Wheat Grain Variety 2006-2009 Yield Summary—Texas High Plains

Additional yield summaries for TAM 105, beardless wheats, & NK 812

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Each year in the Texas High Plains Texas AgriLife Extension Service implements up to 7 replicated wheat grain variety tests for both irrigated and dryland (some dryland sites may not be harvested due to drought or poor stand), up to 40 varieties per site. This data serves as the basis for the popular 'Wheat Grain Variety Recommendations' provided by Dr. Bean (see http://amarillo.tamu.edu/programs/agronomy/publications/Wheat/index.htm).

Although yield is not the only criteria for making a grain variety recommendation, it represents the primary basis for highlighting individual varieties that are adapted and perform well across the region and in different environments. Other factors may include test weight, susceptibility to spring freeze injury, and valuable disease or insect tolerance (e.g., greenbug resistance and Wheat Streak Mosaic Virus tolerance, TAM 112; leaf rust resistance, Fuller, TAM 304; late to first hollow stem for increased forage potential in a dual purpose grazing-grain system, Endurance).

Objectives

All of the Texas High Plains:

1) Provide accessible multi-site, multi-year (3 to 4 years) data for comparison of wheat variety yields—*Which varieties are yielding well over many locations and years?*
2) Significant acreage of TAM 105 is still planted for grain, particularly on dryland, in great part because this old variety is no longer subject to Plant Variety Protection—*Does TAM 105 yield with modern varieties?*

Additional Texas South Plains Considerations

3) Significant beardless wheat acreage is still harvested for grain—*Do modern beardless wheats have sufficient yield potential to merit their being taken to*

grain? Or should producers who anticipate possibly going to grain stay with bearded wheats?

4) The old variety NK 812 is still popular with some producers on sandy loam/loamy fields in the southwest South Plains due to good ground cover capability—*Does NK 812 yield with modern varieties?*

How this Data is Presented

The accompanying tables for irrigated and dryland detail annual averages for individual years and a composite of four years (most cases) for common wheat varieties in the Texas High Plains since 2006. Many of the varieties not reported are experimentals that have not been commercialized, older varieties, or current varieties that are not marketed in the Texas High Plains (white wheats, varieties that initial testing has shown are not adapted). TAM W-101 is an older variety that is used as a historical reference for all other varieties in all Texas AgriLife tests.

For Each Test the Following Calculations are Presented:

Overall trial average—the average of all varieties no matter their current status (experimental yet to be released, older variety, etc.);

Average yield of the current 2009-2010 recommended varieties for a) all levels of irrigation (two varieties are recommended for either full or limited irrigation, but not both) or for dryland, b) as a percentage of all other varieties in the trial;

Average yield of TAM 105 as a percentage of recommended varieties.

Average yield of all beardless varieties (some comparisons only 3 years), and this same beardless average yield as a percentage of the yield of recommended varieties.

Summary of Table Results—Irrigated

Recommended varieties and beardless wheats are noted in the accompanying tables. Over four years across 25 locations, all varieties in annual irrigated wheat trials averaged 59.6 bu/A, whereas recommended varieties as a group averaged 64.7 bu/A (and individually as high as 67.8 bu/A for Hatcher). Recommended irrigated wheats as a group annually yielded 7 to 19% more than all other varieties in the tests. Likewise the top five picks for recommended wheat yielded 10% better than all other varieties that were in the test all four years. TAM 105 for 2006-2008 yielded 12% less than recommended varieties in the years tested (and slightly below overall trial average). Hatcher and TAM 112 had the best composite test weights for 2006-2009 91.5-2.0 lbs/bu above trial average).

Beardless wheats, depending on the individual year of comparison, yielded 7 to 22% less (average 15% less) than recommended varieties. {Deliver and TAM 401 yielded within 1 bu/A of each other, but both yielding somewhat better than Longhorn.} These results suggest that producers should think twice about planting beardless wheat if you anticipate continuing to grain. Cattle removal from wheat grazing at jointing to first hollow stem is not affected by whether the wheat is bearded or beardless, and in the event

that bearded wheat is not taken to grain it can still be managed to minimize the impact of beards.

Additional irrigated yield data from Gaines & Yoakum Counties:

Beardless Wheat—Due to the amount of beardless wheat harvested for grain in the South Plains, additional irrigated testing has been conducted with more beardless varieties (TAM 109, WeatherMaster 135, 'Russian') than those found in the uniform High Plains trials. But the results are similar: in a four-year summary, beardless wheat averaged 12% lower yield than all other bearded wheats, and 14% less than recommended varieties. There has been no consistent higher yielding beardless wheat for grain, including Deliver or TAM 401 vs. other beardless wheats although TAM 109 has yielded well in some individual years.

NK 812—This older variety does indeed provide better ground cover than almost all other wheats, but NK 812's three-year yield, using many seed sources, averaged 16% less than the trial average for bearded wheat, and 19% less than recommended irrigated wheat varieties. Producers concerned about losing NK 812's good ground cover and wind/sand protection may consider using a recommended variety with either narrower drill spacing or increase the seeding rate. The yield differential justifies the immediate cost of more seed per acre as well as the long-term cost of a narrow space drill (≤7") if planting large acreage.

Summary of Table Results—Dryland

Over four years across 17 locations, all varieties in annual dryland wheat trials averaged 33.8 bu/A, whereas recommended varieties as a group averaged 37.8 bu/A (and individually as high as 39 bu/A for Hatcher and TAM 112). Recommended dryland wheats as a group yielded 14% more than all other varieties in the tests. Beardless wheats, depending on the individual year of comparison, yielded 17 to 23% less than the recommended dryland varieties. Just as in irrigated, TAM 105 for 2006-2008 yielded 12% less than recommended varieties in the years tested. Wheat growers, however, should consider newer wheat varieties as TAM 105 will increasingly have less identity preservation and will be subject to contamination going forward since it is no longer a protected variety.

Annual Updates & Questions about this Document

Extension will update this document annually for the Texas High Plains. Also, we have started testing yields of Clearfield wheats which may be of interest to some producers with jointed goatgrass and other annual winter grasses. If you have questions about wheat variety selection for your area, consult your county agricultural Extension agent, district specialist, or consult the wheat variety and production information at the website noted on page 1.

Texas High Plains Irrigated Wheat Variety Comparison, 2006-2009 (3- & 4-year averages)

Compiled by Calvin Trostle, Extension agronomy, Lubbock, 806.746.6101, ctrostle@ag.tamu.edu
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Bold are current 2009 recommended variety picks for full or limited High Plains irrigation levels.

Irrigated Variety†	Source/ Owner	2009 Yield Bu/A	2009 TW Lbs/bu	2008 Yield Bu/A	2008 TW Lbs/bu	2007 Yield Bu/A	2007 TW Lbs/bu	2006 Yield Bu/A	2006 TW Lbs/bu	2006-2009 Yield Bu/A	2006-2009 TW Lbs/bu	2007-2009 Yield Bu/A	2007-2009 TW Lbs/bu	2006-2008 Yield Bu/A	2006-2008 TW Lbs/bu
Bullet	Okla. St.	47.5	59.5	51.0	56.0	72.9	57.0	67.3	59.2	59.7	57.6	57.1	56.6	63.7	57.4
Cutter	Okla. St.			48.0	56.7	62.6	54.6	66.7	59.4					59.1	57.6
Deliver (Beardless)	Okla. St.	47.3	58.2	49.0	55.8	68.3	54.0	60.8	58.7	56.4	56.9	54.9	55.9	59.4	56.8
Doans	AgriPro	45.1	59.1	50.0	57.6	67.2	58.4	64.8	59.6	56.8	58.5	54.1	57.9	60.7	58.5
Dumas ‡	AgriPro	63.1	60.6	48.0	57.0	73.4	55.6	67.1	60.0	62.9	58.3	61.5	57.3	62.8	58.1
Duster	Okla. St.	57.0	58.2	53.0	56.1	72.8	54.7	72.6	59.3	63.8	57.3	60.9	56.2	66.1	57.2
Endurance	Okla. St.	57.8	59.4	55.0	55.8	69.5	55.5	67.9	58.3	62.5	57.0	60.8	56.3	64.1	56.8
Fannin	AgriPro	47.4	60.1	44.0	56.2	62.1	56.0	60.3	58.5	53.5	57.4	51.2	56.7	55.5	57.1
Fuller	Kans. St.	49.0	59.7	51.0	56.5	73.9	54.7	67.4	59.4	60.3	57.7	58.0	56.7	64.1	57.5
Hatcher	Colo. St.	73.4	60.3	57.0	58.3	68.7	61.0	72.3	60.0	67.8	59.4	66.4	59.0	66.0	59.3
Jackpot	AgriPro	49.3	58.5	52.0	56.8	68.4	54.6					56.6	56.7		
Jagalene	AgriPro	54.4	60.5	54.0	54.7	61.4	56.2	68.2	59.7	59.5	57.2	56.6	55.7	61.2	56.9
Jagger	Kans. St.	53.6	57.9	49.0	55.8	59.6	55.8	66.6	57.9	57.2	56.8	54.1	56.1	58.4	56.6
Keota	Westbred			52.0	58.3	68.5	56.6	71.7	58.8					64.1	58.3
Longhorn (Beardless)	AgriPro			46.0	54.0	59.4	52.4	55.3	57.7					53.6	55.3
Neosho	AgriPro			46.0	56.6	61.3	56.4	66.3	58.9					57.9	57.5
Overley	Kans. St.	48.9	59.5	51.0	56.5	71.4	58.9	62.3	58.8	58.4	57.8	57.1	57.3	61.6	57.7
Santa Fe	Westbred	55.0	58.3	49.0	56.5	68.2	54.4	65.4	58.4	59.4	57.2	57.4	56.5	60.9	57.1
Shocker	Westbred	46.3	58.6	47.0	55.6	71.2	57.4					54.8	56.3		
T81	Trio	56.3	59.7	54.0	57.6	75.1	56.8	68.0	58.9	63.4	58.2	61.8	57.8	65.7	58.0
TAM 105	TX AgriLife			50.0	55.8	59.2	52.5	64.9	58.0					58.0	56.3
TAM 110	TX AgriLife			53.0	55.6	62.7	57.3	70.5	58.7					62.1	57.0
TAM 111	TX AgriLife	60.7	59.8	54.0	56.9	76.7	58.2	71.7	59.1	65.8	58.1	63.8	57.5	67.5	57.9
TAM 112 ‡	TX AgriLife	54.0	60.3	59.0	58.1	63.4	59.5	72.6	59.6	62.3	59.0	58.8	58.6	65.0	58.8
TAM 203	TX AgriLife	55.6	57.1	54.0	54.8	69.7	55.6	67.9	56.9	61.8	55.8	59.8	55.2	63.9	55.7
TAM 304	TX AgriLife	54.2	57.9	56.0	55.9	70.5	54.6	73.3	57.7	63.5	56.6	60.2	56.0	66.6	56.5
TAM 401 (Beardless)	TX AgriLife	47.6	55.4	48.0	55.5	71.4	53.3					55.7	55.1		
TAM W-101 (Reference)	TX AgriLife	48.1	60.5	49.0	56.7	64.0	53.2	58.9	57.4	55.0	57.0	53.7	56.7	57.3	56.6
Overall Trial Average		53.4	58.9	51.0	56.4	67.3	55.9	66.8	58.8	60.5	57.6	58.0	56.7	61.8	57.3
Top Picks (5 varieties)		60.6		55.0		71.6		71.6		64.7		62.4		66.1	
Top Picks as % of All Other Vars.		119%		110%		107%		109%		110%		110%		109%	
TAM 105 as % of 5 Top Picks				91%		83%		91%						88%	
All Beardless Varieties		47.5		47.7		66.4		58.1		56.4		55.3		56.5	
Beardless as % of 5 Top Picks		78%		87%		93%		81%		87%		89%		85%	
# of Varieties per site & (Locations)		37 (6)	(1).	40 (6)	(5).	39 (6)	(1).	40 (7)	(4).	19		22		25	

†Wheat varieties from High Plains trials with minimum of 3 years results; commercial varieties/experimental lines with 1 & 2 years of data are included in annual averages only.

‡Dumas is recommended for full irrigation; TAM 112 for limited irrigation due to lodging at full irrigation; these are not included in the Top Picks (5) comparisons.

Texas High Plains Dryland Wheat Variety Comparison, 2006-2009 (3- & 4-year averages)

Compiled by Calvin Trostle, Extension agronomy, Lubbock, 806.746.6101, ctrostle@ag.tamu.edu
Brent Bean, Extension agronomy, Amarillo, bbean@ag.tamu.edu, 806.6775600, conducting all trial sites.

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Bold are current 2009 recommended variety picks for High Plains dryland.

Dryland Variety†	Source/ Owner	2009		2008		2007		2006		2006-2009		2007-2009		2006-2008	
		Yield Bu/A	TW Lbs/bu	Yield Bu/A	TW Lbs/bu	Yield Bu/A	TW Lbs/bu	Yield Bu/A	TW Lbs/bu	Yield Bu/A	TW Lbs/bu	Yield Bu/A	TW Lbs/bu	Yield Bu/A	TW Lbs/bu
Bullet	Okla. St.	27.2		32.0	56	56.0		22.2	57.0	34.4	56.5	38.4	56.0	36.7	56.5
Cutter	AgriPro			30.0	54	48.2		22.5	58.1					33.6	56.1
Deliver (Beardless)	Okla. St.	27.2		26.0	58	52.6		20.0	58.5	31.4	58.3	35.3	58.0	32.9	58.3
Doans	AgriPro	28.3		26.0	57	49.1		21.4	58.5	31.2	57.8	34.5	57.0	32.2	57.8
Dumas	AgriPro	31.9		29.0	57	55.6		21.8	58.4	34.6	57.7	38.8	57.0	35.5	57.7
Duster	Okla. St.	31.2		32.0	57	57.5		23.7	57.2	36.1	57.1	40.2	57.0	37.7	57.1
Endurance	Okla. St.	31.9		31.0	55	56.5		23.0	58.6	35.6	56.8	39.8	55.0	36.8	56.8
Fannin	AgriPro	28.0		25.0	57	47.9		17.2	56.6	29.5	56.8	33.6	57.0	30.0	56.8
Fuller	Okla. St.	27.1		35.0	57	62.3		24.2	56.6	37.1	56.8	41.5	57.0	40.5	56.8
Hatcher	CSU	39.1		32.0	56	62.0		25.1	58.0	39.5	57.0	44.4	56.0	39.7	57.0
Jackpot	AgriPro	27.4		31.0	57	51.5						36.6	57.0		
Jagalene	AgriPro	30.3		29.0	56	52.5		23.9	59.0	33.9	57.5	37.3	56.0	35.1	57.5
Jagger	Kans. St.	29.3		26.0	58	53.5		22.7	56.8	32.9	57.4	36.3	58.0	34.1	57.4
Keota	Westbred			29.0	57	58.2		22.4	58.3					36.5	57.7
Longhorn (Beardless)	AgriPro			26.0	58	47.2		18.1	57.3					30.4	57.7
Neosho	AgriPro			28.0	57	56.1		17.7	57.5					33.9	57.3
Overley	Kans. St.	30.0		26.0	59	51.0		22.5	58.5	32.4	58.8	35.7	59.0	33.2	58.8
Santa Fe	Westbred	29.8		29.0	58	55.3		21.7	57.0	33.9	57.5	38.0	58.0	35.3	57.5
Shocker	Westbred	24.2		25.0	57	51.1						33.4	57.0		
T81	Trio	30.2		31.0	56	54.9		23.8	57.7	35.0	56.9	38.7	56.0	36.6	56.9
TAM 105	TX AgriLife			29.0	57	53.2		21.4	56.7					34.5	56.9
TAM 110	TX AgriLife			34.0	57	56.4		23.6	56.6					38.0	56.8
TAM 111	TX AgriLife	33.8		32.0	57	59.5		24.6	58.0	37.5	57.5	41.8	57.0	38.7	57.5
TAM 112	TX AgriLife	34.4		35.0	59	59.5		27.4	57.6	39.1	58.3	43.0	59.0	40.6	58.3
TAM 203	TX AgriLife	26.3		27.0	57	56.2		20.7	54.8	32.5	55.9	36.5	57.0	34.6	55.9
TAM 304	TX AgriLife	28.6		36.0	57	58.0		10.7	54.9	33.3	56.0	40.9	57.0	34.9	56.0
TAM 401 (Beardless)	TX AgriLife	26.5		28.0	58	48.6						34.4	58.0		
TAM W-101	TX AgriLife	27.2		28.0	57	49.9		21.6	57.9	31.7	57.5	35.0	57.0	33.2	57.5
Overall Trial Average		29.4		29.6	56.8	54.1		22.0	57.4	34.3	57.3	37.9	57.1	35.4	57.2
Top Picks (5 varieties)		33.3		33.0		59.9		24.9		37.8		42.1		39.3	
Top Picks as % of All Other Vars.		117%		115%		113%		118%		114%		115%		114%	
TAM 105 as % of 5 Top Picks				88%		89%		86%						88%	
All Beardless Varieties		26.9		26.7		49.5		19.1		31.4		34.8		31.6	
Beardless as % of 5 Top Picks		81%		81%		83%		77%		83%		83%		81%	
# of Varieties per site & (Locations)		37 (5)		40 (3)		40 (6)		40 (3)							

†Wheat from High Plains trials with minimum of 3 years results; commercial varieties/experimental lines with 1 & 2 years of data are included in annual averages only.

‡Dumas is recommended for full irrigation; TAM 112 for limited irrigation due to lodging at full irrigation; these are not included in the Top Picks (5) comparisons.