1341					5598	83	73.4	57.3		92	6/8	76	2.8	59	17	9.9	
16	OH13-49-22					5298	79	73.2	57.2		91	6/5	81	2.9	38	18	6.9	
17	NY11029-10-24-1340					5265	78	73.9	57.7		99	6/10	78	2.2	28	16	4.8	

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2019 Winter Malting Barley Regional Trial Summary - Cornell University

Entry	Row	Grain Yield (kg/h)								Lodg.	Height	Head	Wint Surv	FHB Inc	FHB Sev	FHB Index	FHB Rank	FHB DON	PHS Score	Scald	Powdery Mildew	Spot Blotch	Kernel Wt	on 6/64"	Malt Barley					Beta Glucan	FAN	All Malt Qual
		Regional Locations				Test		Test																	ASBC	ppm	ppm					
		lth-Sny	lth-Ket	SenCo	lth-McG	Mean	b/a	Rank	kg/hl																			Rank	0-9			
1 Charles	2	2573	W	2136	W	2354	44	30	54.7	30	4.3	80	5/31	26	W	W	W	W	W	6.5	7.0	0.0	0.0	31	84	77	14.0	186	176	254	7	
2 Saturn*	6	5628	I	4963	I	5295	98	1	60.0	27	3.7	77	5/27	53	I	I	I	I	I	0.1	0.1	4.7	0.0	6.7	36	85	73	13.5	154	608	135	N/A
3 KWS Scala	2	4195	N	3739	N	3967	74	22	60.0	28	3.7	83	6/1	42	N	N	N	N	N	0.8	5.3	1.3	2.3	43	96	78	14.0	246	104	209	25	
4 SY Teepee (209-66)	2	4575	T	4761	T	4668	87	5	63.7	11	2.7	85	5/31	34	T	T	T	T	T	0.7	3.0	0.0	5.0	40	91	78	13.7	232	170	196	17	
5 Endeavor	2	3352	E	4721	E	4036	75	20	62.5	22	6.3	95	6/1	36	E	E	E	E	E	8.1	6.7	0.0	2.0	34	80	77	15.6	264	202	256	9	
6 Nectararia	2	4910	R	3994	R	4452	83	11	62.7	19	2.0	80	5/31	34	R	R	R	R	R	0.9	3.7	1.0	2.7	46	95	78	13.9	189	305	174	22	
7 Flavia	2	4407	K	4926	K	4666	87	6	63.3	15	3.0	77	6/1	35	K	K	K	K	K	0.7	5.7	0.0	0.0	40	93	77	14.2	165	175	149	15	
8 KWS Somerset	2	4475	I	4088	I	4281	80	16	62.1	23	3.0	92	6/2	36	I	I	I	I	I	0.7	0.0	0.0	1.3	43	97	78	13.6	251	114	177	25	
9 Donau (KWS2-430)	2	4585	L	3164	L	3874	72	23	60.1	25	2.3	86	6/2	27	L	L	L	L	L	1.1	4.3	0.0	2.3	43	97	77	12.8	203	167	162	24	
10 SU-Mateo	2	4239	L	4611	L	4425	82	12	63.8	9	3.0	98	6/3	49	L	L	L	L	L	0.9	2.7	0.0	1.0	41	94	77	13.1	176	454	144	19	
11 10/069/1	6	4807		5032		4919	91	3	62.6	20	5.3	81	5/28	41						0.2	6.0	0.0	0.0	35	84	76	12.8	163	382	158	N/A	
12 DH130910	2	4492		3981		4236	79	18	63.4	13	3.7	82	5/29	37						0.1	1.3	0.0	4.7	45	95	78	15.2	207	116	203	20	
13 LCS Calypso	2	4567		4514		4541	84	9	64.0	8	4.0	86	5/28	45						0.3	4.3	0.0	3.0	44	93	77	14.7	202	324	145	18	
14 LCS Violetta	2	4815		3670		4243	79	17	63.4	12	0.0	83	6/1	25						0.3	3.3	1.0	1.7	43	96	78	15.3	245	274	204	15	
15 Wintermalt	6	3690		4978		4334	81	14	62.6	21	6.7	95	5/26	47						0.3	6.3	0.0	3.3	31	68	74	14.0	183	506	171	N/A	
16 DH131055	2	4984		4615		4799	89	4	63.7	10	4.0	87	6/1	42						0.0	1.3	5.3	0.0	45	93	77	14.4	125	312	178	22	
17 DH131738	2	5331		3737		4534	84	10	64.3	5	2.0	76	5/28	43						0.1	0.0	2.0	4.3	43	97	79	14.1	175	211	198	23	
18 DH130935	2	4144		4492		4318	80	15	64.2	7	4.0	85	5/29	40						0.3	1.0	1.3	5.3	42	94	78	13.5	167	285	181	19	
19 Buck*	6	2457		3692		3075	57	28	71.4	1	6.0	83	5/31	26						0.3	5.0	0.0	0.0	30	68	84	13.5	90	579	151	N/A	
20 #STRKR*	6	2019		3726		2873	53	29	66.4	2	4.7	85	6/1	18						0.0	5.3	0.0	0.0	31	62	80	15.7	129	564	133	N/A	
21 10.1150*	6	4011		2958		3485	65	26	63.2	16	1.7	72	5/31	15						0.3	6.0	0.0	1.7	31	68	82	14.0	138	448	149	N/A	
22 10.1618*	6	3494		3549		3522	65	25	66.0	3	5.7	77	5/28	24						0.1	3.7	1.0	2.7	29	81	81	14.9	132	655	120	N/A	
23 LCS Casanova	2	4321		4384		4352	81	13	64.2	6	3.3	81	5/28	36						0.1	4.7	0.0	3.3	29	96	77	13.5	166	377	144	15	
24 LCS Nenea	2	4882		4438		4660	87	7	64.8	4	3.7	83	5/27	39						0.0	2.3	0.7	5.7	38	87	76	13.6	185	374	149	11	
25 DH120304	2	4464		3803		4133	77	19	62.9	17	3.3	85	5/31	21						7.3	0.7	0.0	3.7	48	98	81	14.0	227	39	353	26	
26 DH130939	2	4554		3501		4027	75	21	63.4	14	2.0	82	5/28	26						8.1	2.7	1.3	1.7	42	95	80	13.9	216	93	290	23	
27 2W115-8688	2	3385		3511		3448	64	27	59.6	29	1.7	82	6/3	18						7.9	4.3	0.0	1.7	38	87	79	14.0	207	95	304	14	
28 HirondeLLa	6	5713		3602		4658	87	8	60.4	24	1.0	84	6/3	24						0.2	2.7	2.0	3.3	38	94	77	13.8	170	187	153	N/A	
29 AC11/341/28	2	4986		5428		5207	97	2	62.9	18	3.0	89	5/29	36						0.2	5.3	1.0	1.7	41	87	78	14.2	156	393	163	19	
30 06ARS617-25	2	2566		4637		3602	67	24	60.1	26	4.0	84	5/31	25						8.2	4.7	0.0	2.3	32	75	78	14.8	250	201	293	7	
Mean		4221		4112		4166	77		62.9		3.5	84	5/30	33						1.8	3.8	0.6	2.4	39	88	78	14.1	187	296	190		
CV		15.4		22.3																												
* feed barley																																
*Naked Barley																																

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2019 Hybrid Winter Rye Regional Trial – Cornell University

Entry	Grain Yield (kg/h)						Test Weight kg/hl	Rank	Lodging Score 0-9	Height cm	Winter Surv. %	Rank	
	Regional Locations												
	Ith-Sny	Ith-Ket	SenCo	Ith-McG	Mean	Rank							
1	Brasetto (180 k/m ²)	2588	4701	F	1736	3008	12	63.2	12	N	125	37	11
2	Brasetto (200 k/m ²)	2613	4793	L	2485	3297	9	63.8	11	O	118	39	8
3	Brasetto (250 k/m ²)	3149	4734	O	1781	3221	10	63.0	13	N	128	44	6
4	KWS H-144 (Gatano)	3833	3605	O	2884	3441	8	65.2	6	E	123	30	13
5	Danko	3079	3745	D	2423	3082	11	65.1	7		140	39	10
6	AC Hazlet	2768	2681		1383	2277	14	63.9	10		143	31	12
7	Erie (wheat ck)	5615	3084	D	2120	3606	6	67.8	1		88	63	1
8	KWS Serafino	2853	4083	A	3606	3514	7	65.3	4		110	39	9
9	KWS-H176 (Tayo)	4176	5030	M	2943	4050	4	64.2	9		118	46	5
10	KWS-H180 (Fratello)	3856	5085	A	4068	4337	1	65.2	5		135	56	2
11	KWS Bono	3167	4488	G	3604	3753	5	66.4	2		125	42	7
12	KWS Trebiano	3608	5432	E	3875	4305	2	65.1	8		135	54	3
13	KWS Brasetto(No seed treat	2797	2944		1386	2376	13	62.4	14		108	25	14
14	KWS Bono (No seed treat	4168	4180		3811	4053	3	66.1	3		123	47	4
	Mean	3448	4185		2722	3451		64.8			123	42	
	CV	17.7	17.2		29.2								

Entry	Grain Yield						Test Weight 2 Year kg/hl	Lodging 0-9 2 Yr	Head Date 2 Yr	Height cm 2 Yr	Winter Surv. 2 Yr		
	6 Year												
	kg/h	b/a	kg/h	b/a	kg/h	b/a							
1	Brasetto (180 k/m ²)	6222	99	5902	94	4815	77	67.1	53.6	2.1	5/29	125	55
2	Brasetto (200 k/m ²)	6103	97	5818	93	4975	79	67.5	54.0	2.3	5/27	123	61
3	Brasetto (250 k/m ²)	6201	99	5842	93	4905	78	66.9	53.5	2.2	5/28	127	62
4	KWS H-144 (Gatano)	6058	97	5784	92	4854	77	67.8	54.3	2.8	5/26	124	42
5	Danko	4944	74	4653	69	4247	63	69.1	55.2	1.6	5/27	141	53
6	AC Hazlet	4491	72	4266	68	3768	60	68.1	54.5	1.3	5/29	141	46
7	Erie (wheat ck)			4663	74	4267	68	71.2	56.9	0.0	6/1	88	78
8	KWS Serafino					5040	80	68.6	54.9	1.8		120	48
9	KWS-H176 (Tayo)					5634	90	68.0	54.4	2.0		124	64
10	KWS-H180 (Fratello)					5615	89	68.6	54.9	2.0		133	61

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2019 Spring Oat Regional and Cumulative Summaries - Cornell University

Entry	Grain Yield (kg/h)						Test Wt (kg/hl)			Lodging	Height cm	Head Date		
	lth-Sny	lth-Ket	GenCo.	SteCo.	Mean	Rank	Mean	Rank	Rank					
1	OGLE	3022	2717	1171	1693	2151	19	46.4	19	N	93	6/25		
2	NEWDAK	3391	3059	2608	1800	2714	8	51.3	9	O	106	6/22		
3	Corral	3983	2884	1091	1744	2426	15	48.4	17	N	86	6/23		
4	MN09255	2899	2969	1249	1837	2239	17	48.9	16	E	98	6/29		
5	SD111946	3681	2665	1821	2162	2582	13	52.3	6		99	6/24		
6	Hayden	3336	2541	2197	1993	2517	14	52.1	7		100	6/25		
7	Buff	3007	2054	1609	1478	2037	20	58.5	1		96	6/22		
8	IL12 - 9020	4460	2930	2079	2625	3024	5	49.7	13		91	6/24		
9	WIX10169-5	3032	3077	1984	2522	2654	11	50.6	11		95	6/30		
10	OT7086	2211	2734	1818	2673	2359	16	46.4	20		91	7/1		
11	SD152037	3798	3905	3244	3059	3502	1	51.6	8		101	6/29		
12	SD150015	4059	2684	2738	2715	3049	3	54.5	2		91	6/25		
13	ND131603	3234	3178	3516	2185	3028	4	49.7	12		106	6/26		
14	SD141133	3509	3074	2534	2274	2848	7	52.4	5		102	6/29		
15	OT3094	3218	3253	1862	2346	2670	10	49.1	15		96	6/25		
16	SD140327	3917	3256	3017	2309	3125	2	53.0	4		103	6/24		
17	ND130237	3011	3074	1837	2826	2687	9	51.0	10		114	6/26		
18	SD140741	2832	3282	2660	2926	2925	6	53.4	3		109	6/26		
19	MS-19OT1	3023	3133	1815	2625	2649	12	49.4	14		91	6/29		
20	PGR-N14-090	3141	2782	811	1981	2179	18	46.9	18		99	6/30		
Mean		3338	2963	2083	2289	2668		50.8			98	6/26		
CV		8.7	5.2	14.1	1.6									
Cumulative Summary														
Entry	Grain Yield						Test Weight		Head Date	Lodging 0-9	Height cm			
	6 Years		4 Years		3 Years		2 Years							
	kg/h	b/a	kg/h	b/a	kg/h	b/a	kg/h	b/a	kg/hl	lbs/b	2 Yr	2 Yr	2 Yr	
1	OGLE	2386	67	2124	59	2142	60	2025	56	44.2	34.5	6/27	1.0	85
2	NEWDAK	2595	72	2333	65	2374	66	2371	66	47.6	37.2	6/25	3.0	97
3	Corral	2556	71	2176	61	2185	61	2279	64	45.7	35.7	6/28	1.8	81
4	MN09255	2790	78	2415	67	2489	69	2510	70	49.4	38.6	7/2	2.0	91
5	SD111946	2865	80	2557	71	2657	74	2551	71	50.0	39.1	6/28	0.7	91
6	Hayden			2574	72	2740	76	2658	74	49.9	39.0	6/29	0.3	93
7	Buff			1900	53	1952	54	1932	54	56.9	44.5	6/24	0.3	88
8	IL12 - 9020							2885	80	48.9	38.2	6/26	1.2	83
9	WIX10169-5							2531	71	47.6	37.2	7/1	1.2	88

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Entry	Row#	Class	Grain Yield (kg/h)				Test				Lodg	Head Date	Height cm	PreHarv			Spot Blotch	Leaf Rust	FHB Inc	FHB Sev	FHB Index	Kernel DON	on 6/64	Malt Extract	Barley Protein	Beta		All Malt Quality											
			lth-Sny	lth-Ket	GenCo.	SteCo.	Mean	Rank	Kg/hl	Rank				0-9	0-9	0-9										0-9	0-9		%	%	%	Rank	ppm	(mg)	%	%	ASBC	ppm	ppm
1	Quest	6	Malt	4132	2700	2592	3341	3191	16	62.6	3	0.0	6/16	90	0.6	3	4	6	43	35	15.2	19	2.9	31.0	92.4	80.9	10.3	128	211	233	N/A								
2	KWS Tinka	2	Malt	4875	2775	2889	4508	3762	2	60.1	14	1.0	6/17	72	2.6	18	5	0	57	12	6.8	2	8.5	40.9	97.4	83.4	9.1	76	25	253	35								
3	ND Genesis	2	Malt	4805	3168	2576	3570	3530	7	63.2	2	0.0	6/14	84	1.6	14	5	1	70	14	9.6	11	4.9	39.5	97.6	82.4	9.4	68	23	223	33								
4	AAC Synergy	2	Malt	4918	2231	2861	4194	3551	6	61.1	11	0.0	6/19	78	4.2	20	2	1	63	17	11.0	16	9.8	38.7	98.1	83.5	9.1	65	41	224	33								
5	Newdale	2	Malt	5053	2092	2427	4168	3435	9	61.8	7	0.0	6/18	73	3.3	19	3	2	52	13	6.9	3	4.6	34.5	94.7	83.1	9.7	87	20	229	31								
6	09N2-67	2	Malt	4492	2713	2804	3704	3428	10	62.4	5	0.0	6/21	82	2.2	16	3	1	65	14	9.1	9	4.0	39.6	98.2	82.5	8.9	77	33	214	33								
7	KWS Jessie	2	Malt	4752	2512	2990	4081	3583	4	58.0	19	3.0	6/17	57	0.7	5	7	0	62	13	8.0	6	12.4	32.6	94.8	82.5	8.3	84	16	213	31								
8	KWS Chrissie	2	Malt	4572	2020	2529	4274	3349	13	60.3	12	0.0	6/17	61	1.0	9	6	1	65	16	10.2	14	12.2	38.0	95.0	82.4	9.4	92	31	240	33								
9	LCS Opera	2	Malt	3586	1610	3109	4077	3095	17	56.4	20	6.0	6/19	60	1.2	10	7	0	82	17	14.2	18	11.2	30.2	74.5	81.8	8.6	80	24	225	26								
10	Explorer	2	Malt	3909	2556	3149	3806	3355	12	61.3	10	0.0	6/18	62	0.1	1	6	0	50	13	6.3	1	3.6	38.9	95.2	82.7	9.0	74	125	198	32								
11	DH130910	2	Malt	3435	1383	1966	2723	2377	20	62.0	6	2.0	6/16	68	0.6	4	5	1	75	13	9.8	12	4.8	42.8	98.3	80.8	10.8	120	26	230	37								
12	DH130935	2	Malt	3411	1542	1788	2769	2378	19	60.1	13	0.0	6/16	70	1.4	13	6	2	87	25	22.0	20	10.6	42.2	97.9	80.5	10.3	107	90	247	42								
13	Esma	2	Malt	4496	2000	2919	4045	3365	11	61.3	9	3.0	6/18	61	0.9	7	6	0	77	16	12.5	17	8.2	40.3	96.2	83.7	8.2	65	17	226	35								
14	Eifel	2	Malt	4303	2473	2826	3685	3322	14	59.3	18	5.0	6/22	63	1.6	15	5	0	65	12	7.6	5	8.6	38.2	96.4	84.5	8.4	62	103	226	29								
15	Expo	2	Malt	3760	2103	2626	3395	2971	18	60.0	15	5.0	6/18	63	0.5	2	7	1	67	15	9.8	13	6.2	35.2	93.2	82.3	10.6	80	20	216	31								
16	Sangria	2	Malt	3990	2069	2819	3997	3219	15	59.6	17	2.0	6/19	63	0.8	6	6	0	75	14	10.8	15	8.0	31.9	92.9	82.7	8.5	83	18	213	31								
17	OS13-16,21	6	Feed	4727	3260	2676	4294	3739	3	62.4	4	0.0	6/19	101	1.2	11	3	4	72	12	8.4	7	12.0	37.1	94.6	79.2	9.5	53	436	155	N/A								
18	OS14-13,38	6	Feed	4222	3008	2850	3812	3473	8	59.9	16	0.0	6/19	94	1.3	12	3	3	65	14	9.1	10	11.4	36.7	94.6	79.0	9.3	79	571	151	N/A								
19	CU127	2	Malt	5046	2526	2651	4080	3576	5	61.5	8	4.0	6/16	80	1.0	8	6	2	62	15	9.0	8	10.3	36.1	94.0	82.8	8.9	59	201	187	27								
20	CU198	2	Malt	5250	3003	3163	4345	3940	1	63.9	1	2.0	6/17	83	2.3	17	4	1	58	12	7.2	4	5.3	39.3	96.9	83.9	8.3	92	36	221	33								
Mean				4387	2387	2710	3843	3332		60.9			6/17	73	1.5		4.9	1.3	66	16	10.2		8.0	37.2	94.6	82.2	9.2	81.6	103	216									
CV				7.9	24.8	12.6	6.1																																
Cumulative Summary																																							
Entry	Row#	Class	Grain Yield				Test Weight		Head Date	Lodg.	Ht. cm	PreHarv Sprout	FHB Inc	FHB Sev	FHB Indx	Spot DON	Kernel Blotch	on Wt.	Malt 6/64	Barley Extract	Protein	DP	Beta		All Malt Quality														
			4 Years	2 Years	2 Years	2 Years	2 Yr	2 Yr															2 Yr	2 Yr		2 Yr	2 Yr	2 Yr	2 Yr	2 Yr	2 Yr	2 Yr	2 Yr	2 Yr	2 Yr	2 Yr	2 Yr	2 Yr	2 Yr
1	Quest	6	Malt	2683	50	2963	55	61.0	47.7	6/21	0	84	1.5	34	22	8.6	4.4	3.4	31.9	91	79.9	11.0	106	416	230	NA													
2	KWS Tinka	2	Malt	2720	51	2729	51	58.8	45.9	6/24	0.5	70	2.6	43	11	5.1	7.7	4.3	39.7	97	80.7	10.7	72	190	256	30													
3	ND Genesis	2	Malt	2753	51	2937	55	61.6	48.1	6/22	0	78	2.8	59	13	7.8	5.3	3.8	40.7	97	80.8	10.4	68	314	215	34													
4	AAC Synergy	2	Malt	2897	54	2971	55	60.1	46.9	6/25	0	75	4.1	44	17	7.7	9.0	2.4	40.1	95	81.8	10.5	72	112	242	33													
5	Newdale	2	Malt	2634	49	2881	54	61.0	47.6	6/25	0	71	3.5	44	18	7.6	5.0	3.2	36.6	96	81.4	11.0	97	137	235	33													
6	09N2-67	2	Malt			2951	55	61.4	48.0	6/27	0	78	3.2	43	11	5.4	5.2	2.6	40.6	98	80.9	10.5	71	191	217	34													
7	KWS Jessie	2	Malt			3356	62	58.3	45.6	6/21	1.5	59	1.7	63	13	8.2	10.7	5.9	36.5	92	81.4	9.6	77	47	229	26													
8	KWS Chrissie	2	Malt			3215	60	60.3	47.1	6/21	0	62	2.2	74	16	12.3	9.7	5.8	39.6	94	81.3	10.0	75	129	235	28													
9	LCS Opera	2	Malt			3323	62	58.0	45.3	6/24	3.0	61	2.0	64	15	10.1	11.5	6.3	34.3	94	81.8	9.4	69	238	228	27													
10	Explorer	2	Malt			2894	54	60.5	47.3	6/25	0	61	0.7	48	15	7.4	4.8	5.7	40.4	94	80.5	10.6	73	148	210	30													
11	DH130910	2	Malt			2313	43	61.3	47.9	6/22	1.0	64	1.6	63	14	8.9	6.1	5.1	45.3	95	78.4	12.5	109	178	233	30													
12	DH130935	2	Malt			2143	40	58.4	45.6	6/20	0	61	2.2	78	20	16.1	7.3	6.5	42.1	95	78.1	12.1	95	228	237	31													

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