2009 Wheat Variety Trials Conducted in the Texas High Plains

Brent Bean [1]

2008-2009 Wheat Crop in Review

This year was a disappointment for most wheat farmers in the Texas Panhandle. Drought in the fall and through most of the winter and early spring resulted in many dryland fields being plowed up. Conditions were somewhat better north of Amarillo, but good dryland fields were still hard to find. Even irrigated wheat suffered due to a lack of fall and winter precipitation. Our old nemesis Russian wheat aphid also played a major role in reducing wheat yield potential throughout the area. This was probably the worst year for Russian wheat aphid in the last 20 years. The final weather issue in many fields was damage caused by a late freeze in April. Diseases in general were not a major problem in 2009, but wheat streak mosaic and triticum mosaic infection were significant in a few fields.

Lack of adequate fertilization also tended to hurt wheat yield potential, especially in irrigated fields. Nitrogen deficiency symptoms were observed in the fall and early winter in many fields. In many cases compost had been applied prior to planting. However, the nitrogen released from the compost was not adequate to prevent nitrogen deficiency in the wheat crop. It was also observed, especially in wheat no-tilled behind corn, that fields were deficient in phosphorus. Those fields where phosphorus was applied at planting had a much better stand of wheat than in similar fields where no phosphorus was applied. Care should be taken when planting late and in no-till conditions that adequate phosphorus is present.

Variety Trial Results and Recommendations

Irrigated Trials

Variety trials were planted and harvested at five locations around the Texas Panhandle and at the New Mexico State University station near Clovis (Table 1). Four varieties clearly stood out in this year's trials. *Hatcher* (CSU), *Bill Brown* (CSU), *TAM 111* (TAMU), and *Dumas* (AgriPro) averaged over 58 bu/acre across the five locations, with *Hatcher* averaging 69.8 bu/acre. Both *Hatcher* and *Bill Brown* have Russian wheat aphid resistance, which likely contributed to these two varieties topping the trial. This is the first year *Bill Brown* has been in our trials. Not only did these four varieties have the highest yield when averaged across locations, but were in the top 25% in yield in four of the five sites. Other varieties that averaged in the top 25% were *Billings* (OSU), *T81* (Trio), *Duster* (OSU), *TAM 203* (TAMU), *Endurance (*OSU), and the experimental *TX02A252*(TAMU), *and OK04525*(OSU). Billings was released this year by OSU, and a decision to release the Texas AgriLife Research experimental *TX02A252* soon. This variety also yielded well in last year's trial.

Dryland Trials

Of the nine trials planted, five were harvested. The others were abandoned due to poor stand establishment, drought, and high variability within a trial site. In the five trials reported, the top five

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varieties were easily identified as *Hatcher, TAM 112, TAM 111, TX02A0252,* and *Bill Brown*. *Hatcher* has proven itself in previous years as a good dryland variety. It performed exceptionally well this year averaging almost five bushels more than its nearest competitor, likely because of its Russian wheat aphid resistance. *Hatcher* and *Bill Brown* were the only two varieties in our trials with Russian wheat aphid resistance. Similar to the irrigated trials, *Endurance* and *Dumas* also yielded in the top 25% at most of the 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 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. Over the last four years, *Hatcher* and *TAM 111* have consistently been top varieties in all of our trials. These varieties should be considered for all environments in the Texas Panhandle. *TAM 112* is a very good dryland or limited irrigated variety. Under full irrigation some lodging can occur, and thus it does not make the list for full irrigation. *Endurance* and *Duster* are very seldom the top variety in any given trial, yet these Oklahoma State varieties consistently are in the top 25% of most trials. *Endurance* is especially a good choice as a dual-purpose wheat for grazing and grain production. This was not a good year for *Fuller*. However, its performance in previous years warrants it remaining in the recommended list for dryland production. Likewise, *TAM 304* did not yield as well in 2009 as in previous years, but its history warrants it being considered under full or limited irrigation. Planting *Dumas* has long been recommended under full irrigation and is still a consistent performer under those conditions.

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

How have these recommendations changed from recent years?

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Overall the wheat variety 'picks list' does not usually change much from one year to the next as we usually need three years of performance testing before we would recommend a variety. This year, for 2008 picks however, there were some changes as compared to 2006 and 2007 picks.

Deletions from the 2007 & 2008 recommendations:

Full irrigation: Jagalene and Trio Research' "T81" were deleted in 2007, and Fuller was removed from the 2008 recommendations as its performance has waned from earlier yields.

Limited irrigation: Jagalene, T81, and Dumas were removed in 2007, and Fuller was removed in 2008 though performance is still fairly good.

Dryland: Jagalene and T81 have been deleted.

A note about Jagalene: This variety has been on our picks list for irrigated to dryland for several years. Jagalene did not perform well in the 2007 harvest, but did well in 2008 in the High Plains trials, and about average in the 2009 harvest. This variety is still probably a decent pick, however, depending on what other varieties are available.

Other well-known wheat varieties that have been recommended picks in the past:

TAM 110 was a good pick for limited irrigation and dryland, but this greenbug tolerant wheat variety has been superseded by TAM 112, which has slightly better yields and grain quality and retains the greenbug tolerance and offers better overall disease resistance. It is worth paying a few dollars more per acre to plant TAM 112 over TAM 110.

TAM 105 has been off the dryland list for many years now, but it is still planted on a significant number of acres. Seed sources may no longer be pure. This variety has clearly been surpassed by newer genetics, and in both irrigated and dryland trials in the Texas High Plains for 2006-2008, it yielded 12% less in both cases vs. the "Picks" listed above. One factor that keeps a significant amount around is that TAM 105's Plant Variety Protection has expired.

Jagger has been off the irrigated and dryland list for several of years now. It is a parent to Jagalene, which does not break dormancy and potentially suffer from late spring freezes, the way Jagger does. In normal years Jagger is still a good wheat, but the tendency to break dormancy early creates unnecessary risk. Jagger may benefit from heavy grazing to potentially delay maturity and susceptibility to freeze injury.

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

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Table 1. Irrigated Wheat Variety Trials Harvested in 2009, Texas & New Mexico High Plains.

Brent Bean[1,2], Jackie Rudd[2], Ravindra Devkota[2], Bob Villarreal[2], Rex Kirksey[3]

Variety	Company	AVG	Bushland	Etter	Dalhart	Perryton	Clovis
		Bu/Acre					
Hatcher	CSU	**69.8**	**70.6**	**41.2**	**79.4**	**78.0**	79.9
Bill Brown	CSU	**62.7**	**62.0**	**38.1**	**72.9**	**60.2**	80.2
TAM 111	TAMU	**59.0**	**61.9**	**37.8**	**52.5**	56.1	**86.5**
Dumas	AgriPro	**58.4**	46.7	**32.6**	**54.3**	**66.0**	**92.3**
OK03522 (Billings)	OSU	**55.5**	**56.2**	**36.7**	36.7	57.0	**90.8**
T81	Trio	**54.6**	**59.6**	27.1	45.5	53.2	**87.4**
Duster	OSU	**54.3**	**56.2**	**31.3**	39.5	**60.9**	**83.6**
TAM 203	TAMU	**54.1**	48.3	26.2	**61.2**	54.9	79.7
Endurance	OSU	**53.5**	52.3	31.1	46.6	58.6	79.2
TX02A0252	TAMU	**53.5**	**64.6**	**32.5**	36.2	57.8	76.4
OK04525	OSU	**53.5**	**55.1**	**32.5**	34.1	58.2	**87.4**
T136	Trio	53.4	**52.9**	30.0	**50.1**	58.8	75.4
TX01V5134RC-3	TAMU	52.6	49.4	29.0	**50.3**	56.0	78.3
OK05526	OSU	52.5	51.7	31.1	39.1	**64.6**	76.1
TAM 112	TAMU	52.4	44.1	**32.7**	47.3	51.2	**86.8**
Jagalene	AgriPro	51.3	48.0	26.4	37.8	53.2	**91.0**
Art	AgriPro	51.1	42.9	26.7	45.4	**64.7**	75.7
TAM 304	TAMU	50.6	42.6	31.1	43.4	51.4	**84.4**
Jagger	AgriPro	50.2	48.3	29.9	**50.6**	50.2	72.2
Santa Fe	Westbred	49.5	42.8	24.0	40.9	**61.1**	78.7
Armour	Westbred	49.2	48.6	26.7	32.4	**60.9**	77.5
TX04V075080	TAMU	49.0	51.6	25.6	40.8	53.9	73.1
AP06T3832	AgriPro	48.6	40.7	26.2	43.6	53.7	78.7
AP06TW4822 (W)	AgriPro	48.1	42.6	26.6	37.7	56.7	76.9
Deliver(BL)	OSU	46.8	44.8	26.3	**49.6**	49.8	63.7
Jackpot	AgriPro	45.6	47.3	26.4	37.3	48.4	68.5
Fuller	KSU	45.3	42.5	28.3	29.6	**59.6**	66.6
TAM 401 (BL)	TAMU	45.2	45.5	24.4	39.7	51.5	64.9
Bullet	OSU	44.9	46.3	24.8	33.8	45.6	73.7
AP06T3519	AgriPro	44.8	46.1	25.3	27.7	54.2	71.0
TAM W-101	TAMU	44.4	39.6	25.1	27.7	53.1	76.5
Overley	KSU	44.3	43.0	25.6	27.1	44.7	81.3
AP06TA4520 (BL)	AgriPro	43.7	41.1	24.5	24.8	56.3	71.9
Fannin	AgriPro	43.2	38.5	23.6	34.3	50.7	68.9
Doans	AgriPro	42.8	42.4	26.9	28.0	56.2	60.7
Shocker	Westbred	39.5	32.5	22.7	20.8	54.5	67.2
TX03A0148 (BL)	TAMU	33.7	45.5	22.4	11.7	37.8	51.0
Mean		50.0	48.5	28.6	40.8	55.7	76.6
CV (%)			10.2	7.5	20.4	10.80	8.4
LSD (5%)			8.21	3.57	14.0	9.80	10.6

[4] Bold numbers indicate top 25% yield by location. BL = beardless W = white Variety

Table 2. Dryland Wheat Variety Trials Harvested in 2009 in the Texas Panhandle.

Brent Bean[1,2], Jackie Rudd[2], Ravindra Devkota[2], Bob Villarreal[2]

Variety	Company	AVG	Bushland	Etter	Claude	Sherman	Perryton
		Bu/Acre					
Hatcher	CSU	**39.1**	**19.9**	**23.3**	**54.8**	**28.3**	**69.3**
TAM 112	TAMU	**34.4**	**20.2**	**20.9**	**51.5**	**21.8**	**57.4**
TAM 111	TAMU	**33.8**	**19.1**	**19.0**	**52.0**	17.6	**61.5**
TX02A0252	TAMU	**33.8**	**18.2**	17.8	**54.9**	**20.1**	**57.9**
Bill Brown	CSU	**33.5**	**20.9**	**19.1**	**47.8**	**20.3**	**59.4**
Endurance	OSU	**31.9**	**19.2**	13.5	**50.5**	15.0	**61.3**
Dumas	AgriPro	**31.9**	15.6	**19.0**	**50.5**	**19.1**	55.2
TX01V5134RC-3	TAMU	**31.6**	**18.6**	15.9	44.3	**22.3**	**57.2**
Duster	OSU	**31.2**	**21.4**	17.3	46.7	16.4	54.3
OK04525 (Billings)	OSU	**31.2**	**18.2**	**20.8**	44.2	16.6	56.1
AP06T3519	AgriPro	30.7	15.3	15.2	**50.8**	15.5	**56.7**
OK05526	OSU	30.6	17.2	**18.2**	46.1	17.3	54.1
Jagalene	AgriPro	30.3	**19.1**	15.5	**47.8**	13.1	56.3
T81	Trio	30.2	17.5	14.2	45.7	**18.6**	55.2
Overley	KSU	30.0	17.3	**18.2**	43.6	15.7	55.2
Armour	Westbred	29.9	15.5	17.2	47.1	12.0	**57.6**
Santa Fe	Westbred	29.8	15.6	15.9	46.5	**18.5**	52.4
Art	AgriPro	29.6	11.0	15.0	**49.0**	16.8	56.4
Jagger	KSU	29.3	17.6	14.0	46.0	15.3	53.4
OK03522	OSU	29.2	16.3	17.3	44.9	14.8	52.5
T136	Trio	28.8	15.3	15.8	43.5	17.7	51.5
TAM 304	TAMU	28.6	15.1	**19.5**	40.6	17.4	50.2
AP06T3832	AgriPro	28.3	17.2	12.3	46.3	12.5	53.4
Doans	AgriPro	28.3	13.2	16.9	43.1	12.1	56.4
Fannin	AgriPro	28.0	14.5	15.4	42.4	16.1	51.6
AP06TW4822 (W)	AgriPro	27.7	16.7	12.9	45.7	12.7	50.6
Jackpot	AgriPro	27.4	14.8	17.4	38.6	17.8	48.4
TAM W-101	TAMU	27.2	16.2	10.9	44.6	16.3	48.2
Bullet	OSU	27.2	14.4	12.2	40.8	**18.9**	49.7
Deliver (BL)	AgriPro	27.2	15.1	13.3	45.3	12.2	50.0
AP06TA4520 (BL)	AgriPro	27.1	16.0	14.4	41.5	16.3	47.3
Fuller	OSU	27.1	15.8	11.8	43.2	13.8	50.8
TX04V075080	TAMU	26.8	14.0	12.1	46.5	16.7	44.7
TAM 401 (BL)	TAMU	26.5	12.4	14.4	40.7	15.0	50.1
TAM 203	TAMU	26.3	14.9	13.6	44.0	13.3	45.9
Shocker	Westbred	24.2	12.3	13.2	39.9	10.5	45.0
TX03A0148 (BL)	TAMU	23.4	11.2	13.3	36.5	11.5	44.5
Mean		29.4	16.3	15.8	45.6	16.4	53.4
CV (%)			9.8	18.3	6.0	16.7	7.1
LSD (5%)			2.6	4.9	4.5	4.5	6.2

[4] Bold numbers indicate top 25% yield by location. BL = beardless W = white Variety