

Grain Variety Picks for Texas High Plains, 2020-2021 & Texas High Plains Wheat Production Summary, 2019-2020

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2019-2020 Cropping Season in Review

Variable rainfall in August and September resulted in varying planting conditions across the Texas High Plains. Some fields were planted with replenished soil moisture while other fields were dry sowed. October 2019 rains delivered valuable moisture for the region's wheat crop. There was minimal winter precipitation through the central and northern Panhandle resulting in another dry winter. A prolonged winter drought resulted in many producers pulling cattle off dryland wheat pasture early due to a lack of forage; however, irrigated fields were grazed past first hollow stem or grazed out to optimize gain on wheat pasture as a result of the Spring 2020 cattle market. Dryland fields benefited from March rain. The region continued to see an increase in wheat planted for wheat silage (wheatlage). April freezes resulted in varying degrees of injury to regional wheat fields. Injury was most evident on early planted fields planted with earlier maturing varieties in the central and southwestern production region; however, prolonged periods below 24°F when wheat was jointing also resulted in damage across the northern High Plains production area NW of Amarillo. Conditions rapidly changed in late April. Above average temperatures through May and June drove the crop water demand resulting in water stress in both dryland and limited irrigated fields during anthesis through grain fill. Because of warm, dry conditions, disease pressure was minimal during late spring. Hailstorms across the region resulted in significant hail injury to many regional wheat fields. Even with extreme environmental conditionals, yields were above the long-term average in many areas. Dryland yields ranged 20 to 50 bu/ac, and irrigated yields ranged from 20 to 95 bu/ac depending on variety, irrigation capacity, and precipitation timing and amount.

Wheat Grain Variety “Picks” for 2019-2020

Continuing a long-time tradition, ongoing Picks criteria include a minimum of three years of irrigated or dryland data in Texas A&M AgriLife regional variety trials across numerous annual locations. Furthermore, a “Pick” variety can be described as: “Varieties that we would choose to include and emphasize on our farm for wheat grain production given the 3-year performance and variety characteristics.” It is important to note that this list only includes varieties designated for grain or dual-purpose. Varieties that are used primarily for grazing and forage are not listed on this “Grain Variety Picks” list.

Picks are not necessarily the numerical top yielders as milling and baking quality, important disease resistance traits (leaf or stripe rust, wheat streak mosaic virus), insect resistance (greenbugs, wheat curl mite, and Hessian fly), or standability can also be important varietal traits that enable a producer to

better manage potential risk. Varieties placed on our Watch List show promise but insufficient data (most likely just two years) is available to make a conclusion.

Table 1. Texas A&M AgriLife wheat grain variety Picks for the Texas High Plains based on yield performance and consistency from 22 irrigated and dryland trials harvested in 2018-2020 primarily in the Texas Panhandle (northern Texas High Plains). Leaf rust and stripe rust reactions are included (see footnote).

Wheat Variety "Picks", Texas High Plains. 2020-2021		
Full Irrigation[‡]	Limited Irrigation	Dryland
		TAM 112 (S/S)
TAM 113 (R/R) [§]	TAM 113	TAM 113
TAM 114 (MR/R)	TAM 114	TAM 114
TAM 205 (R/R)	TAM 115	TAM 115
CP7869 (R/R)	CP7869	CP7869
Winterhawk (MS/MR)	Winterhawk	Winterhawk
		WB 4721 (R/MR)
		T158 (MR/MS)
Wheat Variety "Watch" List, Texas High Plains. 2020-2021		
TAM 115 (R/R)	TAM 205	TAM 205
SY Monument (R/R)	SY Monument	
SY Wolverine (MS/R)	SY Wolverine	SY Wolverine
CP 7010 (MR/MS)	CP 7010	CP 7010
WB 4792 (MS/MS)	WB 4792	WB 4792

[‡]Full irrigation in the Texas High Plains reflects a production system that also is oriented to ample nitrogen fertilizer applications and likely fungicide application(s) for leaf rust and stripe rust even when infection is minimal or even preventative applications before infestation.

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

Changes in the High Plains Picks

TAM 115 is a new, large seeded variety on the 2020-2021 Limited Irrigated and Dryland Picks Lists. It has a solid 3-year history in the High Plains Uniform Variety trials especially in the limited irrigated and dryland trials. TAM 115 is a dual-purpose variety with very good milling and baking quality that is resistant to leaf rust, stripe rust, stem rust, green bug, and wheat curl mite with excellent drought tolerance. Wheat curl mite resistance conveys resistant to wheat streak mosaic virus. It has shown to maintain yield in water limited conditions, and in many instances, it exceeds a regional favorite TAM 112. TAM 115 is on the 2020-2021 Irrigated Watch List. **TAM 205** is a new addition to the 2020-2021 Irrigated Picks List. It has shown stable yield during the 3-years evaluated in the uniform variety trials

as well as in TAMU breeding nurseries. It is a dual-purpose variety with a high top-end yield potential, good test weights, very good end-use quality, and good fall forage production. It is resistant to leaf rust, stripe rust, and stem rust. It is also resistant to wheat streak mosaic virus and soil-borne wheat mosaic virus. It performed very well in the irrigated trials. It is on the 2020-2021 Watch Lists. **TAM 112** has been removed from the limited irrigated Picks Lists because TAM 115 also has drought tolerance and wheat curl mite resistance but with an improved yield potential. It remains on the Dryland Picks list because of its' drought tolerance and resistance to the wheat curl mite.

Croplan CP7869 remains of the 2020-2021 Picks List because of its' solid performance. It is well adapted for both irrigated and dryland conditions. In all years, it has been a top-yielding variety with good test weights, straw strength, and a leaf disease package (good resistance to leaf, stem, and stripe rust). **Syngenta Monument** has been moved to the Watch List because it did not perform as well in 2019-2020 as in previous years. **Syngenta Wolverine** is a new addition to the 2020-2021 Watch List. Wolverine is a 2019 AgriPro release that was previously evaluated in Texas A&M AgriLife trials as (08BC379-40-1). It has been a top yielder in the High Plains Uniform Variety irrigated trials for the last 2 years with good test weights. It is resistant to stripe rust and tolerant to leaf rust. It is a high tillering variety noted for good drought tolerance. **Westbred WB4792** has also been added to the Watch List. It was a 2018 release that has been a top yielder in the High Plains Uniform Variety irrigated and dryland trials for the last two years with good test weights.

TAM 113 remains on the list because of solid grain performance, end use quality, forage potential, and ability to emerge under stressful conditions. It has resistance to stripe, leaf, and stem rusts. **TAM 114** remains on the list because of solid grain performance, excellent milling and baking quality, and forage potential under irrigated and dryland conditions. It tolerates heavy grazing and is resistant to stripe, leaf, and stem rust. **Winterhawk and Westbred WB4721** have continued performed well in the past 5+ years Texas High Plains production. **Dynagro Long Branch** was dropped because it was not evaluated in 2019-2020. It has a good grain yield potential, but baking properties are not as good as other varieties. **Limagrain T158** remains on the dryland list because of continued good performance under dryland conditions.

The 2020-2021 wheat grain variety "Picks" for the Texas High Plains have been designated based on 2019-2020 irrigated and dryland Uniform Variety Trials in the Panhandle (Northern Texas High Plains); 2018-2019 irrigated and dryland Uniform Variety Trials in the Panhandle and at the NMSU Research Center at Clovis; and 2017-2018 irrigated and dryland Uniform Variety Trials in the Panhandle, South Plains, and at the NMSU Research Center at Clovis.

TEXAS ROLLING PLAINS PICKS LIST FOR 2020-2021

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2019-2020 Cropping Season in Review

Texas Rolling Plains wheat season started with hot and dry conditions in the fall 2019. Soil temperature was not optimum for planting wheat until the first week of October. Dry months continued to the end of December, which reduced winter forage productivity throughout the Texas Rolling Plains. Dryland wheat gradually improved with the spring precipitation during January to March. Late-freezes in mid-April resulted in the freeze injury in many wheat fields across the region. Furthermore, golf-size hail hit spotted areas in the region in early May, which again resulted in the reduced yield potential. Leaf and strip rust pressures were lower than average. There were some reports of loose smut disease of wheat.

Among the three UVT sites (Abilene, Haskell, and Chillicothe), Chillicothe trial were affected by the mid-April freeze and the early-May hailstorm. Low test weight at the Chillicothe site may be caused by the combination among the freeze, drought, and heat stresses. Average grain yields among all varieties and three dryland locations (Abilene, Haskell, and Chillicothe) were 35.2 bu/ac in 2018, and 47.1 bu/ac in 2019, and 44.5 bu/ac in 2020 in the Texas Rolling Plains. Variety trial results for each trial site are available at Texas Rolling Plains Agronomy Website at <https://agrilife.org/txrollingplainsagronomy/wheat-3/> and Texas A&M AgriLife Variety testing website at <http://varietytesting.tamu.edu/wheat/>.

Wheat Picks and Watch Varieties for 2020-2021 Growing Season in the Rolling Plains

Grain-only

The AgriLife Extension wheat Picks variety was selected based on the Texas Rolling Plains Uniform Variety Trial (UVT) at Chillicothe, Haskell, and Abilene, coordinated by the AgriLife Research and Extension personnel. Our ongoing Picks criteria include a minimum of three years of data in Texas A&M AgriLife Rolling Plains wheat variety trials across multiple 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 over all trials.

Dual-purpose

Texas Rolling Plains dual-purpose variety trials were conducted at Wilbarger, Foard, and Haskell county. Watch varieties were selected based on the forage and grain yield. Dual-purpose watch varieties are discussed at Texas Rolling Plains Agronomy YouTube channel at <https://www.youtube.com/playlist?list=PLQeRtwVwL1DNzYrU8wnpn4AcbqO2du2z2>.

Table 1. Texas A&M AgriLife wheat grain Picks varieties for the Texas Rolling Plains for 2020-2021 growing season.

	Pick's list (Leaf rust/Stripe rust) ¹	Release	3-year average ²	2020 average
1	TAM 205 (R/R) New!	TAMU	44.5	45.1
2	TAM 114 (MR/R)	TAMU	43.6	47.2
3	WB 4515 (-*/-) New!	Westbred	43.6	46.6
4	WB 4269 (MS/MR)	Westbred	43.4	47.5
5	SY Grit (S/R)	Syngenta	43.3	46.1
Trial average			39.2 bu/ac	44.5 bu/ac

¹Leaf rust/stripe rust resistance ratings: R, Resistant; MR, moderately resistant; MS, moderately susceptible; and S, susceptible. ²2017/2018-2019/2020 years among dryland trials at Chillicothe, Haskell, and Abilene. *Indicates that the rating was not collected from the Texas Rolling Plains trials due to low disease pressures.

Table 2. Texas A&M AgriLife wheat grain Watch varieties for the Texas Rolling Plains for 2020-2021 growing season.

	Pick's list (Leaf rust/Stripe rust) ¹	Release	2-year average ²	2020 average
1	WB 4699 (-*/-) New!	Westbred	53.3	47.0
2	Bob Dole (-/-) New!	Syngenta	50.8	46.0
3	Green Hammer (-/R) New!	OSU	50.1	45.5
4	Showdown (-/MR) New!	OSU	49.6	45.4
Trial average			46.7 bu/ac	44.5 bu/ac

¹Leaf rust/stripe rust resistance ratings: R, Resistant; MR, moderately resistant; MS, moderately susceptible; and S, susceptible. ²2018/2019-2019/2020 years among dryland trials at Chillicothe, Haskell, and Abilene. *Indicates that the rating was not collected from the Texas Rolling Plains trials due to low disease pressures.

Table 3. Texas A&M AgriLife wheat dual-purpose Watch varieties for the Texas Rolling Plains for 2020-2021 growing season.

	Watch list (Leaf rust/Stripe rust) ¹	Release	Forage DM 2-year average	Grain 2-year average
1	WB 4792 (-*/MS)	Westbred	109%	121%
2	WB 4595 (-/MS)	Westbred	94%	134%
3	Green Hammer (-/R)	OSU	111%	103%
4	TAM 114 (MR/R)	TAMU	113%	89%
5	Smith's Gold (-/MR)	OSU	106%	92%
Test Average			1370 lb/ac	33.9 bu/ac

¹Leaf rust/stripe rust resistance ratings: R, Resistant; MR, moderately resistant; MS, moderately susceptible; and S, susceptible. ²2018/2019-2019/2020 years among dryland trials at Wilbarger, Foard, and Haskell. *Indicates that the rating was not collected from the Texas Rolling Plains trials due to low disease pressures.

Changes in the Rolling Plains Grain Picks

Varieties kept from 2019-2020 Picks: TAM 114, SY Grit, and WB 4269. These varieties continued to perform excellent in the Texas Rolling Plains in terms of grain yield and disease resistance.

Varieties added for 2020-2021 Picks: TAM 205 and WB 4515. These varieties have performed well under dryland conditions in the Texas Rolling Plains and met the Picks criteria (top 25%).

Variety removed from 2019-2020 Picks: TAM 304, Gallagher, and LCS Chrome. These varieties performed relatively well as compared to other non-Picks varieties; however, they did not meet the top 25% criteria over 3-year trial average. WB 4721 was not available for purchase during 2019-2020 season for the Texas Rolling Plains growers. SY Drifter was not included in the 2019-2020 variety trial.

Texas Rolling Plains Dual-Purpose Picks

Dual-purpose Picks for 2020-2021 seasons are same as 2019-2020 year. The five varieties (WB 4792, WB 4595, Green Hammer, TAM 114, and Smith’s Gold) performed well over the past two years (2018/2019 and 2019/2020). Rust pressure was not high in two out of three trial locations; therefore, the rust rating found at <https://agrilife.org/txrollingplainsagronomy/wheat-3/> was taken from the Wilbarger trial site. Although the forage and grain yields of WB 4792 and WB 4595 were well above average, they were moderately susceptible to strip rust. To maintain the high forage and grain potential, make sure to use necessary fungicide applications.

Relative height for varieties tested in the Texas Rolling Plains

Taller													Shorter																	
<u>OK12912C</u>	Bob Dole	TAM 114	Showdown	Green Hammer	<u>TX15M8024</u>	TAM 115	LCS Valiant	WB 4792	SY Grit	WB 4515	Greer	WB 4721	LCS Chrome	WB 4595	Gallagher	TAM 205	<u>OCW04S71T-6W</u>	WB 4303	WB 4418	SY Flint	<u>TX14A001035</u>	<u>TX14V70214</u>	TAM 304	TAMW-101	<u>09BC308-14-16</u>	WB 4269	<i>Weathermaster 135</i>	TX14M7061	SY Rugged	WB 4699

Figure 1. Relative height for varieties in 2019-2020 UVT trials.

Height data were obtained at the end of season in Munday and Chillicothe UVT trials. Varieties are placed in order of relative height. Actual height can vary widely based on environmental condition and management practices (e.g., fertility).

Variety name with underline is an experimental line.

Italized variety names are awnless varieties.

Hard Red Winter Wheat Grain Variety Picks for the Blacklands and South Texas Regions, 2021-2022.

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Table 1. Texas A&M AgriLife winter wheat grain variety Picks for the Blacklands, 2021-2022 season. Picks based on yield performance and consistency from 15 dryland trials in the Blacklands harvested from 2019-2021.

Variety	Company
TAM 114	Adaptive Genetics
TAM 304	Scott Seed
Bob Dole	Syngenta
WB4699	WestBred
TAM 205	Adaptive Genetics

Table 2. Texas A&M AgriLife winter wheat grain variety Picks for South Texas, 2021-2022 season. Picks based on yield performance and consistency from 9 dryland and limited irrigated trials in South Texas harvested from 2019-2021.

Variety	Company
TAM 304	Scott Seed
Gallagher	OSU [†]

[†]Oklahoma State University