

2021-2022 Wheat Research Summary

Variety Evaluation and Selection

Cooperative Research Project

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**Prepared for Local Wheat Producers, the Texas Wheat Producers Board & Association,
Cereal Crops Research Inc., and the Agribusiness Industry**

July 21, 2022

Following is a summary of our 2021-2022 wheat research program. This work was made possible with funding provided by the Texas Wheat Producers Board, Cereal Crops Research Incorporated (CCRI), and the Agribusiness Industry.

Selecting the Best Wheat Varieties for Your Farm

Varietal selection is one of the most important decisions a wheat grower will make. The best adapted varieties can produce up to 50 percent more grain than the poorly adapted ones. In addition, bushel weights vary widely among varieties, and it is important to select varieties with both high yield potential and good bushel weights.

This summary is intended to assist in that decision making process. Pay particular attention to table 4, as it represents the performance of varieties over a five year period. Yield stability is the most important single factor in selecting varieties for your farm. Growing conditions vary widely from year to year, and the varieties that perform well over multiple years are the safest choices.

2021-2022 in Review

The 2021 fall growing conditions provided adequate moisture for timely planting from mid-October until mid-November. In December, minimum precipitation and cold temperatures slowed the progression of the wheat. The wheat continued to progress slowly with below normal rainfall and temperatures in January 2022. February 2022 brought us a little rain, ice and low temperatures. The wheat sustained minimal leaf tip burn. Hessian fly damage most likely impacted yields at the Howe site. Most of the growers produced yields averaging 60 to 70 bushels per acre. Area test weights were average and decreased with the presence of Hessian fly.

Stripe rust pressure was extremely low this growing season and leaf rust pressure was minimal with heaviest pressure at our Howe location presumably reducing test weight on the most susceptible varieties. Hessian fly was widespread this growing season and significant yield losses were observed in area fields. Annual ryegrass continued to be a challenging weed with abundant seedling emergence due to several years of wet fall and winter conditions. In-season dry and then cold temperatures also reduced the opportunities and efficacy of ryegrass selective herbicides.

None of the experiments in this summary were sprayed with a foliar fungicide. This phase of our program is intended to measure genetic resistance to foliar plant diseases.

In 2021-2022, we planted variety comparison studies in two locations: Howe and Greenville. We were able to successfully harvest both locations. Greenville was harvested on June 8th and Howe was harvested on June 14th.

This paper is divided into two sections. The first will address the performance and characteristics of soft red winter wheat varieties (SRWWs) in this region. The second section is a summary of the performance of soft red winter wheat varieties in comparison with selected hard red winter wheat varieties (HRWWs).

Table 1: Summary – Performance of Selected Soft Red Winter Wheat Varieties in Howe, Texas. 2022

Variety†	Head Type	Yield‡	Test Weight	Heading	Hessian Fly Stand	Plant Height	Stripe Rust Flag Leaf Infection	Leaf Rust Flag Leaf Infection	Forage
		bu/ac	lb/bu	Julian	0-10 ¹	inches	%	%	1-3 ²
Pioneer 25R74	Awne	85.6 a	54.1 k-o	108.0 mno	9.8 a	33.2 g-l	0.0 a	27.5 gh	2.2 ef
USG 3783	Awne	82.6 ab	54.4 klm	108.2 mno	7.7 g-j	32.8 f-k	0.0 a	19.7 c-h	2.5 cd
Dyna-Gro 9393	Awne	77.7 bc	54.7 jkl	108.2 mno	8.5 d-g	32.2 c-h	0.0 a	20.0 c-h	2.3 de
Blackland 2167 EXP	Awne	77.6 bcd	54.3 k-n	108.2 mno	8.3 d-h	31.7 b-f	0.0 a	12.7 a-f	2.3 de
Dyna-Gro 9002	Awne	77.3 bcd	52.5 qr	107.7 lmn	9.7 ab	34.2 l-o	0.0 a	15.0 b-g	2.1 fg
TX16DDH579	Awne	77.1 bcd	59.5 a	103.0 c	8.8 b-e	34.8 no	3.2 bcd	0.0 a	3.0 a
USG 3118	Awnletted	76.9 bcd	56.2 gh	104.8 ef	10.0 a	33.5 i-m	4.2 cd	0.0 a	2.7 bc
Go Wheat GW 6000	Awne	76.5 cde	57.3 def	102.0 b	8.2 e-i	33.3 h-l	0.0 a	21.7 d-h	2.9 a
AGS 2055	Awne	76.0 c-f	54.1 k-o	107.3 klm	8.2 e-i	34.8 no	0.8 ab	0.0 a	2.3 de
Go Wheat GW 2032	Awne	75.8 c-f	58.3 bc	98.5 a	9.2 a-d	31.0 bc	10.8 e	0.0 a	3.0 a
LANC 11558-33	Awne	74.6 c-g	57.6 cde	105.0 efg	9.5 abc	33.0 g-l	0.0 a	0.0 a	2.0 fgh
Blackland 2166	Awne	74.4 c-g	53.2 opq	110.2 qr	10.0 a	32.2 c-h	0.0 a	23.3 e-h	2.1 fg
USG 3895	Awne	72.9 c-h	53.5 m-p	108.3 no	6.2 kl	31.3 bcd	0.0 a	20.0 c-h	2.2 ef
AgriPro SY 547	Awnless	72.8 c-i	56.8 efg	104.2 de	7.8 f-j	38.5 r	0.8 ab	15.8 b-g	2.3 de
Dyna-Gro 9811	Awne	71.8 c-j	54.9 jkl	105.7 f-i	9.2 a-d	34.0 k-n	0.0 a	4.3 ab	2.3 de
TX18D3212	Awne	71.6 d-j	56.4 fgh	107.0 kl	7.8 f-j	32.7 e-j	0.0 a	0.0 a	2.8 ab
Dyna-Gro 9701	Awne	70.7 e-k	54.7 jkl	108.5 no	7.0 jk	36.3 pq	5.0 d	21.7 d-h	2.4 d
Dyna-Gro 9172	Awne	70.5 e-k	53.9 l-p	108.5 no	6.2 kl	32.8 f-k	0.0 a	43.3 ij	2.0 fgh
TX17D2337	Awne	70.3 f-k	56.6 fgh	105.8 ghi	8.7 c-f	32.0 c-g	1.2 ab	0.0 a	1.8 hi
Blackland 2175	Awne	70.3 f-k	55.1 ijk	106.8 jkl	6.3 kl	31.2 bcd	0.0 a	6.3 ab	2.2 ef
Pioneer 25R40	Awne	69.7 g-l	54.3 klm	111.8 s	6.3 kl	29.7 a	0.0 a	29.2 h	1.7 ij
USG 3472	Awne	69.6 g-l	53.3 n-q	108.5 no	6.2 kl	31.5 b-e	0.0 a	55.0 jk	2.0 fgh
USG 3536	Awne	68.8 g-l	54.5 klm	108.8 op	7.0 jk	36.3 pq	0.0 a	9.5 a-d	2.0 fgh
USG 3640	Awne	68.0 h-m	58.1 bcd	103.0 c	7.5 hij	33.8 j-n	23.3 f	0.0 a	3.0 a
Dyna-Gro WX20738	Awne	67.2 h-n	53.0 pq	105.3 fgh	7.3 ij	35.3 op	0.0 a	5.8 ab	2.4 d
Blackland 2034	Awne	66.7 i-n	54.0 l-p	108.0 mno	5.5 l-o	32.8 f-k	0.0 a	58.3 k	1.7 ij
AGS 2024	Awne	65.8 j-o	58.9 ab	103.0 c	7.0 jk	30.7 ab	29.2 g	11.7 a-e	3.0 a
AgriMaXX 492	Awne	65.4 k-o	57.3 def	104.3 de	6.0 lm	34.7 mno	0.0 a	0.0 a	2.1 fg
Blackland 2174	Awne	63.8 l-o	55.9 ghi	106.0 hij	5.2 m-p	33.3 h-l	0.0 a	20.8 c-h	2.4 d
Dyna-Gro 9120	Awne	62.1 m-p	56.0 ghi	108.0 mno	5.7 l-o	32.8 f-k	0.0 a	61.7 k	2.0 fgh
USG 3352	Awne	61.3 n-q	53.3 n-q	110.7 r	4.3 pq	33.2 g-l	1.7 abc	32.5 hi	1.6 j
AGS 2038	Awne	60.6 opq	57.9 cd	106.5 ijk	5.5 l-o	37.7 r	0.0 a	0.0 a	3.0 a
AgriPro SY Richie	Awnless	59.9 opq	55.9 ghi	103.5 cd	4.2 q	33.5 i-m	0.0 a	8.3 abc	1.9 gh
AgriPro SY 747	Awne	56.6 pqr	49.1 s	108.7 op	5.8 lmn	32.3 d-i	0.0 a	90.0 l	1.6 j
AgriPro SY Viper	Awnless	56.2 pqr	55.6 hij	106.5 ijk	4.8 opq	37.3 qr	0.0 a	58.3 k	1.6 j
Blackland 2184	Awne	55.5 qr	51.5 r	111.0 rs	5.0 n-q	31.3 bcd	0.0 a	25.0 fgh	1.6 j
USG 3329	Awne	53.6 r	51.8 r	109.5 pq	5.7 l-o	34.8 no	0.8 ab	58.3 k	1.7 ij
	LSD (P = .05)	6.09	1.02	0.91	0.98	1.23	2.67	13.26	0.22
	CV (%)	7.69	1.62	0.75	11.98	3.24	107.17	55.49	8.47
	GRAND MEAN	69.56	55.09	106.73	7.19	33.42	2.19	20.97	2.23

†Ranked According to Yield

‡Yield Adjusted to 13% Standard Moisture

Date Planted: October 30, 2021

Date Harvested: June 14, 2022

¹Hessian Fly Stand Assessment Scale (based on broken stems from Hessian fly damage throughout whole plot): 0 – No Stand, 10 – 100% Stand

²Forage Scale: 1 – less upright growth; thin leaf blade, 2 – moderate upright growth & leaf blade, 3 – excellent upright growth, wide leaf blade

Table 2: Summary – Performance of Selected Soft Red Winter Wheat Varieties in Greenville, Texas. 2022

Variety†	Head Type	Yield‡	Test Weight	Heading	Stand	Plant Height	Stripe Rust Flag Leaf Infection	Leaf Rust Flag Leaf Infection	Forage
		bu/ac	lb/bu	Julian	0-10 ¹	inches	%	%	1-3 ²
Dyna-Gro 9393	Awned	93.5 a	58.4 e-k	111.3 ijk	7.7 abc	30.8 b-i	0.0 a	1.0 abc	2.3 a-e
USG 3472	Awned	93.0 ab	58.5 d-k	111.3 ijk	7.8 ab	32.7 k-o	0.0 a	0.8 abc	2.0 c-g
USG 3783	Awned	92.1 abc	58.3 e-k	111.3 ijk	7.7 abc	30.0 a-d	0.0 a	1.5 abc	2.3 a-d
Dyna-Gro WX20738	Awned	92.1 abc	56.7 kl	108.8 efg	6.8 b-h	33.2 nop	0.0 a	0.0 a	2.3 a-d
Blackland 2167 EXP	Awned	90.8 abc	58.0 f-k	111.3 ijk	7.5 a-d	30.5 a-g	0.0 a	1.3 abc	2.1 c-f
Dyna-Gro 9120	Awned	90.8 abc	61.3 ab	111.0 ij	7.3 a-e	31.2 c-j	0.0 a	3.0 c	1.9 d-h
AgriPro SY 747	Awned	90.3 a-d	54.1 m	111.5 ijk	7.7 abc	31.3 d-k	0.0 a	11.3 d	1.6 ghi
USG 3895	Awned	89.9 a-e	56.6 kl	110.8 ij	7.0 a-g	29.8 abc	0.0 a	0.3 ab	1.7 f-i
TX17D2337	Awned	89.6 a-e	60.4 bcd	109.3 fg	6.5 d-i	31.8 g-n	0.0 a	0.0 a	1.8 e-h
Go Wheat GW 6000	Awned	89.1 a-f	58.4 e-k	106.2 bc	6.3 e-i	33.0 mno	0.0 a	1.3 abc	2.3 a-d
TX16DDH579	Awned	88.2 a-g	62.9 a	108.5 ef	7.2 a-f	35.3 rs	0.2 a	0.0 a	2.4 abc
Dyna-Gro 9172	Awned	88.0 a-h	58.5 d-k	111.8 jkl	7.2 a-f	31.5 e-l	0.0 a	2.5 bc	1.8 e-h
Pioneer 25R74	Awned	87.9 a-h	57.7 h-k	111.2 ijk	8.0 a	31.2 c-j	0.0 a	2.0 abc	1.8 e-h
Blackland 2166	Awned	85.8 b-i	59.9 b-f	112.7 lm	7.7 abc	31.2 c-j	0.0 a	0.3 ab	2.0 c-g
Dyna-Gro 9002	Awned	85.6 c-i	57.1 i-l	111.2 ijk	7.0 a-g	32.8 l-o	0.0 a	2.3 abc	2.2 b-e
TX18D3212	Awned	84.9 c-j	58.9 c-i	110.7 hi	5.7 ij	31.7 f-m	0.0 a	0.0 a	2.2 b-e
USG 3329	Awned	83.3 d-k	57.7 h-k	111.2 ijk	7.0 a-g	34.7 qr	0.0 a	0.8 abc	2.3 a-e
AgriPro SY 547	Awnless	83.2 d-k	58.4 e-k	108.8 efg	7.2 a-f	36.3 s	1.3 a	0.0 a	1.9 d-h
Blackland 2034	Awned	82.9 e-k	58.1 f-k	111.8 jkl	6.5 d-i	30.3 a-f	0.0 a	0.8 abc	1.7 f-i
AgriMaXX 492	Awned	82.7 e-k	59.2 c-h	107.2 cd	6.8 b-h	31.3 d-k	0.0 a	0.0 a	1.5 hi
AGS 2038	Awned	82.3 f-k	58.1 f-k	108.7 efg	6.2 f-j	35.0 rs	0.0 a	0.0 a	2.2 b-e
Go Wheat GW 2032	Awned	82.1 f-k	60.1 b-e	104.5 a	6.7 c-i	32.0 h-n	0.7 a	0.0 a	2.6 ab
Pioneer 25R40	Awned	81.9 f-k	58.7 c-j	114.7 no	6.3 e-i	29.2 a	0.0 a	0.0 a	1.5 hi
Blackland 2175	Awned	81.9 f-k	59.8 b-g	110.7 hi	6.2 f-j	30.2 a-e	0.0 a	0.0 a	2.0 c-g
USG 3352	Awned	81.6 g-k	57.9 g-k	115.0 o	7.0 a-g	33.0 mno	0.2 a	0.0 a	2.1 c-f
Dyna-Gro 9811	Awned	80.9 h-k	57.0 i-l	108.2 de	7.0 a-g	32.3 j-o	0.0 a	0.0 a	2.0 c-g
Dyna-Gro 9701	Awned	80.7 h-k	57.9 g-k	112.2 kl	8.0 a	34.5 pqr	6.8 b	0.0 a	1.9 d-h
LANC 11558-33	Awned	80.5 i-l	57.9 h-k	107.0 c	6.2 f-j	30.7 b-h	0.0 a	0.0 a	1.7 f-i
USG 3640	Awned	80.5 i-l	60.6 bc	107.0 c	6.3 e-i	34.5 pqr	10.8 c	0.0 a	2.7 a
AgriPro SY Viper	Awnless	79.9 i-l	58.9 c-i	109.7 gh	6.7 c-i	34.8 qr	0.0 a	0.0 a	1.7 f-i
AGS 2055	Awned	79.7 i-m	56.9 jkl	110.7 hi	8.0 a	33.5 opq	0.0 a	0.0 a	2.0 c-g
AgriPro SY Richie	Awnless	79.3 i-m	57.6 h-k	105.5 ab	5.2 j	32.2 i-o	0.0 a	0.0 a	1.3 i
Blackland 2184	Awned	78.0 j-m	55.3 lm	111.8 jkl	7.0 a-g	31.5 e-l	0.0 a	0.0 a	2.1 c-f
Blackland 2174	Awned	77.6 klm	58.1 f-k	111.2 ijk	6.5 d-i	31.7 f-m	0.0 a	0.0 a	2.3 a-e
USG 3536	Awned	73.3 lm	58.3 e-k	113.7 mn	6.0 g-j	34.8 qr	0.0 a	0.0 a	1.8 e-h
USG 3118	Awnletted	73.3 lm	58.3 e-k	109.2 efg	6.5 d-i	29.7 ab	0.8 a	0.0 a	2.4 abc
AGS 2024	Awned	72.4 m	57.1 i-l	108.2 de	5.8 hij	30.7 b-h	9.2 bc	0.0 a	2.1 c-f
	LSD (P = .05)	7.28	1.95	1.10	1.13	1.47	2.34	2.33	0.46
	CV (%)	7.61	2.93	0.88	14.42	4.01	253.39	213.9	20.21
	GRAND MEAN	84.04	58.30	110.15	6.86	32.18	0.81	0.78	2.01

†Ranked According to Yield

‡Yield Adjusted to 13% Standard Moisture

Date Planted: November 17, 2021

Date Harvested: June 8, 2022

¹Stand Assessment Scale (based on skips/weak spots throughout whole plot): 0 – No Stand, 10 – 100% Stand

²Forage Scale: 1 – less upright growth; thin leaf blade, 2 – moderate upright growth & leaf blade, 3 – excellent upright growth, wide leaf blade

Table 3: Summary – Mean Performance of Selected Soft Red Winter Wheat Varieties in Two locations (Howe and Greenville, Texas). 2022

Variety [†]	Yield Bu/A	Test Weight Lb/Bu
USG 3783	87.4	56.4
Pioneer 25R74	86.8	55.9
Dyna-Gro 9393	85.6	56.6
Blackland 2167 EXP	84.2	56.2
Go Wheat GW 6000	82.8	57.9
TX16DDH579	82.7	61.2
Dyna-Gro 9002	81.5	54.8
USG 3895	81.4	55.1
USG 3472	81.3	55.9
Blackland 2166	80.1	56.6
TX17D2337	80.0	58.5
Dyna-Gro WX20738	79.7	54.9
Dyna-Gro 9172	79.3	56.2
Go Wheat GW 2032	79.0	59.2
TX18D3212	78.3	57.7
AgriPro SY 547	78.0	57.6
AGS 2055	77.9	55.5
LANC 11558-33	77.6	57.8
Dyna-Gro 9120	76.5	58.7
Dyna-Gro 9811	76.4	56.0
Blackland 2175	76.1	57.5
Pioneer 25R40	75.8	56.5
Dyna-Gro 9701	75.7	56.3
USG 3118	75.1	57.3
Blackland 2034	74.8	56.1
USG 3640	74.3	59.4
AgriMaXX 492	74.1	58.3
AgriPro SY 747	73.5	51.6
AGS 2038	71.5	58.0
USG 3352	71.5	55.6
USG 3536	71.1	56.4
Blackland 2174	70.7	57.0
AgriPro SY Richie	69.6	56.8
AGS 2024	69.1	58.0
USG 3329	68.5	54.8
AgriPro SY Viper	68.1	57.3
Blackland 2184	66.8	53.4
Grand Mean	76.8	56.7

[†]Ranked according to Yield

2022 SRWW Highlight Summary

- The Howe location was planted October 30th and harvested June 14th. The Greenville location was planted November 17th and harvested June 8th.
- Howe received a total of 19.4 inches of rainfall and Greenville a total of 18.1 inches.
- Pioneer 25R74 was the top yielder in the Howe location. Dyna-Gro 9393 was the top yielder at the Greenville location.
- TX16DDH579 had the highest test weight among the SRWW varieties for both locations.
- Bushel weights averaged 3.2 lb/bu more at the Greenville location.
- Leaf rust (*Puccinia recondita*) infection levels were higher at our Howe location presumably reducing test weight on the most susceptible varieties. Minimal infection was observed at the Greenville site. Stripe rust (*Puccinia striiformis*) infection pressure was minimal at both locations.
- The Howe location sustained Hessian fly damage, most likely reducing yields.
- Significant yield losses were observed in area fields from Hessian fly (HF) in 2021-22. Selecting varieties that score above the HF stand average, 7.2 at Howe (Tables 1 & 7) or that score well in other HF resistance ratings from Texas is an important tool in managing this pest. Variety characteristics for Texas can be found at <http://varietytesting.tamu.edu/wheat>

Yield stability is the most important consideration when selecting wheat varieties to plant in northeast Texas. It is risky to make varietal choices based on one year's results because weather conditions, insects and disease pressures vary greatly from year to year. Therefore, performance over a number of years and locations is the best indicator of varietal stability. However, it is difficult to test the same varieties for multiple years since new varieties are being introduced. The companies do not always submit the same varieties.

Table 4 on the next page represents a summary of the top performing varieties over a five year period from 2018-2022.

Table 4: Five Year Summary – Mean Yield (Bushels/Acre) of the Top Soft Red Winter Wheat Varieties in Northeast Texas. 2018 (Bailey and Greenville), 2019 (Howe), 2020 (Howe), 2021 (Howe and Greenville) and 2022 (Howe and Greenville)

Variety	5-Year	4-Year	3-Year	2-Year	2022
Pioneer 25R40	74.0	66.9	66.2	67.4	75.8
USG 3895	73.1	68.2	66.3	69.7	81.4
Go Wheat GW 6000	71.1	67.3	68.1	71.2	82.8
AGS 2055	70.8	64.7	60.4	63.1	77.9
Agri-Pro SY Viper	69.6	63.3	61.9	62.0	68.1
AGS 2038	69.1	60.9	58.8	61.5	71.5
USG 3329	68.2	59.9	62.2	62.7	68.5
USG 3536	67.4	60.3	59.8	63.2	71.1
AGS 2024	64.3	57.6	51.1	50.5	69.1
USG 3118	63.7	58.8	56.4	55.7	75.1
Dyna-Gro 9701		72.4	64.6	65.7	75.7
Pioneer 25R74		66.3	66.4	70.3	86.8
Go Wheat GW 2032		63.5	59.9	62.7	79.0
Dyna-Gro 9811		61.3	60.1	61.5	76.4
TX16DDH579			64.5	67.1	82.7
AgriPro SY 547			60.6	62.2	78.0
Dyna-Gro 9002			60.1	63.3	81.5
Blackland 1812			56.1	52.6	— ¹
USG 3640			52.9	52.2	74.3
TX17D2337				69.2	80.0
USG 3472				69.0	81.3
Dyna-Gro 9172				67.1	79.3
Blackland 2034				65.2	74.8
Dyna-Gro 9120				63.9	76.5
Agri-Pro SY Richie				60.7	69.6
Blackland 1828				59.9	— ¹
Blackland 1889				58.1	— ¹
USG 3783					87.4
Dyna-Gro 9393					85.6
Blackland 2167 EXP					84.2
Blackland 2166					80.1
Dyna-Gro WX20738					79.7
TX18D3212					78.3
Blackland 2175					76.1
AgriMaXX 492					74.1
AgriPro SY 747					73.5
USG 3352					71.5
Blackland 2174					70.7
Blackland 2184					66.8

¹Variety not entered into our Variety Comparison Study for the 2021-2022 growing season

Maturity Groups

We have more good SRWW wheat varieties to choose from than ever. Below is a table listing the relative maturities of selected varieties.

Variety		Maturity Group
USG 3118		Early
Go Wheat 2032		
Go Wheat GW 6000	Dyna-Gro 9811	Medium
USG 3895	Agri-Pro SY Viper	
AGS 2024	Blackland 1828	
AGS 2055		
USG 3329	Pioneer 25R74	Medium Late
USG 3472	AGS 2038	
Dyna-Gro 9002	Blackland 1812	
Dyna-Gro 9120	Blackland 1889	
Dyna-Gro 9172	Blackland 2034	
Dyna-Gro 9393	USG 3536	Late
Dyna-Gro 9701	USG 3783	
Pioneer 25R40		

To hedge against weather risks, it would be advisable to plant multiple varieties from more than one maturity group. Start by planting the later maturing varieties, and finish with the earlier ones. The later maturing varieties are less likely to experience freeze damage in March, but are more subject to hot, dry conditions during the grain filling period. The medium early varieties are at more risk from a late freeze, but will likely experience more favorable weather conditions during the grain filling period.

Our research over the past 36 years has shown the optimum planting date in Northeast Texas to be the last week in October through the first week in November. Planting prior to October 25 is not advisable, as it exposes the crop to more potential damage to the Hessian fly, foliar plant diseases, and freeze injury in the spring. However, with the damaging presence of Hessian fly this growing season, delayed planting was not entirely effective.

Early maturing varieties are a fit for late planting (after November 15), but are more likely to suffer freeze injury when planted at the normal time. Earlier maturing varieties are better forage producers than later maturing ones, and can be planted earlier if they are grazed. An effective grazing program will delay their maturity.

A Comparison of SRWW and Selected HRWWs in the Northern Texas Blacklands

Table 5: Summary – Average Yield of Soft Red and Selected Hard Red Winter Wheat Varieties in Howe and Greenville, Texas. 2022

Variety†	Howe (bu/ac)	Greenville (bu/ac)	2 Location Average
USG 3783	82.6 a‡	92.1 a	87.4
Pioneer 25R74	85.6 a	87.9 a	86.8
TAM 304 (HRWW)	81.1 a	90.6 a	85.9
Dyna-Gro 9393	77.7	93.5 a	85.6
Blackland 2167 EXP	77.6	90.8 a	84.2
Go Wheat GW 6000	76.5	89.1 a	82.8
TX16DDH579	77.1	88.2 a	82.7
Dyna-Gro 9002	77.3	85.6	81.5
USG 3895	72.9	89.9 a	81.4
USG 3472	69.6	93.0 a	81.3
Monsanto WB-4418 (HRWW)	74.1	86.5	80.3
Blackland 2166	74.4	85.8	80.1
TX17D2337	70.3	89.6 a	80.0
Dyna-Gro WX20738	67.2	92.1 a	79.7
Dyna-Gro 9172	70.5	88.0 a	79.3
Go Wheat GW 2032	75.8	82.1	79.0
TX18D3212	71.6	84.9	78.3
TAM 114 (HRWW)	68.5	88.1	78.3
AgriPro SY 547	72.8	83.2	78.0
AGS 2055	76.0	79.7	77.9
LANC 11558-33	74.6	80.5	77.6
Monsanto WB-4523 (HRWW)	73.4	81.2	77.3
Dyna-Gro 9120	62.1	90.8 a	76.5
Dyna-Gro 9811	71.8	80.9	76.4
Blackland 2175	70.3	81.9	76.1
Pioneer 25R40	69.7	81.9	75.8
Dyna-Gro 9701	70.7	80.7	75.7
USG 3118	76.9	73.3	75.1
Blackland 2034	66.7	82.9	74.8
Monsanto WB-4699 (HRWW)	60.5	88.4 a	74.5
USG 3640	68.0	80.5	74.3
AgriMaXX 492	65.4	82.7	74.1
AgriPro SY 747	56.6	90.3 a	73.5
USG 3352	61.3	81.6	71.5
AGS 2038	60.6	82.3	71.5
USG 3536	68.8	73.3	71.1
Blackland 2174	63.8	77.6	70.7
AgriPro SY Richie	59.9	79.3	69.6
AGS 2024	65.8	72.4	69.1
USG 3329	53.6	83.3	68.5
AgriPro SY Viper	56.2	79.9	68.1
Blackland 2184	55.5	78.0	66.8
TAM 205 (HRWW)	52.9	76.9	64.9
Grand Mean	69.4	84.2	

†Ranked according to 2 Location Average ‡ Means followed by the same letter are not statistically different than the highest value in the trial

Table 6: Summary – Average Bushel Weight of Soft Red and Selected Hard Red Winter Wheat Varieties in Howe and Greenville, Texas. 2022

Variety†	Howe (Lb/bu)	Greenville (Lb/bu)	2 Location Average
TX16DDH579	59.5 a‡	62.9 a	61.2
TAM 205 (HRWW)	57.6	63.7 a	60.7
USG 3640	58.1	60.6	59.4
Go Wheat GW 2032	58.3	60.1	59.2
TAM 114 (HRWW)	56.5	61.9 a	59.2
Dyna-Gro 9120	56.0	61.3	58.7
TX17D2337	56.6	60.4	58.5
Monsanto WB-4418 (HRWW)	56.4	60.2	58.3
AgriMaXX 492	57.3	59.2	58.3
AGS 2024	58.9 a	57.1	58.0
AGS 2038	57.9	58.1	58.0
Go Wheat GW 6000	57.3	58.4	57.9
LANC 11558-33	57.6	57.9	57.8
TX18D3212	56.4	58.9	57.7
Monsanto WB-4699 (HRWW)	55.7	59.6	57.7
AgriPro SY 547	56.8	58.4	57.6
Blackland 2175	55.1	59.8	57.5
TAM 304 (HRWW)	56.6	58.2	57.4
USG 3118	56.2	58.3	57.3
AgriPro SY Viper	55.6	58.9	57.3
Blackland 2174	55.9	58.1	57.0
AgriPro SY Richie	55.9	57.6	56.8
Dyna-Gro 9393	54.7	58.4	56.6
Blackland 2166	53.2	59.9	56.6
Pioneer 25R40	54.3	58.7	56.5
USG 3783	54.4	58.3	56.4
USG 3536	54.5	58.3	56.4
Dyna-Gro 9701	54.7	57.9	56.3
Blackland 2167 EXP	54.3	58.0	56.2
Dyna-Gro 9172	53.9	58.5	56.2
Blackland 2034	54.0	58.1	56.1
Monsanto WB-4523 (HRWW)	55.5	56.5	56.0
Dyna-Gro 9811	54.9	57.0	56.0
Pioneer 25R74	54.1	57.7	55.9
USG 3472	53.3	58.5	55.9
USG 3352	53.3	57.9	55.6
AGS 2055	54.1	56.9	55.5
USG 3895	53.5	56.6	55.1
Dyna-Gro WX20738	53.0	56.7	54.9
Dyna-Gro 9002	52.5	57.1	54.8
USG 3329	51.8	57.7	54.8
Blackland 2184	51.5	55.3	53.4
AgriPro SY 747	49.1	54.1	51.6
Grand Mean	55.3	58.5	

†Ranked according to 2 Location Average ‡ Means followed by the same letter are not statistically different than the highest value in the trial

Table 7: Summary – Other Agronomic Characteristics of Soft Red and Selected Hard Red Winter Wheat Varieties, Howe, Texas. 2022

Variety†	Head Type	Heading	Hessian Fly Stand	Plant Height	Stripe Rust Flag Leaf Infection	Leaf Rust Flag Leaf Infection	Forage
		Julian	0-10 ¹	inches	%	%	1-3 ²
Go Wheat GW 2032	Awne	98.5 a	9.2 a-f	31.0 bcd	10.8 d	0.0 a	3.0 a
Go Wheat GW 6000	Awne	102.0 b	8.2 f-j	33.3 i-m	0.0 a	21.7 e-j	2.9 ab
Monsanto WB-4523 (HRWW)	Awne	102.7 bc	9.5 a-d	30.2 ab	0.0 a	30.0 ij	2.8 abc
TAM 304 (HRWW)	Awne	103.0 c	8.3 e-j	33.8 k-o	20.0 e	15.8 c-h	2.8 bc
TX16DDH579	Awne	103.0 c	8.8 b-g	34.8 op	3.2 abc	0.0 a	3.0 a
Monsanto WB-4418 (HRWW)	Awne	103.0 c	9.3 a-e	33.0 h-m	5.0 c	3.0 ab	2.3 fgh
USG 3640	Awne	103.0 c	7.5 ijk	33.8 k-o	23.3 e	0.0 a	3.0 a
AGS 2024	Awne	103.0 c	7.0 klm	30.7 abc	29.2 f	11.7 a-f	3.0 a
AgriPro SY Richie	Awnless	103.5 cd	4.2 rs	33.5 j-n	0.0 a	8.3 a-d	1.9 jk
AgriPro SY 547	Awnless	104.2 de	7.8 g-k	38.5 s	0.8 ab	15.8 c-h	2.3 efg
AgriMaXX 492	Awne	104.3 de	6.0 m-p	34.7 nop	0.0 a	0.0 a	2.1 hij
USG 3118	Awnletted	104.8 ef	10.0 a	33.5 j-n	4.2 bc	0.0 a	2.7 cd
LANC 11558-33	Awne	105.0 efg	9.5 a-d	33.0 h-m	0.0 a	0.0 a	2.0 ijk
Dyna-Gro WX20738	Awne	105.3 fgh	7.3 jkl	35.3 pq	0.0 a	5.8 abc	2.4 ef
Dyna-Gro 9811	Awne	105.7 f-i	9.2 a-f	34.0 l-o	0.0 a	4.3 abc	2.3 efg
TX17D2337	Awne	105.8 ghi	8.7 c-h	32.0 d-h	1.2 ab	0.0 a	1.8 kl
Blackland 2174	Awne	106.0 hij	5.2 o-r	33.3 i-m	0.0 a	20.8 d-j	2.4 ef
AGS 2038	Awne	106.5 ijk	5.5 n-q	37.7 s	0.0 a	0.0 a	3.0 a
AgriPro SY Viper	Awnless	106.5 ijk	4.8 qrs	37.3 rs	0.0 a	58.3 m	1.6 m
Blackland 2175	Awne	106.8 jkl	6.3 lmn	31.2 b-e	0.0 a	6.3 abc	2.2 ghi
TX18D3212	Awne	107.0 kl	7.8 g-k	32.7 f-k	0.0 a	0.0 a	2.8 abc
AGS 2055	Awne	107.3 klm	8.2 f-j	34.8 op	0.8 ab	0.0 a	2.3 efg
Dyna-Gro 9002	Awne	107.7 lmn	9.7 abc	34.2 m-p	0.0 a	15.0 b-h	2.1 hij
Pioneer 25R74	Awne	108.0 mno	9.8 ab	33.2 h-m	0.0 a	27.5 hij	2.2 ghi
Blackland 2034	Awne	108.0 mno	5.5 n-q	32.8 g-l	0.0 a	58.3 m	1.7 lm
Dyna-Gro 9120	Awne	108.0 mno	5.7 n-q	32.8 g-l	0.0 a	61.7 m	2.0 ijk
TAM 205 (HRWW)	Awne	108.0 mno	3.8 s	36.2 qr	0.0 a	0.0 a	1.5 m
USG 3783	Awne	108.2 m-p	7.7 h-k	32.8 g-l	0.0 a	19.7 d-i	2.5 de
Dyna-Gro 9393	Awne	108.2 m-p	8.5 d-i	32.2 d-i	0.0 a	20.0 d-j	2.3 efg
Blackland 2167 EXP	Awne	108.2 m-p	8.3 e-j	31.7 c-g	0.0 a	12.7 b-g	2.3 efg
Monsanto WB-4699 (HRWW)	Awne	108.2 m-p	5.2 o-r	32.0 d-h	10.8 d	4.3 abc	1.8 kl
USG 3895	Awne	108.3 nop	6.2 mno	31.3 b-e	0.0 a	20.0 d-j	2.2 ghi
Dyna-Gro 9701	Awne	108.5 nop	7.0 klm	36.3 qr	5.0 c	21.7 e-j	2.4 ef
Dyna-Gro 9172	Awne	108.5 nop	6.2 mno	32.8 g-l	0.0 a	43.3 kl	2.0 ijk
USG 3472	Awne	108.5 nop	6.2 mno	31.5 c-f	0.0 a	55.0 lm	2.0 ijk
AgriPro SY 747	Awne	108.7 opq	5.8 n-q	32.3 e-j	0.0 a	90.0 o	1.6 m
USG 3536	Awne	108.8 opq	7.0 klm	36.3 qr	0.0 a	9.5 a-e	2.0 ijk
TAM 114 (HRWW)	Awne	109.0 pq	8.0 g-k	37.3 rs	0.0 a	75.0 n	2.5 de
USG 3329	Awne	109.5 qr	5.7 n-q	34.8 op	0.8 ab	58.3 m	1.7 lm
Blackland 2166	Awne	110.2 rs	10.0 a	32.2 d-i	0.0 a	23.3 f-j	2.1 hij
USG 3352	Awne	110.7 s	4.3 rs	33.2 h-m	1.7 abc	32.5 jk	1.6 m
Blackland 2184	Awne	111.0 st	5.0 pqr	31.3 b-e	0.0 a	25.0g-j	1.6 m
Pioneer 25R40	Awne	111.8 t	6.3 lmn	29.7 a	0.0 a	29.2 ij	1.7 lm
	LSD (P = .05)	0.87	1.01	1.26	3.38	12.58	0.22
	CV (%)	0.72	12.26	3.31	109.31	52.57	8.56
	GRAND MEAN	106.58	7.21	33.47	2.72	21.02	2.24

†Ranked According to Heading

Date Planted: October 30, 2021

Date Harvested: June 14, 2022

¹Hessian Fly Stand Assessment Scale (based on broken stems from Hessian fly damage throughout whole plot): 0 – No Stand, 10 – 100% Stand

²Forage Scale: 1 – less upright growth; thin leaf blade, 2 – moderate upright growth & leaf blade, 3 – excellent upright growth, wide leaf blade

Table 8: Summary – Other Agronomic Characteristics of Soft Red and Selected Hard Red Winter Wheat Varieties, Greenville, Texas. 2022

Variety†	Head Type	Heading	Stand	Plant Height	Stripe Rust Flag Leaf Infection	Leaf Rust Flag Leaf Infection	Forage
		Julian	0-10 ¹	inches	%	%	1-3 ²
TAM 304 (HRWW)	Awne	104.2 a	8.3 a	31.5 e-l	4.5 bc	0.0 a	2.6 ab
Go Wheat GW 2032	Awne	104.5 ab	6.7 d-j	32.0 h-n	0.7 a	0.0 a	2.6 ab
Monsanto WB-4523 (HRWW)	Awne	105.5 bc	6.5 e-j	30.0 a-d	0.0 a	2.8 a	2.4 abc
AgriPro SY Richie	Awnless	105.5 bc	5.2 k	32.2 i-o	0.0 a	0.0 a	1.3 i
Monsanto WB-4418 (HRWW)	Awne	105.8 c	7.8 abc	32.7 k-o	2.3 ab	0.0 a	2.1 c-f
Go Wheat GW 6000	Awne	106.2 cd	6.3 f-j	33.0 mno	0.0 a	1.3 a	2.3 a-d
LANC 11558-33	Awne	107.0 d	6.2 g-k	30.7 b-h	0.0 a	0.0 a	1.7 f-i
USG 3640	Awne	107.0 d	6.3 f-j	34.5 pqr	10.8 e	0.0 a	2.7 a
AgriMaXX 492	Awne	107.2 de	6.8 c-i	31.3 d-k	0.0 a	0.0 a	1.5 hi
Dyna-Gro 9811	Awne	108.2 ef	7.0 b-h	32.3 j-o	0.0 a	0.0 a	2.0 c-g
AGS 2024	Awne	108.2 ef	5.8 ijk	30.7 b-h	9.2 de	0.0 a	2.1 c-f
TX16DDH579	Awne	108.5 fg	7.2 b-g	35.3 rs	0.2 a	0.0 a	2.4 abc
AGS 2038	Awne	108.7 fgh	6.2 g-k	35.0 rs	0.0 a	0.0 a	2.2 b-e
Dyna-Gro WX20738	Awne	108.8 fgh	6.8 c-i	33.2 nop	0.0 a	0.0 a	2.3 a-d
AgriPro SY 547	Awnless	108.8 fgh	7.2 b-g	36.3 s	1.3 a	0.0 a	1.9 d-h
Monsanto WB-4699 (HRWW)	Awne	109.0 f-i	7.0 b-h	29.7 ab	8.8 de	1.5 a	2.3 a-d
USG 3118	Awnletted	109.2 f-i	6.5 e-j	29.7 ab	0.8 a	0.0 a	2.4 abc
TX17D2337	Awne	109.3 ghi	6.5 e-j	31.8 g-n	0.0 a	0.0 a	1.8 e-h
AgriPro SY Viper	Awnless	109.7 hij	6.7 d-j	34.8 qr	0.0 a	0.0 a	1.7 f-i
TAM 205 (HRWW)	Awne	110.0 ijk	6.7 d-j	33.5 opq	0.0 a	0.0 a	2.3 a-e
TAM 114 (HRWW)	Awne	110.5 jkl	7.8 abc	36.3 s	0.0 a	18.8 c	2.3 a-d
TX18D3212	Awne	110.7 jkl	5.7 jk	31.7 f-m	0.0 a	0.0 a	2.2 b-e
Blackland 2175	Awne	110.7 jkl	6.2 g-k	30.2 a-e	0.0 a	0.0 a	2.0 c-g
AGS 2055	Awne	110.7 jkl	8.0 ab	33.5 opq	0.0 a	0.0 a	2.0 c-g
USG 3895	Awne	110.8 klm	7.0 b-h	29.8 abc	0.0 a	0.3 a	1.7 f-i
Dyna-Gro 9120	Awne	111.0 klm	7.3 a-f	31.2 c-j	0.0 a	3.0 a	1.9 d-h
Pioneer 25R74	Awne	111.2 lmn	8.0 ab	31.2 c-j	0.0 a	2.0 a	1.8 e-h
Dyna-Gro 9002	Awne	111.2 lmn	7.0 b-h	32.8 l-o	0.0 a	2.3 a	2.2 b-e
USG 3329	Awne	111.2 lmn	7.0 b-h	34.7 qr	0.0 a	0.8 a	2.3 a-e
Blackland 2174	Awne	111.2 lmn	6.5 e-j	31.7 f-m	0.0 a	0.0 a	2.3 a-e
Dyna-Gro 9393	Awne	111.3 lmn	7.7 a-d	30.8 b-i	0.0 a	1.0 a	2.3 a-e
USG 3472	Awne	111.3 lmn	7.8 abc	32.7 k-o	0.0 a	0.8 a	2.0 c-g
USG 3783	Awne	111.3 lmn	7.7 a-d	30.0 a-d	0.0 a	1.5 a	2.3 a-d
Blackland 2167 EXP	Awne	111.3 lmn	7.5 a-e	30.5 a-g	0.0 a	1.3 a	2.1 c-f
AgriPro SY 747	Awne	111.5 lmn	7.7 a-d	31.3 d-k	0.0 a	11.3 b	1.6 ghi
Dyna-Gro 9172	Awne	111.8 mno	7.2 b-g	31.5 e-l	0.0 a	2.5 a	1.8 e-h
Blackland 2034	Awne	111.8 mno	6.5 e-j	30.3 a-f	0.0 a	0.8 a	1.7 f-i
Blackland 2184	Awne	111.8 mno	7.0 b-h	31.5 e-l	0.0 a	0.0 a	2.1 c-f
Dyna-Gro 9701	Awne	112.2 no	8.0 ab	34.5 pqr	6.8 cd	0.0 a	1.9 d-h
Blackland 2166	Awne	112.7 op	7.7 a-d	31.2 c-j	0.0 a	0.3 a	2.0 c-g
USG 3536	Awne	113.7 pq	6.0 h-k	34.8 qr	0.0 a	0.0 a	1.8 e-h
Pioneer 25R40	Awne	114.7 qr	6.3 f-j	29.2 a	0.0 a	0.0 a	1.5 hi
USG 3352	Awne	115.0 r	7.0 b-h	33.0 mno	0.2 a	0.0 a	2.1 c-f
	LSD (P = .05)	1.10	1.12	1.40	2.42	3.11	0.47
	CV (%)	0.88	14.16	3.81	200.41	184.77	20.16
	GRAND MEAN	109.78	6.93	32.20	1.06	1.20	2.05

†Ranked According to Heading

Date Planted: November 17, 2021

Date Harvested: June 8, 2022

¹Stand Assessment Scale (based on skips/weak spots throughout whole plot): 0 – No Stand, 10 – 100% Stand

²Forage Scale: 1 – less upright growth; thin leaf blade, 2 – moderate upright growth & leaf blade, 3 – excellent upright growth, wide leaf blade

HRWW vs. SRWW Highlight Summary

- The Howe location was planted October 30th and harvested June 14th. The Greenville location was planted November 17th and harvested June 8th.
- The highest yielding Hard Red Winter Wheat (**HRWW**) variety was TAM 304 for both the Howe and Greenville locations.
- TAM 205 (**HRWW**) had the highest test weight in both locations for the HRWW varieties.
- Leaf rust (*Puccinia recondita*) infection levels were higher at our Howe location presumably reducing test weight on the most susceptible varieties. Minimal infection was observed at the Greenville site. Stripe rust (*Puccinia striiformis*) infection pressure was minimal at both locations.
- The Howe location sustained Hessian fly damage, most likely reducing yields.
- Significant yield losses were observed in area fields from Hessian fly (HF) in 2021-22. Selecting varieties that score above the HF stand average, 7.2 at Howe (Tables 1 & 7) or that score well in other HF resistance ratings from Texas is an important tool in managing this pest. Variety characteristics for Texas can be found at <http://varietytesting.tamu.edu/wheat>
- The SRWWs produced an average of 1.2 more bushels per acre than the HRWWs at the Howe site. The HRWWs produced an average of 1.3 more bushels per acre than the SRWWs at Greenville. Only one HRWW, TAM 304: was in the top statistical yield grouping the rest being SRWWs.
- HRWW bushel weights averaged 1.3 pounds heavier than SRWWs at the Howe location. HRWW bushel weights averaged 1.7 pounds heavier than the SRWWs at the Greenville location.

Yield stability is the most important consideration when selecting wheat varieties to plant in northeast Texas. It is risky to make varietal choices based on one year's results because weather conditions, insects and disease pressures vary greatly from year to year. Therefore, performance over a number of years and locations is the best indicator of varietal stability. However, it is difficult to test the same varieties for multiple years since new varieties are being introduced. The hard red winter wheat varieties are individually selected for comparison in these studies.

Table 9 on the next page represents a summary of the selected hard red winter wheat varieties over a seven year period from 2016-2022.

Table 9: Five Year Summary – Mean Yield (Bushels/Acre) of Selected Hard Red Winter Wheat Varieties in Northeast Texas. 2016 (Leonard and Howe), 2017 (Leonard, Howe and Greenville), 2018 (Bailey, Howe and Greenville), 2019 (Howe), 2020 (Howe and Greenville), 2021 (Howe and Greenville) and 2022 (Howe and Greenville)

Variety	5-Year	4-Year	3-Year	2-Year	2022
TAM 114 <i>(HRWW)</i>	52.3	53.7	60.4	64.5	78.3
Gallagher <i>(HRWW)</i>	56.4	57.2	59.5	50.0	
Monsanto WB-4418 <i>(HRWW)</i>		53.4	53.0	56.3	80.3
Syngenta Monument <i>(HRWW)</i>		63.0	66.4	58.4	
TAM 305 <i>(HRWW)</i>		58.3	60.7	63.4	
Syngenta Greer <i>(HRWW)</i>		53.4	54.5	62.8	
Syngenta Grit <i>(HRWW)</i>		51.6	57.3	46.7	
Monsanto WB-Cedar <i>(HRWW)</i>		49.4	45.9	45.4	
Monsanto WB-4699 <i>(HRWW)</i>			54.0	55.0	74.5
TAM 205 <i>(HRWW)</i>			51.9	53.2	64.9
Monsanto WB-4269 <i>(HRWW)</i>			57.4	49.1	
TAM 304 <i>(HRWW)</i>					85.9
Monsanto WB-4523 <i>(HRWW)</i>					77.3