

2011

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# Texas Oat Variety Trial Results



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2011

# Texas Oat Variety Trials

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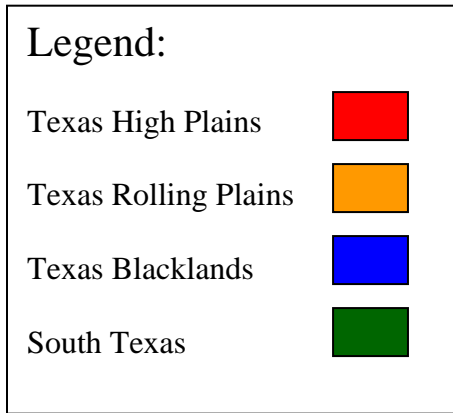
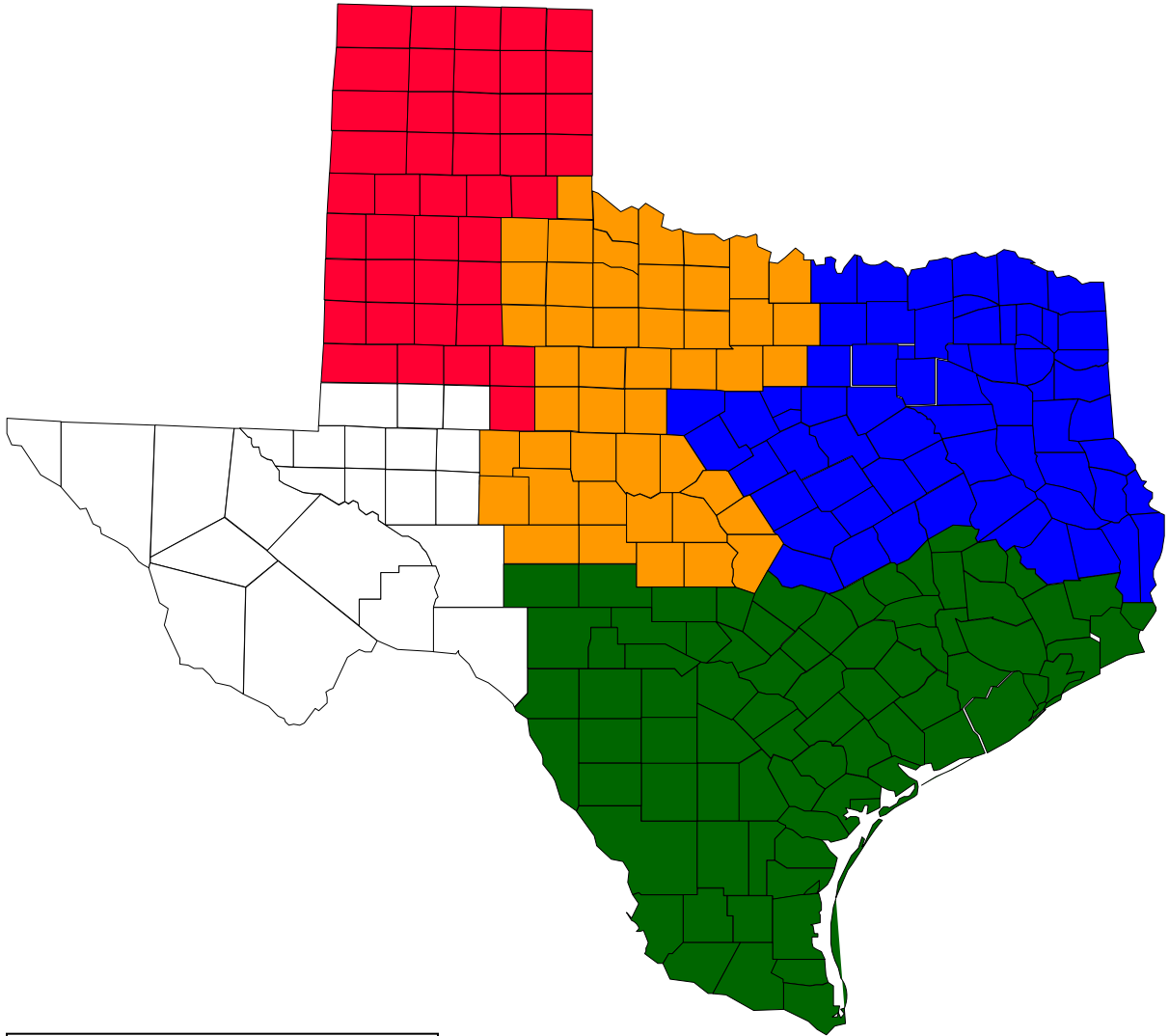
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# Texas Small Grains Regional Map



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# Introduction

Texas producers planted 550,000 acres in oats for the 2010-2011 cropping season according to the National Agricultural Statistics Service (NASS). Only 60,000 acres were harvested producing an average of 33 bu/a compared to 80,000 harvested acres and 52 average bu/a in 2010.

The Uniform Oat Variety Trial (UOVT) is coordinated and implemented by numerous Texas AgriLife Extension and Research faculty and staff from Commerce, Vernon, San Angelo and College Station. We also appreciate the cooperation from numerous County Extension Agents and producers that aid us with locations and property to conduct these field trials. The purpose of this publication is to provide unbiased yield and disease data for oat producers across the state. With this information, Texas oat producers can make a more educated decision about appropriate varieties for their geographic region.

## **Variety Selection:**

Selection of small grain varieties is one of the most important decisions a producer will make. This decision impacts the potential yield (forage and grain), seed quality (test weight and protein), disease and insect management, and maturity. It is important that producers diversify the varieties planted on their farms. Variety diversification spreads the risk associated with potentially devastating pests (crown and stem rusts, aphids, etc.) and yield loss from adverse environmental factors (freeze, drought, hail, etc.).

Producers should select no fewer than 2 varieties to plant on their farms and preferably more, depending upon the size and location of fields. Variety selection should be based upon a combination of sound data from university trials, county agent strip trials, and other reliable sources. Oat varieties should be chosen based on multiple years of data (yield, cold tolerance, pest resistance, grain quality and maturity). High yields over multiple years and multiple locations demonstrate a variety's ability to perform well over diverse environmental factors. Stable yield performance of quality grain is the best variety selection tool. It is important to consider decreasing yields over a 2 or 3 year time frame, which may reflect a change in disease and/or insect resistance.

When selecting a variety for the 2011-12 season, producers need to consider the abnormalities in previous seasons, recognizing the unusually wet/dry, cold/hot conditions that impact yield and quality. It is strongly encouraged that producers look at the 2 and 3 year averages for the varieties and look at numerous relevant variety trial locations. There are typically 5+ oat variety trials conducted across the state each year.

## **Interpreting the Data:**

Yield and test weight at each location has been statistically analyzed using the recommended procedures. The statistical analysis provides the mean, coefficient of variation (CV), and LSD values. It is important to note these statistical values to prevent misinterpretation of the data.

The mean is another term for the average. Therefore, a mean value is the average of all the varieties within a trial. The CV value, expressed as a percentage, indicates the level of unexplained variability present within the trial. A high CV value indicates 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% may cause concern regarding the validity of the data. The LSD value indicates 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 a trial with an LSD value of 5 bu/ac at a 0.05 (or 5%) level the statistical inference is that Variety A would yield better than Variety B in 19 out of 20 trials conducted in which there was 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 in which there is not truly a difference between A and B, but random chance caused the 5 bushel difference.

# 2011 Texas Oat Overview by Region

## **Texas Blacklands:**

Weather in the Texas Blacklands this past growing season gave many challenges to oat producers. Most of the problems this season were during grain filling with inconsistent rainfall from March to May. Yields were lower than expected for all varieties tested within this region. In addition to the drought conditions, freezing temperatures on February 3 to 4 set the oat trials back and could have also played a role in the overall yield reduction.

## **Texas Rolling Plains:**

A severe drought was observed in the Texas Rolling Plains this year, with numerous wildfires. Oat fields planted in this region were planted dry with the anticipation of getting a rain. Yields were much lower than normal and if the oat crop was not under irrigation, yields were extremely poor if it was harvested at all. In addition to the lack of moisture, high temperatures at grain fill also contributed to poor oat yields.

## **South Texas:**

Oat producers in South Texas, like the rest of the state, had extremely dry conditions. Drought was persistent throughout the entire growing season. Poor stands developed in dryland fields, leading to fewer harvested acres than expected. Oats that were planted in September for fall forage performed reasonably well due to early rainfalls and subsequent crop establishment. Later emerging oats were severely damaged by the freeze in February while the earlier planted oats were less affected.

## **State Wide:**

Oat production state wide was difficult this past growing season. Adverse conditions were observed across the state with hot and dry conditions during the flowering and grain filling periods. This, coupled with lack of moisture, caused the oats to be stunted and shorter than normal limiting both the quantity of forage and grain yield. Diseases were not prevalent across the state as there was not enough moisture for these types of pests to flourish.

# Texas Blacklands Agronomic Data

<b>Location<sup>1</sup></b>	<b>Planting Date</b>	<b>Fertilizer (Total)</b> (lbN/a)	<b>Row Spacing</b> inch	<b>Pesticide Applied</b>	<b>Date Appl.</b>	<b>Yield Limiting Issues</b>
<b>Ellis County</b>	10/20/10	80	7	Amber	10/22/10	Dry Conditions
<b>Prosper</b>	11/11/10	80	7	Amber	12/6/10	Dry Conditions
<b>McGregor</b>	11/9/10	75	7	Weedmaster + Finesse	2/15/11	Drought; Poor Emergence; Freeze Damage <b>Data Not Shown</b>

<sup>1</sup>None of these locations were irrigated and all were grown under conventional tillage.



### Ellis County Uniform Oat Variety Trial Yields - 2011

2011 Rank	Variety	Source <sup>1</sup>	Yield (bu/a)		Test Wt. (lb/bu)
			2011	2-Year <sup>†</sup>	2011
1	TX05CS347-1*	TAMU	95.5	112.3	33.3
2	TAMO 406	TAMU	95.1	108.2	32.6
3	TX05CS542*	TAMU	91.2	118.6	33.4
4	Horizon 201	UF	90.9	115.1	30.7
5	Buck Forage (LA 99017)	LSU	89.4	114.5	32.0
6	TAMO 606	TAMU	88.2	108.9	32.9
7	RAM 99016	LSU	87.4	113.2	34.0
8	Horizon 270	UF	86.5	114.2	32.2
9	TAMO 405	TAMU	81.3	97.1	35.0
10	Harrison	LSU	79.7	103.7	33.8
11	TX02U7682*	TAMU	78.1	99.0	33.3
12	Plot Spike	LSU	77.3	95.9	31.4
13	Dallas	TAMU	75.8	90.3	30.6
14	TX02U7325*	TAMU	73.7	90.6	30.1
15	Mac	California	28.1	52.4	26.4

*Experimental Lines	<b>Mean</b>	<b>81.2</b>	<b>102.2</b>	<b>32.9</b>
†Yield average for 2011 and 2010	<b>CV (%)</b>	<b>10.8</b>	<b>8.9</b>	
	<b>LSD (5%)</b>	<b>11.5</b>	<b>7.9</b>	

### Prosper Uniform Oat Variety Trial Yields - 2011

2011 Rank	Variety	Source <sup>1</sup>	Yield (bu/a)	
			2011	2-Year <sup>†</sup>
1	TX02U7325*	TAMU	115.3	118.5
2	Buck Forage (LA 99017)	LSU	101.0	121.6
3	TAMO 606	TAMU	100.4	120.5
4	Horizon 270	UF	97.9	114.5
5	TX05CS542*	TAMU	96.4	120.6
6	Plot Spike	LSU	94.5	104.5
7	TX05CS347-1*	TAMU	91.7	114.6
8	Dallas	TAMU	90.3	104.6
9	TX02U7682*	TAMU	88.8	110.3
10	RAM 99016	LSU	88.7	114.1
11	TAMO 406	TAMU	87.6	109.2
12	TAMO 405	TAMU	85.8	105.6
13	Horizon 201	UF	83.0	111.1
14	Harrison	LSU	79.3	114.3
15	Mac	California	57.6	59.6

*Experimental Lines	<b>Mean</b>	<b>90.6</b>	<b>109.6</b>
†Yield average for 2010 and 2008	<b>CV (%)</b>	<b>11.6</b>	<b>8.7</b>
	<b>LSD (5%)</b>	<b>14.5</b>	<b>8.6</b>

# Texas Rolling Plains Agronomic Data

<b>Location<sup>1</sup></b>	<b>Planting Date</b>	<b>Fertilizer (Total)</b>	<b>Row Spacing</b>	<b>Pesticide Applied</b>	<b>Date Appl.</b>	<b>Yield Limiting Issues</b>
		(lbN/a)	inch			
<b>Abilene</b>	11/2/10	40	7	-	-	Drought; Above average temperatures at grain fill
<b>Brady</b>	11/23/10	85	7	Weedmaster + Finesse Dimethoate	2/18/11	Severe drought; Some freeze damage
<b>Chillicothe</b>	10/28/10	40	7	-	-	Extreme drought; Above average temperatures at grain fill; BYDV

<sup>1</sup>All locations were grown under conventional tillage and with no irrigation.

<sup>2</sup>BYDV – Barley Yellow Dwarf Virus

### Abilene Uniform Oat Variety Trial Yields - 2011

2011 Rank	Variety	Source	Yield (bu/a)	
			2011	2-Year <sup>†</sup>
1	Horizon 201	UF	56.0	70.3
2	Plot Spike	LSU	53.5	67.3
3	TX05CS542*	TAMU	53.3	60.3
4	RAM 99016	LSU	52.7	53.3
5	Horizon 270	UF	52.3	68.8
6	TX02U7682*	TAMU	51.9	66.1
7	Buck Forage (LA 99017)	LSU	51.0	57.4
8	TAMO 405	TAMU	48.9	63.0
9	TX05CS347-1*	TAMU	47.2	58.8
10	Dallas	TAMU	46.4	61.2
11	Harrison	LSU	46.0	49.1
12	TAMO 606	TAMU	44.2	53.7
13	TAMO 406	TAMU	41.9	63.3
14	TX02U7325*	TAMU	40.8	64.1
15	Mac	California	21.2	35.2

*Experimental Lines	<b>Mean</b>	<b>47.2</b>	<b>60.5</b>
<sup>†</sup> Yield average for 2011 and 2010	<b>CV (%)</b>	<b>19.2<sup>a</sup></b>	<b>14.3</b>
	<b>LSD (5%)</b>	<b>12.1</b>	<b>7.7</b>

<sup>a</sup>Trials with a coefficient of variation (CV)  $\geq$  15% contain excessive experimental error. Readers should consider trials in a similar environment to confirm varietal effect on yields.

### Brady Uniform Oat Variety Trial Yields - 2011

2011 Rank	Variety	Source	Yield	Test Wt.
			(bu/a)	(lb/bu)
			2011	2011
1	Harrison	LSU	45.8	32.5
2	RAM 99016	LSU	45.4	32.0
3	Plot Spike	LSU	44.9	31.5
4	TAMO 406	TAMU	43.6	32.5
5	Horizon 201	UF	43.1	29.5
6	TAMO 606	TAMU	43.1	32.0
7	Horizon 270	UF	38.3	28.5
8	TX05CS347-1*	TAMU	35.6	30.5
9	Buck Forage (LA 99017)	LSU	35.5	28.5
10	Dallas	TAMU	35.4	30.5
11	TAMO 405	TAMU	30.4	29.5
12	TX02U7682*	TAMU	29.8	32.5
13	TX05CS542*	TAMU	28.9	26.0
14	TX02U7325*	TAMU	26.7	23.5
15	Mac	California	1.7	-

*Experimental Lines	<b>Mean</b>	<b>35.2</b>	<b>30.7</b>
	<b>CV (%)</b>	<b>18.4<sup>a</sup></b>	
	<b>LSD (5%)</b>	<b>8.8</b>	

<sup>a</sup>Trials with a coefficient of variation (CV)  $\geq$  15% contain excessive experimental error. Readers should consider trials in a similar environment to confirm varietal effect on yields.

# South Texas Agronomic Data

Location <sup>1</sup>	Planting Date	Fertilizer (Total) (lbN/a)	Water*	Row Spacing inch	Pesticide Applied	Date Appl.	Yield Limiting Issues
Castroville	11/17/10	80	IL	7	None	-	Good stands; Light rust; No freeze damage
College Station	11/5/10	80	D	7	Weedmaster	2/23/11	Drought; Poor emergence; Freeze damage; Hog damage; <b>Data Not Shown</b>
Uvalde	11/19/10	80	IL	7	Huskie w/Fertilizer	2/11/11	Uneven stands; Irregular growth; <b>Data Not Shown</b>

<sup>1</sup>All locations were grown under conventional till.

\*Irrigation/Type: IL = Irrigated Limited, D = Dryland

## Castroville Uniform Oat Variety Trial Yields - 2011

2011 Rank	Variety	Source	Yield (bu/a)			Test Wt. (lb/bu)
			2011	2-Year <sup>†</sup>	3-Year <sup>††</sup>	2011
1	Horizon 270	UF	120.6	150.9	126.3	29.0
2	TX02U7682*	TAMU	120.0	129.7	110.0	28.5
3	TX02U7325*	TAMU	118.3	131.7	-	31.0
4	Buck Forage (LA 99017)	LSU	116.9	143.5	127.3	27.0
5	TX05CS347-1*	TAMU	115.6	136.2	124.0	32.0
6	TAMO 606	TAMU	110.2	101.7	105.1	29.5
7	RAM 99016	LSU	109.5	128.1	104.8	28.5
8	TX05CS542*	TAMU	103.6	118.7	99.8	33.0
9	Horizon 201	UF	102.4	107.2	99.6	25.5
10	Plot Spike	LSU	99.7	114.7	109.9	26.0
11	TAMO 405	TAMU	98.7	115.9	95.1	27.5
12	TAMO 406	TAMU	96.8	103.9	102.3	28.5
13	Harrison	LSU	90.9	88.6	85.0	31.0
14	Dallas	TAMU	80.9	78.62	83.5	26.5
15	Mac	California	32.5	63.2	-	22.5

\*Experimental Lines

<sup>†</sup>Yield average for 2011 and 2010

<sup>††</sup>Yield average for 2011, 2010, and 2009

<b>Mean</b>	<b>101.1</b>	<b>114.2</b>	<b>110.2</b>	<b>28.9</b>
<b>CV (%)</b>	<b>11.8</b>	<b>16.5</b>	<b>19.2</b>	
<b>LSD (5%)</b>	<b>16.5</b>	<b>17.9</b>	<b>22.9</b>	

**Uniform Oat Variety Trial State Wide Yields - 2011**

2011 Rank	Variety	Source	2011 Yield (bu/a)					State Wide Average (bu/a)
			Abilene	Brady	Castroville	County	Prosper	
1	Horizon 270	UF	52.3	38.3	120.6	86.5	97.9	79.1
2	Buck Forage (LA 99017)	LSU	51.0	35.5	116.9	89.4	101.0	78.8
3	TAMO 606	TAMU	44.2	43.1	110.2	88.2	100.4	77.2
4	TX05CS347-1*	TAMU	47.2	35.6	115.6	95.5	91.7	77.1
5	RAM 99016	LSU	52.7	45.4	109.5	87.4	88.7	76.7
6	TX02U7325*	TAMU	40.8	26.7	118.3	73.7	115.3	75.0
7	Horizon 201	UF	56.0	43.1	102.4	90.9	83.0	75.1
8	TX05CS542*	TAMU	53.3	28.9	103.6	91.2	96.4	74.7
9	Plot Spike	LSU	53.5	44.9	99.7	77.3	94.5	74.0
10	TX02U7682*	TAMU	51.9	29.8	120.0	78.1	88.8	73.7
11	TAMO 406	TAMU	41.9	43.6	96.8	95.1	87.6	73.0
12	TAMO 405	TAMU	48.9	30.4	98.7	81.3	85.8	69.0
13	Harrison	LSU	46.0	45.8	90.9	79.7	79.3	68.4
14	Dallas	TAMU	46.4	35.4	80.9	75.8	90.3	65.7
15	Mac	California	21.2	1.7	32.5	28.1	57.6	28.2
<b>Mean</b>			<b>47.2</b>	<b>35.2</b>	<b>101.1</b>	<b>81.2</b>	<b>90.6</b>	<b>71.0</b>
<b>CV (%)</b>			<b>19.3</b>	<b>18.4</b>	<b>11.8</b>	<b>10.8</b>	<b>11.6</b>	<b>15.2</b>
<b>LSD (5%)</b>			<b>12.1</b>	<b>8.8</b>	<b>16.5</b>	<b>11.5</b>	<b>14.5</b>	<b>5.9</b>

\*Experimental Lines

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