

## **2006 Wheat Variety Trials Conducted in the Texas and New Mexico High Plains**

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### ***2005-2006 Wheat Crop in Review***

What a difference a year makes! Last year, we had excellent moisture throughout most of the wheat growing season and ended up with very good wheat yields, in spite of an unprecedented outbreak of stripe rust infection in many fields. This year was just the opposite. We started out with a dry fall and it only got drier as the season progressed. As a result, many dryland fields were a complete failure, including some of our dryland wheat variety trials. Many of the dryland fields never emerged, or if they did, the stand was so thin that they eventually had to be abandoned. Very little grazing took place in the fall and winter on dryland wheat. Some wheat was grazed out once it became apparent that very little grain yield was going to be obtained. We also had a few fields that had to be sprayed for greenbug and Russian wheat aphid infestations. The year also proved to be one of the worst we have seen in a number of years for wheat streak mosaic and the High Plains disease.

### ***Wheat Streak Mosaic and the High Plains Disease***

Wheat streak mosaic virus, year in and year out, is the worst disease we have in the Texas High Plains. Every year at least a few fields are infected with wheat streak mosaic virus. The High Plains disease was discovered in 1993. It was recently given an official name and is now called '**Wheat Mosaic Virus**'. Why did they make the name so similar to wheat streak mosaic virus? I have no idea, but from now on we will be using the new name in all of our discussions. Both diseases produce very similar symptoms in wheat, that being severely chlorotic (yellow) leaves, some stunting, and in the worst cases, death of the plant. Impact on the wheat plant is most severe when infected with both diseases, which we saw a lot of in 2006. The two diseases are transmitted by the wheat curl mite. The best control measure is to eliminate volunteer wheat in and around the fields where wheat will be planted in the fall. Volunteer wheat should be destroyed 21 days prior to planting wheat. Neither disease is transmitted nor survives in wheat seed or in the soil of previously infected fields. For a very good discussion on these two diseases, go to the following web site:

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

All commercially available wheat varieties are susceptible to wheat streak mosaic to some degree. However, a few varieties have been identified that seem to perform better in wheat streak mosaic infested fields. To call these varieties 'resistant' might be a stretch, but at least some tolerance to either the disease or possibly the wheat curl mite seems to be occurring.

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

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

Unlike last year, where TAM 111 was clearly the best variety, no one variety dominated the trials. However, in the irrigated trials several varieties consistently ranked in the top 20 percent across locations (Table 1). These included AP502 CL, Texas experimental entries 3232 and 1117, Duster, Hatcher, TAM 112, TAM 111, and Keota. AP502 CL is a Clearfield wheat, which means Beyond herbicide can be used in it for control of grasses. The variety is very similar to TAM 110, with greenbug tolerance, and over the years does seem to occasionally have a higher yield. The Texas experimental 3232 is expected to be released in 2007 and has good leaf rust and moderate stripe rust tolerance. It has been targeted for the Blackland area of the State, but has performed well in the Panhandle the last couple of years. Texas Experimental 1117 is a later maturing variety that has been targeted more for grazing rather than grain production. However, based on its grain yield the last two

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years, we may want to reconsider it for its grain yield. TAM 112 is greenbug tolerant, and generally yields more than TAM 110 by a couple of bushels. It should generally be positioned as a dryland or limited irrigated wheat. Hatcher is a variety released by Colorado State in 2005 and Duster is an experimental from Oklahoma State. We have very little data on these two varieties in Texas, but are ones we will want to follow closely next year. Keota is a Westbred Company release in 2005. It has stripe and leaf rust resistance, and possibly some tolerance to wheat streak mosaic virus. Although TAM 111 did not have the outstanding year it had in 2005, it still ranked in the top 20 percent in 3 out of 7 locations in 2006.

### Dryland Trials

Only three of our dryland trials were harvested in 2006 (Table 2). In these trials TAM 112 was the top yielding variety at all three locations. TAM 111 also yielded in the top 20 percent at all three locations. Other varieties discussed in the irrigated trials that yielded well were Hatcher and Duster. Jagalene and Cutter yielded in the top 20 percent at the Bushland and Claude locations and over the years have been consistently high yielding varieties in dryland trials.

### Other Comments

The varieties listed in the text box are those that have consistently performed well over the years under a wide range of conditions. Although Dumas did not have outstanding yields in 2006, based on its consistent performance in previous years, it is still recommended for limited and full irrigation. Jagalene and TAM 111 have also proven to be consistent performers. TAM 110 has proven itself over the years, but should begin to lose market share to TAM 112. Both have greenbug tolerance, but TAM 112 has a slightly higher yield potential. In addition, TAM 112 has the best **wheat streak mosaic resistance** of any of the varieties currently available. Varieties must appear in our trials for at least three years before being considered as a recommended variety. This provides more of an opportunity to see how the variety performs under various conditions.

<b>Variety Recommendations</b>		
<b><u>Full Irrigation</u></b>	<b><u>Limited Irrigation</u></b>	<b><u>Dryland</u></b>
Dumas	Dumas	Cutter
TAM 111	TAM 111	TAM 110
Jagalene	TAM 112	TAM 111
	Jagalene	TAM 112
		Jagalene

In choosing a variety for planting this fall, keep in mind that variety performance will vary from year to year. For this reason, it is a good idea to plant more than one variety. We are beginning to look at planting three varieties in a blend. This year the combination of TAM 110, TAM 111, and Jagalene yielded well in both dryland and irrigated trials. I am still unsure as to whether or not the cost of blending the seed will be worth it. We will continue to test this blend (or a similar one) next year.

Keep in mind that all varieties have their positive and negative characteristics. For a brief discussion of each variety go to: <http://amarillo.tamu.edu/programs/agronomy/publications>. You can also view previous years' wheat variety test results at this site.

### ACKNOWLEDGMENT

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Table 1. Irrigated Wheat Variety Trials Harvested in 2006 In the Texas and New Mexico High Plains.

Brent Bean<sup>1</sup>, Jackie Rudd<sup>2</sup>, Calvin Trostle<sup>1</sup>, Rex Kirksey<sup>3</sup>, Mark Marsalis<sup>3</sup>

Variety	Rank	Yield, bu/Acre by Location								AVG. TW <sup>4</sup>
		AVG	Bushland	Etter	Dalhart	Clovis	Perryton	Gains Co.	Dimmitt	lb/Bu
AP502 CL	1	<b>73.7</b>	<b>83</b>	<b>41</b>	<b>85</b>	<b>95</b>	55	54	103	58.1
TX01D3232	2	<b>73.3</b>	<b>85</b>	40	<b>89</b>	82	<b>62</b>	<b>56</b>	99	57.7
TX00V1117	3	<b>73.2</b>	80	<b>43</b>	<b>85</b>	<b>104</b>	34	49	<b>117</b>	59.0
TAM 112	4	<b>72.6</b>	<b>85</b>	<b>43</b>	81	83	54	<b>59</b>	103	59.6
Duster	4	<b>72.6</b>	77	<b>43</b>	<b>85</b>	84	<b>59</b>	<b>58</b>	101	59.3
Hatcher	6	<b>72.3</b>	<b>86</b>	<b>42</b>	<b>85</b>	<b>95</b>	51	55	92	60.0
Blend (TAM 110, TAM 111, Jagalene)	7	<b>71.9</b>	77	40	82	<b>88</b>	56	<b>56</b>	<b>105</b>	58.4
TAM 111	8	<b>71.7</b>	73	34	<b>87</b>	<b>94</b>	56	53	<b>105</b>	59.1
Keota	8	<b>71.7</b>	80	39	76	<b>88</b>	<b>59</b>	<b>57</b>	102	58.8
TAM 303	10	71.4	<b>86</b>	<b>41</b>	81	80	47	52	<b>113</b>	58.1
RonL	11	71.3	81	38	81	85	57	48	<b>109</b>	59.4
TAM 110	12	70.5	78	35	<b>85</b>	<b>90</b>	<b>58</b>	52	97	58.7
Guymon (white)	13	69.8	<b>84</b>	37	82	78	47	50	<b>110</b>	60.5
Jagalene	14	68.2	68	40	<b>87</b>	76	52	54	100	59.7
OK01307	15	68.1	74	39	76	84	54	51	98	58.9
T81	16	68.0	<b>84</b>	34	75	82	51	46	<b>104</b>	58.9
Endurance	17	67.9	68	<b>43</b>	80	77	<b>58</b>	<b>57</b>	92	58.3
TX01V5314	17	67.9	77	40	75	85	51	50	98	56.9
Fuller	19	67.4	72	35	<b>84</b>	81	<b>58</b>	51	90	59.4
Bullet	20	67.3	74	39	78	80	54	<b>56</b>	91	59.2
Dumas	21	67.1	70	35	82	85	<b>59</b>	52	86	60.0
Cutter	22	66.7	67	40	80	68	52	<b>56</b>	<b>104</b>	59.4
Jagger	23	66.6	72	35	76	<b>86</b>	<b>61</b>	52	85	57.9
AP03TA7525	24	66.3	<b>83</b>	<b>42</b>	81	66	46	50	97	58.2
TX01A5936 (white)	24	66.3	68	39	81	79	<b>59</b>	52	86	60.2
Neosho	24	66.3	73	40	70	80	55	53	92	58.9
Coronado	27	66.0	74	37	83	68	<b>58</b>	48	94	58.2
Santa Fe	28	65.4	74	34	74	80	56	46	94	58.4
TAM 105	29	64.9	69	36	82	84	33	49	102	58.0
Doans	30	64.8	68	38	76	73	55	49	95	59.6
AP03T6115	31	64.5	71	35	68	73	54	49	102	58.2
AP03T6126	32	64.1	74	<b>42</b>	69	74	<b>58</b>	44	88	59.9
Ogallala	33	64.0	64	36	78	75	56	47	92	59.7
Overley	34	62.3	60	28	79	72	54	53	90	58.8
Deliver	35	60.8	76	32	78	59	54	50	78	58.7
Fannin	36	60.3	61	30	74	77	45	48	86	58.5
TX01V6008	37	59.8	57	35	78	69	53	54	74	58.9
TAM W 101	38	58.9	65	39	61	68	45	42	92	57.4
Longhorn	39	55.3	62	32	73	56	44	45	75	57.7
Sturdy 2K	40	49.3	36	32	81	47	39	46	65	57.9
Statistics										
GRAND MEAN		66.8	73	37	79	79	53	51	95	58.8
CV			8	9	8	11	7	11		
LSD (5%)			9.5	5.4	9.8	14.4	6.0	5.8		

\* Yield of varieties in the top 20% are listed in **BOLD**.

<sup>1</sup> Texas Cooperative Extension, <sup>2</sup> Texas Agricultural Experiment Station, <sup>3</sup> New Mexico Agricultural Experiment

<sup>4</sup> Test Weight is an average of the test weight from Bushland, Perryton, Dalhart, and Clovis.

**Table 2. Dryland Wheat Variety Trials Harvested in 2006 In the Texas and New Mexico High Plains.**

Brent Bean<sup>1</sup>, Jackie Rudd<sup>2</sup>, Calvin Trostle<sup>1</sup>, Rex Kirksey<sup>3</sup>, Mark Marsalis<sup>3</sup>

Variety	Rank/40	Yield, bu/Acre by Location*				AVG. Test Wt.
		Average	Bushland	Claude	Clovis	lb/Bu
TAM 112	1	<b>27.4</b>	<b>22</b>	<b>33</b>	<b>27</b>	57.6
Blend (TAM 110, TAM 111, Jagalene)	2	<b>25.7</b>	<b>20</b>	<b>33</b>	<b>24</b>	57.8
Hatcher	3	<b>25.1</b>	<b>21</b>	30	<b>25</b>	58.0
TX00V1117	4	<b>25.0</b>	17	24	<b>33</b>	56.0
TAM 111	5	<b>24.6</b>	<b>20</b>	<b>31</b>	<b>23</b>	58.0
Fuller	6	<b>24.2</b>	<b>22</b>	29	21	56.6
Jagalene	7	<b>23.9</b>	<b>20</b>	<b>32</b>	20	59.0
T81	8	<b>23.8</b>	18	30	<b>24</b>	57.7
Duster	9	<b>23.7</b>	18	<b>33</b>	20	57.2
TAM 110	10	<b>23.6</b>	18	<b>31</b>	22	56.6
Guymon (white)	11	<b>23.5</b>	19	26	<b>25</b>	58.3
TAM 303	11	<b>23.5</b>	<b>21</b>	30	20	56.6
RonL	11	<b>23.5</b>	<b>20</b>	27	<b>23</b>	60.1
Endurance	14	23.0	<b>20</b>	<b>31</b>	18	58.6
AP502 CL	15	22.9	<b>20</b>	29	20	55.7
Jagger	16	22.7	<b>20</b>	<b>31</b>	17	56.8
Cutter	17	22.5	<b>20</b>	<b>31</b>	17	58.1
Overley	17	22.5	<b>21</b>	30	17	58.5
Keota	19	22.4	19	<b>32</b>	17	58.3
Bullet	20	22.2	<b>20</b>	29	18	57.0
TX01A5936 (white)	20	22.2	<b>20</b>	<b>31</b>	16	58.9
Dumas	22	21.8	19	29	18	58.4
Santa Fe	23	21.7	<b>20</b>	28	18	57.0
OK01307	24	21.6	18	30	17	57.8
TAM W 101	25	21.6	<b>21</b>	25	19	57.9
Doans	26	21.4	18	<b>32</b>	15	58.5
TAM 105	26	21.4	16	28	20	56.7
Coronado	28	21.1	17	29	17	56.6
TX01V6008	29	21.0	19	27	18	58.5
TX01V5314	30	20.7	<b>20</b>	<b>31</b>	11	54.8
Sturdy 2K	31	20.5	19	24	18	55.0
AP03T6126	32	20.2	17	26	17	59.3
Deliver (beardless)	33	20.0	16	<b>32</b>	13	58.5
TX01D3232	34	19.7	14	30	14	54.9
Ogallala	35	18.9	15	27	15	58.3
AP03TA7525	36	18.7	18	22	16	56.7
AP03T6115	37	18.3	16	25	14	54.8
Longhorn	38	18.1	15	25	15	57.3
Neosho	39	17.7	15	26	11	57.5
Fannin	40	17.2	14	23	16	56.6
GRAND MEAN		22.0	19	29	19	57.4
CV			10	7	24	
LSD (5%)			3.0	3.3	7.2	

\* Yield of varieties in the top 20% are listed in **BOLD**.

<sup>1</sup> Texas Cooperative Extension, <sup>2</sup> Texas Agricultural Experiment Station, <sup>3</sup> New Mexico Agricultural Experiment Station