

2018

Texas Barley Variety Trial Results



varietytesting.tamu.edu

2018

Texas Barley Variety Trials

varietytesting.tamu.edu/wheat

Texas A&M AgriLife Extension Service

Clark Neely, Brandon Gerrish, Daniel Hathcoat

Texas A&M AgriLife Research

Amir Ibrahim, Bryan Simoneaux, Russell Sutton

Table of Contents

Introduction.....	1
Texas Small Grains Regional Map	3
2018 Texas Region Overview	4
Texas Location Agronomic Data.....	5
Blacklands and South Texas Spring Barley 2018 Regional Summary.....	6
College Station Spring Barley Results	7
McGregor Spring Barley Results	8
Uvalde Spring Barley Results	9
Blacklands and South Texas Winter Barley 2018 Regional Summary	10
McGregor Winter Barley Results	11
McGregor National Winter Barley Variety Trial Results	12
Uvalde Winter Barley Results	13
Out-of-state Barley Variety Distributor List	14
In-state Barley Variety Distributor List	15
Acknowledgements	16

Introduction

At one point in time, barley was grown on nearly 600,000 acres in Texas (NASS, 2014), but acres steadily decreased to roughly 15,000 acres by the end of the century (1999 final year reported by NASS). As acres decreased in the state, so did active barley breeding and research. However, recent trials suggest that barley is still competitive with current wheat varieties for forage and grain production despite having no new varietal development in Texas in over a decade. The last variety released by Texas A&M AgriLife was ‘TAMbar 501’ in 2004 for forage and feed grain (Marshall et al., 2003). Recent interest by producers and consumer interest in locally grown ingredients has created a need for the continuation of barley research in Texas. According to FSA, Texas currently grows around 30,000 acres of barley, mainly for forage and some feed grain. However, niche markets are opening up in the distilling and local malting industries.

In 2013, evaluations of malt barley varieties in Texas began in order to determine the feasibility of barley production in the state for malting and distilling. This publication will provide information from the 2018 harvest year. Trials evaluated both spring and winter types, 2-row and 6-row types, and a mix of commercially available barley varieties along with breeding material from multiple public barley breeding programs at universities around the US. Screening new germplasm in Texas will potentially identify better adapted lines for varietal release that exceed performance of current varieties selected under different environments.

Interpreting the Data:

Yield and test weight at each location have been analyzed using appropriate statistical procedures. The statistical analysis provides the mean, CV, and LSD values. It is important to note these statistical values to prevent misinterpretation of any replicated data.

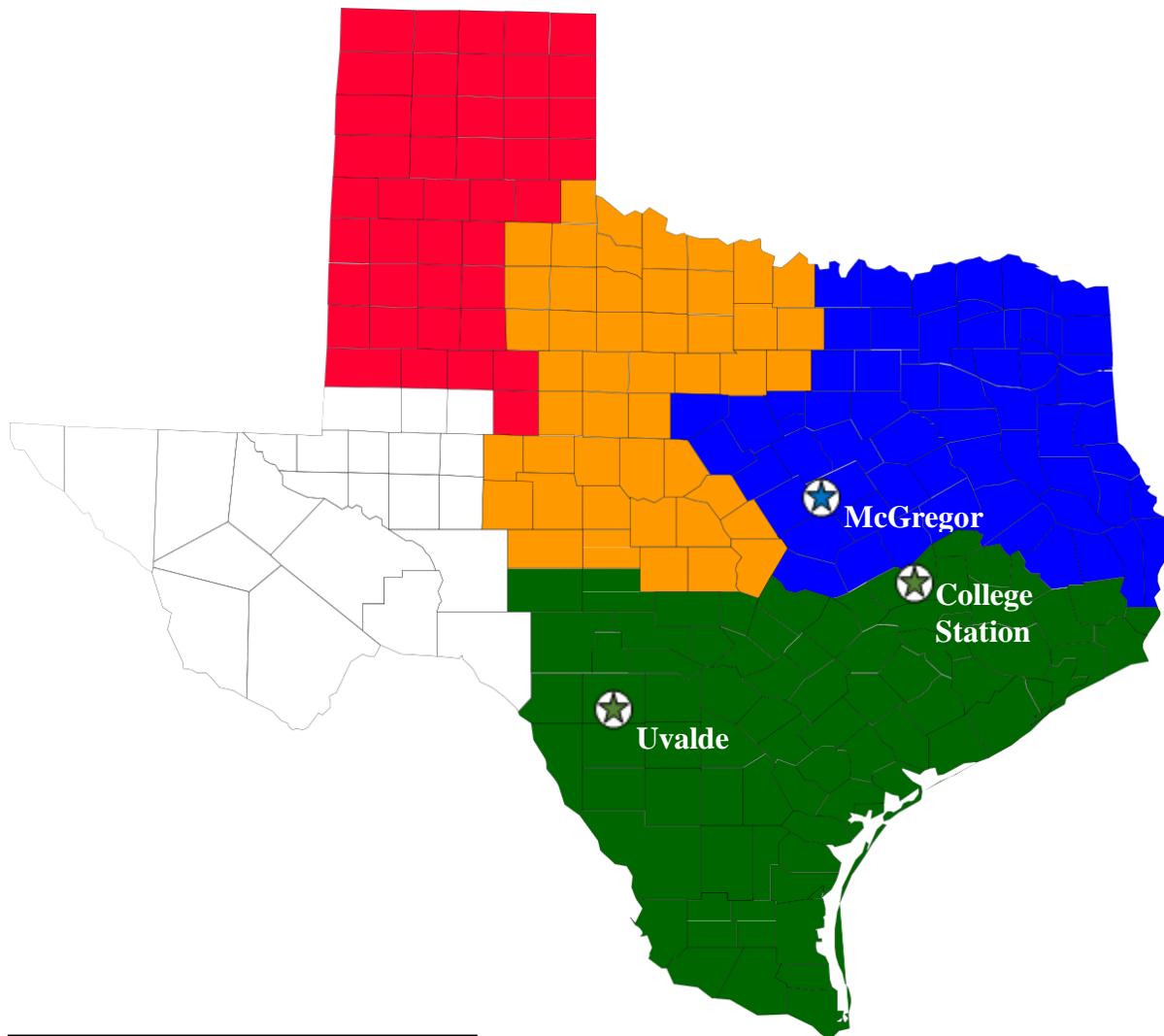
The mean is another term for the average. Therefore, a mean yield is the average of all plots within a trial. Individual variety yields can be compared to the mean yield to determine how these varieties performed within the trial (i.e. were they above or below average?). This average can also be used as an indication of the environment for that location. A low mean yield can indicate poor growing conditions were experienced in that season; likewise, a high yield average can indicate favorable growing conditions.

The CV (Coefficient of Variation) value, expressed as a percentage, indicates the level of unexplained variability present within the trial. A high CV value indicates a lot of variability existed within the trial not related to normal variations that might be expected between the varieties in the test. This variability may be the result of non-uniform stands, non-uniform insect or disease pressure, variability in harvesting, or other issues. CV values in excess of 15% signify that there were problems in the trial, leading the reader to question the validity of the data as a true representation of varietal performance.

The LSD (Least Significant Difference) value is a numeric range to help the reader determine if the varieties performed differently from one another within the trial. If the LSD value is 5 bu/ac in a trial in which Variety A yielded 36 bu/a and Variety B yielded 30 bu/a, then Variety A is said to be significantly better. In that same trial with an LSD value of 5 bu/ac at a 0.05

(5%) significance level, the statistical inference one could say is that Variety A would yield better than Variety B in 19 out of 20 trials conducted in which there was at least a 5 bushel difference in yield. In this hypothetical comparison, you might have a 20th trial with a 5 bu/ac difference that there is not truly a statistical difference between Variety A and B, but random chance caused the 5 bushel difference.

Texas Small Grains Regional Map



Legend:

Texas High Plains	
Texas Rolling Plains	
Texas Blacklands	
South Texas	

2018 Texas Region Overview

Texas Blacklands: The 2017-2018 growing season was typical for the production of small grains in the Blacklands. The 2017 fall growing conditions were favorable. Adequate moisture in October helped establish acceptable stands at all locations. Dry conditions in late fall and into mid-winter may have reduced tillering. Rains returned in February and periodically throughout the spring. The barley progressed normally with adequate rainfall, though some areas were quite dry and had limited forage growth during the winter months. Temperatures were at or below normal during the winter months into the spring. This helped with grain fill and led to some exceptional yields in many locations throughout the Blacklands Region. Leaf rust and stripe rust pressure was extremely low for this growing season. Powdery mildew was present in some locations on susceptible varieties.

South Texas:

Most of South Texas was abnormally dry for most of the season, with portions of Southwest Texas that were severely dry as well. Overall, rust was lighter than normal. Temperatures heated up quickly in April and may have sped up grain fill prematurely in some fields. Powdery mildew was present in some locations on susceptible varieties during a prolonged cloudy period from February into March.

Texas Location Agronomic Data

Location¹	Cooperator(s)	Yield Limiting Issues	Planting Date	Fertilizer (Total lb N/A)	Water*	Pesticide Applied (Date)
College Station	Texas A&M University Research Farm	None	11/7/17	70	D	Herbicide (Ally and Amber) 1/30/18
McGregor	Texas A&M AgriLife Research Farm	None	11/14/17	120	D	Herbicides Ally and Amber (1/10/18)
Uvalde	Texas A&M AgriLife Research and Extension Center	None	11/16/17	64.5	IL	Herbicide (Amber and MCPE) 2/12/18

¹All locations were conventionally tilled and planted on 7-inch row spacing. Standard seeding rate was 50 lb per acre.

*Irrigation: IL = Irrigated Limited, D = Dryland

2018 Spring Barley Variety Trial: Blacklands & South Texas Regional Summary

Rank[†]	Variety	Developer	# Row	AVG	Yield (bu/a)			Test Wt (lb/bu)
					College Station	McGregor	Uvalde	
1	LCS Odyssey	Limagrain	2-Row	74.4	69.1	86.1	65.0	44.5
2	09N2-21*	NDSU	2-Row	72.5	53.2	92.6	71.6	45.8
3	Scarlett	Saatzucht Breun	2-Row	70.5	69.1	84.8	51.2	46.7
4	ND Genesis	NDSU	2-Row	68.4	68.0	74.1	60.5	45.0
5	06N6-66*	NDSU	6-Row	67.0	51.1	83.3	66.5	44.4
6	06MT-67*	MSU	2-Row	65.8	54.2	88.2	60.8	48.7
7	08WA-40*	WSU	2-Row	65.8	60.5	81.3	50.3	45.8
8	09BA-37*	Anheuser-Busch	6-Row	65.7	50.8	83.0	62.0	44.9
9	Pinnacle	NDSU	2-Row	65.3	57.1	77.0	60.2	44.3
10	08BA-44*	Anheuser-Busch	6-Row	65.3	40.9	92.3	61.2	43.9
11	08N6-91*	NDSU	6-Row	64.8	49.5	80.3	64.4	45.3
12	CDC Kindersley	AAFC	2-Row	63.9	64.6	62.3	65.3	45.8
13	06N6-71*	NDSU	6-Row	63.2	40.1	92.3	54.3	45.3
14	07BA-09*	Anheuser-Busch	6-Row	62.0	30.4	88.1	70.3	45.7
15	Conlon	NDSU	2-Row	61.3	47.1	81.5	52.2	48.5
16	Craft	MSU	2-Row	60.1	44.0	87.0	57.6	47.5
17	09MT-16*	MSU	2-Row	60.0	50.0	75.3	52.0	46.9
18	LCS Genie	Limagrain	2-Row	59.2	61.0	65.4	47.2	45.5
19	08BA-54*	Anheuser-Busch	6-Row	59.1	32.1	83.4	63.1	45.5
20	06N2-70*	NDSU	2-Row	58.3	51.5	74.4	44.5	44.6
21	Hockett	MSU	2-Row	58.1	46.3	70.4	57.4	46.0
22	UC Tahoe	UC	2-Row	57.9	60.7	61.6	50.0	44.8
23	CDC Copeland	AAFC	2-Row	56.5	48.4	62.8	62.0	44.2
24	AC Metcalf	AAFC	2-Row	53.7	45.5	65.6	47.9	46.3
25	Full Pint	OSU	2-Row	47.9	32.7	87.9	10.6	42.1
LSD				9.9	11.5	21.6	17.5	1.4
CV				15.7	13.7	16.1	14.7	3.1
Mean				62.7	51.1	79.3	56.2	45.5

*Experimental breeding line.

[†]Varieties ranked according to 3-location yield average.

2018 Spring Barley Variety Trial: College Station, TX

Rank [†]	Variety	Developer	# Row	Yield (bu/a)		Test Wt (lb/bu)	Kernel Weight (mg)	on 6/64"	Barley Color (Agron)	Malt Extract (%)	Wort Color	Wort Clarity	Barley Protein (%)	Wort Protein (%)	S/T (%)	DP (°ASBC)	Alpha- amylase (20°DU)	Beta- glucan (ppm)	Adjunct FAN (ppm)	All Quality Score		
				2-year [‡]	2018																	
1	06N6-66*	NDSU	6-Row	81.7	51.1	42.7	34.1	92.2	31.5	79.7	3.6	2.0	12.6	6.1	51.8	121.0	97.1	314.2	288.7	46.5	--	
2	08N6-91*	NDSU	6-Row	74.8	49.5	42.9	33.8	92.2	38.0	80.1	3.0	1.0	12.6	6.0	50.3	122.1	92.2	419.9	275.1	47.0	--	
3	09BA-37*	Anheuser-Busch	6-Row	74.3	50.8	43.6	34.2	91.0	33.0	80.9	2.7	1.0	13.0	5.9	47.5	155.0	99.6	377.5	263.4	52.5	--	
4	06N6-71*	NDSU	6-Row	72.6	40.1	43.6	34.5	94.0	29.0	80.2	2.5	1.0	13.2	5.9	46.6	179.1	92.9	236.8	258.8	52.5	--	
5	06MT-67*	UM	2-Row	69.6	54.2	46.6	43.9	96.5	24.5	80.4	3.5	2.0	13.4	5.8	45.8	99.3	90.1	166.0	230.9	38.0	24.0	
6	08BA-44*	Anheuser-Busch	6-Row	68.1	40.9	41.9	37.1	91.9	37.0	79.2	2.5	1.0	13.9	6.2	45.8	184.3	74.6	434.1	266.6	45.0	--	
7	06N2-70*	NDSU	2-Row	67.1	51.5	42.2	41.2	94.8	36.5	83.5	3.7	2.0	11.8	6.3	57.2	78.5	106.0	159.8	297.4	44.0	24.0	
8	07BA-09*	Anheuser-Busch	6-Row	62.4	30.4	44.8	36.4	92.2	36.5	80.3	2.8	1.0	13.5	6.3	47.2	159.1	98.3	384.2	292.8	43.5	--	
9	09N2-21*	NDSU	2-Row	61.7	53.2	42.9	48.7	97.6	39.0	81.8	4.0	2.0	11.9	5.8	50.6	78.6	90.2	369.8	270.3	46.0	23.0	
10	Scarlett	Saatzucht Breun	2-Row		69.1	43.1	41.1	96.2	19.5	81.5	3.3	2.5	13.0	5.4	42.7	111.4	86.9	255.8	210.6	49.5	28.0	
11	LCS Odyssey	Limagrain	2-Row		69.1	40.9	41.9	95.4	15.0	81.6	4.2	1.5	12.5	6.0	49.4	89.6	88.2	164.2	269.2	46.0	24.5	
12	ND Genesis	NDSU	2-Row		68.0	40.8	37.3	89.3	27.0	80.3	3.1	1.0	10.7	5.2	50.7	81.2	95.0	304.2	205.9	36.0	19.5	
13	CDC Kindersley	AAFC	2-Row	64.6	43.3	36.6	88.9	31.5	81.2	4.0	1.0	11.9	6.3	54.7	131.3	113.3	57.1	297.7	48.0	23.0		
14	LCS Genie	Limagrain	2-Row		61.0	41.9	42.5	93.6	12.5	80.5	3.7	1.0	13.0	6.3	50.0	137.4	83.3	98.3	272.6	50.0	23.5	
15	UC Tahoe	UC	2-Row		60.7	43.8	39.1	92.8	13.0	77.5	2.9	1.0	13.8	5.5	40.8	161.5	78.0	178.8	211.0	46.0	16.5	
16	08WA-40*	WSU	2-Row		60.5	41.6	37.3	83.0	23.0	79.1	2.6	1.0	12.6	5.0	41.3	97.8	71.9	294.3	194.2	40.0	18.5	
17	Pinnacle	NDSU	2-Row		57.1	40.0	42.4	93.0	22.0	81.5	2.8	1.0	10.8	5.3	50.8	89.8	80.1	308.7	207.6	44.5	26.5	
18	09MT-16*	MSU	2-Row		50.0	43.1	38.6	89.7	23.5	80.7	3.0	1.0	11.5	5.3	47.4	77.5	84.8	389.0	220.9	46.5	17.5	
19	CDC Copeland	AAFC	2-Row		48.4	41.7	39.7	90.3	32.0	80.4	3.5	1.0	13.6	6.5	49.1	131.3	103.9	131.4	289.2	41.0	18.5	
20	Conlon	NDSU	2-Row		47.1	46.9	46.6	98.1	30.0	80.7	2.6	1.5	13.2	5.8	45.2	141.6	97.2	419.8	237.5	52.5	20.0	
21	Hockett	MSU	2-Row		46.3	42.7	35.4	80.0	35.5	80.8	2.9	1.0	12.5	5.7	47.6	107.2	112.1	302.0	260.9	42.5	16.0	
22	AC Metcalf	AAFC	2-Row		45.5	43.0	37.7	87.7	31.0	79.9	2.8	1.0	13.1	5.6	44.3	126.2	92.4	359.7	231.6	47.0	15.0	
23	Craft	MSU	2-Row		44.0	45.3	44.9	94.9	30.0	81.0	2.9	1.0	13.6	6.1	45.9	113.1	86.6	257.1	239.7	43.0	25.5	
24	Full Pint	OSU	2-Row		32.7	39.1	30.2	63.7	31.5	76.7	3.8	1.0	13.0	5.5	45.1	104.8	81.9	389.5	227.1	35.5	12.5	
25	08BA-54*	Anheuser-Busch	6-Row		32.1	44.2	37.2	92.1	37.5	80.1	2.7	1.0	13.9	6.2	47.2	186.1	82.6	369.6	276.8	45.0	--	
26	06BA-81*	Anheuser-Busch	2-Row	--	42.6	36.8	84.6	27.5	77.3	2.8	1.0	13.8	5.6	42.4	125.4	84.0	338.1	199.3	29.0	12.5		
				LSD	10.5	11.5	2.8	2.6	4.2	8.2	0.8	0.4	1.0	0.9	0.3	3.0	17.0	10.5	57.7	29.1	8.5	7.4
				CV	12.7	13.7	4.0	3.2	2.2	13.9	0.5	5.7	39	3.4	2.5	3	6.7	5.6	9.7	5.7	9.3	17.3
				Mean	70.2	51.1	42.9	38.8	90.6	28.7	80.3	3.1	1.3	12.8	5.8	47.6	122.7	90.9	287.7	249.8	44.5	20.5

*Experimental breeding line.

†Varieties ranked according to 2-year, then 2018 yield averages.

‡2-year average based on 2017 and 2018 data.

2018 Spring Barley Variety Trial: McGregor, TX

Rank[†]	Variety	Developer	# Row	Yield (bu/a)		Test Wt (lb/bu)
				2-year[‡]	2018	
1	08BA-54*	Anheuser-Busch	6-Row	80.3	83.4	45.0
2	06N6-71*	NDSU	6-Row	78.3	92.3	45.3
3	09N2-21*	NDSU	2-Row	76.8	92.6	46.4
4	07BA-09*	Anheuser-Busch	6-Row	75.7	88.1	43.7
5	08WA-40*	WSU	2-Row	74.0	81.3	47.0
6	08BA-44*	Anheuser-Busch	6-Row	73.3	92.3	43.9
7	09BA-37*	Anheuser-Busch	6-Row	72.3	83.0	43.8
8	06N6-66*	NDSU	6-Row	72.2	83.3	44.6
9	Pinnacle	NDSU	2-Row	71.6	77.0	45.2
10	06MT-67*	MSU	2-Row	68.5	88.2	48.6
11	06N2-70*	NDSU	2-Row	67.8	74.4	44.8
12	08N6-91*	NDSU	6-Row	67.3	80.3	45.6
13	CDC Kindersley	AAFC	2-Row	67.0	62.3	46.8
14	LCS Genie	Limagrain	2-Row	66.2	65.4	46.5
15	ND Genesis	NDSU	2-Row	66.2	74.1	45.9
16	09MT-16*	MSU	2-Row	65.1	75.3	46.5
17	Conlon	NDSU	2-Row	63.8	81.5	48.0
18	Hockett	MSU	2-Row	62.9	70.4	46.4
19	CDC Copeland	AAFC	2-Row	62.3	62.8	45.4
20	UC Tahoe	UC	2-Row	61.8	61.6	46.0
21	Craft	MSU	2-Row	56.5	87.0	47.5
22	Full Pint	OSU	2-Row		87.9	43.2
23	LCS Odyssey	Limagrain	2-Row		86.1	44.9
24	Scarlett	Saatzucht Breun	2-Row		84.8	47.6
25	AC Metcalf	AAFC	2-Row		65.6	46.6
LSD				10.6	21.6	1.6
CV				14.3	16.1	2.1
Mean				67.2	79.3	45.8

*Experimental breeding line.

[†]Varieties ranked according to 2-year, then 2018 yield averages.

[‡]2-year average based on 2017 and 2018 data.

2018 Spring Barley Variety Trial: Uvalde, TX

Rank [†]	Variety	Developer	# Row	Yield (bu/a)		Test Wt (lb/bu)	Kernel Weight (mg)	on 6/64"	Barley Color (Agron)	Malt Extract (%)	Wort Color	Wort Clarity	Barley Protein (%)	Wort Protein (%)	S/T	DP (°ASBC)	Alpha- amylase (20°DU)	Beta- glucan (ppm)	Adjunct FAN (ppm)	Adjunct Quality Score	All Quality Score	
				2-year [‡]	2018																	
1	09N2-21*	NDSU	2-Row	81.7	71.6	49.3	46.4	98.7	70.5	81.4	1.9	1.0	12.0	4.9	41.2	127	83	290	193	61	27	
2	CDC Kindersley	AAFC	2-Row	80.8	65.3	48.0	36.7	88.2	74.5	80.5	2.0	1.0	13.7	5.7	43.6	154	98	171	232	46	17	
3	06N6-71*	NDSU	6-Row	79.6	54.3	47.9	35.1	97.0	61.0	79.8	1.6	1.0	12.8	4.9	40.2	203	79	167	181	50	23	
4	08N6-91*	NDSU	6-Row	78.3	64.4	48.6	33.7	93.5	71.0	79.4	1.9	1.0	13.0	5.1	41.9	167	80	444	190	47	15	
5	ND Genesis	NDSU	2-Row	77.7	60.5	49.7	41.2	96.8	69.0	80.2	1.6	1.0	11.9	4.8	42.6	141	86	424	167	54	29	
6	07BA-09*	Anheuser-Busch	6-Row	77.2	70.3	50.1	37.3	96.4	79.0	79.6	1.7	1.0	13.3	5.5	43.5	215	90	306	212	52	14	
7	06N6-66*	NDSU	6-Row	77.0	66.5	46.4	34.8	95.5	67.5	80.4	1.9	1.0	12.4	5.5	45.8	175	82	256	233	59	12	
8	08BA-54*	Anheuser-Busch	6-Row	77.0	63.1	48.2	34.3	92.3	74.5	79.3	1.4	1.0	13.3	5.1	39.4	215	66	396	182	44	17	
9	06MT-67*	MSU	2-Row	75.1	60.8	51.9	44.3	98.0	66.0	78.0	1.5	1.0	14.3	4.8	33.9	140	73	338	143	33	22	
10	Pinnacle	NDSU	2-Row	74.4	60.2	49.4	44.2	97.3	63.5	80.2	1.7	2.0	12.5	4.4	37.4	127	54	428	144	45	28	
11	08BA-44*	Anheuser-Busch	6-Row	72.3	61.2	47.0	37.0	96.8	62.5	79.2	1.5	1.0	13.7	5.0	37.4	220	68	423	178	38	22	
12	09BA-37*	Anheuser-Busch	6-Row	70.1	62.0	48.5	34.2	96.5	72.5	81.3	1.7	1.0	12.7	5.8	48.1	221	85	329	212	55	14	
13	08WA-40*	WSU	2-Row	67.5	50.3	50.3	38.7	91.4	72.5	78.4	1.5	1.0	12.3	4.2	35.8	107	53	469	118	31	27	
14	CDC Copeland	AAFC	2-Row	66.2	62.0	48.3	40.8	93.9	73.5	79.3	1.8	1.0	14.6	5.7	40.0	151	87	302	215	39	19	
15	09MT-16*	MSU	2-Row	66.1	52.0	53.3	42.0	97.7	64.0	80.2	1.7	1.0	12.0	4.4	37.8	116	70	431	142	42	38	
16	Craft	MSU	2-Row	64.8	57.6	50.6	43.8	95.9	72.5	79.3	1.5	1.0	13.6	4.8	36.5	141	70	381	159	41	29	
17	Conlon	NDSU	2-Row	64.6	52.2	51.9	46.1	98.3	66.5	79.6	1.7	1.5	14.0	5.0	36.1	168	76	443	168	41	28	
18	Hockett	MSU	2-Row	62.3	57.4	50.2	41.4	93.9	87.0	80.6	1.5	1.0	13.7	5.3	41.2	185	102	349	203	50	21	
19	UC Tahoe	UC	2-Row	61.2	50.0	45.2	38.4	96.6	51.5	77.2	1.3	1.0	13.8	4.4	32.2	190	64	454	123	26	22	
20	06N2-70*	NDSU	2-Row	60.2	44.5	48.2	43.0	98.3	73.0	82.8	1.8	1.0	12.8	5.8	45.9	141	93	143	235	56	27	
21	LCS Genie	Limagrain	2-Row	54.2	47.2	49.3	42.3	96.9	63.5	80.2	1.5	1.0	13.4	4.7	35.8	171	61	119	154	46	31	
22	LCS Odyssey	Limagrain	2-Row		65.0	49.2	41.6	97.9	67.5	79.8	1.5	1.0	13.3	4.3	34.0	119	59	218	136	38	29	
23	Scarlett	Saatzucht Breun	2-Row		51.2	50.6	38.8	93.7	62.0	79.1	2.4	2.5	13.2	4.5	35.2	112	67	423	141	32	28	
24	AC Metcalf	AAFC	2-Row		47.9	50.7	40.0	95.0	69.5	78.3	1.8	1.0	14.8	5.4	37.4	157	81	381	204	37	17	
25	Full Pint	OSU	2-Row		10.6	47.9	35.5	88.1	52.5	78.9	2.6	1.5	13.7	5.6	41.8	152	77	248	222	38	18	
26	06BA-81*	Anheuser-Busch	2-Row	--	51.6	40.0	94.6	57.5	75.5	1.7	1.0	16.2	5.1	32.1	157	71	478	166	31	25		
				LSD	10.7	17.5	3.4	2.8	8.8	1.4	0.5	0.5	1.3	0.5	6.4	29	11	137	34	15	9	
				CV	11.8	14.7	3.2	3.4	1.4	6.3	0.8	12.9	20.3	4.9	4.5	8	8.9	7.3	19.7	9.2	17.2	15.4
				Mean	70.9	56.2	49.2	39.7	95.3	67.9	79.6	1.7	1.1	13.3	5	39.1	161	76	339	179	43	24

*Experimental breeding line.

[†]Varieties ranked according to 2-year, then 2018 yield averages.

[‡]2-year average based on 2017 and 2018 data.

2018 Winter Barley Variety Trial: Blacklands & South Texas Regional Summary

Rank[†]	Variety	Developer	# Row	Yield (bu/a)			Test Wt (lb/bu)
				AVG	McGregor	Uvalde	
1	MW76-2*	OSU	6-Row	99.8	128.1	57.3	43.6
2	F523-1*	OSU	6-Row	94.7	109.1	73.1	44.6
3	F532-1*	OSU	6-Row	93.0	111.5	65.3	42.8
4	Thoroughbred	VT	6-Row	92.8	126.8	41.9	44.7
5	MW118-1*	OSU	6-Row	92.3	118.9	52.4	42.1
6	F5126-2*	OSU	6-Row	90.3	117.6	49.3	41.5
7	OR103*	OSU	6-Row	90.2	106.5	65.9	44.8
8	F522-3*	OSU	6-Row	89.3	108.0	61.3	45.2
9	F5129-1*	OSU	6-Row	89.0	112.9	53.2	42.5
10	TAMbar 501	TAMU	6-Row	88.4	122.2	37.8	43.1
11	F5121-2*	OSU	6-Row	88.4	114.9	48.6	43.4
12	Alba	OSU	6-Row	88.3	114.5	49.0	41.8
13	07OR-4*	OSU	6-Row	87.6	113.0	49.5	41.9
14	VA09B-34*	VT	6-Row	87.6	108.6	56.0	47.6
15	MW118-4*	OSU	6-Row	86.9	101.3	65.3	43.4
16	07OR-6*	OSU	6-Row	86.5	103.9	60.4	42.0
17	F55-1*	OSU	6-Row	85.9	108.1	52.7	44.4
18	MW116-3*	OSU	6-Row	84.4	102.4	57.4	43.5
19	OR813*	OSU	6-Row	84.3	99.6	61.3	44.4
20	OR818*	OSU	6-Row	84.3	109.5	46.4	41.4
21	F588-3*	OSU	6-Row	83.7	112.9	40.1	41.1
22	Short-11*	OSU	6-Row	83.2	104.9	50.7	44.8
23	07OR-3*	OSU	6-Row	83.2	103.8	52.2	43.9
24	MW118-3*	OSU	6-Row	82.5	89.8	71.6	45.1
25	F5-47-3*	OSU	6-Row	82.2	101.0	54.1	43.9
26	07OR-8*	OSU	6-Row	82.2	104.9	48.1	42.6
27	OR91*	OSU	6-Row	81.6	103.7	48.4	43.1
28	Short-12*	OSU	6-Row	81.3	98.0	56.3	44.6
29	F5113-2*	OSU	6-Row	81.0	114.4	30.9	40.5
30	Short-16*	OSU	6-Row	80.0	94.9	57.6	44.4
31	Maja	OSU	6-Row	78.7	104.5	40.0	44.1
32	Short-13*	OSU	6-Row	78.5	93.4	56.2	45.1
33	Endeavor	USDA/UI	2-Row	78.3	101.0	44.2	46.9
34	F590-5*	OSU	6-Row	78.2	106.5	35.7	42.4
35	LCS Calypso	Limagrain	2-Row	77.2	106.9	32.6	46.2
36	OBA11-13*	OSU	6-Row	75.6	108.3	26.5	42.6
37	MW122-1*	OSU	6-Row	74.6	76.8	71.3	44.7
38	PY211-6*	OSU	6-Row	73.9	93.8	44.0	43.0
39	LCS Puffin	Limagrain	2-Row	72.8	99.3	33.0	46.3
40	OR910*	OSU	6-Row	72.5	96.8	36.2	42.7
41	F536-2*	OSU	6-Row	69.7	103.5	19.0	41.5
42	08OR-73*	OSU	6-Row	68.9	96.0	28.2	45.1
43	MW120-8*	OSU	6-Row	67.3	72.8	59.2	43.6
44	Flavia	Ackerman	2-Row	67.1	95.6	24.3	45.0
45	SU Mateo	Ackerman	2-Row	65.1	88.9	29.4	44.4
46	MW80-1*	OSU	6-Row	64.7	59.3	72.9	42.1
47	08BA-54*	OSU	6-Row	62.7	62.1	63.7	43.1
48	MW122-5*	OSU	6-Row	61.1	64.0	56.6	44.8
LSD				10.4	13.8	16.1	2.1
CV				10.3	8.4	16.1	3.8
Mean				81.1	102.0	49.7	43.7

*Experimental breeding line.

[†]Varieties ranked according to 2-location yield average.

2018 Winter Barley Variety Trial: McGregor, TX

Rank[†]	Variety	Developer	# Row	Yield (bu/a)		Test Wt (lb/bu)
				2-year[‡]	2018	
1	TAMbar 501	TAMU	6-Row	110.0	122.2	44.5
2	MW76-2*	OSU	6-Row	109.4	128.1	45.0
3	Thoroughbred	VT	6-Row	101.4	126.8	45.2
4	F523-1*	OSU	6-Row	96.0	109.1	44.7
5	OBA11-13*	OSU	6-Row	92.6	108.3	43.4
6	VA09B-34*	VT	6-Row	92.3	108.6	47.8
7	MW118-3*	OSU	6-Row	91.5	89.8	43.9
8	07OR-3*	OSU	6-Row	91.4	103.8	43.2
9	OR813*	OSU	6-Row	89.7	99.6	45.6
10	F532-1*	OSU	6-Row	87.6	111.5	42.5
11	F55-1*	OSU	6-Row	86.7	108.1	43.6
12	F522-3*	OSU	6-Row	85.7	108.0	45.1
13	Short-13*	OSU	6-Row	83.4	93.4	45.0
14	PY211-6*	OSU	6-Row	82.4	93.8	43.5
15	Short-16*	OSU	6-Row	82.0	94.9	44.1
16	Short-12*	OSU	6-Row	81.8	98.0	44.8
17	F5126-2*	OSU	6-Row	80.9	117.6	42.0
18	MW122-1*	OSU	6-Row	77.8	76.8	44.1
19	OR103*	OSU	6-Row	72.5	106.5	43.7
20	MW122-5*	OSU	6-Row	68.6	64.0	45.1
21	F536-2*	OSU	6-Row	62.0	103.5	43.1
22	MW118-1*	OSU	6-Row		118.9	41.3
23	F5121-2*	OSU	6-Row		114.9	43.1
24	Alba	OSU	6-Row		114.5	42.5
25	F5113-2*	OSU	6-Row		114.4	41.4
26	07OR-4*	OSU	6-Row		113.0	41.3
27	F5129-1*	OSU	6-Row		112.9	42.6
28	F588-3*	OSU	6-Row		112.9	42.5
29	OR818*	OSU	6-Row		109.5	42.6
30	LCS Calypso	Limagrain	2-Row		106.9	45.8
31	F590-5*	OSU	6-Row		106.5	43.0
32	Short-11*	OSU	6-Row		104.9	44.4
33	07OR-8*	OSU	6-Row		104.9	42.4
34	Maja	OSU	6-Row		104.5	44.2
35	07OR-6*	OSU	6-Row		103.9	42.1
36	OR91*	OSU	6-Row		103.7	42.9
37	MW116-3*	OSU	6-Row		102.4	44.2
38	MW118-4*	OSU	6-Row		101.3	43.0
39	Endeavor	USDA/UI	2-Row		101.0	46.6
40	F5-47-3*	OSU	6-Row		101.0	43.4
41	LCS Puffin	Limagrain	2-Row		99.3	46.7
42	OR910*	OSU	6-Row		96.8	42.9
43	08OR-73*	OSU	6-Row		96.0	44.8
44	Flavia	Ackerman	2-Row		95.6	44.7
45	SU Mateo	Ackerman	2-Row		88.9	44.5
46	MW120-8*	OSU	6-Row		72.8	42.6
47	08BA-54*	OSU	6-Row		62.1	43.9
48	MW80-1*	OSU	6-Row		59.3	43.9
LSD				8.7	13.8	1.9
CV				8.8	8.4	2.6
Mean				86.9	102.0	43.8

*Experimental breeding line.

[†]Varieties ranked according to 2-year, then 2018 yield averages.

[‡]2-year average based on 2017 and 2018 data.

2018 National Winter Barley Variety Trial: McGregor, TX

Rank[†]	Variety	Developer	# Row	Yield (bu/a)			Test Wt (lb/bu)
				3-year[‡]	2-year	2018	
1	Secretariat	VA Tech.	6-row	95.4	102.5	116.7	46.9
2	Atlantic	VA Tech.	6-row	84.2	95.7	104.4	45.5
3	TAMbar 501	TAMU	6-row	74.9	89.7	115.6	45.7
4	VA11B-14	VA Tech.	6-row	71.0	87.2	100.7	46.8
5	Thoroughbred	VA Tech.	6-row	70.4	82.0	111.1	44.3
6	Wysor	VA Tech.	6-row	67.1	81.5	101.6	42.2
7	Amaze 10	VA Tech.	6-row	46.0	51.0	64.6	54.6
8	VA14B-79	VA Tech.	6-row		94.2	109.9	44.7
9	VA14B-59	VA Tech.	6-row		91.9	110.2	45.7
10	VA14B-74	VA Tech.	6-row		81.9	98.2	46.3
11	NB11416	Univ. NE	6-row			123.1	41.6
12	NB14404	Univ. NE	6-row			118.0	43.7
13	NB15415	Univ. NE	6-row			113.5	41.8
14	NB10444	Univ. NE	6-row			110.5	44.1
15	NB10425	Univ. NE	6-row			109.7	41.4
16	VA14B-63	VA Tech.	6-row			96.9	46.4
17	VA14H-58	VA Tech.	6-row			72.8	55.8
LSD				8.9	10.6	18.2	2.3
CV				12.8	10.5	10.5	3.0
Mean				72.7	85.6	104.6	45.7

*Experimental breeding line.

[†]Varieties ranked according to 3-year, 2-year, then 2018 yield averages.

[‡]3-year average based on 2016, 2017 and 2018 data.

**TEXAS A&M
AGRILIFE
EXTENSION**

2018 Winter Barley Variety Trial: Uvalde, TX

Rank [†]	Variety	Developer	# Row	Yield (bu/a)		Test Wt (lb/bu)	Kernel Weight (mg)	on 6/64"	Barley Color (Agtron)	Malt Extract (%)	Wort Color	Wort Clarity	Barley Protein (%)	Wort Protein (%)	S/T	DP (°ASBC)	Alpha- amylase (20°DU)	Beta- glucan (ppm)	FAN (ppm)	Adjunct Quality Score
				2-year [‡]	2018															
1	MW118-3*	OSU	6-Row	58.8	71.6	46.9	33.4	89.9	60.0	77.6	2.2	1.0	12.3	5.3	43.9	151.2	68.6	375.4	201.8	46.5
2	F523-1*	OSU	6-Row	56.7	73.1	44.4	35.7	92.2	65.0	77.9	1.8	1.0	13.5	4.6	34.7	149.6	53.0	549.5	148.1	25.5
3	MW122-1*	OSU	6-Row	54.7	71.3	45.5	34.5	92.3	53.5	79.5	2.8	1.5	13.4	5.6	43.2	156.8	78.9	195.3	230.1	56.5
4	OR813*	OSU	6-Row	49.1	61.3	42.6	33.4	88.0	73.0	78.1	2.3	1.0	14.1	5.2	38.5	119.7	76.9	424.7	198.8	34.5
5	VA09B-34*	VT	6-Row	48.0	56.0	47.2	35.4	96.0	69.5	75.6	1.7	2.0	14.9	4.6	31.9	91.3	40.6	642.5	170.7	15.5
6	Short-16*	OSU	6-Row	45.5	57.6	44.9	34.8	91.2	59.0	78.1	1.9	1.0	13.7	5.2	40.1	148.3	66.2	425.3	200.4	47.0
7	07OR-3*	OSU	6-Row	43.7	52.2	45.1	32.0	95.9	38.5	77.3	2.2	1.0	15.2	5.7	38.7	189.0	83.4	279.7	217.9	35.5
8	OR103*	OSU	6-Row	42.0	65.9	46.6	41.2	94.7	62.5	78.8	1.7	1.0	13.3	4.9	38.5	129.4	48.1	658.5	163.1	30.5
9	F522-3*	OSU	6-Row	41.7	61.3	45.5	36.6	94.9	56.5	77.8	1.7	1.5	13.2	4.6	35.0	122.2	46.9	641.5	152.1	27.5
10	F55-1*	OSU	6-Row	41.7	52.7	45.5	35.7	89.5	74.0	77.3	1.8	1.0	13.2	4.6	36.5	145.7	57.1	575.5	137.7	33.0
11	F532-1*	OSU	6-Row	41.4	65.3	43.3	35.0	88.2	66.5	77.4	1.6	1.0	14.1	4.6	33.6	170.0	61.6	281.3	143.2	28.5
12	MW122-5*	OSU	6-Row	40.4	56.6	44.3	34.1	93.8	49.0	79.1	2.1	1.0	13.4	5.3	42.4	214.4	74.0	362.9	202.3	46.0
13	MW76-2*	OSU	6-Row	39.3	57.3	41.6	37.4	91.4	50.0	76.8	2.4	1.0	15.0	5.6	37.9	221.7	58.9	389.0	223.3	39.5
14	Short-12*	OSU	6-Row	37.9	56.3	44.3	36.0	92.0	52.0	79.0	2.0	1.0	14.2	5.7	41.3	183.2	64.1	413.1	226.6	45.5
15	Short-13*	OSU	6-Row	31.5	56.2	45.3	36.9	93.2	54.0	79.8	2.2	1.0	13.9	5.5	42.1	156.7	72.7	324.7	228.1	53.0
16	TAMbar 501	TAMU	6-Row	31.1	37.8	40.9	32.9	79.7	58.5	75.1	2.2	2.0	14.1	5.0	36.7	112.6	42.3	639.6	185.9	19.5
17	PY211-6*	OSU	6-Row	27.7	44.0	42.2	35.7	94.5	55.0	77.6	2.1	1.0	14.6	5.8	40.3	178.8	76.3	341.8	258.6	39.0
18	OBA11-13*	OSU	6-Row	25.4	26.5	41.5	36.1	90.1	56.5	74.1	1.9	1.0	16.8	5.6	33.9	174.7	55.1	398.7	164.4	31.0
19	F5126-2*	OSU	6-Row	21.3	49.3	40.7	34.5	78.5	69.5	75.2	2.1	1.0	15.1	4.7	32.4	133.2	42.3	683.5	145.7	17.0
20	Thoroughbred	VT	6-Row	21.2	41.9	44.0	36.5	95.3	65.0	76.5	1.4	1.5	15.0	4.7	32.2	204.6	45.9	512.8	139.4	23.5
21	F536-2*	OSU	6-Row	8.0	19.0	39.0	32.8	77.0	56.0	74.9	3.0	2.0	14.8	4.9	34.4	177.3	56.6	573.6	166.4	26.0
22	MW80-1*	OSU	6-Row	72.9	39.5	31.5	86.7	63.0	80.0	2.4	1.0	12.1	5.3	46.0	175.8	57.5	328.8	215.3	51.0	
23	MW118-4*	OSU	6-Row	65.3	44.0	37.6	93.2	62.5	78.4	2.2	1.0	12.8	5.3	42.7	166.3	53.1	457.2	196.9	45.5	
24	08BA-54*	OSU	6-Row	63.7	41.9	35.7	95.2	46.5	78.8	1.9	1.0	13.3	5.1	40.2	208.7	60.5	378.3	184.0	41.5	
25	07OR-6*	OSU	6-Row	60.4	41.9	30.3	84.1	52.0	79.4	2.4	2.0	13.0	5.5	44.1	170.6	65.7	467.1	217.5	55.0	
26	MW120-8*	OSU	6-Row	59.2	45.1	33.0	92.4	46.5	77.4	2.2	1.0	14.1	5.5	41.4	207.7	69.3	356.7	216.5	42.0	
27	MW116-3*	OSU	6-Row	57.4	42.6	39.1	94.1	52.5	79.1	2.4	1.5	14.1	5.0	37.8	146.6	65.5	732.5	177.7	35.5	
28	F5-47-3*	OSU	6-Row	54.1	44.8	35.0	93.3	57.0	77.4	2.0	1.5	13.4	4.4	34.0	134.3	53.9	841.8	132.9	23.5	
29	F5129-1*	OSU	6-Row	53.2	42.4	33.8	65.9	65.0	77.5	1.8	1.0	13.5	4.7	36.0	133.3	49.3	708.5	152.5	21.0	
30	MW118-1*	OSU	6-Row	52.4	43.4	36.0	87.1	75.5	77.9	1.7	1.0	13.8	4.8	36.6	136.1	49.4	489.2	175.7	31.5	
31	Short-11*	OSU	6-Row	50.7	45.6	34.3	90.6	47.0	78.5	1.8	1.0	13.4	5.2	39.2	170.5	58.0	331.4	191.4	41.0	
32	07OR-4*	OSU	6-Row	49.5	42.8	31.5	89.2	50.0	78.9	2.3	1.0	14.1	5.8	41.9	196.2	88.5	357.9	234.5	44.5	
33	Alba	OSU	6-Row	49.0	40.8	38.0	83.2	52.5	77.7	2.2	1.5	14.0	4.9	36.5	110.4	52.0	457.8	154.5	29.5	
34	F5121-2*	OSU	6-Row	48.6	43.9	33.8	73.3	61.0	75.1	1.8	1.0	14.7	4.4	31.0	140.2	38.8	721.7	122.0	14.0	
35	OR91*	OSU	6-Row	48.4	43.4	32.2	88.4	51.0	78.6	1.9	1.0	13.9	5.3	40.1	182.5	76.7	344.0	235.0	44.0	
36	07OR-8*	OSU	6-Row	48.1	43.0	32.1	89.5	46.0	79.3	2.2	1.0	14.7	5.8	40.2	207.2	68.4	447.0	238.1	42.0	
37	OR818*	OSU	6-Row	46.4	39.5	31.8	86.0	47.0	77.9	2.2	1.0	14.5	5.7	40.8	197.3	80.3	443.3	245.4	41.5	
38	Endeavor	USDA/UI	2-Row	44.2	47.4	38.7	94.2	55.5	79.5	2.2	1.0	15.0	6.3	43.0	235.1	111.7	186.8	232.0	40.5	
39	F588-3*	OSU	6-Row	40.1	39.1	34.4	74.9	67.5	78.0	2.8	2.0	14.3	4.8	34.7	133.0	52.8	329.9	159.4	22.5	
40	Maja	OSU	6-Row	40.0	44.0	32.9	82.4	76.5	77.3	1.7	1.0	15.1	5.5	36.9	217.9	52.5	507.4	198.7	32.0	
41	OR910*	OSU	6-Row	36.2	42.4	32.1	88.5	43.0	78.1	2.3	1.0	14.3	5.9	42.1	201.7	63.0	429.3	222.7	38.0	
42	F590-5*	OSU	6-Row	35.7	41.6	36.3	87.5	72.5	76.0	2.0	2.0	15.6	5.1	33.8	139.8	47.0	625.5	163.9	22.0	
43	LCS Puffin	Limagrain	2-Row	33.0	45.7	37.2	92.2	47.5	77.7	2.3	2.0	14.6	5.4	37.6	160.3	38.2	374.1	181.4	27.5	
44	LCS Calypso	Limagrain	2-Row	32.6	46.9	46.2	96.1	60.0	77.4	2.2	2.0	15.7	5.1	32.9	243.3	45.9	347.0	142.6	27.0	
45	F5113-2*	OSU	6-Row	30.9	39.1	33.7	74.9	48.5	76.5	2.5	1.0	15.9	5.6	35.7	160.9	62.3	291.9	202.0	31.5	
46	SU Mateo	Ackerman	2-Row	29.4	44.3	42.2	94.9	59.0	75.9	--	3.0	16.3	4.9	30.7	184.3	40.6	522.3	128.8	24.0	
47	08OR-73*	OSU	6-Row	28.2	45.6	37.1	95.7	52.5	77.5	2.1	1.0	16.4	6.1	37.6	243.8	84.5	521.5	240.2	34.5	
48	Flavia	Ackerman	2-Row	24.3	45.5	38.4	90.1	58.5	77.4	2.0	2.0	14.8	4.8	32.7	179.3	46.4	397.0	124.3	23.5	
				11.0	16.1	4.8	1.8	42	13.5	1.7	NS	0.9	1.5	0.5	3.8	36.0	22.5	154.4	50.5	12.4
				22.1	16.1	5.5	2.5	2.3	11.6	1.1	18.1	34.1	5.2	4.6	4.9	10.5	18.3	16.5	13.2	17.7
				38.4	49.7	43.5	35.4	88.9	57.5	77.7	2.1	1.28	14.3	5.2	37.8	168.9	60.5	458.9	187.5	34.4

*Experimental breeding line.

[†]Varieties ranked according to 2-year, then 2018 yield averages.

[‡]2-year average based on 2017 and 2018 data.

Out-of-state Barley Variety Distributor List

Variety	Developer	Row #	Type	Distributor	Address	Phone Number
AC Metcalfe	SeCan	2-row	Spring	Northern Seed	205 9th Avenue South, Suite 205 Great Falls, MT	(406) 952-1000
Amaze 10	VA Tech.	6-row	Winter	Virginia Identity Preserved Grain	5500 Salem Run Road Charles City, VA	(804) 832-6550
Conlon	NDSU	2-row	Spring	Albert Lea Seed	1414 W Main St, Albert Lea, MN	(800) 352-5247
Full Pint	OSU	2-row	Spring	Territorial Seed	PO Box 158, Cottage Grove, OR	(800) 626-0866
Haybet	MSU	2-row	Spring	Byron Seed	775 N 350 E, Rockville, IN	(618) 599-8369
				Pulse USA	2002 Northern Plains Drive Bismarck, ND	(701) 530-0734
				Westland Seed	36272 Round Butte Rd. Ronan, MT	(800) 547-3335
Hockett	SeCan	2-row	Spring	Northern Seed	205 9th Avenue South, Suite 205 Great Falls, MT	(406) 952-1000
				Prairie Gold Farms	1285 6th Street East Dickinson, ND	(701) 260-4138
LCS Calypso	Limagrain	2-row	Winter	Albert Lea Seed	1414 W Main St, Albert Lea, MN	(800) 352-5247
				Hill View Farms	1324 Clearview Drive Danville, VA	(434) 770-9311
				Schmidt Farms	1068 West North Union Rd Auburn, MI	(989) 529-8829
LCS Genie	Limagrain	2-row	Spring	Schmidt Farms	1068 West North Union Rd Auburn, MI	(989) 529-8829
LCS Odyssey	Limagrain	2-row	Spring	Schmidt Farms	1068 West North Union Rd Auburn, MI	(989) 529-8829
ND Genesis	NDSU	2-row	Spring	Albert Lea Seed	1414 W Main St Albert Lea, MN	(800) 352-5247
				Brotens Farms	1635 106th Ave SE Dazey, ND	(701) 733-2257
				Buchholz Seed	4255 153rd Ave SE Durbin, ND	(701) 347-4058
				Herman Seed	5475 US-281 Minnewaukan, ND	(701) 466-2396
P-919	--	6-row	Winter	Byron Seed	775 N 350 E, Rockville, IN	(618) 599-8369
				Green Cover Seed	918 Road X, Bladen, NE	(402) 469-6784
				Johnston Seed	319 West Chestnut, Enid, OK	(800) 375-4613
				Simon Grain	7682 Gove County Rd. Z Quinter, KS	(785) 754-2151
Pinnacle	NDSU	2-row	Spring	Albert Lea Seed	1414 W Main St Albert Lea, MN	(800) 352-5247
				Herman Seed	5475 US-281 Minnewaukan, ND	(701) 466-2396
				Nettum Seeds	307 Main St. Caledonia, ND	(701) 430-1149
Secretariat	VA Tech.	6-row	Winter	Hill View Farms	1324 Clearview Drive Danville, VA	(434) 770-9311
				Hundley Seed	Rt. 17, P. O. Box 93 Champlain, VA	(804) 443-8206
				Mid-Atlantic Seeds	5005 Cople Hwy, Mt Holly, VA	(800) 854-6251
TAMbar 501	TAMU	6-row	Winter	Simon Grain	7682 Gove County Rd. Z Quinter, KS	(785) 754-2151

Out-of-state Barley Variety Distributor List CONTINUED

Variety	Developer	Row #	Type	Distributor	Address	Phone
Thoroughbred	VA Tech.	6-row	Winter	BFG Supply Co. Byron Seeds DKG Seed Farms Hill View Farms Hundley Seed Mid-Atlantic Seeds Renwood Farms Seed Wimberly Farms	14500 Kinsman Rd., Burton, OH 775 N 350 E, Rockville, IN 5043 Coal Bank Rd., Orrville, OH 1324 Clearview Drive Danville, VA Rt. 17, P. O. Box 93 Champlain, VA 5005 Cople Hwy, Mt Holly, VA 17303 Sandy Point Rd Charles City, VA P.O. Box 187, Princess Anne, MD	(800) 883-0234 (618) 599-8369 (330) 465-7079 (434) 770-9311 (804) 443-8206 (800) 854-6251 (804) 798-5263 (410) 651-2706

In-state Barley Variety Distributor List

Variety	Developer	Row #	Type	Distributor	Address	Phone Number
Baldwin	--	6-row	Winter	Warner Seed	P.O. Box 1877, Hereford, TX	(806) 364-4470
Hoody	--	6-row	Winter	Warner Seed	P.O. Box 1877, Hereford, TX	(806) 364-4470
PENNBar 66	PSU	6-row	Winter	Gaylon Ward Seed	US Hwy. 60, Hereford, TX	(806) 258-7394
Schuyler	--	6-row	Winter	Warner Seed	P.O. Box 1877, Hereford, TX	(806) 364-4470
TAMbar 500	TAMU	6-row	Winter	Gaylon Ward Seed Justin Seed Turner Seed	US Hwy. 60, Hereford, TX P.O. Box 6, Justin, TX 211 CR 151, Breckenridge, TX	(806) 258-7394 (940) 648-2751 (800) 072-2861

Acknowledgements

The authors of this publication would like to thank the following companies and universities who participated in these trials as well as the American Malt Barley Association for providing partial funding for this research.



Produced by the Department of Soil and Crop Sciences

soilcrop.tamu.edu

The information given herein is for educational purposes only. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Texas A&M AgriLife Extension Service is implied.

TEXAS A&M AgriLife Extension Service

AgriLifeExtension.tamu.edu

Texas A&M AgriLife Extension is an equal opportunity employer and program provider.

The Texas A&M University System, U.S. Department of Agriculture, and the County Commissioners Courts of Texas Cooperating