



Result Demonstration Report

Evaluation of Hard Red Winter Wheat Varieties

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Summary: Fourteen hard red winter wheat varieties were evaluated in this trial and harvested for grain to measure yield. There were substantial yield differences between many wheat varieties in this year's test. Cedar produced the highest grain yield at 3915 pounds/acre or 65 bushels per acre; whereas Greer produced the lowest yield at 29 bushels per acre (1,758 lb/a).

Objective: This demonstration was conducted to evaluate both the yield potential as well as the straw strength of several hard red winter wheat varieties in the Central Texas Blacklands.

Materials and Methods: Strip plots were planted on October 20, 2014 using the producer's grain drill calibrated to deliver 120 pounds of seed per acre. Fertilizer applications consisted of 100 lbs 18-46-0 and Anhydrous.

These strip plots were harvested on July 15, 2015 using the producer's combine. Grain yield, bushel weight, and seed moisture were obtained through the use of a weigh wagon. All yields were adjusted to 14% moisture. A subsample of each variety was sent to the Fort Worth Grain Exchange to determine sprout damage. Lodging scores were also obtained at harvest.

Results and Discussion: Yields ranged from 29 to 65 bushels per acre (Table I. Evaluation of Hard Red Winter Wheat Varieties). Cedar produced the highest yield in the test with 3915 pounds an acre (65 bu/a), while Gallagher, Iba and Duster produced grain yields that were similar at 3479 (58 bu/a), 3447 (57 bu/a) and 3180 (53 bu/a) pounds an acre, respectively. The average yield for the plot was 36 bushels per acre with an average test weight of 54.64 pounds/bushel, average moisture at harvest of 10.3, and the average sprout damage of all varieties of 8.75%. Plant lodging did occur in this plot as shown in Table I. Varieties that have a tendency to lodge over time will negatively affect volume of grain actually harvested.

Table I. Evaluation of Hard Red Winter Wheat Variety Trial, 2015 – Niemeier, McGregor

Plot No.	Wheat Variety	%Moisture @Harvest	Test Weight (Lbs/Bu)	Yield(a) Lbs/A	% Sprout (b)	Yield Bu/A	Lodging (c)	Gross Value \$/A (d)
1	CJ	10.1	53	1923	5.2	32	1	\$144.23
2	Duster	9.9	53	3180	19	53	1	\$238.50
3	Cedar	10.2	54	3915	11.8	65	5	\$293.68
4	TAM304	10.7	54.5	2128	3.6	35	5	\$159.62
5	TAM305	10.8	55.5	2528	21.8	42	1	\$189.63
6	WB4458	10.7	53.5	2331	6.1	38	1	\$174.84
7	Armour	10.1	54.5	2822	18.2	47	1	\$211.71
8	Gallagher	10.3	57	3479	19.9	58	5	\$260.94
9	Iba	10.5	55.5	3447	3.6	57	5	\$258.58
10	TAM204	10.6	55	2356	.3	39	5	\$176.72
11	TAM114	10.5	56.5	3139	1	52	5	\$235.46
12	Fannin	10	55.5	2228	.7	37	1	\$167.15
13	Greer	10.5	54.5	1758	2.3	29	1	\$131.90
14	TAM401	10.3	53	2169	9	36	1	\$162.74
Average		10.3	54.64	2671.64	8.75	36	2.71	\$311.71

(a) Denotes yield adjusted to 14% moisture

(b) % Sprout damage. Tested at Fort Worth Grain Exchange July 17, 2015

(c) Lodging score (5 being desirable and 1 being non-desirable, or on the ground)

(d) Gross Value per Acre is calculated assuming average market price (\$4.50/bushel) at time of harvest at local elevator

Demonstration: Evaluation of Hard Red Winter Wheat Varieties for Yield Comparison

Cooperators Name and Location: Jerry and Jason Niemeier, McGregor Texas

Date Planted: October 20, 2014

Date Harvested: June 15, 2015

Fertilizer Used: 100 lbs of 18-46-0

Last Crop: Corn

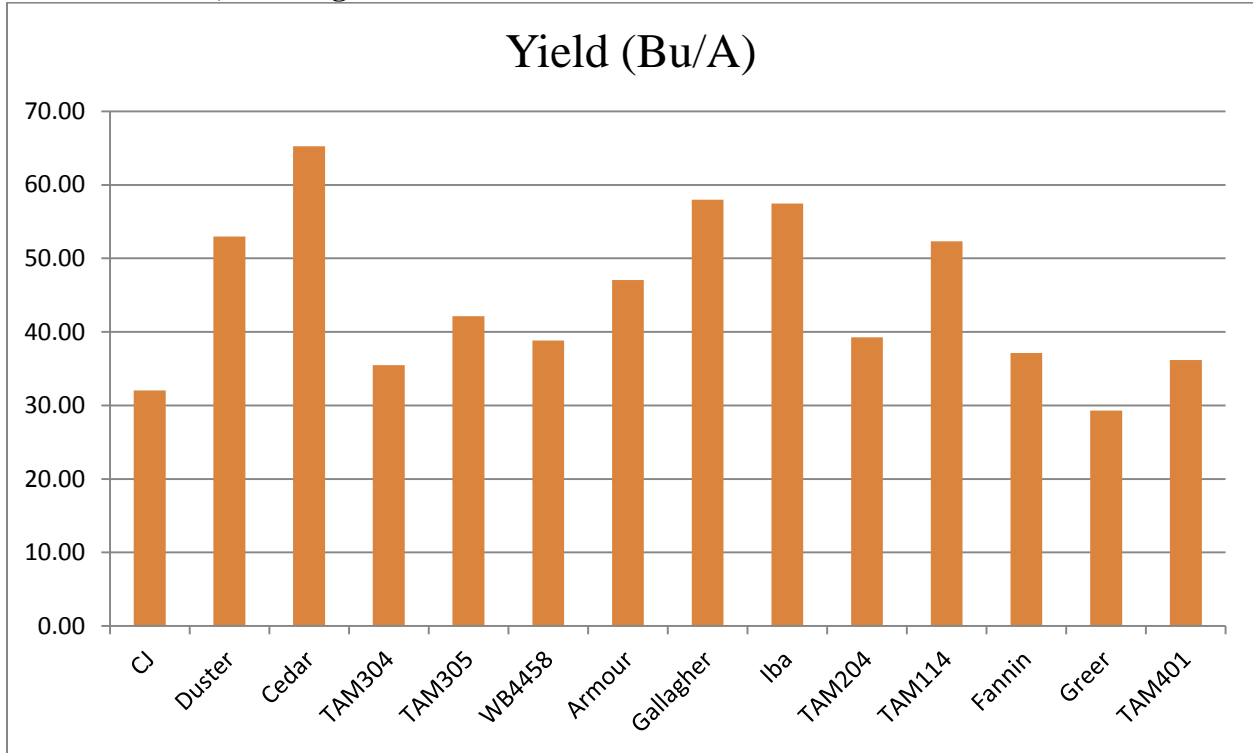
Anhydrous

Seeding Rate: 120 pounds/acre

Harvest: Producer combine harvested, utilized grain buggy/weigh wagon assisted at harvest by Ron Joiner of Pioneer

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Chart I. Evaluation of Hard Red Winter Wheat Varieties Yield Potential, 2015 – Jerry and Jason Niemeier, McGregor



(*) Yields adjusted to 14% moisture

Chart II. Evaluation of Hard Red Winter Wheat Variety Test Weight, 2015 – Jerry and Jason Niemeier, McGregor

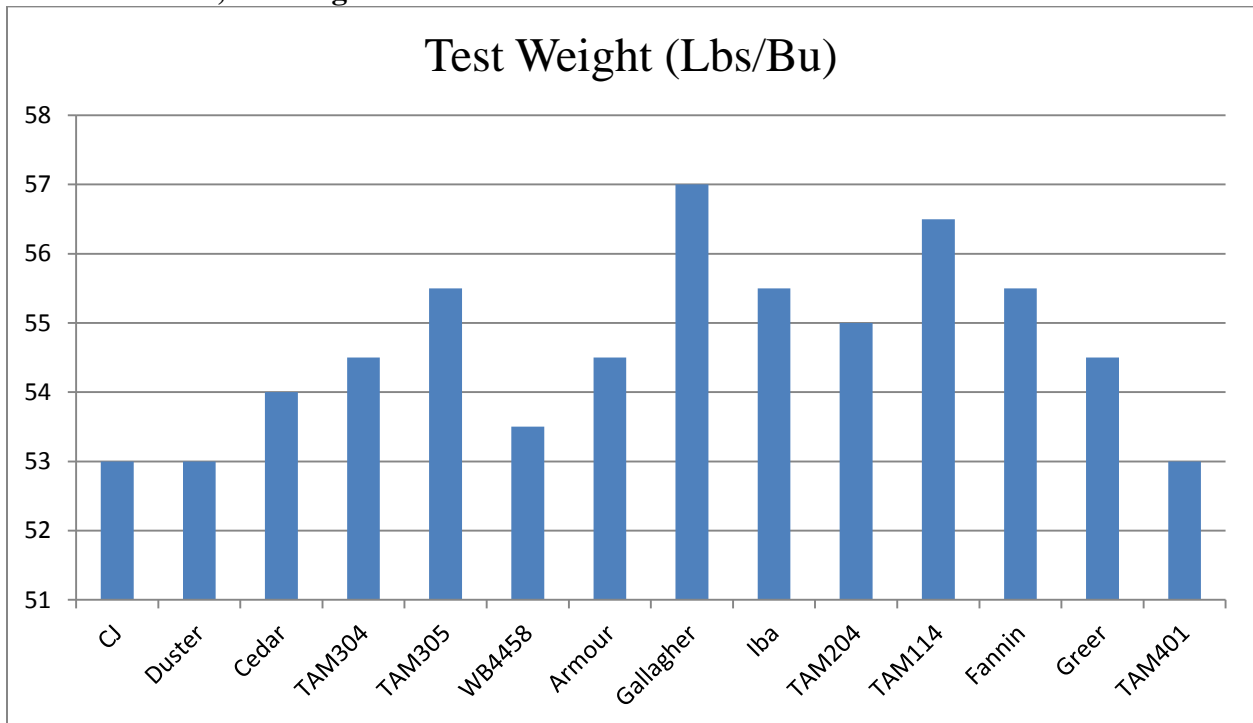
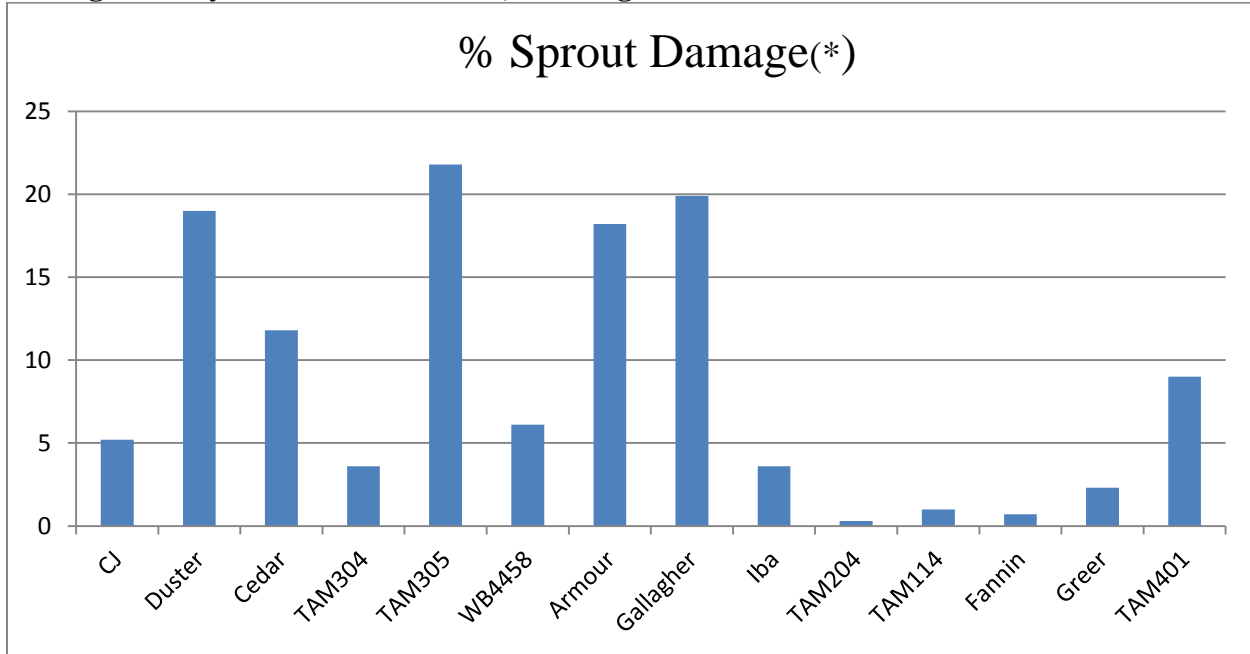


Chart III. Evaluation of Hard Red Winter Wheat Variety Test Weight, 2015 % Sprout Damage – Jerry and Jason Niemeier, McGregor



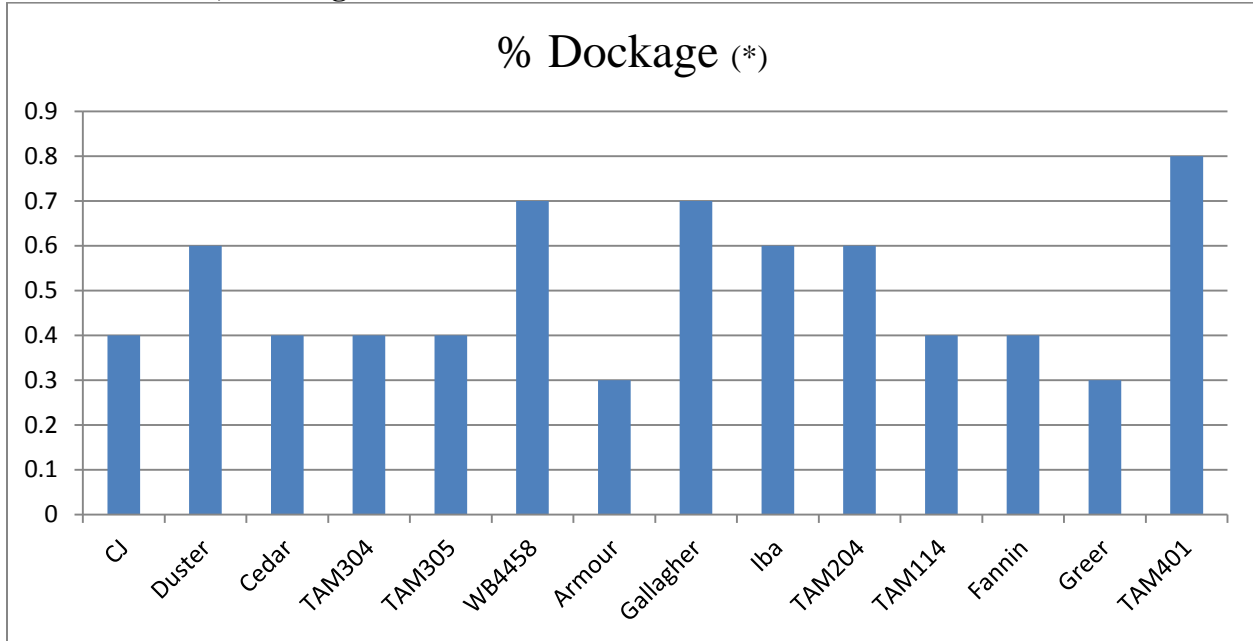
(*) Sprout damage assessed per Fort Worth Grain Exchange testing from samples taken at harvest

Economic Analysis: Using the price of hard red winter wheat at harvest as listed by a local elevator of \$4.50/bushel, the top yielding variety (Cedar) had a value of \$293.68 per acre. The least productive variety (Greer) achieved a value of \$134.22. The difference between the high/low yield value is \$159.46. The \$/value difference per acre between varieties illustrates the need for continued evaluation of lines for their performance in local growing conditions.

During years of excessive rainfall wheat varieties can have more occurrences of sprouts. Higher sprouting ratings can lead to price penalties for producers (Chart III. Evaluation of Hard Red Winter Wheat Variety Test Weight 2015, % Sprout Damage). In the years of above average rainfall it is very common to receive higher percentage of docking of wheat due to trash, excess weeds in a wheat field (Chart IV. Evaluation of Hard Red Winter Wheat Variety % Dockage, 2015). Producers should make notes of dockage over multiple years and use that data to identify varieties that consistently have less occurrence of percent dockage. Dockage of price includes chaff, weed seed, weed stems, grain other than wheat, screenings, trash larger than wheat seed, stalks, and dirt. Any variety with routine high dockage values should be avoided. The range for variety quality/dockage was as low as 0.3% to as high as 0.8%. The average dock for excess trash/low quality in this trial was 0.5%.

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Chart IV. Evaluation of Hard Red Winter Wheat Variety % Dockage, 2015 – Jerry and Jason Niemeier, McGregor



(*)Dockage as reported from samples tested at Forth Worth Grain Exchange (July 7, 2015)

Conclusions: The varieties producing the highest grain yield naturally generate the highest gross income and net income. Production practices and cost of production were equal for all varieties. Rainfall amounts have more effect on yield than any other single factor. Producers should consult results from multiple years of previous result demonstration handbooks to determine how a variety will perform under various growing conditions of Central Texas before deciding on a specific variety to plant.

Disease resistance, especially leaf rust, is important in selecting varieties because of substantial yield reductions from high leaf rust infections. Because disease infection is so unpredictable from year to year, producers should plant more than one variety to prevent a buildup of specific strains of leaf rust. Characteristics to consider, other than disease resistance when choosing a variety include: winter hardiness, straw strength, low sprout rating, low percent dockage, maturity, plant height and residue carry-over, tillering, Hessian Fly resistance and yield potential.

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