

## **2008 Wheat Variety Trials Conducted in the Texas High Plains** ***Brent Bean***<sup>1</sup>

### ***2007-2008 Wheat Crop in Review***

Following our record wheat yields last year, 2008 was a disappointment. Precipitation at Bushland was less than 5.5 inches from September through June 15<sup>th</sup>. Wheat viruses were worse than they have been in several years infecting both dryland and irrigated fields. Many of the dryland, and even a few of the irrigated fields, were not harvested due to drought and virus infection. The best wheat yields were generally found in the northeast portion of the Panhandle where more timely precipitation was received. Planting date also seemed to make more of a difference than usual. Wheat planted just a couple of weeks later than optimum (around Oct 4) did not yield as well, especially if planted no-till behind corn or cotton. Some wheat root rot was also observed in the fall and led to poor establishment in some fields. This was likely due to the previous wet spring and summer that increased soil fungi activity. Although there were some very good irrigated yields reported, overall irrigated yields were a disappointment. Although we did not get especially cold during the spring, we did have just enough freezing weather just prior to heading to cause some sterile heads, further contributing to lower yields.

### ***Virus Discussion***

Four viruses infected wheat in 2008: barley yellow dwarf (BYD), wheat streak mosaic virus (WSMV), high plains disease (HPV) and the recently identified Triticum mosaic virus (TriMV). Barley yellow dwarf is transmitted by aphids (greenbug, Russian wheat aphid, others) and generally shows up as yellow stunted plants in spots in a field. The virus is left in the infected plants even if the aphids are no longer present, generally causing the plants to be stunted and yellow. The other three viruses are transmitted by the wheat curl mite. The symptoms expressed by these three viruses are very similar, making them very hard to distinguish in the field from each other. Many times the same plants will be infected with two and even all three of the viruses. Control of these viruses is similar, primarily controlling volunteer wheat 2 to 3 weeks prior to planting. For a good discussion on wheat streak mosaic control go to:

<http://varietytesting.tamu.edu/wheat/docs/e337wheatstreakmosiacvirus-2.pdf>

### ***Variety Trial Results and Recommendations***

#### ***Irrigated Trials***

Two varieties, *TAM 112* (TAMU) and *Hatcher* (CSU), had the highest yields when averaged across six irrigated locations averaging 59 and 57 bu/acre, respectively (Table 1). More importantly the varieties were very consistent ranking in the top 25% in five of the six locations. *TAM 112* is greenbug tolerant and has some tolerance to wheat streak mosaic. *Hatcher* was released by Colorado State in 2005 and has moderate resistance to stripe rust and good drought tolerance. *Endurance* (OSU) finished in the top 25% in four of the six locations and when averaged across trials yielded 55 bu/acre. Other varieties of note that finished in the top 25% in three of the six locations were *Jagalene* (AgriPro), *TAM 304* (TAMU), *TAM 203* (TAMU), *TAM 110* (TAMU), *Keota* (Westbred), and *Jackpot* (Agripro). *TAM*

---

<sup>1</sup> Professor and Extension Agronomist, Texas A&M Research and Extension Center, 6500 Amarillo Blvd. West, Amarillo, TX, 79106, b-bean@tamu.edu.

*III*, which has performed very well in the previous three years, held its own averaging 54 bu/acre across locations and finishing in the top 25% in two of six locations. *Dumas* (AgriPro) has been one of our main irrigated wheat varieties for several years, but yielded 3 bu/acre less than the average across all locations. The TAMU experimental line *TX02A252* yielded in the top 25% in four of the locations and should be watched in the future. *Danby* (KSU), a white wheat, also yielded very well in all trials.

### Dryland Trials

We were unable to report several of our dryland locations due to extremely poor yields and high variability within a test. Of the three trials reported, exceptional yields were obtained at Canadian. This location is next to the Oklahoma border where timely rains were received. The Bushland and Claude sites are reported, but yields were low, averaging 12.5 and 9.0 bu/acre, respectively. The conditions present make drawing any conclusions suspect. However, *TAM 304*, *TAM 112*, *Fuller* (KSU), *TAM 110*, *Bullet* (OSU), *Duster*, *TAM 111*, *Endurance*, *T81* (Rio Seed), and *Jackpot* were the top yielding and most consistent varieties across locations.

### Recommendations

Varieties recommended here are those that have consistently performed well over at least a three year period. Those varieties that perform well under full irrigation also tend to be the same varieties that yield well under dryland. In our environment, even those varieties grown under full irrigation are going to be subject to heat stress and likely some periods of drought. Although *TAM 111* did not stand head and shoulders above the competition like it has in previous years, it should still be considered on most farms in the Panhandle. It has been a consistent high performer. *TAM 112* was not listed under full irrigation, primarily because of moderate concern for lodging under high input conditions. However, it is an excellent choice for limited irrigated or dryland. *TAM 304* was released in 2007 by TAMU and is being marketed by Scott Seed Company out of Hereford. It has good leaf and stripe rust resistance. *Hatcher* has now been tested for three years in our trials. In those three years it has finished in the top 25% in 8 of 19 irrigated trials and 8 of 12 dryland trials. *Fuller* has now finished in the top 25% in 10 of 12 dryland trials making it the most consistent dryland variety over the last three years. *Endurance* is a good irrigated choice for the producer who also wants to graze his wheat. *T81* seems to do best in those very dry years. *Dumas* still makes the list under full irrigation. It has very good straw strength and relatively good resistance to stripe rust and can be a good grazing wheat. Use *Dumas* where yields are going to be pushed by maximizing both fertilizer and irrigation use. As is always the case, I strongly recommend planting more than one variety on any given farm.

Variety Recommendations		
Full Irrigation	Limited Irrigation	Dryland
TAM 111	TAM 111	TAM 111
Hatcher	TAM 112	TAM 112
TAM 304	Hatcher	Fuller
Dumas	TAM 304	Hatcher
Endurance	Endurance	TAM 304
Fuller	Fuller	T81

### Other Comments

Yield data from previous years, variety descriptions, two and three year averages by location, and other information can be found at the following website under publications: <http://amarillo.tamu.edu/programs/agronomy>.

### Acknowledgments

Funds for conducting these variety trials were partially provided for by the TEXAS WHEAT PRODUCERS BOARD through grower check-off funds.

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 TEXAS COOPERATIVE EXTENSION IS IMPLIED.

**Table 1. Irrigated Wheat Variety Trials Harvested in 2008 in the Texas Panhandle and South Plains.**

Brent Bean<sup>1,2</sup>, Jackie Rudd<sup>2</sup>, Ravindra Devkota<sup>2</sup>, Calvin Trostle<sup>1</sup>, Gaylon Morgan<sup>1</sup>

Variety	Company	Location AVG	Perryton	Bushland	Etter	Dallam Co.	Castro Co.	Gaines Co.	Test WT <sup>4</sup>
bu/Acre <sup>3</sup>									lb/Bu
<i>TAM 112</i>	TAMU	<b>59</b>	<b>82</b>	<b>31</b>	<b>41</b>	<b>84</b>	<b>37</b>	79	58
<i>Hatcher</i>	CSU	<b>57</b>	<b>79</b>	<b>28</b>	<b>40</b>	71	<b>35</b>	<b>90</b>	58
<i>Danby (white)</i>	KSU	<b>56</b>	75	<b>27</b>	<b>34</b>	<b>78</b>	<b>34</b>	<b>87</b>	59
<i>TAM 304</i>	TAMU	<b>56</b>	<b>89</b>	25	<b>44</b>	72	<b>35</b>	71	55
<i>Endurance</i>	OSU	<b>55</b>	60	25	<b>37</b>	<b>83</b>	<b>38</b>	<b>87</b>	55
<i>Jagalene</i>	AgriPro	<b>54</b>	72	21	29	<b>82</b>	<b>34</b>	<b>87</b>	54
<i>TAM 111</i>	TAMU	<b>54</b>	<b>85</b>	25	28	<b>75</b>	30	81	56
<i>T81</i>	Trio	<b>54</b>	74	24	31	<b>78</b>	27	<b>90</b>	57
<i>TAM 203</i>	TAMU	<b>54</b>	76	<b>27</b>	<b>35</b>	70	32	<b>83</b>	54
<i>Blend (TAM 111, 112, Jagalene)</i>	Blend	<b>54</b>	77	26	30	72	<b>33</b>	82	57
<i>Duster</i>	OSU	53	<b>79</b>	22	33	71	<b>33</b>	81	55
<i>TAM 110</i>	TAMU	53	<b>79</b>	<b>28</b>	29	<b>76</b>	30	76	55
<i>TX01A5936 (white)</i>	TAMU	53	77	25	29	<b>77</b>	25	<b>84</b>	57
<i>TX02A0252</i>	TAMU	52	<b>83</b>	<b>27</b>	<b>35</b>	<b>75</b>	29	65	57
<i>Keota</i>	Westbred	52	67	<b>27</b>	26	<b>75</b>	32	<b>87</b>	58
<i>TX03A0148 (BL)</i>	TAMU	52	<b>80</b>	21	<b>36</b>	72	22	79	53
<i>Jackpot</i>	AgriPro	52	66	<b>27</b>	<b>35</b>	63	<b>33</b>	<b>86</b>	56
<i>Aspen (white)</i>	Westbred	51	78	<b>27</b>	32	<b>75</b>	28	69	56
<i>TX03A0563</i>	TAMU	51	70	<b>28</b>	33	<b>76</b>	28	73	58
<i>Fuller</i>	KSU	51	<b>80</b>	<b>29</b>	30	66	28	75	56
<i>Overley</i>	KSU	51	63	25	25	74	<b>36</b>	<b>83</b>	56
<i>AP05TW2821</i>	AgriPro	51	77	22	29	69	32	77	53
<i>Bullet</i>	OSU	51	74	22	33	68	28	81	55
<i>AP06T3832</i>	AgriPro	51	73	25	<b>37</b>	68	29	73	54
<i>TAM 105</i>	TAMU	50	67	20	26	<b>75</b>	<b>33</b>	77	55
<i>Doans</i>	AgriPro	50	73	24	32	68	31	70	57
<i>Santa Fe</i>	Westbred	49	75	<b>31</b>	24	64	29	73	56
<i>Deliver (BL)</i>	OSU	49	71	26	29	65	29	75	55
<i>TAM W-101</i>	TAMU	49	67	24	26	63	<b>38</b>	77	56
<i>Jagger</i>	KSU	49	64	25	27	70	29	79	55
<i>Cutter</i>	AgriPro	48	71	20	<b>34</b>	64	31	70	56
<i>OK Rising</i>	OSU	48	74	22	23	61	27	<b>83</b>	54
<i>TAM 401 (BL)</i>	TAMU	48	<b>80</b>	21	32	63	29	62	55
<i>Dumas</i>	AgriPro	48	68	19	27	68	<b>33</b>	73	56
<i>Art</i>	AgriPro	48	61	21	31	74	28	71	55
<i>Shocker</i>	Westbred	47	59	<b>27</b>	24	64	<b>38</b>	70	55
<i>Neosho</i>	AgriPro	46	71	21	30	58	24	73	56
<i>Longhorn (BL)</i>	AgriPro	46	69	15	30	66	24	69	53
<i>AP05T2413</i>	AgriPro	44	62	23	26	61	29	65	52
<i>Fannin</i>	AgriPro	44	59	19	28	59	32	65	55
Mean		51	72.5	24.4	31.0	70.3	30.8	77.0	
CV (%)		12	6.7	10.1	13.9	9.8	16.4	13.3	
LSD (5%)		8	7.9	4.0	7.0	11.2	8.2	10.0	

BL=Beardless

<sup>1</sup> Texas AgriLife Extension, <sup>2</sup> Texas AgriLife Research

<sup>3</sup> Bold numbers indicate top 25% yield by location.

<sup>4</sup> Bushland, Etter, Castro, Dallam only.

<sup>5</sup> Etter, Castro, Dallam only.

**Table 2. Dryland Wheat Variety Trials Harvested in 2008 in the Texas Panhandle.**

**Brent Bean<sup>1</sup>, Jackie Rudd<sup>2</sup>, Ravindra Devkota<sup>2</sup>**

Variety	Company	Location AVG	Bushland	Claude	Canadian	AVG Test WT <sup>4</sup>	AVG Height <sup>5</sup>
		bu/Acre <sup>3</sup>				lb/bu	inches
<i>TAM 304</i>	TAMU	<b>36</b>	<b>14</b>	<b>13</b>	<b>82</b>	57	28
<i>TAM 112</i>	TAMU	<b>35</b>	<b>21</b>	<b>15</b>	69	59	29
<i>Fuller</i>	KSU	<b>35</b>	<b>17</b>	<b>11</b>	<b>76</b>	57	30
<i>TX02A0252</i>	TAMU	<b>35</b>	13	<b>13</b>	<b>78</b>	55	29
<i>TAM 110</i>	TAMU	<b>34</b>	<b>18</b>	<b>13</b>	<b>72</b>	57	30
<i>Blend (TAM 111, TAM 112, Jagalene)</i>	Blend	<b>33</b>	<b>17</b>	<b>10</b>	<b>72</b>	56	31
<i>Bullet</i>	OSU	<b>32</b>	<b>14</b>	9	<b>75</b>	56	34
<i>Duster</i>	OSU	<b>32</b>	13	<b>10</b>	<b>74</b>	57	32
<i>Hatcher</i>	CSU	<b>32</b>	<b>14</b>	<b>10</b>	71	56	29
<i>TAM 111</i>	TAMU	<b>32</b>	13	8	<b>73</b>	57	31
<i>TX03A0563</i>	TAMU	31	<b>14</b>	<b>11</b>	69	54	30
<i>Endurance</i>	OSU	31	<b>14</b>	<b>10</b>	70	55	33
<i>T81</i>	Trio	31	11	<b>10</b>	<b>72</b>	56	31
<i>Danby (white)</i>	KSU	31	<b>16</b>	6	71	59	31
<i>Jackpot</i>	AgriPro	31	<b>14</b>	<b>11</b>	68	57	29
<i>Aspen (white)</i>	Westbred	30	<b>14</b>	9	68	57	27
<i>TX01A5936 (white)</i>	TAMU	30	<b>16</b>	9	65	56	33
<i>Cutter</i>	AgriPro	30	10	9	70	54	30
<i>AP06T3832</i>	AgriPro	29	11	7	70	58	31
<i>Jagalene</i>	AgriPro	29	10	9	69	56	31
<i>Art</i>	AgriPro	29	10	6	<b>72</b>	58	31
<i>TAM 105</i>	TAMU	29	12	<b>11</b>	65	57	32
<i>Santa Fe</i>	Westbred	29	<b>14</b>	7	65	58	30
<i>TX03A0148 (BL)</i>	TAMU	29	<b>14</b>	<b>10</b>	63	54	28
<i>Keota</i>	Westbred	29	13	7	66	57	31
<i>AP05TW2821</i>	AgriPro	29	8	8	71	54	31
<i>Dumas</i>	AgriPro	29	7	9	70	57	32
<i>Neosho</i>		28	13	<b>11</b>	61	57	31
<i>TAM W-101</i>	TAMU	28	13	<b>10</b>	62	57	29
<i>TAM 401 (BL)</i>	TAMU	28	11	8	64	58	29
<i>TAM 203</i>	TAMU	27	8	8	64	57	31
<i>Deliver (BL)</i>	OSU	26	11	7	61	58	29
<i>Doans</i>	AgriPro	26	8	<b>10</b>	62	57	29
<i>Jagger</i>	KSU	26	13	8	59	58	30
<i>Longhorn (BL)</i>	AgriPro	26	6	<b>10</b>	62	58	34
<i>OK Rising</i>	OSU	26	12	8	59	57	32
<i>Overley</i>	KSU	26	12	8	59	59	31
<i>Fannin</i>	AgriPro	25	9	5	61	57	29
<i>Shocker</i>	Westbred	25	12	6	56	57	31
<i>AP05T2413</i>	AgriPro	24	7	4	59	58	31
Mean			12.54	9.0	67.3		
CV (%)			14.64	21.4	7.1		
LSD (5%)			3.0	3.1	7.8		

BL = beardless

<sup>1</sup> Texas AgriLife Extension and Research, <sup>2</sup> Texas AgriLife Research

<sup>3</sup> Bold numbers indicate top 25% yield by location.

<sup>4</sup> Bushland, Claude, Canadian.

<sup>5</sup> Canadian only