Texas Oat Variety Trial Results

varietytesting.tamu.edu
2011
Texas Oat Variety Trials
varietytesting.tamu.edu/wheat

Texas AgriLife Extension Service
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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 20th 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

<table>
<thead>
<tr>
<th>Location1</th>
<th>Planting Date</th>
<th>Fertilizer (Total)</th>
<th>Row Spacing</th>
<th>Pesticide Applied</th>
<th>Date Appl.</th>
<th>Yield Limiting Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ellis County</td>
<td>10/20/10</td>
<td>80</td>
<td>7</td>
<td>Amber</td>
<td>10/22/10</td>
<td>Dry Conditions</td>
</tr>
<tr>
<td>Prosper</td>
<td>11/11/10</td>
<td>80</td>
<td>7</td>
<td>Amber</td>
<td>12/6/10</td>
<td>Dry Conditions</td>
</tr>
<tr>
<td>McGregor</td>
<td>11/9/10</td>
<td>75</td>
<td>7</td>
<td>Weedmaster + Finesse</td>
<td>2/15/11</td>
<td>Drought; Poor Emergence; Freeze Damage Data Not Shown</td>
</tr>
</tbody>
</table>

None of these locations were irrigated and all were grown under conventional tillage.
## Ellis County Uniform Oat Variety Trial Yields - 2011

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

*Experimental Lines

Mean 81.2 102.2 32.9

CV (%) 10.8 8.9

LSD (5%) 11.5 7.9

## Prosper Uniform Oat Variety Trial Yields - 2011

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

*Experimental Lines

Mean 90.6 109.6

CV (%) 11.6 8.7

LSD (5%) 14.5 8.6
# Texas Rolling Plains Agronomic Data

<table>
<thead>
<tr>
<th>Location</th>
<th>Planting Date</th>
<th>Fertilizer (Total)</th>
<th>Row Spacing</th>
<th>Pesticide Applied</th>
<th>Date Appl.</th>
<th>Yield Limiting Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abilene</td>
<td>11/2/10</td>
<td>40</td>
<td>7</td>
<td>-</td>
<td>-</td>
<td>Drought; Above average temperatures at grain fill</td>
</tr>
<tr>
<td>Brady</td>
<td>11/23/10</td>
<td>85</td>
<td>7</td>
<td>Weedmaster + Finesse Dimethoate</td>
<td>2/18/11</td>
<td>Severe drought; Some freeze damage</td>
</tr>
<tr>
<td>Chillicoth</td>
<td>10/28/10</td>
<td>40</td>
<td>7</td>
<td>-</td>
<td>-</td>
<td>Extreme drought; Above average temperatures at grain fill; BYDV</td>
</tr>
</tbody>
</table>

1All locations were grown under conventional tillage and with no irrigation.
2BYDV – Barley Yellow Dwarf Virus
Abilene Uniform Oat Variety Trial Yields - 2011

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

*Experimental Lines

Mean 47.2 60.5
CV (%) 19.2* 14.3
LSD (5%) 12.1 7.7

†Yield average for 2011 and 2010

ªTrials with a coefficient of variation (CV) ≥ 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

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

*Experimental Lines

Mean 35.2 30.7
CV (%) 18.4*
LSD (5%) 8.8

ªTrials with a coefficient of variation (CV) ≥ 15% contain excessive experimental error. Readers should consider trials in a similar environment to confirm varietal effect on yields.
## South Texas Agronomic Data

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

1 All locations were grown under conventional till.

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

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### Castroville Uniform Oat Variety Trial Yields - 2011

<table>
<thead>
<tr>
<th>Rank</th>
<th>Variety</th>
<th>Source</th>
<th>2011</th>
<th>2-Year †</th>
<th>3-Year ††</th>
<th>Test Wt. (lb/bu)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Horizon 270</td>
<td>UF</td>
<td>120.6</td>
<td>150.9</td>
<td>126.3</td>
<td>29.0</td>
</tr>
<tr>
<td>2</td>
<td>TX02U7682*</td>
<td>TAMU</td>
<td>120.0</td>
<td>129.7</td>
<td>110.0</td>
<td>28.5</td>
</tr>
<tr>
<td>3</td>
<td>TX02U7325*</td>
<td>TAMU</td>
<td>118.3</td>
<td>131.7</td>
<td>-</td>
<td>31.0</td>
</tr>
<tr>
<td>4</td>
<td>Buck Forage (LA 99017)</td>
<td>LSU</td>
<td>116.9</td>
<td>143.5</td>
<td>127.3</td>
<td>27.0</td>
</tr>
<tr>
<td>5</td>
<td>TX05CS347-1*</td>
<td>TAMU</td>
<td>115.6</td>
<td>136.2</td>
<td>124.0</td>
<td>32.0</td>
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<td>6</td>
<td>TAMO 606</td>
<td>TAMU</td>
<td>110.2</td>
<td>101.7</td>
<td>105.1</td>
<td>29.5</td>
</tr>
<tr>
<td>7</td>
<td>RAM 99016</td>
<td>LSU</td>
<td>109.5</td>
<td>128.1</td>
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Mean: 101.1 114.2 110.2 28.9  
CV (%): 11.8 16.5 19.2  
LSD (5%): 16.5 17.9 22.9

1 Experimental Lines

†Yield average for 2011 and 2010

††Yield average for 2011, 2010, and 2009
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<th>2011 Rank</th>
<th>Variety</th>
<th>Source</th>
<th>Abilene</th>
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<th>Castroville</th>
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|                | Mean   | 47.2 | 35.2 | 101.1 | 81.2 | 90.6 | 71.0 |
|                | CV (%) | 19.3 | 18.4 | 11.8  | 10.8 | 11.6 | 15.2 |
|                | LSD (5%) | 12.1 | 8.8  | 16.5  | 11.5 | 14.5 | 5.9  |

*Experimental Lines
Acknowledgements

The authors of this publication would like to express great appreciation for the generosity of the following companies who donated the seed for this research. Without companies such as these, this research would not be possible.