Texas Cooperative EXTENSION
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2004 Wheat Variety Trials Conducted in the Texas and New Mexico High Plains

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2003-2004 Wheat Crop in Review

Expectations for this year's wheat crop reached several highs and lows during the year ending in disappointment for many farmers. The year started off well, particularly for those who planted wheat early for grazing. Early September rains allowed early planted wheat to produce excellent fall forage for grazing. However, after the early rains most of the area received little to no precipitation until the first of March. Those who waited to plant until the first of October or later had a difficult time getting wheat established. In some fields wheat did not emerge until spring. Because of the dry fall and winter the wheat crop was in very poor shape until March when we then received excellent rainfall throughout much of the area. The prospects of a good wheat crop suddenly were much improved with high hopes for excellent yields. Unfortunately, a dry hot spell during flowering and early grain fill played a heavy toll on what looked like decent yield potential in April. In addition to the feast or famine rainfall conditions, other factors had their say in this year's crop. Greenbugs were a problem in some fields as well as Russian wheat aphids. Wheat streak mosaic virus was the worst it has been in several years. Another disease that we see periodically that was more prevalent in 2004 was the *high plain's virus*. This disease was first identified in 1993 and produces symptoms similar to that of wheat streak mosaic virus. Often wheat was found to be infected with both viruses. Both diseases are transmitted by the wheat curl mite whose main host plant is volunteer wheat. Because of the good moisture conditions present in early September, volunteer wheat could be found in abundance in or around many wheat fields last fall. This likely provided the source for the wheat streak mosaic and high plains disease viruses. If that wasn't enough, a late freeze in April also hurt wheat yields in some fields. Finally, late June rains made it impossible to harvest some fields when they were ready, resulting in significant shattering of some varieties.

Variety Trial Results and Recommendations

This last year Texas A&M initiated a State wide uniform variety trial consisting of 35 varieties. These same varieties were planted in 16 locations throughout the State. A summary of locations in the Panhandle and South Plains are attached. Because of the presence of greenbugs in most of the trials, the greenbug tolerant varieties TAM 110, TAM 110 CL, AP 502 CL, and the experimental entry TX98V9628, tended to out yield many of the other varieties even though most trials were sprayed.

Irrigated Trials

In the irrigated trials, TAM 111 was clearly the best variety for 2004 (Table 1). TAM 111 had the highest yield average across locations, while yielding in the top 20% in five of the six locations. TAM 111 is a new variety from Texas A&M and will be marketed by AgriPro that will be available for planting this fall. It is a relatively tall variety that should have some tolerance to wheat streak mosaic virus and stripe rust. Other top yielding varieties were Cisco, TAM 110 CL and TAM 110, Stanton, Jagalene, Dumas, OK 101 and 102.

Variety Recommendations

Full Irrigation	Limited Irrigation	Dryland
Dumas	Dumas	Cutter
TAM 111	TAM 111	TAM 111
Jagalene	TAM 110	TAM 110
	Jagalene	TAM 105

Shattering was a problem this year due to late June rains that delayed harvest and clearly reduced yield of some varieties. Varieties with a high percentage of grain loss due to shattering included Sturdy 2K, Overly, Venango, TAM 202, and Thunderbolt. Those varieties that yielded well in the irrigated trials also tended have very little shattering. The exceptions were Dumas and Jagalene where significant shattering occurred, yet good yield levels were still achieved. The yield of these two varieties would have been exceptional if shattering had been eliminated. Cisco is a variety from Goertzen Seed Company of Colorado. This is the second year we have included Cisco in our trials. In 2003 yield was considered average, yet this year Cisco performed well in both irrigated and dryland trials. It is soil-borne mosaic resistant variety making it a possible fit for the Dalhart area. Stanton is a Kansas variety released in 2000 that has TAM 107 in its pedigree. It is thought to have some Russian wheat tolerance which may explain its good performance in 2004.

Lodging was also a problem in 2004. Of the top irrigated varieties, Dumas, TAM 111, and OK 102 had the least amount of lodging.

Dryland Trials

Top dryland varieties in 2004 were TAM 110, TAM 110 CL, AP 502 CL, Cutter, and Cisco (Table 2). TAM 110, TAM 110 CL, and AP 502 CL are all closely related and have greenbug tolerance. The CL stand for Clearfield wheat which means these varieties can be used with Beyond herbicide to control grass. Cutter is an AgriPro wheat that has consistently performed well throughout the Panhandle the last three years. Cutter has good height, with some tolerance to wheat streak mosaic virus and stripe rust. TAM 111 was a little disappointing in 2004 in the dryland trials. However, it has performed well in previous years and at other locations.

Other Comments

Two white wheats tested were Trego and Intrada. Trego has consistently been one of the top yielding varieties over the last three years. Keep in mind that white wheat cannot be mixed with hard red winter wheat. Only consider planting a white wheat if you have a specific market in mind with a place to store the grain.

Three A&M varieties that are being considered for release were included in the trials. TX98V9828 is a greenbug tolerant variety with superior milling and baking qualities. The variety performed well in both dryland and irrigated trials. It is an early heading variety that should yield well in those years where we have a hot, dry May and June. Lodging was significant in the irrigated trials, so it may be best suited for dryland. TX98D1170 strength should be in its leaf and stripe rust resistance. It yielded in the top 20% in three of five irrigated locations. TX01M5009 is a beardless early maturing variety that is being looked at as a dual purpose wheat.

Acknowledgments

Wheat variety trials were partially funded by the Texas Wheat Producers Board. Perryton trials were planted and harvested by AgriPro.

Table 1. Irrigated Wheat Variety Trials Harvested in 2004 in the Texas and New Mexico High Plains

Contributers: Brent Bean, Jackie Rudd, Gary Peterson, Jonny Simmons, Ravindra Devkota, Ed Hutcherson, Jake Robinson, Texas Cooperative Extension and Texas Agricultural Experiment Station, and Rex Kirksey, New Mexico State Agricultural Experiment Station

	Yield, bu/Acre by Location							Other Data				
Variety	Bushland	Etter	Dalhart	Nazareth	Clovis	Perryton	Avg[1]	TW[2]	Heading[3]	Height[4]	Lodg[5]	Shat[6]
								lb/bu	doy	cm	%	%
2137	92	51	53	**107**	77	44	76.1	58.7	127	87.0	28	33
2145	115	33	52	**115**	79	49	78.7	58.6	126	79.8	22	32
2174	101	60	54	**110**	73	**74**	79.7	59.1	128	87.2	16	17
AP 502 CL	105	**80**	**63**	82	74	65	80.7	57.6	120	84.0	63	3
Cisco	**116**	**80**	**64**	92	**85**		**87.3**	60.0	126	88.7	52	3
Coronado	104	66	59	**107**	78	73	82.8	59.3	125	81.1	20	8
Custer	108	61	57	**114**	72	67	82.4	59.4	123	87.2	20	8
Cutter	103	51	55	82	82	51	74.6	59.3	125	89.0	67	37
Dumas	98	62	**66**	**111**	82	61	**83.9**	60.9	126	85.4	17	27
Fannin	88	29	51	75	79		64.4	59.7	125	85.8	46	28
Intrada (white)	100	59	56	78	78	46	74.1	61.9	126	84.0	63	13
Jagalene	106	61	**63**	98	**88**	**76**	83.0	60.7	126	86.0	49	30
Jagger	110	54	54	81	**86**	45	77.0	58.7	122	84.2	59	22
Kalvesta	106	53	58	82	77		75.2	60.3	126	81.5	33	9
Lockett	90	67	48	61	72	53	67.7	57.4	128	88.7	82	3
Longhorn	92	63	54	76	66	49	70.2	58.8	128	92.6	16	12
Ogallala	102	52	57	96	81	63	77.3	60.6	127	77.9	19	33
OK 101	**118**	71	60	89	80	62	**83.7**	59.8	124	85.8	28	17
OK 102	**117**	**72**	53	98	74	66	82.8	59.7	128	84.1	18	5
Overly	70	27	56	68	76	31	59.4	59.9	122	88.3	31	60
Scout 66	87	54	50	56	68	39	63.1	60.2	129	100.7	89	8
Stanton	**127**	**72**	56	95	72	**78**	**84.6**	59.8	126	91.4	32	3
Sturdy 2K	43	18	56	45	77	13	47.9	57.7	128	91.9	22	77
TAM 105	115	**94**	49	89	72	71	**83.9**	58.2	125	86.8	51	0
TAM 107	102	70	52	94	72		78.0	58.7	121	81.2	40	3
TAM 110	107	**74**	62	83	**85**	68	82.2	58.5	120	86.0	46	0
TAM 110 CL	106	64	**64**	**105**	**82**	**82**	**84.1**	58.7	120	84.9	47	0
TAM 111	**126**	**72**	56	**118**	**84**	**81**	**91.2**	58.6	126	86.2	25	5
TAM 200	112	70	48	93	**83**		81.2	60.0	124	83.8	64	12
TAM 202	77	22	**64**	88	80	44	66.2	59.6	122	81.8	21	60
TAM W 101	**115**	71	53	79	72	66	78.0	59.5	127	80.6	36	8
Thunderbolt	85	33	56	86	76	38	67.2	59.7	127	88.7	34	60
Trego	**120**	66	**64**	80	67	**80**	79.2	60.7	127	84.9	58	3
TX01M5009	84	54	58	85	74		71.0	59.4	125	83.3	18	25
TX98D1170	**122**	**75**	57	78	**85**		**83.3**	57.1	124	83.0	37	5
TX98V9628	99	70	**65**	87	81	50	80.3	60.9	120	83.8	69	8
Venango	76	39	55	98	76		68.8	59.6	129	84.2	28	57
Statistics												
n	3	3	3	3	3		5	3	4	4	3	2
Mean	101.3	58.7	56.6	88.7	77.3		76.4	59.4	125.1	85.7	39.6	19.7
CV%	7.1	8.0	10.3	18.5	7.7							
LSD(.05)	11.6	7.4	9.5	26.6	9.7							

[1]Average does not include Perryton location.

[2]Test weight (TW) is an average of Bushland, Dalhart, and Clovis locations.

[3]Heading (doy -day of year) is an average of Irrigated and dryland trials at Bushland and Clovis.

[4]Height is an average of irrigated trials at Clovis, Bushland, Nazareth, and Dalhart.

[5]Lodging scores are an average of irrigated trials at Nazareth, Etter, and Bushland.

[6]Shattering scores are an average of irrigated trials at Etter and Bushland.

Table 2. Dryland Wheat Variety Trials Harvested in 2004 in the Texas and New Mexico High Plains

Contributers: Brent Bean, Jackie Rudd, Gary Peterson, Jonny Simmons, Ravindra Devkota, Ed Hutcherson, Jake Robinson, Texas Cooperative Extension and Texas Agricultural Experiment Station, and Rex Kirksey, New Mexico State Agricultural Experiment Station

	Yield, bu/Acre by Location						Other Data		
Variety	Bushland	Claude	Etter	Clovis	Perryton	Avg1	TW[2]	Heading[3]	Height[4]
							lb/bu	doy	cm
2137	35	25	27	11	25	24.7	55.7	127	54.0
2145	43	26	37	7	13	28.2	56.8	126	52.3
2174	33	**29**	32	7	28	25.3	56.8	128	54.6
AP 502 CL	**52**	25	33	**15**	27	**31.3**	56.4	120	61.3
Cisco	**46**	25	**44**	12		**31.8**	56.5	126	59.1
Coronado	38	25	37	14	27	28.3	55.7	125	50.7
Custer	42	28	40	8	27	29.4	57.0	123	52.4
Cutter	**45**	**30**	**42**	11	25	**32.0**	58.1	125	59.2
Dumas	41	**30**	30	10	**34**	27.7	56.0	126	53.3
Fannin	37	27	17	4		21.3	57.1	125	57.7
Intrada (white)	37	27	33	9	27	26.5	58.7	126	51.4
Jagalene	41	**30**	38	13	**33**	30.3	58.3	126	54.0
Jagger	**45**	**30**	36	11	26	30.5	56.2	122	58.7
Kalvesta	39	24	34	10		26.6	57.8	126	53.2
Lockett	38	22	34	9	21	25.7	55.3	128	53.7
Longhorn	29	23	37	10	23	24.8	56.8	128	57.1
Ogallala	36	28	37	7	**32**	27.2	56.6	127	49.7
OK 101	40	26	37	11	27	28.6	56.4	124	59.4
OK 102	40	**29**	**41**	8	24	29.5	57.8	128	53.1
Overly	**45**	**30**	**44**	11	24	**32.5**	57.0	122	59.8
Scout 66	28	20	31	11	24	22.3	57.9	129	66.4
Stanton	43	27	**39**	11	27	29.9	57.9	126	57.0
Sturdy 2K	36	25	28	8	16	24.3	55.5	128	56.4
TAM 105	36	23	37	**19**	26	28.9	55.7	125	55.5
TAM 107	36	23	37	**17**		28.2	55.7	121	54.8
TAM 110	**56**	27	**40**	**20**	**32**	**35.7**	57.4	120	61.1
TAM 110 CL	**59**	25	32	**15**	**35**	**32.7**	57.5	120	61.0
TAM 111	37	**29**	38	14	**30**	29.4	57.6	126	58.0
TAM 200	**47**	26	38	14		**31.2**	58.7	124	53.8
TAM 202	40	**29**	33	**15**	26	29.3	56.8	122	56.4
TAM W 101	40	25	35	7	28	26.5	57.2	127	51.3
Thunderbolt	34	26	36	11	19	26.8	58.0	127	56.9
Trego (white)	38	26	**43**	13	27	30.1	58.9	127	52.2
TX01M5009	39	**29**	36	10		28.3	54.2	125	57.2
TX98D1170	44	27	**39**	14		31.1	54.4	124	56.5
TX98V9628	**51**	**29**	37	**22**	28	**34.9**	58.4	120	61.8
Venango	36	26	27	6		23.7	55.5	129	52.8
Statistics									
n	3	3	3	3	3	4	3	4	2
Mean	40.5	26.5	35.7	11.5		28.5	56.9	125.1	56.0
CV%	7.4	4.3	17.4	34.5					
LSD(.05)	4.9	1.9	10.0	6.3					

[1]Average does not include Perryton location.

[2]Test weight (TW) is an average of dryland trials Bushland, Etter, and Clovis.

[3]Heading (doy -day of year) is an average of Irrigated and dryland trials at Bushland and Clovis.

[4]Height is an average of dryland trials at Bushland and Clovis.