

Pick Wheat Grain Varieties for the Texas High Plains & Eastern New Mexico

Final Report with multi-year averages posted to <http://lubbock.tamu.edu> &
<http://amarillo.tamu.edu/amarillo-center-programs/agronomy/wheat-publications/>

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This summary is derived from High Plains wheat grain testing coordinated by the AgriLife wheat breeding program based at Amarillo. Irrigated and dryland test sites range from Lamesa to Perryton and west, including a test site at NMSU-Clovis.

2015-2016 Wheat Crop in Review

Southern High Plains conditions reflected a wide range of wheat production with some dryland yields above 50 bu/A, but others especially to the south below 20 bu/A. Like the spring of 2015, moist conditions over much of the region again fostered favorable conditions for rust diseases, in particular stripe rust (though generally not as widespread or as severe as 2015). Again, where stronger stripe rust infections occurred (TAM 111 and TAM 112) then yields dropped. Much of the wheat enjoyed good growing conditions in the fall and grazing was good, but moisture became limited in much of the Texas High Plains by the end of January. See Table 9 at the end of this report for a summary of wheat variety disease and insect resistance ratings for the High Plains.

AgriLife High Plains Wheat Picks for 2016-2017

Our ongoing Picks criteria include a minimum of three years of data in Texas A&M AgriLife High Plains wheat variety trials across numerous annual locations. A “Pick” variety means this: given the data these are the varieties we would choose to include and emphasize on our farm for wheat grain production. Picks are not necessarily the numerical top yielders as important disease resistance traits (leaf or stripe rust, wheat streak mosaic virus), insect tolerance (greenbugs, Russian wheat aphid), or standability can also be important varietal traits that enable a producer to better manage potential risk. We look for **consistency** of yields, e.g. the regularity with which an individual variety is in the top 25% of yield at each location.

While in some years we make no changes to our Picks list, for 2016-2017 we have made some deletions and additions.

Deletions in 2016: We have not deleted any varieties from the 2015-2016 Picks list. See our notes below on TAM 111 and TAM 304 as we considered removing them from specific categories of the Picks list but concluded to not do so.

Deletions in 2015: At that time we removed TAM 111 from full irrigation in as well as Duster and Hatcher from all production conditions.

Table 1. Texas A&M AgriLife wheat grain variety Picks for the Texas High Plains based on yield performance and consistency from at least 20 multi-year, multi-site trial harvests in 2011-2012 & 2014-2016. Leaf rust and stripe rust are included (see footnote).

Wheat Variety "Picks", Texas High Plains		
<u>Full Irrigation</u>	<u>Limited Irrigation</u>	<u>Dryland</u>
	TAM 111 (S/S)†	TAM 111
	TAM 112 (S/S)	TAM 112
TAM 113 (R/R)	TAM 113	TAM 113
TAM 114 (MR/R)	TAM 114	TAM 114
TAM 304 (R/MR)		
WB Grainfield (MR/R)	WB Grainfield	WB Grainfield
Iba (R/MR)	Iba	Iba
	T158 (MS/MR)	T158
Winterhawk (MS/MR)	Winterhawk	Winterhawk

†Leaf rust/stripe rust resistance ratings: R, Resistant; MR, moderately resistant; MS, moderately susceptible; and S, susceptible

Two & three-year 'watch list.' Based on recent harvest data Gallagher (MR/R; Oklahoma St.) is under consideration as a Pick (comparable to Iba), and it has good rust resistance. Denali (S/MS) and Byrd (S/S) both from PlainsGold/Colorado State show good yields leading to discussion within AgriLife as possible Picks though susceptibility to rusts is a concern.

(Discussion continued)

Additions in 2016: TAM 114 (initially tested as TX07A001505) is added for all production conditions. We would have added it in 2015 but there was little seed available. TAM 114 has good across-the-board resistance to rusts, good straw strength, desirable milling and baking qualities, and also has intermediate resistance to some biotypes of Hessian fly. WB Grainfield grain yields are good and key rust resistance is in place.

A special note on individual varieties:

TAM 111: We initially decided to remove TAM 111 from our Picks list (removed from full irrigation in 2015) due to a modest decline in recent yields and its susceptibility to leaf and stem rust. After further review among AgriLife wheat workers, we conclude that TAM 111 remains as good a choice as some of our other Picks for now. For producers as long as you understand that good management, which will include timely scouting for rusts and treatment if needed, is an important key for TAM 111, then it remains a good choice.

TAM 304: TAM 304 remains a viable choice for high-input production systems with high irrigation, high nitrogen fertility applications, etc. where producers are shooting for yields at 100 bushels per acre or more. We discussed removing TAM 304 as a Pick, but poor seed quality in the 2015 planting appears to have curtailed 2016 yields (which were adjusted based on comparisons to other key varieties).

TAM 204 (MS/MR): This beardless variety is not a Pick but has yielded well over 4 years in the Texas High Plains. It offers as well-rounded a package of disease and insect resistance as any wheat variety, including greenbug resistance and moderate resistance to wheat curl mite, the vector for wheat streak mosaic virus (both found otherwise only in TAM

112). Grain quality and test weight are both marginal for this beardless variety and the milling and baking industry would prefer your other varieties. Grazing potential is good. We suggest TAM 204 as a possible dual purpose wheat but not for grain only production.

The Advantage of Variety Picks in Multi-Year Wheat Grain Production

“Pick” varieties with a minimum of three years in High Plains Texas A&M AgriLife testing continue to yield an average of 6 to 10% better as a group than all other varieties in both irrigated and dryland tests. Though you may have a variety for your production conditions that you really like, we encourage you to include one of our Picks in your cropping. We will have full results reported by the week of August 8, 2016 so please contact us for a comprehensive report or visit the wheat pages at <http://amarillo.tamu.edu> and <http://lubbock.tamu.edu> . Perhaps a Pick variety that has a specific disease package –which may have been valuable in the stripe rust outbreaks of 2015 & 2016—or relative maturity that contrasts your current variety would be a good complement to your overall program.

Wheat Variety Grain Picks for Other Texas Regions

Dr. Clark Neely, state small grains extension agronomist, College Station (979.862.1412, cbneely@tamu.edu) compiles our Picks for Texas Rolling Plains, Texas Blacklands (including northeast Texas), South Texas, and Lower Rio Grande Valley. See his updated 2016-2017 Picks list at <http://varietytesting.tamu.edu/wheat/docs/picks%20list/2017%20Texas%20Wheat%20Pick.pdf>

August 2016

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Table 2. 2015-2016 Texas High Plains Uniform Variety Trial seed size and limited qualitative stand/vigor/size ratings. Scale: 0, none; 1, poor; 2, fair; 3, good; 4, very good; 5, exceptional. (C. Trostle)

Variety	Developer	Avg. Seed/ Pound	Dawson Irrigated			Swisher Irrigated			Lubbock Dryland		
			12/12/15		3/1/16	11/11/15		1/27/16	1/21/16		3/2/16
			Stand	Vigor	Size	Stand	Vigor	Size	Stand	Vigor	Size
Bentley	Okla. St.	15,400	2.9	3.0	3.0	2.9	3.0	3.1	2.9	2.8	3.0
CPLN 15-14	Croplan	19,200	2.6	2.8	2.6	2.1	2.5	2.1	2.5	2.8	2.8
Doublestop CL†	Okla. St.	16,400	3.2	3.0	2.7	3.0	3.0	2.9	3.0	2.9	3.0
Duster	Okla. St.	26,900	2.6	2.1	2.5	2.9	2.9	2.8	2.6	2.6	2.9
Endurance	Okla. St.	23,700	2.3	2.3	1.8	2.3	2.4	2.5	2.5	2.0	2.3
Gallagher	Okla. St.	16,800	3.0	2.8	3.2	3.0	2.9	3.6	2.8	3.1	2.9
Greer	Syngenta	14,400	3.0	3.0	3.2	3.0	3.1	4.1	2.9	3.3	3.0
HRX1652	Dyna-Gro	13,700	3.0	3.1	3.6	3.0	2.9	2.8	3.0	3.3	3.3
Iba	Okla. St.	21,000	2.8	2.8	3.1	2.8	2.6	2.9	2.8	3.1	2.8
Kan Mark	Kansas St.	13,300	3.0	3.1	3.3	3.0	3.0	3.4	3.1	3.0	3.3
LCS Mint	Limagrain	13,400	3.0	3.0	3.1	3.0	3.0	3.1	2.9	3.0	2.9
LCS Wizard	Limagrain	17,300	2.8	2.8	2.5	3.1	3.0	2.9	2.9	3.1	3.0
PlainsG. Brawl CL Plus†	Colorado St.	12,500	3.0	3.3	3.8	3.0	3.3	3.5	3.1	3.4	3.1
PlainsGold Avery	Colorado St.	14,100	3.1	2.9	3.4	2.9	2.9	3.4	3.0	3.3	3.3
PlainsGold Byrd	Colorado St.	16,600	2.8	2.8	3.3	2.9	2.9	3.3	2.9	2.8	3.0
PlainsGold Denali	Colorado St.	11,000	3.0	3.0	2.7	3.0	3.4	3.1	3.0	3.3	3.5
Ruby Lee	Okla. St.	18,100	2.7	2.7	3.3	2.8	2.8	3.1	2.5	2.9	2.8
SY Drifter	Syngenta	23,500	2.3	2.3	2.8	2.3	2.5	2.8	2.5	3.0	2.8
SY Grit	Syngenta	13,600	3.2	3.2	4.0	3.1	3.3	3.5	2.9	3.0	3.4
SY Llano	Syngenta	17,100	3.0	2.8	2.8	2.9	3.1	3.8	2.9	3.1	3.3
SY Monument	Syngenta	13,400	3.0	3.2	2.8	2.8	3.0	3.1	3.0	3.1	2.9
SY Southwind	Syngenta	15,700	3.0	2.5	3.2	3.0	2.6	2.9	2.8	2.6	3.0
T158	Limagrain	15,900	3.0	3.0	3.0	3.0	2.8	2.4	2.6	2.4	2.8
TAM 111	Texas A&M	13,600	3.0	3.5	3.3	3.0	3.1	3.1	2.9	3.3	3.0
TAM 112	Texas A&M	14,900	3.0	3.2	3.5	3.0	3.0	3.4	3.0	3.3	3.4
TAM 113	Texas A&M	25,000	3.3	2.9	3.1	3.0	3.1	3.9	2.5	2.7	2.9
TAM 114	Texas A&M	21,300	3.0	2.6	3.3	2.8	2.8	3.0	2.5	3.0	2.6
TAM 204§	Texas A&M	17,300	3.0	3.0	3.4	3.0	2.9	3.4	2.8	3.0	3.0
TAM 304	Texas A&M	20,100	1.7	2.0	2.0	2.8	2.5	2.8	2.1	1.0	1.8
TAM 305	Texas A&M	18,200	2.8	2.6	2.9	2.9	3.0	4.2	2.6	2.8	2.9
TAM 401§	Texas A&M	23,500	2.8	3.0	3.0	3.0	3.3	4.5	2.9	3.4	3.0
TAM W-101‡	Texas A&M	11,800	3.0	3.2	3.8	3.0	3.0	3.5	3.0	3.5	3.3
Underwood	Dyna-Gro	14,000	3.0	3.3	3.9	3.0	3.6	4.5	2.9	2.9	3.4
WB 4458	Monsanto	13,700	3.0	3.1	3.1	3.0	3.4	3.4	3.0	2.9	3.0
WB 4721 (HV9W10-0129)	Monsanto	12,400	2.8	2.8	3.3	3.0	3.5	3.4	3.1	3.0	3.4
WB Cedar	Monsanto	12,300	3.0	2.9	3.0	3.0	3.1	3.0	2.9	2.9	3.1
WB Grainfield	Monsanto	19,500	2.3	2.5	2.5	2.9	2.8	3.0	2.8	2.8	2.6
WB Redhawk	Monsanto	13,900	3.0	3.0	2.8	3.0	3.0	3.0	3.0	3.0	3.1
Weathermaster 135§	Unknown	17,800	2.7	3.0	3.3	2.9	2.8	3.0	3.0	3.5	2.9
Winterhawk	Monsanto	19,000	2.8	2.8	2.5	3.0	3.3	3.3	2.8	2.5	2.5
	<i>Largest seed</i>	11,000									
	<i>Smallest seed</i>	26,900									
	<i>Average</i>	16,800	2.9	2.9	3.1	2.9	3.0	3.2	2.8	2.9	3.0

†Clearfield herbicide tolerant wheat; ‡Historical check released in the 1970s; §Beardless.

Table 3. Texas High Plains summary of irrigated wheat variety trial test sites for composite yield, test weight (all sites), heading date, and plant height, 2015-2016.

Variety		6-Site	Bush-	Du-	Sun-	Swi-	Daw-	Clo-	Average	Average	Plant
Bold are 2016 Picks		Avg.	land	mas	ray	sher	son	vis	Test Wt.	Heading	Ht. Avg.
^F full irrig.; ^L limited irrig.	Developer	Yield (Bu/A)							Lbs./Bu	Date [¶]	Inches
TAM 114^{FL}	Texas A&M	86.9	93.4	55.5	67.7	124.7	79.2	101.2	59.0	4/27	35
TAM 204§	Texas A&M	84.4	95.2	49.3	53.9	132.3	72.7	103.1	56.5	4/26	35
SY Grit	Syngenta	83.7	98.3	46.0	62.6	128.0	71.4	95.9	58.1	4/25	36
TAM 304^F	Texas A&M	83.2	95.9	58.1	63.5	130.7	55.2	96.0	56.1	4/25	32
SY Southwind	Syngenta	81.8	92.2	54.8	61.4	115.9	67.7	98.9	56.8	4/26	34
WB Grainfield^{FL}	Monsanto	81.1	88.2	60.5	60.8	123.9	58.5	94.8	57.9	4/25	36
Underwood	Dyna-Gro	80.2	90.6	51.6	61.2	127.1	67.3	83.6	58.2	4/25	34
PlainsGold Byrd	Colorado St.	80.2	97.1	51.6	69.5	113.5	54.7	94.9	57.6	4/25	35
LCS Mint	Limagrain	80.2	90.8	57.0	55.2	123.5	74.0	80.8	58.0	4/29	37
PlainsGold Avery	Colorado St.	80.1	89.8	48.1	55.8	124.3	64.0	98.4	58.4	4/24	37
Winterhawk^{FL}	Monsanto	80.0	88.7	55.2	63.2	124.9	55.6	92.0	58.3	4/27	37
WB 4458	Monsanto	80.0	90.9	44.6	47.3	131.7	71.0	94.3	56.5	4/24	36
Kan Mark	Kansas St.	79.5	95.6	54.8	62.0	114.1	60.0	90.2	58.7	4/28	30
SY Monument	Syngenta	79.3	91.7	57.5	59.8	110.3	75.4	81.3	57.4	4/28	36
WB Cedar	Monsanto	79.3	84.9	49.6	44.4	127.5	77.8	91.4	57.6	4/21	33
TAM 305	Texas A&M	79.2	90.6	43.8	62.5	125.7	60.0	92.7	58.6	4/25	35
Gallagher	Okla. St.	79.1	90.0	50.6	59.8	121.1	75.2	78.2	57.6	4/26	35
Greer	Syngenta	79.1	92.8	47.9	61.4	128.9	65.8	77.8	57.0	4/28	36
TAM 111^L	Texas A&M	79.0	95.3	53.7	61.6	113.8	67.4	82.0	59.1	4/26	37
WB 4721	Monsanto	78.9	90.5	53.5	54.0	124.1	65.5	86.0	58.7	4/25	37
Iba^{FL}	Okla. St.	78.6	94.3	61.2	55.7	118.5	64.2	77.8	58.5	4/27	35
TAM 113^{FL}	Texas A&M	78.6	96.2	50.6	61.3	117.3	62.8	83.4	57.6	4/27	37
HRX1652	Dyna-Gro	78.0	91.5	60.5	59.6	110.1	62.1	84.1	57.0	4/28	38
T158^L	Limagrain	77.6	85.4	55.4	56.5	109.4	80.8	78.1	58.2	4/25	35
PI-Gold Brawl CL Plus†	Colorado St.	76.9	95.3	54.5	68.7	112.9	51.0	78.7	56.4	4/28	35
WB Redhawk	Monsanto	76.8	82.4	36.3	53.0	130.1	76.4	82.8	57.9	4/23	34
SY Drifter	Syngenta	76.4	81.5	54.8	57.8	120.4	55.5	88.4	59.3	4/28	35
PlainsGold Denali	Colorado St.	76.0	95.0	57.6	60.3	107.2	42.2	93.5	58.8	4/28	37
Bentley	Okla. St.	75.7	86.2	46.9	61.4	113.4	65.0	81.3	56.7	4/26	38
SY Llano	Syngenta	75.0	90.2	45.3	54.1	123.2	58.1	79.4	59.6	4/23	32
TAM 112^L	Texas A&M	75.0	98.9	50.0	62.7	107.3	54.0	77.1	59.6	4/22	35
Duster	Okla. St.	75.0	83.9	58.5	57.2	114.6	57.4	78.3	57.6	4/26	36
Ruby Lee	Okla. St.	72.1	78.7	48.1	53.7	111.9	56.5	83.4	58.3	4/26	38
CPLN 15-14	Croplan	71.9	83.6	58.7	54.0	94.5	54.0	86.5	55.6	4/27	36
LCS Wizard	Limagrain	71.6	80.4	56.3	64.2	100.7	49.6	78.1	57.8	4/28	34
TAM 401§	Texas A&M	71.4	84.6	36.8	46.6	120.8	53.1	86.7	56.2	4/25	36
Doublestop CL†	Okla. St.	71.2	80.5	47.1	49.8	110.0	59.1	81.0	58.8	4/25	37
Endurance	Okla. St.	69.8	79.2	48.6	49.7	106.8	44.7	89.9	57.6	4/26	37
TAM W-101‡	Texas A&M	66.5	73.8	52.2	50.8	112.5	40.6	68.9	56.5	4/24	34
Weathermaster 135§	Unknown	62.9	79.2	46.2	50.1	98.4	30.4	73.4	55.3	4/25	34
	Mean	77.3	89.1	51.7	57.9	117.7	61.4	86.1	57.7	4/26	35
	<i>Coefficient of Variation (5%)</i>	7.2	4.1	10.9	8.7	9.3	19.5	9.6	2.3	.	.
	<i>Least Significant Difference (5%)</i>	3.5	5.9	9.1	8.2	8.7	4.8	13.5	0.8	.	.
	<i>Replications [Sites]</i>	[6]	3	3	3	4	4	3	[6]	[2]	[4]

†Clearfield herbicide tolerant wheat; ‡Historical check released in the 1970s; §Beardless; ¶Bushland & Clovis.

Table 4. Texas High Plains summary of **dryland** wheat variety trial test sites for composite yields, test weight (all sites), heading date, and plant height, 2015-2016.

Variety	Developer	6-Site Avg.	Bush- land	Here- ford	Sil- verton	Well- ington	Lub- bock	Clo- vis	Average Test Wt. lbs./bu	Average Heading Date [¶]	Plant Ht. Avg. Inches
Bold are 2016 Picks		Yield (Bu/A)									
Bentley	Okla. St.	40.8	68.9	44.3	34.3	46.8	27.3	23.4	57.3	4/23	23
PlainsGold Denali	Colorado St.	40.0	57.4	47.8	40.0	46.6	22.2	25.9	59.2	4/25	23
LCS Mint	Limagrain	40.0	61.1	51.2	30.8	50.7	22.4	23.6	59.3	4/16	22
HRX1652	Dyna-Gro	39.5	52.7	46.3	48.0	41.3	22.9	26.0	57.8	4/23	21
WB 4721	Monsanto	39.1	55.6	45.6	47.0	41.5	20.7	24.5	59.7	4/23	22
PI-Gold Brawl CL Plus [†]	Colorado St.	39.0	59.7	52.2	28.1	44.5	22.5	26.8	58.4	4/25	22
Greer	Syngenta	38.8	55.9	42.6	36.0	51.5	22.7	24.2	56.7	4/24	21
TAM 113	Texas A&M	38.5	58.5	44.6	41.8	40.9	19.2	26.2	58.9	4/25	22
WB 4458	Monsanto	38.0	59.1	45.2	34.9	40.9	25.7	22.0	57.8	4/22	23
SY Southwind	Syngenta	37.8	56.2	42.7	36.0	44.9	24.6	22.4	58.3	4/21	21
WB Grainfield	Monsanto	37.7	55.9	44.2	33.9	47.0	19.8	25.6	57.9	4/22	22
Kan Mark	Kansas St.	37.7	59.7	42.8	36.4	41.0	22.4	24.0	59.1	4/25	19
SY Monument	Syngenta	37.4	49.8	45.9	36.2	48.0	24.2	20.6	58.0	4/17	20
SY Grit	Syngenta	37.2	46.8	47.7	31.4	46.0	27.6	23.7	57.7	4/24	22
T158	Limagrain	37.2	51.4	46.8	40.5	43.7	20.6	20.1	59.3	4/12	21
TAM 112	Texas A&M	37.1	58.6	49.7	18.8	42.8	27.2	25.6	58.7	4/21	22
TAM 114	Texas A&M	37.1	45.0	46.0	44.3	50.8	19.9	16.5	59.6	4/16	21
Doublestop CL [†]	Okla. St.	37.1	57.0	45.9	35.2	40.1	24.9	19.3	59.7	4/23	23
PlainsGold Byrd	Colorado St.	36.8	50.3	48.6	28.9	44.7	23.2	24.9	57.9	4/23	22
Winterhawk	Monsanto	36.6	52.2	45.7	34.2	42.5	20.3	24.5	59.4	4/23	22
LCS Wizard	Limagrain	35.7	55.7	43.6	30.1	41.9	24.0	18.9	58.9	4/16	20
TAM 305	Texas A&M	35.5	46.0	40.2	35.6	46.6	22.9	21.6	58.4	4/22	21
TAM 204§	Texas A&M	35.5	52.6	40.1	33.4	47.0	18.8	20.9	56.6	4/25	21
TAM 111	Texas A&M	35.4	52.2	47.1	29.7	42.2	19.5	21.6	59.2	4/24	22
Iba	Okla. St.	35.4	46.2	44.0	36.2	40.8	24.8	20.2	59.6	4/25	21
Duster	Okla. St.	35.2	48.7	41.4	36.1	40.2	24.3	20.7	58.6	4/24	21
Underwood	Dyna-Gro	35.0	47.4	42.5	30.7	41.5	23.7	24.4	58.1	4/23	21
CPLN 15-14	Croplan	34.9	51.9	40.7	37.3	36.6	21.1	22.0	57.4	4/23	21
SY Llano	Syngenta	34.9	46.1	42.2	34.4	40.8	24.2	21.7	60.4	4/21	21
Gallagher	Okla. St.	34.6	41.4	42.5	36.5	40.9	24.2	22.4	58.0	4/25	20
SY Drifter	Syngenta	34.6	44.7	42.2	36.7	41.0	22.0	21.0	59.2	4/27	20
TAM 304	Texas A&M	34.3	46.7	42.4	30.5	41.0	23.6	21.9	56.0	4/23	19
PlainsGold Avery	Colorado St.	34.3	41.6	47.1	27.6	41.8	24.1	23.7	57.9	4/23	22
WB Redhawk	Monsanto	32.9	47.4	50.2	17.9	42.1	21.7	18.0	56.8	4/25	19
Weathermaster 135§	Unknown	32.1	40.0	43.0	29.8	37.7	18.4	24.0	57.4	4/23	21
Endurance	Okla. St.	31.8	49.2	40.2	26.4	37.8	17.8	19.5	58.1	4/24	22
TAM 401§	Texas A&M	31.5	40.5	38.3	30.8	37.3	22.2	20.0	56.7	4/20	23
WB Cedar	Monsanto	31.0	33.8	41.9	32.3	38.1	20.9	19.0	58.1	4/22	19
Ruby Lee	Okla. St.	30.5	41.4	42.0	20.7	37.7	21.5	19.9	58.3	4/23	22
TAM W-101‡	Texas A&M	28.1	29.4	38.3	26.6	35.0	20.6	19.0	57.7	4/23	19
	Mean	35.9	50.4	44.4	33.4	42.6	22.5	22.3	58.3	4/23	21
	<i>Coefficient of Variation (5%)</i>	10.8	13.7	4.4	11.2	7.2	17.1	14.2	1.5	.	.
	<i>Least Significant Difference (5%)</i>	3.0	11.3	3.2	6.1	5.0	3.8	5.1	1.0	.	.
	<i>Replications [Sites]</i>	[6]	3	3	3	3	4	3	[6]	[2]	[3]

[†]Clearfield herbicide tolerant wheat; [‡]Historical check released in the 1970s; [§]Beardless; [¶]Bushland & Clovis.

Table 5. Multi-year Irrigated Wheat Variety Trial Yields, 2012 & 2014-2016, Texas & NM High Plains.

Variety		2012	2014	2015	2016	2-Year	3-Year	4-Year
Bold are 2016 Picks	Developer	Annual Bushels per Acre Average				Multi-year Bu/A Average		
TAM 114^{FL}	Texas A&M	66.6	77.2	90.4	86.9	88.7	84.8	80.3
Winterhawk^{FL}	Monsanto	75.6	79.1	82.4	80.0	81.2	80.5	79.3
TAM 204§	Texas A&M	72.9	72.2	87.4	84.4	85.9	81.4	79.2
Iba^{FL}	Okla. St.	74.6	79.4	81.3	78.6	79.9	79.8	78.5
T158^L	Limagrain	66.9	75.2	85.2	77.6	81.4	79.4	76.2
TAM 304^F	Texas A&M	69.3	71.3	79.3	83.2	81.3	77.9	75.8
Greer	Syngenta	62.5	75.4	85.6	79.1	82.3	80.0	75.7
TAM 113^{FL}	Texas A&M	67.1	70.5	84.9	78.6	81.7	78.0	75.3
TAM 305	Texas A&M	63.6	67.8	84.5	79.2	81.8	77.2	73.8
TAM 111^L	Texas A&M	65.6	74.7	72.8	79.0	75.9	75.5	73.0
Duster	Okla. St.	68.5	69.4	79.1	75.0	77.0	74.5	73.0
TAM 112^L	Texas A&M	66.5	71.0	76.2	75.0	75.6	74.1	72.2
WB Cedar	Monsanto	66.8	59.9	82.3	79.3	80.8	73.8	72.1
TAM 401§	Texas A&M	58.2	57.2	86.7	71.4	79.1	71.8	68.4
Endurance	Okla. St.	63.4	65.8	70.3	69.8	70.1	68.6	67.3
Ruby Lee	Okla. St.	59.7	61.7	71.7	72.1	71.9	68.5	66.3
TAM W-101‡	Texas A&M	59.3	71.9	66.5	66.5	66.5	68.3	66.0
SY Llano	Syngenta	57.5	50.1	78.7	75.0	76.9	68.0	65.3
WB Grainfield^{FL}	Monsanto		77.3	91.4	81.1	86.3	83.3	
LCS Mint	Limagrain		80.4	83.7	80.2	82.0	81.4	
SY Monument	Syngenta		73.5	89.8	79.3	84.6	80.9	
WB 4458	Monsanto		76.0	84.1	80.0	82.0	80.0	
PlainsGold Denali	Colorado St.		82.3	75.5	76.0	75.7	77.9	
SY Drifter	Syngenta		70.1	80.8	76.4	78.6	75.8	
PI-Gold Brawl CL Plus†	Colorado St.		72.7	76.9	76.9	76.9	75.5	
PlainsGold Byrd	Colorado St.		74.5	67.9	80.2	74.1	74.2	
LCS Wizard	Limagrain		77.0	72.5	71.6	72.0	73.7	
WB Redhawk	Monsanto		61.9	72.0	76.8	74.4	70.2	
SY Grit	Syngenta			89.0	83.7	86.3		
Gallagher	Okla. St.			87.9	79.1	83.5		
Bentley	Okla. St.			89.0	75.7	82.4		
Kan Mark	Kansas St.			81.4	79.5	80.4		
Doublestop CL†	Okla. St.			79.3	71.2	75.3		
SY Southwind	Syngenta				81.8			
Underwood	Dyna-Gro				80.2			
PlainsGold Avery	Colorado St.				80.1			
WB 4721	Monsanto				78.9			
HRX1652	Dyna-Gro				78.0			
CPLN 15-14	Croplan				71.9			
Weathermaster 135§	Unknown				62.9			
Avg. yield, varieties in this report		65.8	71.3	80.8	77.3	79.1	76.5	73.8
Individual year trial avg. (all entries)		65.0	70.7	80.3	77.3	78.8	76.1	73.3
Average yield of Pick varieties		69.0	75.1	82.7	80.0	81.3	79.3	76.7
Average yield of non-Pick varieties		64.1	69.6	79.7	76.6	78.2	75.3	72.5
Yield increase of Pick varieties		8%	8%	4%	4%	4%	5%	6%
# of test sites per reporting period		5	3	4	6	10	13	18
# of varieties		40	40	40	40	33	28	18

Irrigated Pick varieties: ^Ffull irrigation; ^Llimited irrigation.

†Clearfield herbicide tolerant wheat; ‡Historical check released in the 1970s; §Beardless.

Table 6. Multi-year Dryland Wheat Variety Trial Yields, 2012 & 2014-2016, Texas & NM High Plains.

Variety		2012	2014	2015	2016	2-Year	3-Year	3Yr w/ '12
Bold are 2016 Picks	Developer	Annual Bushels per Acre Average				Multi-year Bu/A Average		
Winterhawk	Monsanto	40.1	21.5	36.4	36.6	36.5	Data from 2014 is not included in multi-year averages due to only one harvested location as other sites failed due to drought & spring freezes.	37.7
TAM 204§	Texas A&M	39.2	20.2	36.7	35.5	36.1		37.1
T158	Limagrain	37.3	22.1	34.0	37.2	35.6		36.1
TAM 114	Texas A&M	36.4	23.7	33.1	37.1	35.1		35.5
Greer	Syngenta	36.4	20.5	33.7	38.8	36.2		36.3
Duster	Okla. St.	35.9	23.1	34.4	35.2	34.8		35.2
Iba	Okla. St.	37.9	18.6	35.8	35.4	35.6		36.4
TAM 112	Texas A&M	36.5	21.1	32.7	37.1	34.9		35.4
WB Cedar	Monsanto	40.7	17.4	35.5	31.0	33.2		35.7
TAM 304	Texas A&M	39.2	15.2	35.5	34.3	34.9		36.3
TAM 111	Texas A&M	37.0	16.6	35.2	35.4	35.3		35.8
TAM 113	Texas A&M	36.1	15.7	32.5	38.5	35.5		35.7
Ruby Lee	Okla. St.	39.4	17.0	33.4	30.5	30.5		34.5
TAM 305	Texas A&M	32.5	14.7	38.8	35.5	37.1		35.6
SY Llano	Syngenta	32.4	12.7	37.6	34.9	36.2		35.0
Endurance	Okla. St.	37.5	14.9	33.2	31.8	32.5	34.2	
TAM 401§	Texas A&M	31.0	13.4	38.3	31.5	34.9	33.6	
TAM W-101‡	Texas A&M	30.2	19.8	32.2	28.1	30.2	30.2	
WB Grainfield	Monsanto		26.3	38.6	37.7	38.2	See above.	
LCS Mint	Limagrain		29.4	34.8	40.0	37.4		
WB 4458	Monsanto		23.7	34.8	38.0	36.4		
PlainsGold Byrd	Colorado St.		22.9	32.5	40.0	36.2		
PlainsGold Denali	Colorado St.		30.7	33.4	39.0	36.2		
SY Monument	Syngenta		25.1	34.8	37.4	36.1		
LCS Wizard	Limagrain		19.0	34.8	35.7	35.3		
PI-Gold Brawl CL Plus†	Colorado St.		25.2	33.7	36.8	35.2		
SY Drifter	Syngenta		18.1	34.1	34.6	34.3		
WB Redhawk	Monsanto		20.4	33.0	32.9	33.0		
Bentley	Okla. St.			37.4	40.8	40.8		
SY Grit	Syngenta			35.4	37.2	36.3		
Doublestop CL†	Okla. St.			34.0	37.1	35.6		
Kan Mark	Kansas St.			32.8	37.7	35.3		
Gallagher	Okla. St.			36.1	34.6	34.6		
HRX1652	Dyna-Gro				39.5			
WB 4721	Monsanto				39.1			
SY Southwind	Syngenta				37.8			
Underwood	Dyna-Gro				35.0			
CPLN 15-14	Croplan				34.9			
PlainsGold Avery	Colorado St.				34.3			
Weathermaster 135§	Unknown				32.1			
Avg. yield, varieties in this report		36.4	20.3	34.8	35.9	35.4	*	35.7
Individual year trial avg. (all entries)		35.1	20.2	34.8	35.9	35.4	*	35.3
Average yield of Pick varieties		37.3	20.7	34.8	36.9	35.8	*	36.3
Average yield of non-Pick varieties		34.5	20.1	34.8	35.7	35.2	*	35.0
Yield increase of Pick varieties		8%	3%	0%	3%	2%	*	4%
# of test sites per reporting period		3	1	5	6	11	12	14
# of varieties		40	40	40	40	33	28	18

†Clearfield herbicide tolerant wheat; ‡Historical check released in the 1970s; §Beardless.

Table 7. Multi-year Irrigated Wheat Variety Trial Test Wts., 2012 & 2014-2016, Texas & NM High Plains.

Variety		2012	2014	2015	2016	2-Year	3-Year	4-Year
Bold are 2016 Picks	Developer	Annual Average Test Weight, Lbs./Bu				Multi-year Avg. T.W., Lbs./Bu		
TAM 114^{FL}	Texas A&M	60.4	60.0	60.8	59.0	59.9	59.9	60.1
Winterhawk^{FL}	Monsanto	60.1	59.8	60.8	58.3	59.6	59.7	59.8
SY Llano	Syngenta	58.8	59.6	60.7	59.6	60.2	60.0	59.7
Iba^{FL}	Okla. St.	60.0	59.9	59.9	58.5	59.2	59.4	59.6
TAM 111^L	Texas A&M	59.8	60.4	58.0	59.1	58.6	59.2	59.3
TAM 112^L	Texas A&M	59.2	59.4	58.9	59.6	59.3	59.3	59.3
TAM 305	Texas A&M	59.1	58.5	60.1	58.6	59.3	59.0	59.1
TAM 113^{FL}	Texas A&M	59.0	59.6	59.6	57.6	58.6	59.0	59.0
T158^L	Limagrain	59.1	58.9	59.5	58.2	58.9	58.9	58.9
Duster	Okla. St.	58.8	58.9	59.9	57.6	58.8	58.8	58.8
Ruby Lee	Okla. St.	58.7	58.5	59.3	58.3	58.8	58.7	58.7
WB Cedar	Monsanto	57.9	57.2	59.3	57.6	58.5	58.0	58.0
Endurance	Okla. St.	58.4	58.1	57.7	57.6	57.6	57.8	58.0
TAM W-101‡	Texas A&M	58.4	59.1	57.4	56.5	57.0	57.7	57.9
TAM 401§	Texas A&M	58.0	57.1	57.9	56.2	57.1	57.1	57.3
Greer	Syngenta	56.2	56.8	58.9	57.0	57.9	57.6	57.2
TAM 204§	Texas A&M	57.6	57.3	56.8	56.5	56.6	56.9	57.0
TAM 304^F	Texas A&M	56.7	56.5	56.5	56.1	56.3	56.4	56.5
SY Drifter	Syngenta		59.3	60.6	59.3	59.9	59.7	
LCS Mint	Limagrain		59.8	60.2	58.0	59.1	59.3	
PlainsGold Denali	Colorado St.		60.1	58.9	58.8	58.8	59.3	
LCS Wizard	Limagrain		59.3	60.0	57.8	58.9	59.0	
WB Grainfield^{FL}	Monsanto		59.1	59.9	57.9	58.9	59.0	
WB Redhawk	Monsanto		58.7	58.1	57.9	58.0	58.2	
PI-Gold Brawl CL Plus †	Colorado St.		59.2	59.0	56.4	57.7	58.2	
SY Monument	Syngenta		57.5	59.3	57.4	58.3	58.1	
WB 4458	Monsanto		58.2	59.5	56.5	58.0	58.1	
PlainsGold Byrd	Colorado St.		59.1	56.9	57.6	57.3	57.9	
Doublestop CL†	Okla. St.			60.5	58.8	59.7		
Kan Mark	Kansas St.			60.1	58.7	59.4		
Gallagher	Okla. St.			59.8	57.6	58.7		
SY Grit	Syngenta			59.0	58.1	58.6		
Bentley	Okla. St.			59.1	56.7	57.9		
WB 4721	Monsanto				58.7			
PlainsGold Avery	Colorado St.				58.4			
Underwood	Dyna-Gro				58.2			
HRX1652	Dyna-Gro				57.0			
SY Southwind	Syngenta				56.8			
CPLN 15-14	Croplan				55.6			
Weathermaster 135§	Unknown				55.3			
Avg. Test Wt., varieties in this report		58.7	58.8	59.2	57.7	58.5	58.6	58.6
Individual year trial avg. (all entries)		58.3	58.9	59.2	57.7	58.5	58.6	58.5
Average test wt. of Pick varieties		59.3	59.3	59.3	58.3	58.8	59.0	59.1
Average test wt. of non-Pick varieties		58.0	58.8	59.2	57.6	58.4	58.5	58.4
Test wt. increase of Pick varieties		2%	1%	0%	1%	1%	1%	1%
# of test sites per reporting period		5	3	4	6	10	13	18
# of varieties		40	40	40	40	33	28	18

Irrigated Pick varieties: ^Ffull irrigation; ^Llimited irrigation.

†Clearfield herbicide tolerant wheat; ‡Historical check released in the 1970s; §Beardless.

Table 8. Multi-year **Dryland** Wheat Variety Trial Test Wt., 2012 & 2014-2016, Texas & NM High Plains.

Variety		2012	2014	2015	2016	2-Year	3-Year	3Yr w/ '12
Bold are 2016 Picks	Developer	Annual Average Test Weight, Lbs./Bu				Multi-year Avg. T.W., Lbs./Bu		
Winterhawk	Monsanto	59.9	58.5	56.8	59.4	58.1	Data from 2014 is not included in multi-year averages due to only one harvested location as other sites failed due to drought & spring freezes.	58.7
Iba	Okla. St.	59.7	58.8	55.3	59.6	57.4		58.2
TAM 114	Texas A&M	57.9	58.3	56.5	59.6	58.1		58.0
SY Llano	Syngenta	56.7	58.6	56.2	60.4	58.3		57.8
TAM 113	Texas A&M	58.3	59.0	54.9	58.9	56.9		57.4
TAM 111	Texas A&M	58.7	58.7	54.2	59.2	56.7		57.4
Ruby Lee	Okla. St.	57.7	57.6	55.9	58.3	57.1		57.3
TAM 112	Texas A&M	58.7	58.6	54.4	58.7	56.5		57.3
TAM 305	Texas A&M	57.2	56.7	55.3	58.4	56.8		57.0
Duster	Okla. St.	57.9	56.8	53.8	58.6	56.2		56.8
T158	Limagrain	56.6	57.1	54.2	59.3	56.7		56.7
TAM W-101‡	Texas A&M	57.2	57.0	54.9	57.7	56.3		56.6
Endurance	Okla. St.	56.4	56.4	52.8	58.1	55.5		55.8
TAM 204§	Texas A&M	55.7	55.7	53.4	56.6	55.0		55.2
WB Cedar	Monsanto	55.7	54.4	51.8	58.1	55.0		55.2
TAM 401§	Texas A&M	54.5	55.1	53.1	56.7	54.9	54.8	
Greer	Syngenta	53.4	55.9	53.5	56.7	55.1	54.5	
TAM 304	Texas A&M	53.3	55.0	52.1	56.0	54.1	53.8	
PlainsGold Denali	Colorado St.		59.4	56.0	59.2	57.6	See above.	
LCS Mint	Limagrain		58.9	55.7	59.3	57.5		
Pl-Gold Brawl CL Plus†	Colorado St.		58.0	56.4	58.4	57.4		
PlainsGold Byrd	Colorado St.		57.2	56.2	57.9	57.1		
SY Drifter	Syngenta		58.4	54.8	59.2	57.0		
LCS Wizard	Limagrain		57.5	55.1	58.9	57.0		
SY Monument	Syngenta		57.0	55.0	58.0	56.5		
WB 4458	Monsanto		57.0	54.1	57.8	55.9		
WB Grainfield	Monsanto		57.8	53.5	57.9	55.7		
WB Redhawk	Monsanto		57.0	53.3	56.8	55.1		
Doublestop CL†	Okla. St.			55.5	59.7	57.6		
Kan Mark	Kansas St.			55.4	59.1	57.3		
Gallagher	Okla. St.			54.4	58.0	56.2		
Bentley	Okla. St.			53.7	57.3	55.5		
SY Grit	Syngenta			53.3	57.7	55.5		
WB 4721	Monsanto				59.7			
SY Southwind	Syngenta				58.3			
Underwood	Dyna-Gro				58.1			
PlainsGold Avery	Colorado St.				57.9			
HRX1652	Dyna-Gro				57.8			
Weathermaster 135§	Unknown				57.4			
CPLN 15-14	Croplan				57.4			
Avg. Test Wt., varieties in this report		57.0	57.4	54.6	58.3	56.5	*	56.6
Individual year trial avg. (all entries)		56.8	58.9	54.6	58.3	56.5	*	56.6
Average test wt. of Pick varieties		58.5	58.4	55.0	59.1	57.0	*	57.5
Average test wt. of non-Pick varieties		56.4	59.0	54.5	58.1	56.3	*	56.3
Test wt. increase of Pick varieties		4%	-1%	1%	2%	1%	*	2%
# of test sites per reporting period		3	1	5	6	11	12	14
# of varieties		40	40	40	40	33	28	18

†Clearfield herbicide tolerant wheat; ‡Historical check released in the 1970s; §Beardless.

Table 9. Texas 2016 Hard Wheat Characteristics¹

Variety	Company	First Year Sold	Maturity Group	Height (in) ²	Leaf Rust	Stripe Rust	Stem Rust	Septoria Leaf Blotch	Powdery Mildew	Wheat Streak Mosaic	Barley Yellow Dwarf	Greenbug	Hessian Fly
Armour	Monsanto	2008	Med Early	25	MR	S	R	MR	MR	S	MS	S	MS
Bentley	OSU	2016	-	-	MR	MR	-	-	MS	-	-	-	-
Billings	OSU	2009	Early	25	MR	MR	R	MR	MS	S	MR	S	MS
CJ	Syngenta	2011	Medium	30	S	R	R	-	R	-	-	-	-
Coronado	Syngenta	1994	Medium	28	S	MS	R	-	MS	-	-	S	MR
CPLN 15-14	Croplan	2016	-	-	MR	MS	-	-	MS	-	-	-	-
Doans	Syngenta	2007	Medium	27	MR	R	R	MR	MR	-	-	S	S
Duster	OSU	2006	Med Early	30	R	MS	R	MS	MR	S	MR	S	R
Doublestop CL	OSU	2013	Late	32	MS	R	R	-	R	-	-	-	-
Endurance	OSU	2004	Medium	31	MS	MS	R	MS	MR	S	MR	S	MS
Fannin	Syngenta	2005	Early	27	MS	MR	R	-	R	-	-	S	S
Gallagher	OSU	2013	Medium	29	MR	R	MR	-	MR	-	-	-	R
Greer	Syngenta	2010	Medium	29	S	MR	R	-	S	-	-	-	-
Iba	OSU	2013	Medium	30	R	MR	R	-	MR	-	-	-	-
Jackpot	Syngenta	2008	Medium	26	S	MR	MR	-	MS	-	MS	S	S
KanMark	KSU	2014	-	-	R*	MS*	MR*	-	S*	MS*	MS*	-	S*
LCS Mint	Limagrain	2012	Med Late	32	S	MR	R	-	MS	-	-	-	-
LCS Pistol	Limagrain	2016	Med Early*	-	MR*	MR*	S*	-	MR*	MS*	MR*	-	MS*
LCS Wizard	Limagrain	2012	Med Late	29	R	MS	MS	-	R	-	-	-	R
Long Branch	Dyna-Gro	2016	-	-	MR	MR	-	-	R	-	-	-	-
PlainsGold Avery	PlainsGold	2016	Medium*	-	MS*	MS*	-	-	-	-	-	-	-
PlainsGold Drawl	PlainsGold	2011	Medium	30	MS	MS	MS	-	MS	-	-	-	-
PlainsGold Byrd	PlainsGold	2011	Medium	31	S	S	S	-	MR	-	-	-	-
PlainsGold Denali	PlainsGold	2011	Medium	31	S	MS	R	-	MS	-	-	-	-
Ruby Lee	OSU	2011	Medium	32	MS	MS	R	-	MS	-	-	-	MS
SY Drifter	Syngenta	2015	-	30	R	MR	-	-	MR	-	-	-	-
SY Grit	Syngenta	2016	-	-	MR	R	R	-	MS	-	-	-	-
SY Llano	Syngenta	2015	Early*	27	MS	MR	-	-	MS	-	-	-	-
SY Monument	Syngenta	2015	Med Late*	29	MR	MR	-	-	MS	-	MR	-	-
SY Razor	Syngenta	2014	Medium	35	R	R	-	-	R	-	-	-	-
SY Southwind	Syngenta	2016	-	-	R	MR	R	-	MS	-	-	-	-
T158	Limagrain	2009	Medium	28	MS	MR	MS	-	MR	MS	-	-	-
TAM 111	TAMU	2003	Medium	31	S	S	R	MR	MR	MS	MS	S	MS
TAM 112	TAMU	2005	Med Early	30	S	S	R	MR	R	MR	MS	R	S
TAM 113	TAMU	2012	Medium	30	R	R	R	-	MS	MS	-	-	-
TAM 114	TAMU	2014	Medium	30	MR	R	R	-	MR	MS	-	S	MR
TAM 204	TAMU	2014	Medium	29	MS	MR	R	-	MR	MR	-	R	R
TAM 304	TAMU	2007	Med Early	27	R	MR	R	-	MR	MS	MS	S	MS
TAM 305	TAMU	2013	Med Early	28	R	R	R	-	MR	-	-	-	-
TAM 401	TAMU	2008	Early	31	MR	R	R	-	MR	MS	-	S	S
TAM W-101	TAMU	1971	Med Late	29	MS	MS	R	-	S	-	-	-	-
Underwood	Dyna-Gro	2016	-	-	MR	MR	-	-	MS	-	-	-	-
WB Cedar	Monsanto	2011	Early	26	R	MR	R	-	MR	-	-	-	-
WB Grainfield	Monsanto	2013	Medium	31	MR	R	R	-	MS	-	-	-	-
WB Redhawk	Monsanto	2013	Medium	30	R	S	R	-	MS	-	-	-	-
WB 4303	Monsanto	2016	-	-	R	MS	-	-	S	-	-	-	-
WB 4458	Monsanto	2013	Med Early	30	MS	MR	R	-	MS	-	-	-	-
WB 4515	Monsanto	2016	-	-	R	MR	MR	-	MR	-	-	-	-
WB 4721	Monsanto	2016	-	-	-	-	-	-	-	-	-	-	-
Weathermaster 135	Unknown	Unknown	Medium	27	MR	MS	S	-	MS	-	-	-	-
Winterhawk	Monsanto	2007	Medium	30	MS	MR	S	-	MS	-	-	-	-

¹S-Susceptible, MS-Moderately Susceptible, MR-Moderately Resistant, R-Resistant. ALL ratings subject to re-evaluation.

²Heights are an average across the Texas Panhandle in 2014. *Indicates rating NOT observed in Texas, but from marketer's ratings.