

Irrigated Wheat Grain Variety Trial Results, Southwest South Plains 2005-2009 Five-Year Results, Gaines-Yoakum Cos., Texas

Calvin Trostle, Texas AgriLife Extension Service agronomist, Lubbock
(806) 746-6101, ctrostle@ag.tamu.edu

Irrigated grain trials for wheat have been conducted for five years in Gaines & Yoakum Counties. Numerous producers in Gaines Co. and surrounding counties have dropped one year of cotton from the 3-year rotation with peanuts and added one year of wheat. This reduces the number of acres of summer irrigation. But as one producer in Gaines noted to me about 2003, "It is not enough to break even on the wheat, and just reduce summer irrigation and improve our rotation. I need to make some money on the wheat crop."

Trial seeding dates, locations, average yields, and average test weights are as follows:

Drilled 12/13/04, west Gaines Co., 50.7 bu/A, 58 lbs./bu;
Drilled 11/23/05, Seminole, 50.9 bu/A, 59 lbs./bu;
Drilled 11/22/06, Seagraves, 46.5 bu/A, 55 lbs./bu;
Drilled 11/16/07, west Gaines Co., 76.8 bu/A, 59 lbs./bu.
Drilled 11/6/08, southwest Yoakum Co., 68.0 bu/A, 59 lbs./bu

All tests were planted annually in replicated fashion with four plots (6' 8" X 25') per variety then harvested with a small combine.

Top Performers: For the five-year period wheat varieties that performed well (64-65 bu/A; overall average = 60 bu/A) include (in order of yields):

TAM 111 Overley Jagalene Dumas Endurance

In addition to the above varieties comparisons available from 4-year and 3-year data indicated the following newer release has also generated strong yields

Hatcher (Colorado State), yielding 75 bu/A over 4 years when the 4-year trial average is 62 bu/A

Over three to five years these above varieties have proved they are worth hunting for and even paying more for seed. Performance of these varieties has been consistent with other irrigated wheat variety test sites to the north in the Texas High Plains.

Low Performers: Among full four- and five-year results, lowest yields (51-56 bu/A with average at 60 bu/A)—beginning with the lowest—have been recorded for:

.Longhorn (beardless) Deliver (beardless) Doans TAM W-101

Low yields in three-year results are also noted for:

NK 812 TAM 401 (beardless)

Traditional beardless wheats for grain: Traditional Russian beardless (WeatherMaster 135, Eldorado, VNS Beardless), Longhorn, Lockett (older data not shown), and even Texas AgriLife Research' new release TAM 401 continue to demonstrate a significant yield drag relative to leading bearded grain wheat varieties. Most beardless types were not included in the 2007 harvest, but the four-year average yields for 2005-2006 & 2008-2009 recorded as a group a 12% reduction in yield vs. the trial average and a 14% reduction vs. leading grain wheats in Gaines Co. (TAM 111, Jagalene, Endurance, Dumas). Previously we have noted that since 2005 Oklahoma State's beardless 'Deliver' has approached trial averages—a potentially 'better' yielding beardless wheat, but additional data is suggesting that Deliver is not much better for grain yield than other wheats, and in fact TAM 109 now has a higher 4-year average yield in Gaines-Yoakum Cos. than Deliver. The new TAM 401 beardless in 3-year results is yielding less than both Longhorn and Deliver. If you think you may go to grain, even if you plan to graze, I suggest you consider using a leading bearded wheat.

NK 812: Numerous producers in Terry, Yoakum, and Gaines Counties continue to assert that this is still their best wheat in part because of NK 812's ground cover. Ground cover ratings in Yoakum Co. in early 2009 noted the highest rating for NK 812 ground cover in late January from a November 6 planting. Pure NK 812 may be hard to come by anymore, and farmer maintained NK 812 seed provided for testing in these trials 4 of the past 5 years has ranged from 3 to 19 bu/A below trial averages, averaging 11 bu/A, 16% less than the trial average (and 19% less than the average of TAM 111, 112, Jagalene, Dumas). The continued use of NK 812 for grain in the region is questioned in light of performance of the available varieties noted above. The reduction in yield is much more than what it would cost to buy certified seed of leading varieties. For producers concerned about ground cover potential, increasing the seeding rate 25% or more would be economical.

Dryland Considerations: Of tested varieties TAM 111, TAM 112, TAM 304, Jagalene, Jagger, Hatcher, and Fuller have been noted for their past and recent performance in strictly dryland production in other areas of West Texas.

Greenbug and Russian Wheat Aphid Resistance: Greenbug resistant TAM 110 is being phased out in lieu of TAM 112 as the latter has slightly higher grain yield, better disease resistance, and better grain milling quality. Hatcher's exceptional performance may be attributed to RAW resistance.

Other Management Tips for 2009-2010

Seed Quality Guidelines—Test weight of ≥ 58 lbs./bu and germ $\geq 85\%$ —is a key for South Plains wheat production especially as many acres are planted late in cooler conditions after cotton or peanut harvest.

Seeding Rate—This test was included using irrigated Dumas for 30, 60, 90, and 120 lbs./A in 2006 and TAM 111 at the same seeding rates in 2008 & 2009. Yields were lower at 30 lbs./A, but once seeding rate hit 60 lbs./A there was no benefit of increasing seeding rates above 60 lbs./A. Extension suggests 60 lbs./A is a good base seeding rate for irrigated grain, but rates should increase for late plantings to perhaps 90 lbs./A if seedings occur in late November into December.

Planting Date—Optimum planting dates for wheat in the Lower South Plains should target around October 25. I would not be concerned about seedings in the first week of November, but after that

gradual risk of reduced yield potential increases. Seedings that occur in early December can provide similar yields compared to optimum planting dates in some years, but expect a long-term reduction in yield potential of ~25% (worse in some years). This notes the urgency to hasten wheat seeding after peanuts and cotton to increase chances for good stand establishment prior to lasting cold.

Nitrogen for Wheat Grain Production—Without soil test data, Texas AgriLife Extension suggests 1.2 lbs. N per bushel of yield goal. This is a reliable rule of thumb. The number may be adjusted up if residual soil N fertility is poor, down if residual N fertility is good. Topdressing N typically targets about 1/3 of N in the fall with 2/3 in the late winter/early spring BEFORE jointing (see below).

Timing of 2010 Topdress N—Extension continues to observe many producers in the southwest South Plains applying topdress N applications well after jointing. We will address this further over the winter, but delayed N applications much past jointing (growing point differentiates to determining maximum potential spikelets per head and seeds per spikelet; growth often becomes more erect and hollow stem is usually observed a couple days after jointing starts) have reduced the effectiveness of N to increase grain yield. Hence topdress N applications in Gaines, Yoakum, Terry, and Dawson Cos. are best targeted most likely in mid-February and probably no later than early March.

Herbicide Options for Wheat—Consult the 2008 Extension small grains weed control guide at <http://varietytesting.tamu.edu/wheat/otherpublications/B-6139%202008%20Weed%20Control.pdf>

For further info. on the Gaines & Yoakum Co. wheat trials or other wheat production info. contact your local county/IPM Extension staff or Calvin Trostle.

Yoakum Co. Wheat Variety Trial, Jerry Hartman Farm, 2008-2009

Conducted by C. Trostle, 806.746.6101 & J.W. Wagner, 806.456.2263



Seeded 11/6/09; 1,100,000 seeds/A		Seed Test Wt.	Visual seed rating:	%	Seeds	5-Dec	5-Dec	Jan 26 Ground
VARIETY	Source	(lbs./bu)	"Would I buy?"†	Germ	per lb.	Stand‡	Vigor‡	Cover Rating‡
AP06T3519	AgriPro (Exptl.)	59.0	4	100	15,200	3.0	3.0	3.3
AP06T3832	AgriPro (Exptl.)	59.9	4	99	14,700	3.0	3.0	2.8
AP06TW4822 (White)	AgriPro (Exptl.)	58.8	4	100	13,600	3.0	3.3	3.0
Armour	WestBred	61.0	4	98	11,900	3.0	2.3	2.8
Art	AgriPro	58.6	3	98	17,000	3.0	3.3	2.9
Bill Brown	Colo St.	63.0	4	100	13,800	2.8	3.3	2.9
Bullet	Okla. St.	61.2	4	100	15,800	3.0	3.0	2.9
Doans	AgriPro	63.4	4	98	14,300	3.0	3.5	2.6
Dumas	AgriPro	62.8	4	97	15,800	3.3	2.8	2.9
Duster	Okla. St.	60.9	4	99	16,500	3.0	2.5	2.4
Endurance	Okla. St.	59.9	4	99	13,900	3.0	3.3	2.8
Fannin	AgriPro	62.9	4	98	15,300	2.5	3.0	3.6
Fuller	Kansas St.	62.3	4	100	14,800	3.0	3.3	2.6
Hatcher	Colo St.	60.2	4	99	16,300	3.0	3.2	3.1
Jackpot	AgriPro	60.0	4	98	13,200	3.0	3.0	2.6
Jagalene	AgriPro	62.9	4	100	12,700	3.0	3.3	2.9
Jagger	Kansas St.	62.4	4	100	14,100	3.3	3.5	3.3
Billings	Okla. St.	58.3	4	98	13,600	3.0	2.3	2.9
OK04525	OSU (Exptl.)	59.8	4	100	16,900	3.0	3.0	3.0
OK05526	OSU (Exptl.)	58.6	4	97	14,300	3.0	2.8	2.8
OK 101	OK Found Seed	60.3	4	98	15,700	3.0	3.3	2.5
Overley	Kansas St.	62.0	4	100	15,300	3.0	2.8	2.6
Santa Fe	WestBred	53.9	4	97	15,600	3.0	2.8	2.8
Shocker	WestBred	55.1	2	94	17,100	3.0	2.4	2.2
T81	Trio Research	55.4	3	98	23,900	3.0	2.5	2.3
T136	Trio Research	55.9	3	100	18,800	3.0	3.3	3.1
TAM 111 Untreated	Texas AgriLife	60.9	4	93	16,200	2.8	2.5	2.5
TAM 112	Texas AgriLife	57.2	4	98	16,000	3.5	2.8	2.8
TAM 203	Texas AgriLife	58.4	4	98	16,600	3.0	3.5	2.6
TAM 304	Texas AgriLife	59.5	4	100	15,200	3.0	2.8	2.5
TAM W-101	Texas AgriLife	52.7	2	98	19,800	3.0	2.3	2.8
TX01V5134RC-3	TX AgriLife (Exptl.)	62.1	4	100	12,700	2.8	3.5	2.9
TX02A0252	TX AgriLife (Exptl.)	60.7	4	99	16,200	3.0	3.4	3.2
TX04V075080	TX AgriLife (Exptl.)	59.3	4	97	12,600	3.0	3.5	3.1

Beardless Wheats

AP06TA4520	AgriPro (Exptl.)	60.6	4	99	12,700	3.0	4.3	4.1
Deliver	Okla. St.	58.5	4	100	17,200	3.0	3.3	2.6
Longhorn	AgriPro	63.8	4	99	15,400	3.0	3.0	2.9
Russian (Eldorado)	Richardson	59.6	4	99	12,900	3.3	3.7	2.6
TAM 109	West Gaines	63.0	4	100	12,100	3.0	3.5	3.1
TAM 401	Texas AgriLife	60.0	4	99	16,400	3.0	3.5	3.1
TX03A0148	TX AgriLife (Exptl.)	56.3	4	99	15,600	3.0	3.0	2.8

"Clearfield" Herbicide Tolerant Wheats

Bond CL	Colo St.	61.1	4	99	11,900	3.3	3.3	2.8
AP503CL2	AgriPro	59.4	4	99	18,000	2.8	3.0	2.0
Protection CL	AGSECO	58.9	4	96	18,100	3.0	2.8	2.2
Okfield (CL)	Okla. St.	59.2	4	94	17,200	3.0	3.0	2.5

NK 812 Local Favorite

NK 812 Untreated	CenTex (certified)	62.2	4	94	14,100	3.0	3.3	4.0
NK 812 Treated	Delman Ellison	58.4	4		16,400	3.0	3.5	3.4
NK 812 Gaucho XT	J. Hartman #1	59.7	4		13,200	3.0	3.8	3.9
NK 812 Untreated	J. Hartman #2	60.3	3		18,100	3.0	2.3	2.3

Variety Test Average--Bearded (34)	59.7				15,500	3.0	3.0	2.8
Beardless Wheat Average (7)	60.3				14,600	3.0	3.5	3.0
Clearfield Wheat Average (4)	59.7				16,300	3.0	3.0	2.4
NK 812 Average (4 sources)	59.5				15,500	3.0	3.2	3.2
Grand Total Average (49)	59.8			98	15,400	3.0	3.1	2.9
Protected Least Significant Difference (95%)#						NS	0.7	0.7
Coefficient of Variation, CV (%)						10	24.2	21.3

Seeding Rate

TAM 111, 30 lbs./A	Texas AgriLife	60.2	4		16,000	3.0	2.3	2.0
TAM 111, 60 lbs./A	Texas AgriLife	"	"		"	3.0	3.3	2.4
TAM 111, 90 lbs./A	Texas AgriLife	"	"		"	3.5	3.5	3.4
TAM 111, 120 lbs./A	Texas AgriLife	"	"		"	3.5	4.3	3.9

†Would Trostle buy this planting seed sample based on visual appearance? 0 = no, 1 = probably not, 2 = maybe, 3 = probably yes, 4 = yes.

‡Visual ratings: 0 = none, 1 = poor, 2 = fair, 3 = good, 4 = very good, 5 = exceptional

Yoakum Co. Wheat Variety Trial, 08-09 (Page 2)

Contact Extension for a 5-Year summary of Gaines/Yoakum Co. wheat trials results.



VARIETY	Height (inches)	Harvest Test Wt (lbs./bu)	Yield Bu/A @ 14% H2O	Lodging at harvest
AP06T3519	28.0	59.1	75.0	
AP06T3832	28.5	57.2	86.7	
AP06TW4822	31.5	58.3	79.3	
Armour	27.0	59.7	83.3	
Art	30.0	58.5	71.9	
Bill Brown	29.5	60.3	91.0	
Bullet	28.0	59.5	60.3	
Doans	28.0	59.1	56.9	
Dumas	31.0	60.6	86.8	
Duster	29.0	58.2	70.5	
Endurance	30.0	59.4	79.1	
Fannin	26.5	60.1	68.6	Moderate
Fuller	28.0	59.7	67.7	
Hatcher	30.0	60.3	91.3	
Jackpot	25.5	58.5	68.1	Moderate
Jagalene	29.5	60.5	70.0	
Jagger	28.0	57.9	70.5	
OK03522 (Billings)	26.5	59.5	61.2	
OK04525	29.0	59.7	82.2	
OK05526	30.5	59.2	61.6	Light
OK 101	28.0	58.9	70.6	
Overley	30.0	59.5	71.9	
Santa Fe	29.5	58.3	82.5	
Shocker	28.0	58.6	80.4	
T81	29.5	59.7	64.9	
T136	30.0	60.3	77.6	
TAM 111 Untreated	30.0	59.8	69.2	
TAM 112§	28.0	60.3	62.3	Moderate
TAM 203	29.0	57.1	62.9	
TAM 304	28.0	57.9	72.4	
TAM W-101	30.0	60.5	66.8	
TX01V5134RC-3	28.0	60.3	68.0	
TX02A0252	27.5	58.3	68.7	Light
TX04V075080	29.0	56.9	46.2	

Beardless Wheats

AP06TA4520	28.0	56.8	61.0	
Deliver	28.5	58.2	50.0	
Longhorn	32.5	59.8	59.6	
Russian (Eldorado)	31.5	57.4	47.1	
TAM 109	30.0	59.1	62.4	
TAM 401	27.5	55.4	59.8	Light
TX03A0148	26.0	54.8	50.8	

"Clearfield" Herbicide Tolerant Wheats

Bond CL	29.0	58.9	74.8	
AP503CL2	27.5	59.5	66.8	
Protection CL	28.5	56.6	69.4	
Okfield (CL)	33.5	58.6	72.2	

NK 812 Local Favorite

NK 812 Certified/Untreated	25.5	56.5	54.6	
NK 812 Treated	26.5	56.5	51.4	
NK 812 Gaucho XT	26.0	57.2	52.1	
NK 812 Untreated	27.5	57.1	53.9	

Variety Test Average--Bearded (34)	29.0	59.2	71.9	
Beardless Wheat Average (7)	29.0	57.4	55.8	
Clearfield Wheat Average (4)	29.5	58.4	70.8	
NK 812 Average (4 sources)	26.5	56.9	52.5	
Grand Total Average (49)	29.0	58.7	68.0	
PLSD (95%)#	1.6	1.5	6.5	
CV (%)	6.6	2.9	13.8	

Seeding Rate

TAM 111, 30 lbs./A	30.5	60.6	62.1	
TAM 111, 60 lbs./A	30.5	59.7	73.8	
TAM 111, 90 lbs./A	29.0	60.9	70.2	
TAM 111, 120 lbs./A	29.5	60.3	72.5	

#Values in the same column that differ by more than the least signif. difference are not statistically different.

§Early maturity TAM 112 appeared to be damaged slightly in the March 28 freeze.

2005-2009 Irrigated Multi-Year Wheat Variety Results, Gaines-Yoakum, TX

Calvin Trostle, Texas AgriLife Extension, Lubbock, 806.746.6101, ctrostle@ag.tamu.edu



VARIETY	2009†			2008			2007			2006			2005		
	Hgt.	TW	Yield	Hgt.	TW	Yield	Hgt.	TW	Yield	Hgt.	TW	Yield	Hgt.	TW	Yield
	in.	lbs/bu	bu/A	in.	lbs/bu	bu/A	in.	lbs/bu	bu/A	in.	lbs/bu	bu/A	in.	lbs/bu	bu/A
AP06T3832†	29	57.2	86.7	30	57.9	73.3									
Art	30	58.5	71.9	29	59.9	70.5									
Bullet	28	59.5	60.3	32	60.0	81.1	26	57.0	44.8	28	59	55.9			
Doans	28	59.1	56.9	31	59.9	69.6	25	58.4	44.8	28	60	49.2	29	61.0	68.8
Dumas	31	60.6	86.8	29	60.9	72.6	25	55.6	51.0	26	61	51.9	25	59.5	55.8
Duster	29	58.2	70.5	30	60.5	81.1	28	52.7	42.3	27	60	58.1			
Endurance	30	59.4	79.1	31	58.9	87.2	25	55.5	39.9	27	59	56.7	28	57.5	55.7
Fannin	27	60.1	68.6	29	61.1	65.5	25	56.0	39.9	27	62	48.3	28	60.3	60.6
Fuller	28	59.7	67.7	30	58.7	75.1	26	53.7	47.7						
Hatcher	30	60.3	91.3	28	59.7	90.3	27	61.0	64.0	23	59	54.9			
Jackpot	26	58.5	68.1	32	59.8	86.3	25	54.6	43.4						
Jagalene	30	60.5	70.0	30	57.6	87.0	26	56.2	48.2	26	60	53.5	26	61.3	63.4
Jagger	28	57.9	70.5	30	59.0	79.4	25	55.8	43.5	28	58	51.7	26	59.3	62.4
OK 101	28	58.9	70.6	29	59.4	75.3									
Overley	30	59.5	71.9	32	58.5	83.0	26	58.9	52.5	26	59	52.6	27	60.3	63.5
Santa Fe	30	58.3	82.5	29	58.6	72.8	25	54.4	39.4	25	59	46.4			
Shocker	28	58.6	80.4	31	58.1	69.7	24	57.4	46.2						
T81	30	59.7	64.9	30	59.9	89.9	27	56.8	49.4	27	59	45.9	28	59.5	58.5
TAM 111 Untreated	30	59.8	69.2	29	60.3	81.5	29	58.2	53.6	28	60	53.0	30	59.8	66.5
TAM 112	28	60.3	62.3	29	58.4	79.4	27	59.5	56.0	27	60	59.2	28	58.8	47.2
TAM 203	29	57.1	62.9	31	57.9	83.1	25	55.6	47.0						
TAM 304	28	57.9	72.4	27	59.5	70.5	22	54.6	44.6						
TAM W-101	30	60.5	66.8	29	59.5	77.2	25	47.2	46.7	25	58	42.4	26	59.8	45.6
TX02A0252†	28	58.3	68.7	30	61.1	65.1									

Beardless Wheats

Deliver	29	58.2	50.0	31	59.2	75.1	25	54.0	42.7	25	59	49.8	28	58.5	52.7
Longhorn	33	59.8	59.6	33	58.1	69.3	29	48.4	37.3	28	58	45.2	31	57.5	45.3
Russian (Eldorado)	32	57.4	47.1							29	59	44.8	33	59.0	52.2
TAM 109	30	59.1	62.4	30	58.2	79.5				25	58	46.4	28	57.5	47.3
TAM 401	28	55.4	59.8	30	57.3	62.5	26	49.3	35.4						
TX03A0148†	26	54.8	50.8	29	57.8	79.0									

NK 812 Local Favorite

NK 812 #1 (treated)	28	57.1	53.9	29	57.9	75.9				26	59	46.3	25	56.0	40.7
NK 812 #2 (untreated)	27	56.5	51.4	28	58.4	71.1									

Average-Bearded	29	59	71.9	30	59	77.8	26	56	47.2	26	60	52.0	27	60	58.9
Beardless Wheat Avg.	29	57	55.8	31	58	73.1	26	51	38.5	27	59	46.5	30	58	49.4
NK 812 Average	26	57	53.0	29	58	75.9				26	59	46.3	25	56	40.7
Grand Total Avg.	29	59	68.0	30	59.1	76.9	26	55.2	46.1	26	59.4	50.6	28	59.1	55.4
Least Signif Diff (95%)#	2	1.5	7.1	2	1.8	10	2.5	5.0	10.4						
CV (%)	7	2.9	13.8	7.2	2.8	13.3	8.1	7.7	16.4						

Seeding Rate

TAM 111, 30 lbs./A	31	60.6	62.1	29	59.3	78.1	Dumas, 30 lbs./A	25	60	53.2					
TAM 111, 60 lbs./A	31	59.7	73.8	29	60.2	82.2	Dumas, 60 lbs./A	25	61	50.9					
TAM 111, 90 lbs./A	29	60.9	70.2	30	61.2	81.3	Dumas, 90 lbs./A	25	61	51.9					
TAM 111, 120 lbs./A	30	60.3	72.5	30	59.7	90.6	Dumas, 120 lbs./A	26	60	52.7					

†Experimental wheat breeding line from AgriPro, Oklahoma St., or Texas AgriLife.

‡Data for varieties harvested in 2009 only are not included (see Yoakum Co. 2008-2009 report).

#Values in the same column that differ by more than the least signif. difference are not statistically different.

Gaines-Yoakum Wheat/Trostle (p. 3) **Longest multi-year comparison of beardless & NK 812 available.**
 Multi-Year Averages



VARIETY	4-Year Avg. 2005-2006 & 2008-2009
	(Bu/A)
Bearded Wheats	
Doans	61.1
Dumas	66.8
Endurance	69.7
Fannin	60.8
Jagalene	68.5
Jagger	66.0
Overley	67.8
T81	64.8
TAM 111 Untreated	67.6
TAM 112	62.0
TAM W-101	58.0

Beardless Wheats

Deliver	56.9
Longhorn	54.9
TAM 109	58.9

NK 812 Local Favorite

NK 812 Source 1 (treated)	54.2		
Variety Test Avg.-Bearded (11)	64.8	Yield as a % of all other bearded wheats	Yield as a % of all recommended varieties^
Beardless Wheat Average (3)	56.9	88%	86%
NK 812 Average (1)	54.2	84%	81%
Grand Total Average	62.5		

^Dumas, Endurance
 TAM 111, TAM 112