

# 2020 Texas Barley Variety Trial Results



[Varietytesting.tamu.edu](http://Varietytesting.tamu.edu)

2020

# Texas Barley Variety Trials

[varietytesting.tamu.edu/wheat](http://varietytesting.tamu.edu/wheat)

Texas A&M AgriLife Extension Service

Fernando Guillen-Portal, Russ Garetson  
Clark Neely, Brandon Gerrish

Texas A&M AgriLife Research

Amir Ibrahim, Bryan Simoneaux, Gigi Opena, Russell Sutton

# Table of Contents

Introduction .....	4
Texas Small Grains Regional Map .....	6
2020 Texas Region Overview .....	7
Texas Location Agronomic Data .....	8
Blacklands and South Texas Winter Barley 2020 Regional Summary.....	9
Castroville Winter Barley Results .....	10
McGregor Winter Barley Results .....	11
List of Source abbreviations.....	12
In-state Barley Variety Distributor List .....	13
Out-of-state Barley Variety Distributor List .....	14
Acknowledgements .....	16

# Introduction

Even though there is a good history of barley production in Texas, in recent years the acreage devoted to this crop in the state has shown a steady decrease. Back in 1960's barley was grown in nearly 420,000 acres in Texas (Atkins, 1980), but in the 2019-2020 season it went down to only 37,500 acres (2020 Crop Acreage data, FSA). Most of the barley produced in Texas was for forage or feed grain. In fact, the last variety released by Texas A&M AgriLife was 'TAMbar 501' in 2004, a variety with good forage and feed grain attributes. Recently, however, an interest in malt barley, the type used by the brewing industry, has been observed in Texas, especially in the Blacklands region.

Field evaluations in malt barley in Texas started in 2013 with the overall goal of establishing the feasibility of barley production for malting and distilling in the state. This publication provides results of barley field trials for the 2019-2020 season. These trials included both spring and winter types, 2-row and 6-row types, which represented the stock of commercially available barley varieties along with experimental lines from public barley breeding programs across the US. The overall purpose of the effort is to identify genetic materials with good adaptability to the prevalent growing conditions of the Central and Southern regions of Texas.

## **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.

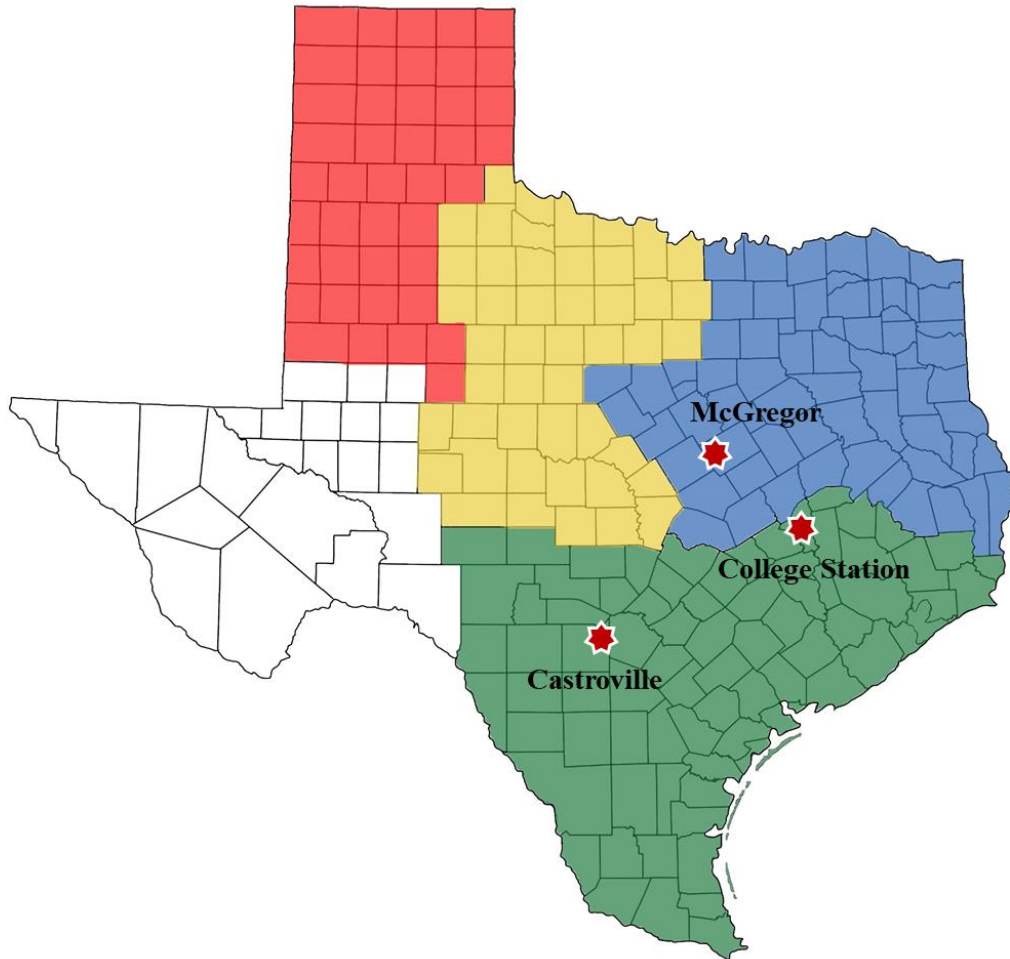
The mean is another term for the average. Therefore, a mean yield is the average of all plots within a trial. Individual variety yields can be compared to the mean yield to determine how these varieties performed within the trial (i.e. were they above or below average?). This average can also be used 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 20<sup>th</sup> 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:	
West Texas:	

# 2020 Texas Region Overview

**Texas Blacklands:** The 2019/2020 growing season was characterized by prolonged rains from the start and in many instances, the excessive rain delayed planting. Heavy rains in January also delayed topdressing and herbicide applications. The occurrence of a cold front in March brought below freezing temperatures that caused some freeze damage to cold sensitive varieties in some fields. The wet conditions observed during the early growth caused the occurrence of Leaf rust in some areas, which affected yield to some degree. Wet conditions continued in May and June delaying harvest in some fields

**South Texas:** Very hot and dry conditions characterized the beginning of the 2019/2020 growing season, followed by a cold weather and rain in late October, which allowed timely plantings for most of the locations. Relative warmer temperatures during early growth caused vernalization problems at Castroville and College Station. Freezing temperature conditions observed in late February affected to some degree the normal growth of barley. Disease pressure was not as high as what was observed in previous seasons, although the occurrence of leaf rust caused significant yield damage at these locations.

# Texas Locations Agronomic Data: 2020

<b>Location<sup>1</sup></b>	<b>Cooperator(s)</b>	<b>Yield Limiting Issues</b>	<b>Planting Date</b>	<b>Fertilizer (Total lb N/A)</b>	<b>Water*</b>	<b>Pesticide Applied (Date)</b>
<b>Castroville</b>	Rollin Mangold	Possible freeze damage, low vernalization and rust	11/15/2019	71	IL	None
<b>College Station</b>	Texas A&M AgriLife Research Farm	Possible freeze damage, and rust, poor data	10/28/2019	68	D	Herbicide (Ally and Amber) 3/1/2019
<b>McGregor</b>	Texas A&M AgriLife Research Farm	Wet soils	11/19/2019	52	D	Herbicide (Ally and Amber) 3/1/2019

<sup>1</sup>All 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




  
**TEXAS A&M**  
**AGRI LIFE**  
**RESEARCH | EXTENSION**

**2020 Winter Barley Variety Trial: Blacklands & South Texas Regional Summary**

Rank <sup>†</sup>	Variety	Source	# Row	Yield (bu/ac)			Test Wt (lb/bu)
				AVG	Castroville	McGregor	AVG
1	F5_23_1*	OSU	6-row	41.5	24.0	58.9	43.9
2	PSU-6*	PSU	6-row	39.6	13.8	65.5	44.6
3	OR813*	OSU	6-row	38.6	34.6	42.7	43.7
4	MW118_3*	OSU	6-row	35.8	25.6	46.1	43.9
5	PSU-5*	PSU	6-row	34.4	11.4	57.4	45.1
6	PSU-2*	PSU	6-row	33.7	15.6	51.9	42.5
7	Short_16*	OSU	6-row	33.6	20.0	47.2	44.4
8	MW122_1*	OSU	6-row	33.3	22.7	44.0	43.5
9	MW116_3*	OSU	6-row	33.3	18.8	47.8	44.2
10	MW76_2*	OSU	6-row	32.7	14.6	50.8	44.4
11	MW118_4*	OSU	6-row	32.2	18.9	45.5	43.9
12	PSU-8*	PSU	6-row	32.2	5.6	58.8	42.9
13	F5_5_1*	OSU	6-row	32.2	15.2	49.2	43.4
14	PSU-1*	PSU	6-row	31.9	7.7	56.1	41.5
15	Endeavor	USDA/UI	2-row	31.4	17.4	45.4	47.0
16	F5_64_1*	OSU	6-row	31.1	10.3	51.9	43.1
17	Thoroughbred	VT	6-row	31.1	10.5	51.7	44.1
18	PSU-4*	PSU	6-row	31.0	5.9	56.2	42.4
19	F5_113_2*	OSU	6-row	30.3	4.7	55.8	.
20	PSU-7*	PSU	6-row	30.0	6.0	53.9	42.8
21	LCS Nerea	Limagrain	2-row	29.7	5.7	53.7	42.3
22	TAMbar 501	TAMU	6-row	29.3	7.7	50.9	43.1
23	F5_32_1*	OSU	6-row	27.8	12.9	42.6	43.0
24	F5_135_4*	OSU	6-row	27.4	2.4	52.4	.
25	F5_121_2*	OSU	6-row	26.9	2.1	51.8	.
26	PSU-3*	PSU	6-row	26.6	3.0	50.3	.
27	F5_119_1*	OSU	6-row	26.0	3.6	48.5	.
28	Puffin	Unknown	6-row	26.0	3.8	48.2	.
29	MW118_1*	OSU	6-row	24.7	4.4	45.1	40.6
30	07OR_4*	OSU	6-row	24.2	4.1	44.4	.
31	F5_9_2*	OSU	6-row	24.2	6.7	41.8	45.3
32	OBA11_13	OSU	6-row	22.8	13.4	32.1	43.4
33	LCS Calypso	Limagrain	2-row	20.8	2.4	39.1	.
34	Charles	Unknown	6-row	19.0	2.5	35.6	.
35	Thunder	OSU	6-row	18.9	8.4	29.5	44.8
<b>LSD (0.05)</b>				<b>5.7</b>	<b>5.1</b>	<b>10.4</b>	<b>1.4</b>
<b>CV (%)</b>				<b>16.7</b>	<b>28.1</b>	<b>13.0</b>	<b>2.3</b>
<b>Mean</b>				<b>29.8</b>	<b>11.0</b>	<b>48.6</b>	<b>43.6</b>

\*Experimental breeding line.

<sup>†</sup>Varieties ranked according to 2-location yield average.


  
 TEXAS A&M  
**AGRI LIFE**  
 RESEARCH | EXTENSION

**2020 Winter Barley Variety Trial: Castroville, TX**

Rank <sup>†</sup>	Variety	Source	# Row	Yield (bu/ac)		Test Wt (lb/bu)
				2-year <sup>§</sup>	2020	2020
1	OR813*	OSU	6-row	58.7	34.6	42.2
2	F5_23_1*	OSU	6-row	55.2	24.0	41.7
3	MW76_2*	OSU	6-row	53.8	14.6	42.0
4	MW122_1*	OSU	6-row	51.9	22.7	42.5
5	MW118_3*	OSU	6-row	50.1	25.6	43.4
6	MW116_3*	OSU	6-row	50.0	18.8	42.6
7	PSU-5*	PSU	6-row	49.6	11.4	42.4
8	Short_16*	OSU	6-row	47.4	20.0	43.1
9	F5_32_1*	OSU	6-row	47.1	12.9	41.3
10	F5_5_1*	OSU	6-row	46.4	15.2	42.2
11	Endeavor	USDA/UI	2-row	44.8	17.4	46.3
12	MW118_4*	OSU	6-row	43.1	18.9	43.4
13	OBA11_13*	OSU	6-row	42.6	13.4	42.6
14	PSU-2*	PSU	6-row	42.2	15.6	39.6
15	TAMbar 501	TAMU	6-row	38.5	7.7	38.4
16	F5_9_2*	OSU	6-row	38.5	6.7	42.5
17	Thoroughbred	VT	6-row	38.3	10.5	41.5
18	F5_121_2*	OSU	6-row	36.3	2.1	--
19	LCS Nerea	Limagrain	2-row	35.5	5.7	37.1
20	PSU-1*	PSU	6-row	33.0	7.7	38.5
21	LCS Calypso	Limagrain	2-row	31.1	2.4	--
22	MW118_1*	OSU	6-row	29.1	4.4	37.8
23	F5_135_4*	OSU	6-row	27.9	2.4	--
24	PSU-4*	PSU	6-row	25.9	5.9	37.8
25	F5_113_2*	OSU	6-row	24.6	4.7	--
26	07OR_4*	OSU	6-row	22.9	4.1	--
27	PSU-3*	PSU	6-row	16.9	3.0	--
28	PSU-6*	PSU	6-row		13.8	41.9
29	F5_64_1*	OSU	6-row		10.3	40.8
30	Thunder	OSU	6-row		8.4	41.5
31	PSU-7*	PSU	6-row		6.0	39.4
32	PSU-8*	PSU	6-row		5.6	37.9
33	Puffin	Unknown	6-row		3.8	--
34	F5_119_1*	OSU	6-row		3.6	--
35	Charles	Unknown	6-row		2.5	--
<b>LSD (0.05)</b>				<b>8.8</b>	<b>5.1</b>	<b>2.3</b>
<b>CV (%)</b>				<b>19.1</b>	<b>28.1</b>	<b>2.6</b>
<b>Mean</b>				<b>40.1</b>	<b>11.0</b>	<b>41.2</b>

\*Experimental breeding line.

<sup>†</sup>Varieties ranked according to 2020 yield.

<sup>§</sup>2-year average based on 2019 and 2020 data.


  
 TEXAS A&M  
**AGRI LIFE**  
 RESEARCH | EXTENSION

**2020 Winter Barley Variety Trial: McGregor, TX**

Rank <sup>†</sup>	Variety	Source	# Row	Yield (bu/ac)		Test Wt (lb/bu)
				2-year <sup>§</sup>	2020	2020
1	MW76_2*	OSU	6-row	76.2	50.8	46.7
2	F5_23_1*	OSU	6-row	75.9	58.9	46.0
3	F5_113_2*	OSU	6-row	73.5	55.8	42.4
4	MW118_4*	OSU	6-row	73.0	45.5	44.4
5	F5_121_2*	OSU	6-row	72.6	51.8	44.2
6	F5_5_1*	OSU	6-row	71.3	49.2	44.5
7	MW118_1*	OSU	6-row	71.1	45.1	43.4
8	F5_135_4*	OSU	6-row	70.6	52.4	43.1
9	PSU-5*	PSU	6-row	69.6	57.4	47.7
10	TAMbar 501	TAMU	6-row	68.5	50.9	47.7
11	F5_32_1*	OSU	6-row	68.4	42.6	44.7
12	PSU-1*	PSU	6-row	67.9	56.1	44.5
13	MW118_3*	OSU	6-row	67.8	46.1	44.4
14	OR813*	OSU	6-row	67.0	42.7	45.1
15	LCS Nerea	Limagrain	2-row	66.3	53.7	47.5
16	07OR_4*	OSU	6-row	65.9	44.4	43.1
17	PSU-4*	PSU	6-row	65.9	56.2	46.9
18	MW116_3*	OSU	6-row	65.9	47.8	45.8
19	Short_16*	OSU	6-row	65.3	47.2	45.6
20	F5_9_2*	OSU	6-row	64.7	41.8	48.0
21	PSU-2*	PSU	6-row	64.4	51.9	45.3
22	MW122_1*	OSU	6-row	63.9	44.0	44.4
23	LCS Calypso	Limagrain	2-row	62.4	39.1	44.2
24	Endeavor	USDA/UI	2-row	62.3	45.4	47.7
25	PSU-3*	PSU	6-row	59.3	50.3	46.3
26	OBA11_13*	OSU	6-row	58.0	32.1	44.1
27	Thoroughbred	VT	6-row	57.2	51.7	46.7
28	PSU-6*	PSU	6-row		65.5	47.3
29	PSU-8*	PSU	6-row		58.8	47.9
30	PSU-7*	PSU	6-row		53.9	46.2
31	F5_64_1*	OSU	6-row		51.9	45.3
32	F5_119_1*	OSU	6-row		48.5	43.3
33	Puffin	Unknown	6-row		48.2	47.1
34	Charles	Unknown	6-row		35.6	44.5
35	Thunder	OSU	6-row		29.5	48.2
	<b>LSD (0.05)</b>			<b>9.2</b>	<b>10.4</b>	<b>1.6</b>
	<b>CV (%)</b>			<b>11.9</b>	<b>13.0</b>	<b>2.1</b>
	<b>Mean</b>			<b>67.2</b>	<b>48.6</b>	<b>45.6</b>

\*Experimental breeding line.

<sup>†</sup>Varieties ranked according to 2020 yield.

<sup>§</sup>2-year average based on 2019 and 2020 data.

## **List of Source abbreviations**

NDSU: North Dakota State University

MSU: Montana State University

AAFC: Agriculture and Agri-Food Canada

OSU: Oklahoma State University

PSU: Penn State University

VT: Virginia Tech

TAMU: Texas A&M University

USDA/UI: United States Department of Agriculture/University of Idaho

## 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	US Hwy. 60, Hereford, TX	(806) 258-7394
				Justin Seed	P.O. Box 6, Justin, TX	(940) 648-2751
				Turner Seed	211 CR 151, Breckenridge, TX	(800) 072-2861

## 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
Conlon	NDSU	2-row	Spring	Albert Lea Seed	1414 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	Spring	Alberta Lea Seed	1414 Main St., Albert Lea, MN	(800) 352-5247
				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 Genetics	NDSU	2-row	Spring	Albert Lea Seed	1414 Main St., Albert Lea, MN	(800) 352-5247
				Brotten 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 Main St., Albert Lea, MN	(800) 352-5247
				Herman Seed	5475 US-281 Minnewaukan, ND	(701) 466-2396
				Nettum Seeds	Caledonia, ND	(701) 430-1149

## Out-of-state Barley Variety Distributor List CONTINUED

Variety	Developer	Row #	Type	Distributor	Address	Phone number
TAMbar 501	TAMU	6-row	Winter	Simon Grain	7682 Gove County Rd. Z Quinter, KS	(785) 754-2151
Thoroughbred	VT	6-row	Winter	BFG Supply Co.	14500 Kinsman Rd., Burton, OH	(800) 883-0234
				Byron Seed	775 N 350 E, Rockville, IN	(618) 599-8369
				DKG Seed Farms	5043 Coal Bank Rd., Orrville, OH	(330) 465-7079
				Renwood Farms Seed	17303 Sandy Point Rd Charles City, VA	(804) 798- 5263
				Wimberly Farms	P.O. Box 187, Princess Anne, MD	(410) 651-2706

# 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](http://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](http://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