UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service

State Agricultural Experiment Stations, Cooperating

2010 - 2011

UNIFORM SOUTHERN SOFT RED WINTER WHEAT NURSERY

Report

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USSRWWN cooperators may use the following data from this report in registration notices, release requests, and PVP applications: their line, the check entries, the mean of the test, and (with permission from the owners) any other lines that have already been released.

USDA-ARS
National Small Grains Germplasm Research Facility
1691 S. 2700 W.
Aberdeen, ID 83210

October 2011

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2010-2011 UNIFORM SOUTHERN SOFT RED WINTER WHEAT NURSERY
LIST OF ENTRIES AND PEDIGREES

Entry No.	Cultivar/ Designation	Pedigree	Contributor	1st Year in Nursery
1	AGS 2000	Pio.2555/PF84301//FL 302 (formerly GA89482E7)	Check	97-98
2	Pioneer Brand 26R61	Omega78/S76/4/Arthur71/3/Stadler//Redcoat/Wisc1/5/Ck747/6/2555sib (formerly XW663)	Check	97-98
3	Coker 9553	89M-4035A(IL77-2656/NK79W810/Pio2580 (formerly D00*6874-2)	Check	04-05
4	USG 3555	VA94-52-60/Pio2643//USG3209 (formerly VA02W-555)	Check	04-05
5	NC05-19896	Burr/NC96BGTA6sib//Natchez	Murphy	09-10
6	LA02015E201	VA99W-169/Pio26R61,F1//LA94242D4-4(VA92-54-104/Morey sib)	Harrison	10-11
7	LA01069D-23-4-4	INW9811(H13)/Pio26R61	Harrison	10-11
8	LA03217D-P2	RO23/Pio26R61	Harrison	10-11
9	LA02015E42	VA99W-169/Pio26R61,F1//LA94242D4-4(VA92-54-104/Morey sib)	Harrison	10-11
10	B05*0154	Hopewell/BL920520	Hancock	10-11
11	B06*0758	LA87167-D8-10-2/Ck9134	Hancock	10-11
12	Y09*12C	VA96W-49/AGS2000//RC-Strategy	Cisar	10-11
13	G09311	P88288A1/Patton	Peterson	10-11
14	G09308	Goldfield//IL84-3010/T812	Peterson	10-11
15	G09418	T814/L900819	Peterson	10-11
16	M05-1526	FFR502/P931765C-H21	Fogleman	10-11
17	GA021338-9E15	Pio26R38/GA941238//AGS2000	Johnson	10-11
18	GA021338-9EE11	Pio26R38/GA941238//AGS2000	Johnson	10-11
19	GA021245-9E16	FL93024/Pio26R61//AGS2485	Johnson	10-11
20	MO080104	L910097/MO92-599	McKendry	10-11
21	NC07-25169	Tribute/NC98-25380//NC96-13155	Murphy	10-11
22	NC07-24445	USG3209/NC98-26541	Murphy	10-11
23	VA08W-294	SS520(VA96W-158)/VA99W-188(VA91-54-343/Roane sib)//Tribute	Griffey	10-11
24	VA07W-429	VA99W-169(VA91-54-343/VA92-52-52)/GA881130LE5//Crawford	Griffey	10-11
25	VA08MAS-412	VA99W-169(VA91-54-343/VA92-52-52)/GA881130LE5//Crawford	Griffey	10-11
26	VA05W-151	Pio26R24/McCormick	Griffey	10-11
27	TN1002	AR839-27-1-3/(FL302/Pio2251)//G65201/(Massey/Freedom)	West	10-11
28	TN1101	(Saluda/Cardinal)/OH645//(Massey/Freedom)/GA90552AE33	West	10-11

LOCATION NOTES

Belle Mina, Alabama

Cooperators:	Kathy Glass
	Auburn University
Planted:	November 2, 2010
Harvested:	June 14, 2011
Notes:	Tornado hit this station on 4/27, which caused lodging and delayed harvest.

Bay, Arkansas

Cooperators:	June Hancock, David Hill, Richard Gray
	Syngenta Seeds
Planted:	October 7, 2010
Harvested:	June 8, 2011

Fayetteville, Arkansas

Cooperators:	Gene Milus
	University of Arkansas
Notes:	Stem rust nursery was inoculated with race QFCS. Percent stem rust is the percentage of stem area with pustules. IT is the infection type on the 0 to 4 scale (4 = very susceptible). McNair 701 is a very susceptible check. AGS 2000 has Sr31 and is the resistant check. PM is the percentage leaf area affected by powdery mildew.

Stuttgart, Arkansas

Cooperators:	Esten Mason
	University of Arkansas
Notes:	Nursery was severely damaged from glyphosate drift. Yields were reduced by as much as 75%.

Middletown, Delaware

Cooperators:	Bob Uniatowski
	University of Delaware

Quincy, Florida

Cooperators:	Ron Barnett, Ann Blount
	University of Florida
Planted:	November 22, 2010
Harvested:	May 10, 2011
Notes:	It was an unusually good year here with a cold winter, dry spring, good distribution of limited rainfall, and dry conditions at harvest. No diseases to speak of. Plots looked very good.

Griffin, Georgia

Cooperators:	Jerry Johnson, Dan Bland, James Buck, David Buntin
	University of Georgia
Planted:	November 3, 2010
Harvested:	May 26, 2011
Fertilizer:	80 N, 400 5-10-15

Plains, Georgia

Cooperators:	Jerry Johnson, Dan Bland, James Buck, David Buntin University of Georgia
Planted:	November 17, 2010
Harvested:	May 26, 2011
Fertilizer:	80 N, 400 5-10-15

Battle Ground, Indiana

Cooperators:	Don Obert, Sam Brown Limagrain Cereal Seeds
Planted:	October 8, 2010
Harvested:	July 7, 2011
Fertilizer:	24-78-63 plowdown with 19.4# S and 3# Zn on 9/21; 11# ESN slow release N fall applied; 40# urea and 40$ ESN on 3/18.

Delphi, Indiana

Cooperators:	Barton Fogleman, Jennifer Vonderwell, Eugene Glover Syngenta Seeds
Planted:	October 15, 2010
Harvested:	July 7, 2011
Notes:	Single rep planted for observation. Very lush location. Cool wet spring with good display of leaf diseases. High yielding location in adjacent blocks where Quilt application protected flag leaves.

Lafayette, Indiana

Cooperators:	Ben Moreno, Justin Cooley WestBred
Planted:	October 1, 2010
Harvested:	June 30, 2011
Notes:	Stand: 1=100%, 9=0%. Plot stands in early spring. Thinner stands due to a combination of winter kill and uneven germination due to dry conditions at planting.

Mt Vernon, Indiana

Cooperators:	Barton Fogleman, Jennifer Vonderwell, Eugene Glover Syngenta Seeds
Planted:	October 18, 2010
Harvested:	June 24, 2011
Fertilizer:	98 N + 12 S on 3/25
Notes:	This trial was a little flaky. Heavy rains in spring led to flooding in and around the plots. Everything was oddly, uniformly short.

Tipton, Indiana

Cooperators:	Don Obert, Sam Brown Limagrain Cereal Seeds
Planted:	October 28, 2010
Harvested:	July 5, 2011
Fertilizer:	24-78-63 plowdown with 19.4# S and 3# Zn on 9/21; 11# ESN slow release N fall applied.

West Lafayette, Indiana

Cooperators:	Sue Cambron
	USDA-ARS, Crop Production & Pest Control Research
Notes:	Hessian fly data with multiple biotypes.

Winfield, Kansas

Cooperators:	Sid Perry
	WestBred
Planted:	September 23, 2010
Harvested:	June 10, 2011

Lexington, Kentucky

Cooperators:	Dave Van Sanford
	University of Kentucky
Planted:	October 12, 2010
Harvested:	July 1, 2011
Fertilizer:	P, K according to soil tests; 105 N in split applications
Notes:	Dry fall led to uneven stands which persisted throughout the season. Very surprised at low CVs. Rainy harvest led to low test weights. Some foliar disease but variable stands made it tough to rate, therefore no disease data presented.

Schochoh, Kentucky

Cooperators:	Dave Van Sanford
	University of Kentucky
Planted:	October 17, 2010
Harvested:	June 24, 2011
Fertilizer:	P, K according to soil tests; 105 N in split applications
Notes:	Rough year. Dry fall, poor stands going into winter. Cool May favored grain fill, but repeated rains delayed harvest and severely lowered test weights. Heavy leaf blotch and some FHB.

Baton Rouge, Louisiana

Cooperators:	Stephen Harrison, Kelly Arceneaux, L. Bissett, K. McCarthy
	Louisiana State University
Planted:	November 9, 2010
Harvested:	May 7, 2011
Fertilizer:	6-46-69-19S preplant; 50-0-0 and 40-0-0 topdress. Osprey plus Harmony Extra herbicide, followed by Axial to control ryegrass.
Notes:	Dry April and May with low disease pressure and excellent yields and grain quality. Excellent growing season in general, cooler than normal winter followed by early, dry spring. Phenotype is mean of four 'general appearance' ratings. 0 = excellent, 5 = average, 9 = very poor.

Winnsboro, Louisiana

Cooperators:	Stephen Harrison, Kelly Arceneaux, L. Bissett, K. McCarthy
	Louisiana State University
Planted:	November 23, 2010
Harvested:	May 25, 2011
Fertilizer:	100-0-0-8S topdress
Notes:	Dry April and May with low disease pressure. Planted a little late and did not grow as well as earlier-planted material. Phenotype is mean of four 'general appearance' ratings. 0 = excellent, 5 = average, 9 = very poor.

Queenstown, Maryland

Cooperators:	Jose Costa, Aaron Cooper
	University of Maryland
Planted:	October 13, 2010
Harvested:	June 15, 2011

Salisbury, Maryland

Cooperators:	Jose Costa
	University of Maryland
Notes:	Misted, inoculated scab nursery.

St. Paul, Minnesota

Cooperators:	Jim Kolmer, Yue Jin, Dave Long
	USDA-ARS, Cereal Disease Laboratory
Notes:	Leaf rust and stem rust multi-isolate seedling data.

Cleveland, Mississippi

Cooperators:	June Hancock, David Hill, Richard Gray
	Syngenta Seeds
Planted:	October 28, 2010
Harvested:	June 1, 2011

Newton, Mississippi

Cooperators:	Brad Burgess
	Mississippi State University
Planted:	November 8, 2010
Harvested:	May 26, 2011
Fertilizer:	33-0-0

Portageville, Missouri

Cooperators:	Anne McKendry, David Tague
	University of Missouri
Planted:	October 25, 2010
Harvested:	May 22, 2011
Fertilizer:	120 N, split 40 in fall
Notes:	Due to heavy rainfall and poor drainage the third rep was eliminated at harvest. Yields from reps 1 and 2 are included and are representative of the location in 2011. Foliar diseases present late, held back with cooler temperatures. Xanthomonas an issue in lower areas of field.

Kinston, North Carolina

Cooperators:	Paul Murphy
	North Carolina State University
Planted:	October 22, 2010
Harvested:	June 1, 2011
Fertilizer:	120 N
Notes:	Good growing season overall. Cold winter. Adequate moisture during entire season. Heavy leaf rust after heading. Powdery mildew notes taken at Lake Wheeler.

Laurel Springs, North Carolina

Cooperators: David Marshall
USDA-ARS, Plant Science Research

Notes: Adult-plant stripe rust data. 0-3 resistant; 4-6 intermediate; 7-9 susceptible.

Raleigh, North Carolina

Cooperators: David Livingston, Tan Tuong
USDA-ARS, Plant Science Research

Notes: Controlled environment freeze test. Ten plants per entry were planted in cone-tainers (Livingston et al. 2005, Crop Science, 45:1545-1558). Two replicates. Plants were grown for 5 weeks at 13°C; 12 hours light/dark period; 400µmole light intensity, then hardened in chamber for 3 weeks at 3°C; 12 hours light/dark period; 350µmole light intensity. After 3 weeks, plants were subzero acclimated for 3 days @ -3°C in the dark, frozen @ 1°C/hour to -16°C for 3 hours, then thawed @ 2°C/hour to 3°C. Once removed from testing chambers, plants were watered once with 0.001% (v/v) Vitavax fungicide solution -And allowed to recover for 3 weeks at 13°C in cone-tainers; 12 hours light/dark period; 400µmole light. Plant survival ratings were rated for regrowth after 4 weeks by visually assessing leaves and roots. **0** = Completely dead; **1** = 1 survived (green) shoot **or** 1 primary root; **2** = 1 or 2 survived (green) shoots or 1 survived shoot **and** 1 or 2 primary roots; **3** = 1 or 2 survived shoots with developed roots (primary and secondary roots); **4** = 95% survived shoots with well developed roots; **5** = 100% survived with very little or no sign of freeze damage**.**

Raleigh, North Carolina

Cooperators: Christina Cowger
USDA-ARS, Plant Science Research

Notes: Eastern Septoria Nursery data. Screening was conducted at Kinston and Raleigh, NC. Each plot consisted of two standard headrows, and there were two replicates with entries randomly assigned to plots in each replicate. Plots were inoculated with wheat straw in December 2009. Disease data are from Kinston, NC, where plots were irrigated several times with an overhead linear system during the April drought. At Kinston, SNB pressure was excellent on leaves but only moderate on glumes, and no other diseases confounded the SNB ratings. The nursery was also grown and inoculated at Raleigh, and rated there for SNB and heading date. The Raleigh SNB data were inferior due to a heavy BYDV epidemic and lack of irrigation, and are not provided here. Heading date was not a significant source of variation in SNB symptoms on either leaves or glumes, so no adjustment for heading date was made to the disease data.

Raleigh, North Carolina

Cooperators: Gina Brown-Guedira
USDA-ARS, Eastern Regional Small Grains Genotyping Lab

Notes: Marker analysis.

Wooster, Ohio

Cooperators: Clay Sneller
Ohio State University, OARDC

Wooster, Ohio

Cooperators: Anthony Karcher
USDA-ARS, Soft Wheat Quality Laboratory

Notes: Milling and baking quality data.

Enid, Oklahoma

Cooperators:	Brett Carver, Melanie Bayles Oklahoma State University
Notes:	Acid soil tolerance data. Soil pH=4.0 to 4.3. Scale of 0 (most tolerant) to 5 (most susceptible) based on overall vigor, discoloration, and tiller production. Vegetative ratings may not associate with those taken on adult plants; adult-plant ratings not recorded due to difficulty in detecting genetic differences. Inherent differences in tillering capacity and growth habit (prostrate vs. erect) may have biased vegetative ratings.

Knoxville, Tennessee

Cooperators:	Dennis West, David Kincer University of Tennessee
Planted:	October 19, 2010
Harvested:	June 14, 2011
Fertilizer:	90-30-30
Notes:	Severe hailstorm on 4/27 (Julian 117). Lodging rated the following day. Estimate ¼ - 1/3 yield loss. CV and test weight are better than expected.

Farmersville, Texas

Cooperators	Russell Sutton Texas AgriLife Research, TAMU

Blacksburg, Virginia

Cooperators:	Carl Griffey Virginia Tech
Planted:	October 6, 2010
Harvested:	June 29, 2011
Fertilizer:	30-50-60

Warsaw, Virginia

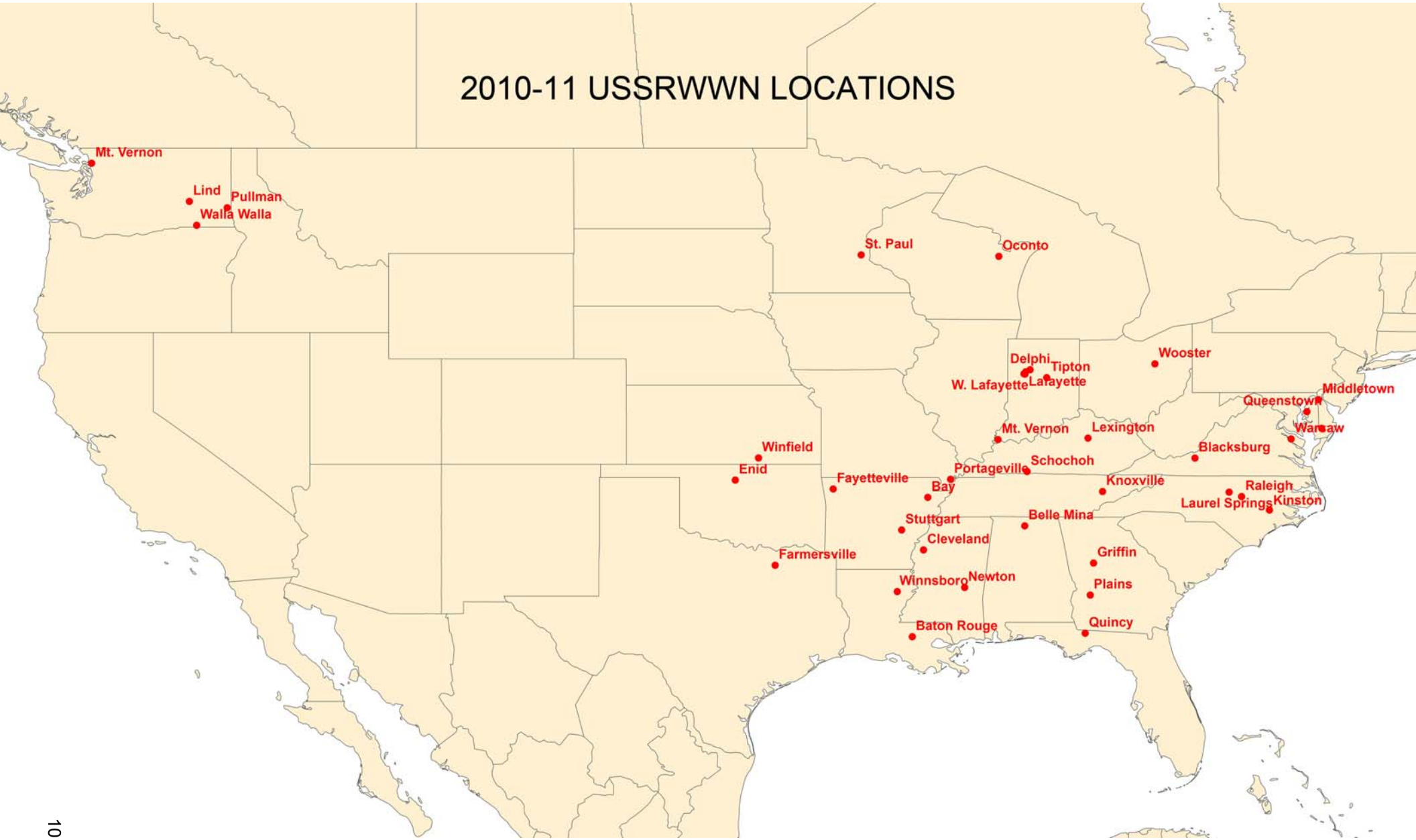
Cooperators:	Carl Griffey Virginia Tech
Planted:	October 19, 2010
Harvested:	June 10, 2011
Fertilizer:	30-60-60-5S

Mt. Vernon, Pullman, Walla Walla, Lind, Washington

Cooperators:	Xianming Chen USDA-ARS, Wheat Genetics, Quality, Physiology, & Disease Research
Notes:	Adult stripe rust data. Infection Type (IT) was recorded based on the 0-9 scale with ITs 8 and 9 combined as 8 (the most susceptible reaction) in field data. Generally IT 0-3 are considered resistant, 4-6 intermediate, and 7-9 susceptible. Heterogenous reactions of an entry were indicated by two or more ITs separated by "," for most plants with the first IT and few plants with the second IT or connected with "-" for entries containing plants with continuous ITs. Entries with a high IT in the first note, but a low IT in the second note may indicate that they have high-temperature, adult-plant (HTAP) resistance.

Oconto, Wisconsin

Cooperators:	Gordon Cisar, Jana Murche KWS Cereals USA
Planted:	September 28, 2010
Harvested:	August 1, 2011
Fertilizer:	Previous crop alfalfa; manure @ 6000 gal/acre
Notes:	Unusually late season. Pr > F was 0.137


2010-11 USSRWWN LOCATIONS
Mt. Vernon
Lind
Pullman
Walla Walla
St. Paul
Oconto
Delphi
Tipton
W. Lafayette
Lafayette
Wooster
Middletown
Queenstown
Mt. Vernon
Lexington
Winfield
Enid
Fayetteville
Portageville
Schochoh
Bay
Blacksburg
Knoxville
Raleigh
Laurel Springs
Kinston
Stuttgart
Belle Mina
Cleveland
Farmersville
Griffin
Winnsboro
Newton
Plains
Baton Rouge
Quincy

YIELD (bu/acre)

		Belle Mina		Bay		Middletown		Quincy		Griffin		Plains	
		AL	ab	AR	a	DE	a	FL	a	GA	ab	GA	a
		Glass	rank	Hancock	rank	Uniatowski	rank	Barnett	rank	Johnson	rank	Johnson	rank
1	AGS 2000	51.0	25	74.5	5	77.6	21	67.8	15	90.3	24	90.4	12
2	Pioneer Brand 26R61	39.0	28	48.6	24	64.0	28	48.4	28	94.2	23	76.0	26
3	Coker 9553	62.0	8	87.8	1	79.6	19	85.6	3	101.5	13	91.6	8
4	USG 3555	63.0	5	83.4	2	90.6	7	80.7	7	108.9	5	98.8	4
5	NC05-19896	59.0	11	55.4	22	77.4	22	65.0	21	108.6	6	81.9	20
6	LA02015E201	54.0	21	64.7	14	71.5	26	85.4	4	100.8	15	89.3	13
7	LA01069D-23-4-4	53.0	23	62.3	18	82.1	17	70.9	11	108.0	7	81.1	21
8	LA03217D-P2	49.0	26	69.0	9	71.6	25	75.1	9	101.0	14	105.9	1
9	LA02015E42	58.0	14	66.0	11	70.1	27	88.3	1	96.7	19	87.8	15
10	B05*0154	63.0	5	62.6	16	93.6	5	69.5	14	113.1	4	91.2	10
11	B06*0758	67.0	2	59.4	19	76.6	23	67.2	17	113.7	3	79.6	23
12	Y09*12C	57.0	18	52.6	23	75.4	24	70.8	13	95.0	21	72.7	27
13	G09311	58.0	14	48.3	26	89.9	8	65.6	20	97.4	18	68.7	28
14	G09308	58.0	14	70.4	8	85.5	10	63.4	23	94.8	22	86.4	17
15	G09418	54.0	21	70.5	7	85.2	13	54.5	25	89.9	25	80.8	22
16	M05-1526	56.0	19	47.8	27	100.0	2	61.6	24	68.4	27	91.1	11
17	GA021338-9E15	53.0	23	56.8	20	85.5	11	50.3	27	105.8	12	77.9	24
18	GA021338-9EE11	59.0	11	66.0	12	84.5	14	50.9	26	105.9	11	77.9	24
19	GA021245-9E16	66.0	3	72.6	6	81.2	18	85.1	5	99.3	16	91.6	8
20	MO080104	58.0	14	76.6	3	96.4	3	71.4	10	96.0	20	92.7	7
21	NC07-25169	48.0	27	40.7	28	85.4	12	67.5	16	55.5	28	84.3	18
22	NC07-24445	56.0	19	55.8	21	83.5	15	66.2	19	106.3	10	89.3	13
23	VA08W-294	70.0	1	66.7	10	94.6	4	87.7	2	107.5	8	98.5	5
24	VA07W-429	62.0	8	62.8	15	93.4	6	70.8	12	123.7	1	104.0	3
25	VA08MAS-412	64.0	4	62.4	17	86.3	9	82.8	6	115.6	2	96.5	6
26	VA05W-151	59.0	11	65.3	13	108.1	1	80.0	8	86.3	26	104.7	2
27	TN1002	63.0	5	48.5	25	83.3	16	67.0	18	106.6	9	86.5	16
28	TN1101	62.0	8	75.7	4	78.6	20	64.8	22	98.4	17	84.0	19
LOCATION MEANS		57.9		63.3		84.0		70.2		99.6		87.9	
LSD (.05)		8		20.8				16.7		11.2		10.6	
CV %		8.2		16				14.6		6.8		19.1	
Reps		3		2				3		3		2	
Harvest Plot Area (sq.ft.)		100						55		50		50	

YIELD (bu/acre)

		Battle Ground		Delphi		Lafayette		Mt. Vernon		Winfield		Lexington	
		IN		IN		IN		IN	ab	KS	b	KY	ab
		Obert	rank	Fogleman	rank	Moreno	rank	Fogleman	rank	Perry	rank	Van Sanford	rank
1	AGS 2000	82.2	7	81.0	2	81.3	16	70.1	12	38.4	28	61.2	17
2	Pioneer Brand 26R61	69.3	20	69.6	7	89.9	6	56.5	28	68.9	8	65.0	10
3	Coker 9553	76.7	13	68.6	9	88.9	7	69.0	16	65.7	14	70.0	7
4	USG 3555	72.9	18	66.8	12	88.8	8	70.1	11	73.4	5	56.8	23
5	NC05-19896	60.6	26	46.2	26	86.5	9	74.6	3	68.0	11	59.3	22
6	LA02015E201	61.5	25	71.1	4	78.6	20	62.4	26	63.8	19	60.6	20
7	LA01069D-23-4-4	67.2	23	52.4	22	90.6	5	60.8	27	71.8	7	65.2	9
8	LA03217D-P2	64.7	24	41.5	28	74.6	25	67.2	22	64.0	17	53.3	25
9	LA02015E42	55.9	27	46.5	25	71.4	27	65.1	24	53.3	25	37.4	28
10	B05*0154	83.7	4	81.7	1	91.4	4	75.8	2	81.7	1	75.7	2
11	B06*0758	80.7	8	55.3	18	75.0	24	66.9	23	55.1	23	61.4	15
12	Y09*12C	76.0	14	55.1	20	65.8	28	72.6	8	65.7	15	61.2	16
13	G09311	54.8	28	52.0	23	82.5	15	68.9	17	64.8	16	55.2	24
14	G09308	68.5	22	56.8	17	85.3	11	73.1	6	55.8	22	60.8	19
15	G09418	71.0	19	45.5	27	76.9	23	67.4	21	53.5	24	66.2	8
16	M05-1526	69.3	20	55.0	21	81.2	17	73.5	5	61.2	21	43.2	27
17	GA021338-9E15	75.3	15	69.6	7	84.7	13	69.9	13	68.3	10	73.7	5
18	GA021338-9EE11	82.9	6	59.9	16	77.3	22	71.0	10	67.8	12	64.5	11
19	GA021245-9E16	79.8	9	70.9	5	80.2	18	69.6	14	63.9	18	61.8	13
20	MO080104	78.9	11	70.9	6	92.2	1	67.6	20	74.2	4	74.5	3
21	NC07-25169	83.0	5	62.7	15	78.4	21	72.1	9	71.9	6	64.3	12
22	NC07-24445	87.6	1	63.0	13	79.1	19	74.1	4	77.4	3	52.8	26
23	VA08W-294	85.2	3	71.8	3	91.5	3	68.0	19	52.9	26	76.9	1
24	VA07W-429	79.0	10	62.8	14	84.2	14	68.0	18	62.1	20	61.6	14
25	VA08MAS-412	77.7	12	55.3	18	74.0	26	73.1	7	68.3	9	60.9	18
26	VA05W-151	86.4	2	67.8	11	86.1	10	80.6	1	80.2	2	74.3	4
27	TN1002	74.5	16	68.5	10	84.8	12	64.4	25	67.2	13	72.7	6
28	TN1101	73.5	17	51.6	24	91.9	2	69.0	15	46.7	27	59.5	21
LOCATION MEANS		74.2		61.4		82.6		69.3		64.5		62.5	
LSD (.05)								NS		7.6		8.4	
CV %								7.78		5.7		5.9	
Reps		1		1		1		2		2		2	
Harvest Plot Area (sq.ft.)		32		58				58		50		40	

YIELD (bu/acre)

		Schochoh		Baton Rouge		Winnsboro		Queenstown		Cleveland		Newton	
		KY	ab	LA	ab	LA	ab	MD	ab	MS	a	MS	a
		Van Sanforc	rank	Harrison	rank	Harrison	rank	Costa	rank	Hancock	rank	Burgess	rank
1	AGS 2000	68.3	20	90.3	2	64.0	13	82.2	11	96.6	1	61.2	1
2	Pioneer Brand 26R61	59.1	28	78.4	24	65.1	10	67.0	28	84.3	11	47.3	20
3	Coker 9553	69.8	16	88.4	3	71.2	3	78.1	20	91.1	4	56.6	5
4	USG 3555	72.6	13	84.4	15	64.9	11	81.4	15	87.5	6	56.0	7
5	NC05-19896	61.2	27	79.7	22	56.2	24	82.0	12	80.5	14	43.9	24
6	LA02015E201	67.3	24	82.9	19	66.3	6	78.6	19	76.9	18	47.7	19
7	LA01069D-23-4-4	89.8	1	87.6	6	75.1	2	80.9	16	85.4	10	53.7	11
8	LA03217D-P2	69.3	18	84.6	14	67.3	5	68.5	26	72.1	23	57.0	4
9	LA02015E42	62.2	26	78.5	23	62.6	17	72.3	24	78.0	17	39.8	28
10	B05*0154	83.5	2	87.1	8	65.9	8	87.7	3	91.3	3	57.1	3
11	B06*0758	65.9	25	84.7	12	56.4	23	83.2	8	86.1	8	50.7	15
12	Y09*12C	72.6	12	76.0	25	64.7	12	77.9	21	90.2	5	51.4	12
13	G09311	77.7	7	71.0	26	49.1	28	84.1	5	73.9	21	42.5	25
14	G09308	72.8	11	84.7	13	57.5	21	80.2	17	71.9	24	49.2	17
15	G09418	75.4	9	81.0	20	51.6	27	82.3	10	80.2	15	51.1	14
16	M05-1526	73.5	10	79.7	21	54.7	26	81.9	13	73.3	22	40.6	27
17	GA021338-9E15	80.0	5	87.7	5	57.7	20	71.8	25	94.1	2	51.2	13
18	GA021338-9EE11	68.1	21	86.7	9	58.8	19	72.7	23	85.8	9	54.5	10
19	GA021245-9E16	71.3	15	83.6	17	68.8	4	68.5	27	52.1	28	54.9	9
20	MO080104	67.9	22	84.9	11	77.3	1	82.4	9	78.9	16	56.1	6
21	NC07-25169	69.1	19	69.5	28	62.9	16	77.5	22	74.3	19	45.8	21
22	NC07-24445	77.0	8	70.7	27	56.6	22	85.8	4	81.7	13	44.6	22
23	VA08W-294	82.9	3	83.3	18	66.2	7	83.8	6	61.6	27	49.4	16
24	VA07W-429	79.1	6	87.5	7	63.4	15	79.2	18	86.2	7	44.0	23
25	VA08MAS-412	67.5	23	87.7	4	65.5	9	88.7	2	74.0	20	41.3	26
26	VA05W-151	82.0	4	85.9	10	63.6	14	90.4	1	83.9	12	48.4	18
27	TN1002	69.7	17	84.1	16	60.7	18	81.4	14	68.1	25	55.9	8
28	TN1101	72.1	14	91.2	1	55.6	25	83.7	7	61.8	26	58.0	2
LOCATION MEANS		72.4		82.9		62.5		79.8		79.4		50.4	
LSD (.05)		15.5		5.2		12.2		12.1		17.7		7.9	
CV %		9.5		3.5		9.5		7.4		10.9		13.3	
Reps		2		2		2		2		2			
Harvest Plot Area (sq.ft.)		40		70		70				60.67			

YIELD (bu/acre)

		Portageville		Kinston		Wooster		Knoxville		Farmersville		Blacksburg	
		MO	a	NC	ab	OH		TN	ab	TX	ab	VA	ab
		McKendry	rank	Murphy	rank	Sneller	rank	West	rank	Sutton	rank	Griffey	rank
1	AGS 2000	75.8	2	63.5	16	74.4	16	56.6	10	60.1	8	78.6	20
2	Pioneer Brand 26R61	58.5	27	52.1	24	65.5	21	48.7	21	49.0	28	84.0	10
3	Coker 9553	66.4	12	61.6	17	71.7	19	57.2	9	60.8	7	85.8	5
4	USG 3555	66.1	13	71.0	9	80.4	6	64.3	1	55.8	21	89.7	3
5	NC05-19896	59.7	23	68.5	11	73.2	17	45.1	25	55.1	22	70.8	24
6	LA02015E201	68.3	7	66.0	14	62.6	22	64.3	1	56.2	20	95.4	1
7	LA01069D-23-4-4	53.9	28	55.2	22	54.2	27	41.1	27	61.6	6	79.5	19
8	LA03217D-P2	62.1	21	37.9	28	42.4	28	45.5	24	56.7	19	70.2	25
9	LA02015E42	59.5	24	50.7	26	56.8	26	58.3	7	54.4	24	64.6	28
10	B05*0154	67.7	8	66.5	13	75.8	12	61.3	4	59.5	9	77.9	21
11	B06*0758	67.3	9	70.9	10	81.0	5	50.5	15	54.3	25	77.0	22
12	Y09*12C	68.9	6	81.1	1	77.1	9	49.5	17	59.0	11	69.7	26
13	G09311	58.6	26	48.5	27	61.1	23	42.3	26	54.9	23	65.8	27
14	G09308	58.9	25	51.8	25	69.2	20	47.1	23	57.4	17	80.8	16
15	G09418	66.7	10	57.0	19	71.8	18	38.4	28	58.2	15	83.3	11
16	M05-1526	65.9	14	55.2	22	60.9	24	47.9	22	51.8	27	79.5	18
17	GA021338-9E15	70.6	5	59.5	18	78.4	8	54.2	11	63.5	4	85.3	6
18	GA021338-9EE11	71.6	4	65.8	15	75.6	14	62.2	3	65.3	3	84.2	9
19	GA021245-9E16	64.6	16	56.7	20	86.5	3	58.5	6	57.2	18	88.6	4
20	MO080104	62.3	20	67.1	12	75.1	15	49.8	16	57.5	16	84.9	7
21	NC07-25169	72.3	3	74.1	5	83.1	4	53.5	14	58.4	14	81.8	14
22	NC07-24445	60.5	22	78.0	2	75.8	13	53.6	13	59.3	10	72.6	23
23	VA08W-294	63.5	19	76.8	3	90.0	2	59.0	5	54.1	26	84.8	8
24	VA07W-429	63.6	17	71.5	8	76.2	11	49.2	18	65.8	2	80.7	17
25	VA08MAS-412	63.6	17	74.4	4	80.3	7	54.1	12	66.4	1	81.4	15
26	VA05W-151	82.7	1	72.4	7	91.4	1	57.4	8	63.4	5	82.5	12
27	TN1002	66.6	11	55.4	21	59.4	25	48.9	19	58.5	13	82.4	13
28	TN1101	65.2	15	72.5	6	76.8	10	48.8	20	58.7	12	93.2	2
LOCATION MEANS		65.4		63.6		72.4		52.4		58.3		80.5	
LSD (.05)		9.6		12.4				8.2		7.77		12.19	
CV %		11.1		9.6				9.8		8.49		8.89	
Reps		3		2		1		3		3		2	
Harvest Plot Area (sq.ft.)		55		55		50		43.5		50		45	

YIELD (bu/acre)

		Warsaw VA	ab	Oconto WI	b
		Griffey	rank	Murche	rank
1	AGS 2000	99.9	8	77.3	24
2	Pioneer Brand 26R61	90.3	18	85.6	9
3	Coker 9553	102.8	6	92.5	4
4	USG 3555	104.9	5	81.5	11
5	NC05-19896	93.9	13	89.9	5
6	LA02015E201	87.1	25	77.5	23
7	LA01069D-23-4-4	85.2	26	80.2	16
8	LA03217D-P2	70.6	28	77.9	21
9	LA02015E42	82.8	27	81.4	12
10	B05*0154	93.6	14	100.7	1
11	B06*0758	89.8	19	75.9	27
12	Y09*12C	100.0	7	79.8	18
13	G09311	89.6	20	89.6	6
14	G09308	87.7	24	86.5	8
15	G09418	93.1	15	77.5	22
16	M05-1526	91.9	17	80.6	15
17	GA021338-9E15	88.1	23	74.9	28
18	GA021338-9EE11	89.1	21	78.9	20
19	GA021245-9E16	98.7	9	77.2	25
20	MO080104	97.4	11	94.2	3
21	NC07-25169	92.4	16	80.1	17
22	NC07-24445	98.6	10	95.6	2
23	VA08W-294	106.6	4	89.1	7
24	VA07W-429	95.5	12	83.0	10
25	VA08MAS-412	110.4	1	80.8	14
26	VA05W-151	109.9	2	79.7	19
27	TN1002	88.8	22	76.5	26
28	TN1101	107.6	3	81.0	13
LOCATION MEANS		94.5		83.1	
LSD (.05)		7.5		13.7	
CV %		4.6		9.7	
Reps		2		2	
Harvest Plot Area (sq.ft.)		45		50	

YIELD (bu/acre)

		ENTRY MEANS ALL LOCATIONS	rank	ENTRY MEANS IN-REGION [a]	rank	ENTRY MEANS CV <10% [b]	rank
1	AGS 2000	73.6	9	74.0	9	72.4	18
2	Pioneer Brand 26R61	66.3	25	63.8	28	66.7	26
3	Coker 9553	77.0	5	76.8	5	76.5	5
4	USG 3555	77.5	4	77.5	2	76.4	7
5	NC05-19896	69.3	22	68.9	22	71.7	20
6	LA02015E201	71.6	15	72.3	12	72.8	15
7	LA01069D-23-4-4	71.1	17	71.6	15	73.1	14
8	LA03217D-P2	66.1	26	67.7	23	65.6	28
9	LA02015E42	65.3	28	66.6	26	66.1	27
10	B05*0154	79.2	2	77.2	3	79.4	1
11	B06*0758	71.2	16	71.4	16	72.7	16
12	Y09*12C	70.7	19	70.9	18	72.6	17
13	G09311	65.9	27	65.5	27	68.0	24
14	G09308	69.8	20	69.6	20	70.9	21
15	G09418	68.6	23	69.3	21	69.7	22
16	M05-1526	67.1	24	66.9	25	67.0	25
17	GA021338-9E15	72.6	12	71.8	14	73.2	13
18	GA021338-9EE11	72.6	13	72.2	13	73.7	11
19	GA021245-9E16	73.4	10	72.5	11	73.3	12
20	MO080104	76.4	6	75.0	8	75.7	8
21	NC07-25169	69.6	21	67.5	24	68.5	23
22	NC07-24445	73.1	11	71.2	17	74.1	10
23	VA08W-294	77.8	3	77.1	4	79.2	2
24	VA07W-429	75.4	7	75.6	7	76.4	6
25	VA08MAS-412	75.1	8	75.8	6	77.9	3
26	VA05W-151	79.7	1	79.0	1	77.7	4
27	TN1002	70.9	18	70.6	19	72.4	19
28	TN1101	72.4	14	73.0	10	75.2	9
LOCATION MEANS		72.1		71.8		72.8	
LSD (.05)							
CV %							
Reps							
Harvest Plot Area (sq.ft.)							

TEST WEIGHT (lbs/bu)

		Belle Mina AL Glass	Bay AR Hancock	Middletown DE Uniatowski	Quincy FL Barnett	Griffin GA Johnson
1	AGS 2000	60.2	58.6	56.7	57.0	61.7
2	Pioneer Brand 26R61	60.2	57.7	58.6	61.1	62.5
3	Coker 9553	60.2	60.8	58.5	60.2	62.6
4	USG 3555	58.6	58.1	58.5	56.0	59.8
5	NC05-19896	59.2	57.7	59.5	58.2	62.7
6	LA02015E201	61.2	58.2	58.9	62.0	62.9
7	LA01069D-23-4-4	59.7	57.7	59.3	55.7	62.2
8	LA03217D-P2	61.6	60.6	59.6	63.0	63.2
9	LA02015E42	58.7	58.2	57.5	61.1	62.4
10	B05*0154	57.0	53.5	57.5	57.6	58.2
11	B06*0758	59.0	55.6	57.6	60.5	58.5
12	Y09*12C	59.1	53.9	58.2	59.5	61.4
13	G09311	57.4	52.0	58.6	56.0	61.3
14	G09308	60.0	58.1	59.0	58.2	62.4
15	G09418	59.1	57.9	59.5	58.2	61.6
16	M05-1526	55.9	52.0	57.7	53.8	57.5
17	GA021338-9E15	59.4	55.3	59.0	57.3	58.7
18	GA021338-9EE11	60.0	55.9	59.1	56.3	58.3
19	GA021245-9E16	59.2	57.1	58.6	60.5	61.8
20	MO080104	59.6	59.6	62.5	60.8	63.1
21	NC07-25169	60.3	57.0	62.3	61.1	61.0
22	NC07-24445	58.1	53.5	58.2	57.6	60.3
23	VA08W-294	59.5	57.9	58.9	59.5	60.9
24	VA07W-429	57.1	54.0	56.5	51.5	60.1
25	VA08MAS-412	57.1	52.9	55.9	52.8	58.5
26	VA05W-151	60.0	57.7	60.8	61.1	60.2
27	TN1002	57.1	53.0	57.0	57.6	61.1
28	TN1101	57.0	56.2	53.9	57.3	59.6
LOCATION MEANS		59.0	56.4	58.5	58.3	60.9

TEST WEIGHT (lbs/bu)

		Plains GA Johnson	Battle Ground IN Obert	Lafayette IN Moreno	Mt. Vernon IN Fogleman	Winfield KS Perry
1	AGS 2000	59.1	56.7	56.3	58.1	56.3
2	Pioneer Brand 26R61	60.6	57.2	60.0	58.5	63.1
3	Coker 9553	60.9	57.5	58.7	58.1	65.4
4	USG 3555	57.9	55.3	57.4	59.1	60.7
5	NC05-19896	60.1	56.6	59.0	57.7	63.3
6	LA02015E201	61.7	57.4	60.5	59.9	66.5
7	LA01069D-23-4-4	61.0	57.1	59.5	58.9	63.4
8	LA03217D-P2	62.1	58.9	61.0	58.9	66.9
9	LA02015E42	58.2	58.4	58.8	58.3	64.2
10	B05*0154	58.6	54.7	55.9	56.1	61.0
11	B06*0758	57.5	57.2	57.4	58.7	59.9
12	Y09*12C	59.5	55.4	55.8	59.1	64.3
13	G09311	58.7	54.5	57.2	57.2	61.3
14	G09308	61.7	55.6	59.1	59.4	61.9
15	G09418	61.0	55.4	57.7	59.6	60.3
16	M05-1526	58.5	54.7	57.2	56.7	61.3
17	GA021338-9E15	59.2	57.7	58.3	58.5	61.3
18	GA021338-9EE11	59.7	58.3	58.2	58.8	59.5
19	GA021245-9E16	60.9	58.0	59.6	59.7	63.7
20	MO080104	62.0	57.1	59.7	59.9	65.9
21	NC07-25169	62.4	59.3	61.8	60.7	65.8
22	NC07-24445	57.9	57.3	57.4	58.1	62.5
23	VA08W-294	59.3	58.4	59.7	59.8	62.8
24	VA07W-429	55.8	54.8	56.2	57.6	60.3
25	VA08MAS-412	56.4	54.7	56.6	55.3	61.7
26	VA05W-151	61.8	59.5	60.1	59.9	67.0
27	TN1002	58.8	56.1	57.9	56.1	61.7
28	TN1101	58.7	54.7	56.4	55.0	62.8
LOCATION MEANS		59.6	56.7	58.3	58.3	62.7

TEST WEIGHT (lbs/bu)

		Lexington KY Van Sanford	Schochoh KY Van Sanford	Baton Rouge LA Harrison	Winnsboro LA Harrison	Queenstown MD Costa
1	AGS 2000	52.2	50.5	59.7	54.8	57.7
2	Pioneer Brand 26R61	54.9	49.2	61.1	59.6	57.7
3	Coker 9553	56.2	53.3	59.8	59.4	58.6
4	USG 3555	53.8	49.5	58.5	55.3	55.7
5	NC05-19896	56.5	52.7	59.8	58.7	59.0
6	LA02015E201	57.2	52.5	60.1	59.3	59.2
7	LA01069D-23-4-4	56.9	53.6	59.6	58.6	59.1
8	LA03217D-P2	57.4	56.1	61.4	60.1	59.6
9	LA02015E42		50.6	61.5	58.5	59.1
10	B05*0154	53.5	50.6	56.5	55.2	56.3
11	B06*0758	53.5	51.6	57.9	55.9	58.7
12	Y09*12C	53.4	49.7	58.1	57.0	58.2
13	G09311	54.7	52.5	58.2	54.4	57.2
14	G09308	54.0	52.2	58.6	57.2	58.7
15	G09418	54.5	53.0	58.5	56.9	58.6
16	M05-1526	50.7	52.5	57.2	54.8	57.7
17	GA021338-9E15	58.0	55.1	59.3	58.8	56.1
18	GA021338-9EE11	55.3	53.2	59.2	59.2	55.5
19	GA021245-9E16	56.6	53.0	60.3	58.9	58.2
20	MO080104	56.0	52.6	61.1	58.7	58.8
21	NC07-25169	58.0	56.5	61.4	61.3	60.6
22	NC07-24445	52.4	50.0	56.0	56.1	56.5
23	VA08W-294	58.2	49.8	58.2	58.2	58.5
24	VA07W-429	52.7	48.3	57.2	55.0	55.6
25	VA08MAS-412	51.1	51.0	56.4	54.1	54.4
26	VA05W-151	56.8	51.9	59.3	56.4	59.2
27	TN1002	56.4	51.1	57.1	55.4	57.5
28	TN1101	51.3	49.5	56.6	54.4	55.9
LOCATION MEANS		54.9	51.9	58.9	57.2	57.8

TEST WEIGHT (lbs/bu)

		Cleveland MS Hancock	Newton MS Burgess	Portageville MO McKendry	Kinston NC Murphy	Knoxville TN West
1	AGS 2000	60.4	62	52.9	62.6	58.8
2	Pioneer Brand 26R61	60.4	62	56.6	62.6	59.0
3	Coker 9553	61.4	62	57.8	63.0	58.2
4	USG 3555	58.7	61	55.6	60.2	56.1
5	NC05-19896	60.0	62	56.6	61.9	56.5
6	LA02015E201	60.5	62	57.3	62.4	58.4
7	LA01069D-23-4-4	59.6	61	54.8	60.9	57.2
8	LA03217D-P2	60.3	64	58.6	60.9	60.2
9	LA02015E42	61.1	61	55.8	61.9	57.8
10	B05*0154	57.3	60	55.2	59.5	55.6
11	B06*0758	58.7	62	55.1	62.7	57.5
12	Y09*12C	60.1	62	56.5	62.6	58.3
13	G09311	59.0	59	54.5	59.8	55.0
14	G09308	60.9	61	56.5	60.6	56.5
15	G09418	60.5	61	56.7	60.6	57.0
16	M05-1526	57.7	57	53.9	57.9	55.3
17	GA021338-9E15	60.5	61	58.2	60.6	58.1
18	GA021338-9EE11	60.4	62	58.4	60.9	59.2
19	GA021245-9E16	60.6	62	57.6	63.9	58.9
20	MO080104	63.7	63	57.3	60.7	58.4
21	NC07-25169	61.4	63	58.3	63.7	59.1
22	NC07-24445	57.6	60	55.7	61.8	55.7
23	VA08W-294	59.9	61	57.1	62.3	58.1
24	VA07W-429	57.5	58	54.1	59.9	55.9
25	VA08MAS-412	58.2	57	53.0	59.7	56.1
26	VA05W-151	61.3	62	58.5	61.2	59.1
27	TN1002	56.7	59	54.7	59.1	53.7
28	TN1101	56.9	58	54.6	59.7	54.2
LOCATION MEANS		59.7	60.9	56.1	61.2	57.3

TEST WEIGHT (lbs/bu)

		Farmersville TX Sutton	Blacksburg VA Griffey	Warsaw VA Griffey	Oconto WI Murche	ENTRY MEANS ALL LOCATIONS	rank
1	AGS 2000	59.8	56.8	61.3	60.4	57.9	19
2	Pioneer Brand 26R61	61.2	59.1	62.5	61.0	59.4	8
3	Coker 9553	60.2	58.5	63.5	59.5	59.8	6
4	USG 3555	58.9	54.5	60.2	59.7	57.5	20
5	NC05-19896	59.1	54.1	61.7	60.3	58.9	12
6	LA02015E201	60.0	58.3	63.2	60.2	60.0	4
7	LA01069D-23-4-4	60.2	56.7	61.9	59.4	58.9	11
8	LA03217D-P2	60.8	56.2	62.4	60.9	60.6	2
9	LA02015E42	59.8	55.2	62.7	60.5	59.2	9
10	B05*0154	57.1	52.7	59.4	58.3	56.5	24
11	B06*0758	59.2	55.0	60.9	60.6	58.0	18
12	Y09*12C	57.9	55.6	62.0	60.6	58.3	17
13	G09311	58.9	52.9	61.3	59.3	57.1	22
14	G09308	58.9	56.0	62.0	59.5	58.7	15
15	G09418	59.2	56.2	62.3	59.3	58.5	16
16	M05-1526	58.8	52.8	60.6	58.9	56.3	25
17	GA021338-9E15	60.9	57.6	60.5	61.1	58.8	13
18	GA021338-9EE11	60.9	57.6	61.1	61.5	58.7	14
19	GA021245-9E16	61.3	58.1	62.9	60.7	59.7	7
20	MO080104	60.4	58.1	63.3	60.5	60.1	3
21	NC07-25169	61.7	59.2	63.9	61.9	60.9	1
22	NC07-24445	59.1	52.7	60.2	59.5	57.3	21
23	VA08W-294	59.6	57.2	62.3	60.0	59.0	10
24	VA07W-429	58.7	51.0	59.1	59.5	56.1	27
25	VA08MAS-412	58.8	51.5	60.3	59.0	55.9	28
26	VA05W-151	60.3	58.0	64.0	60.1	59.8	5
27	TN1002	57.5	53.5	60.7	58.6	57.0	23
28	TN1101	57.6	52.6	60.0	57.4	56.3	26
LOCATION MEANS		59.5	55.6	61.6	59.9	58.4	

HEADING DATE (Julian Days)

		Belle Mina AL Glass	Bay AR Hancock	Quincy FL Barnett	Griffin GA Johnson	Plains GA Johnson
1	AGS 2000	105	105.5	82	99	88
2	Pioneer Brand 26R61	106	107.0	82	101	89
3	Coker 9553	103	106.5	81	99	88
4	USG 3555	105	106.5	82	101	88
5	NC05-19896	105	108.0	88	101	91
6	LA02015E201	105	105.0	78	99	85
7	LA01069D-23-4-4	102	107.0	80	100	88
8	LA03217D-P2	103	101.0	77	97	85
9	LA02015E42	103	105.0	80	98	86
10	B05*0154	106	110.0	89	102	95
11	B06*0758	107	109.5	84	103	92
12	Y09*12C	107	110.5	83	103	95
13	G09311	104	108.5	88	102	94
14	G09308	105	110.5	89	101	95
15	G09418	105	110.0	88	102	95
16	M05-1526	107	109.5	87	103	91
17	GA021338-9E15	108	108.5	81	101	88
18	GA021338-9EE11	108	108.5	80	101	88
19	GA021245-9E16	105	104.5	80	99	88
20	MO080104	105	108.5	86	102	90
21	NC07-25169	108	109.5	87	101	96
22	NC07-24445	105	107.5	82	100	90
23	VA08W-294	108	110.0	83	102	91
24	VA07W-429	107	108.5	82	101	89
25	VA08MAS-412	107	109.0	83	101	89
26	VA05W-151	105	109.0	82	100	90
27	TN1002	103	102.0	80	98	88
28	TN1101	105	108.0	84	100	90
LOCATION MEANS		105.4	107.6	83.1	100.6	90.1

HEADING DATE (Julian Days)

		Battle Ground IN Obert	Delphi IN Fogleman	Lafayette IN Moreno	Lexington KY Van Sanford	Baton Rouge LA Harrison
1	AGS 2000	134.5	140	134	130.1	79.5
2	Pioneer Brand 26R61	136.5	141	134	129.5	82.0
3	Coker 9553	135.0	141	133	129.2	82.5
4	USG 3555	134.5	142	134	131.1	84.5
5	NC05-19896	135.0	136	134	132.6	86.5
6	LA02015E201	134.0	138	134	130.1	78.0
7	LA01069D-23-4-4	133.0	137	132	128.6	81.0
8	LA03217D-P2	131.0	135	131	128.7	75.5
9	LA02015E42	135.0	138	135	129.4	77.5
10	B05*0154	136.0	139	136	131.0	86.0
11	B06*0758	137.0	140	136	129.3	81.5
12	Y09*12C	137.5	141	.	134.2	84.5
13	G09311	132.5	136	131	128.9	86.5
14	G09308	135.5	140	134	131.5	84.5
15	G09418	135.0	142	135	131.1	84.5
16	M05-1526	133.0	138	132	131.9	85.5
17	GA021338-9E15	139.5	141	136	135.7	76.0
18	GA021338-9EE11	138.5	142	137	136.8	78.5
19	GA021245-9E16	135.5	138	132	131.1	73.5
20	MO080104	135.5	140	134	131.8	83.5
21	NC07-25169	135.0	142	136	133.2	91.0
22	NC07-24445	134.0	138	133	129.9	80.5
23	VA08W-294	135.5	140	134	131.8	84.0
24	VA07W-429	135.0	139	134	131.9	80.5
25	VA08MAS-412	134.5	141	134	131.4	81.5
26	VA05W-151	134.5	138	134	130.9	82.0
27	TN1002	131.0	141	132	127.4	79.0
28	TN1101	136.0	141	133	129.5	84.0
LOCATION MEANS		135.0	139.5	133.9	131.0	81.9

HEADING DATE (Julian Days)

		Winnsboro LA Harrison	Queenstown MD Costa	Kinston NC Murphy	Wooster OH Sneller	Knoxville TN West
1	AGS 2000	88.0	122.0	102	147	112
2	Pioneer Brand 26R61	89.0	124.0	105	147	115
3	Coker 9553	85.5	123.0	102	147	113
4	USG 3555	88.5	124.0	103	147	116
5	NC05-19896	92.0	123.5	102	148	114
6	LA02015E201	85.0	122.0	101	148	113
7	LA01069D-23-4-4	86.0	122.5	103	146	113
8	LA03217D-P2	81.0	119.0	98	144	109
9	LA02015E42	87.0	122.5	103	149	113
10	B05*0154	92.5	124.0	.	148	116
11	B06*0758	90.0	124.5	104	150	115
12	Y09*12C	88.5	125.0	105	150	116
13	G09311	90.5	123.0	104	144	115
14	G09308	92.0	123.5	104	148	115
15	G09418	91.5	124.0	103	148	115
16	M05-1526	92.0	124.0	.	146	115
17	GA021338-9E15	91.5	124.5	102	150	113
18	GA021338-9EE11	92.5	124.5	101	151	113
19	GA021245-9E16	90.0	122.5	100	146	113
20	MO080104	91.0	124.5	104	148	115
21	NC07-25169	90.5	124.5	105	149	116
22	NC07-24445	86.5	122.5	104	146	113
23	VA08W-294	90.0	124.5	105	147	115
24	VA07W-429	88.5	123.5	104	147	115
25	VA08MAS-412	90.0	124.0	103	148	115
26	VA05W-151	89.0	124.0	103	146	113
27	TN1002	86.5	120.5	100	145	113
28	TN1101	90.0	123.5	104	147	115
LOCATION MEANS		89.1	123.3	102.8	147.4	114.1

HEADING DATE (Julian Days)

		Blacksburg VA Griffey	Warsaw VA Griffey	Oconto WI Murche	ENTRY MEANS ALL LOCATIONS	rank
1	AGS 2000	126.0	117.5	159.0	115.1	8
2	Pioneer Brand 26R61	128.5	118.0	159.0	116.3	14
3	Coker 9553	124.5	116.0	159.0	114.9	7
4	USG 3555	128.0	118.0	159.0	116.2	13
5	NC05-19896	126.5	118.5	159.0	116.7	17
6	LA02015E201	126.5	118.0	159.0	114.4	5
7	LA01069D-23-4-4	124.0	115.5	158.5	114.3	4
8	LA03217D-P2	122.0	114.0	156.5	111.5	1
9	LA02015E42	126.0	117.5	159.5	114.7	6
10	B05*0154	127.5	118.5	159.0	118.6	28
11	B06*0758	128.5	120.0	159.0	117.2	23
12	Y09*12C	130.0	118.0	162.0	117.1	21
13	G09311	126.0	117.5	156.0	116.0	11
14	G09308	129.0	118.0	159.0	117.5	25
15	G09418	129.0	119.5	159.0	117.6	26
16	M05-1526	125.5	119.0	157.5	117.5	24
17	GA021338-9E15	127.5	119.5	164.0	117.0	20
18	GA021338-9EE11	125.0	118.5	161.0	116.9	18
19	GA021245-9E16	123.0	116.5	159.0	114.3	3
20	MO080104	129.5	119.0	159.0	117.0	19
21	NC07-25169	129.0	121.0	160.0	118.5	27
22	NC07-24445	127.5	118.0	159.0	115.4	9
23	VA08W-294	129.0	119.5	159.5	117.2	22
24	VA07W-429	126.0	119.5	159.0	116.1	12
25	VA08MAS-412	127.0	119.0	159.0	116.5	16
26	VA05W-151	127.0	119.0	159.0	115.9	10
27	TN1002	123.5	115.5	158.5	113.5	2
28	TN1101	127.0	118.0	159.0	116.3	15
LOCATION MEANS		126.7	118.1	159.1	116.1	

HEIGHT (inches)

		Belle Mina AL Glass	Bay AR Hancock	Middletown DE Uniatowski	Quincy FL Barnett	Griffin GA Johnson
1	AGS 2000	30	32.7	38.3	38.7	39
2	Pioneer Brand 26R61	34	35.2	37.3	38.0	42
3	Coker 9553	27	34.4	35.7	40.3	41
4	USG 3555	29	31.1	34.0	36.0	35
5	NC05-19896	28	29.7	32.7	38.0	35
6	LA02015E201	28	33.5	34.7	35.0	38
7	LA01069D-23-4-4	30	31.5	36.0	39.0	42
8	LA03217D-P2	30	34.4	35.3	39.0	41
9	LA02015E42	26	26.8	35.3	38.0	36
10	B05*0154	32	32.1	35.3	39.3	36
11	B06*0758	30	31.5	36.7	32.3	38
12	Y09*12C	27	28.5	32.7	36.0	34
13	G09311	30	34.6	36.3	40.0	37
14	G09308	30	33.5	35.0	38.3	37
15	G09418	30	33.5	36.0	38.0	38
16	M05-1526	31	31.5	38.0	42.0	37
17	GA021338-9E15	34	37.8	38.3	41.3	39
18	GA021338-9EE11	34	37.0	39.0	42.0	40
19	GA021245-9E16	34	34.4	37.3	42.7	38
20	MO080104	30	35.2	38.0	39.0	38
21	NC07-25169	27	28.7	31.3	34.0	34
22	NC07-24445	29	32.5	35.0	35.0	38
23	VA08W-294	31	30.7	35.3	36.3	38
24	VA07W-429	29	32.1	34.0	37.3	39
25	VA08MAS-412	30	31.3	34.3	36.0	39
26	VA05W-151	28	32.5	35.5	35.0	38
27	TN1002	28	33.5	36.0	38.7	38
28	TN1101	30	38.4	38.0	38.3	42
LOCATION MEANS		29.9	32.8	35.8	38.0	38.1

HEIGHT (inches)

		Plains GA Johnson	Battle Ground IN Obert	Lafayette IN Moreno	Tipton IN Obert	Lexington KY Van Sanford
1	AGS 2000	36	35	38	33	34.8
2	Pioneer Brand 26R61	38	38	42	33	37.2
3	Coker 9553	36	36	37	31	32.1
4	USG 3555	30	32	32	27	31.7
5	NC05-19896	31	32	33	27	33.0
6	LA02015E201	33	32	34	28	33.5
7	LA01069D-23-4-4	34	35	37	32	33.6
8	LA03217D-P2	34	35	36	31	32.6
9	LA02015E42	29	30	34	30	33.3
10	B05*0154	34	33	35	29	32.0
11	B06*0758	33	36	34	31	35.6
12	Y09*12C	32	34	31	27	33.8
13	G09311	36	36	38	31	33.1
14	G09308	36	36	35	32	33.3
15	G09418	37	36	34	33	35.2
16	M05-1526	39	36	37	30	32.7
17	GA021338-9E15	39	36	37	33	36.9
18	GA021338-9EE11	38	36	35	33	37.3
19	GA021245-9E16	37	36	38	33	35.3
20	MO080104	39	36	39	33	35.9
21	NC07-25169	30	31	28	27	31.7
22	NC07-24445	35	34	34	29	34.2
23	VA08W-294	34	34	35	32	34.2
24	VA07W-429	33	34	34	32	34.2
25	VA08MAS-412	33	34	33	32	32.6
26	VA05W-151	32	34	35	32	31.8
27	TN1002	36	37	36	33	33.1
28	TN1101	35	38	37	34	32.4
LOCATION MEANS		34.6	34.7	35.3	31.0	33.8

HEIGHT (inches)

		Schochoh KY Van Sanford	Baton Rouge LA Harrison	Winnsboro LA Harrison	Queenstown MD Costa	Cleveland MS Hancock
1	AGS 2000	35.5	39.5	33.5	37.5	41.1
2	Pioneer Brand 26R61	35.7	38.5	36.5	37.5	40.9
3	Coker 9553	33.2	37.5	32.0	36.5	40.4
4	USG 3555	30.3	34.5	28.5	32.5	36.4
5	NC05-19896	31.1	35.0	31.5	35.0	35.4
6	LA02015E201	34.4	37.0	31.0	36.0	38.6
7	LA01069D-23-4-4	37.4	37.0	32.0	38.0	39.4
8	LA03217D-P2	36.1	38.5	33.0	36.0	39.8
9	LA02015E42	32.5	36.5	28.0	33.0	36.0
10	B05*0154	34.7	37.0	32.5	35.5	37.4
11	B06*0758	37.3	37.5	32.0	38.0	36.6
12	Y09*12C	33.6	34.0	29.0	33.5	34.8
13	G09311	37.0	38.5	35.0	37.5	41.9
14	G09308	32.7	38.5	32.5	35.0	39.2
15	G09418	36.1	39.5	33.0	37.0	37.8
16	M05-1526	36.7	40.0	36.5	39.5	40.0
17	GA021338-9E15	39.4	40.0	35.0	37.5	40.0
18	GA021338-9EE11	40.2	40.0	34.0	38.0	43.3
19	GA021245-9E16	39.3	38.5	36.0	34.5	41.3
20	MO080104	35.6	41.0	37.0	39.5	38.4
21	NC07-25169	30.5	29.5	27.5	32.5	31.7
22	NC07-24445	34.7	36.5	30.5	37.0	37.0
23	VA08W-294	34.5	36.0	32.5	34.5	38.6
24	VA07W-429	35.0	35.0	32.5	34.5	38.2
25	VA08MAS-412	33.6	35.5	32.5	36.5	37.2
26	VA05W-151	33.2	35.0	31.5	35.5	39.0
27	TN1002	35.8	39.0	31.5	35.5	40.4
28	TN1101	36.7	40.0	35.5	38.0	43.3
LOCATION MEANS		35.1	37.3	32.6	36.1	38.7

HEIGHT (inches)

		Newton MS Burgess	Portageville MO McKendry	Kinston NC Murphy	Wooster OH Sneller	Knoxville TN West
1	AGS 2000	35	33	38.0	35	37
2	Pioneer Brand 26R61	34	35	38.0	36	40
3	Coker 9553	33	29	37.2	35	38
4	USG 3555	36	29	35.6	32	33
5	NC05-19896	30	28	33.5	31	35
6	LA02015E201	34	31	34.4	33	37
7	LA01069D-23-4-4	35	32	37.6	34	38
8	LA03217D-P2	36	34	36.6	33	38
9	LA02015E42	33	28	33.7	31	36
10	B05*0154	32	30	36.2	33	37
11	B06*0758	34	30	36.2	35	36
12	Y09*12C	32	28	34.1	33	34
13	G09311	38	32	37.8	34	38
14	G09308	37	28	36.2	35	39
15	G09418	37	31	38.2	36	39
16	M05-1526	39	30	37.0	35	42
17	GA021338-9E15	40	37	37.2	35	39
18	GA021338-9EE11	39	36	36.8	35	38
19	GA021245-9E16	36	34	39.4	36	39
20	MO080104	36	31	37.8	37	43
21	NC07-25169	29	27	30.9	28	31
22	NC07-24445	32	31	36.0	32	35
23	VA08W-294	33	32	34.8	35	38
24	VA07W-429	32	29	35.6	33	36
25	VA08MAS-412	34	30	35.6	33	36
26	VA05W-151	33	30	35.8	33	37
27	TN1002	35	33	35.6	34	37
28	TN1101	39	32	37.4	35	37
LOCATION MEANS		34.8	31.1	36.2	33.8	37.3

HEIGHT (inches)

		Blacksburg VA Griffey	Warsaw VA Griffey	ENTRY MEANS ALL LOCATIONS	rank
1	AGS 2000	41.0	34.0	36.2	9
2	Pioneer Brand 26R61	44.0	37.0	37.6	3
3	Coker 9553	43.0	35.0	35.5	14
4	USG 3555	37.0	29.5	32.4	26
5	NC05-19896	37.5	30.5	32.4	25
6	LA02015E201	40.5	32.5	34.0	21
7	LA01069D-23-4-4	43.0	35.5	35.9	11
8	LA03217D-P2	42.5	33.0	35.7	12
9	LA02015E42	39.5	29.5	32.5	24
10	B05*0154	40.0	32.0	34.3	18
11	B06*0758	39.5	33.5	34.7	16
12	Y09*12C	38.5	30.5	32.3	27
13	G09311	43.0	34.0	36.3	8
14	G09308	42.5	32.5	35.2	15
15	G09418	42.0	32.5	35.9	10
16	M05-1526	42.5	34.0	36.7	7
17	GA021338-9E15	42.5	35.5	37.7	1
18	GA021338-9EE11	42.0	35.0	37.7	2
19	GA021245-9E16	41.5	35.5	37.1	5
20	MO080104	46.0	36.0	37.3	4
21	NC07-25169	34.5	27.0	30.1	28
22	NC07-24445	39.0	31.5	34.0	22
23	VA08W-294	39.0	32.0	34.6	17
24	VA07W-429	40.0	30.5	34.1	20
25	VA08MAS-412	39.5	33.0	34.2	19
26	VA05W-151	39.5	31.0	34.0	23
27	TN1002	41.5	35.0	35.6	13
28	TN1101	41.5	35.5	37.0	6
LOCATION MEANS		40.8	33.0	35.0	

LODGING

		Belle Mina AL Glass 0-9	Quincy FL Barnett 0-9	Baton Rouge LA Harrison 0-9	Winnsboro LA Harrison 0-9	Portageville MO McKendry 0-9
1	AGS 2000	5	3.0	2.0	2.0	3.5
2	Pioneer Brand 26R61	1	0.3	1.0	0.5	1.5
3	Coker 9553	2	1.0	1.5	0.5	3.5
4	USG 3555	2	1.3	1.5	0.5	3.5
5	NC05-19896	2	4.3	1.0	2.5	1.5
6	LA02015E201	3	0.3	2.0	0.0	1.0
7	LA01069D-23-4-4	6	2.0	1.0	0.0	3.0
8	LA03217D-P2	4	0.7	1.5	0.0	3.0
9	LA02015E42	6	0.7	2.0	0.0	0.5
10	B05*0154	2	0.7	1.0	0.5	3.5
11	B06*0758	0	1.3	2.5	0.5	1.5
12	Y09*12C	1	3.0	2.0	0.0	2.5
13	G09311	6	1.0	1.0	1.5	2.0
14	G09308	5	2.3	2.0	0.5	3.0
15	G09418	7	3.3	2.0	1.0	4.0
16	M05-1526	7	1.3	1.0	1.0	3.0
17	GA021338-9E15	1	0.7	1.0	0.5	1.0
18	GA021338-9EE11	1	1.0	1.0	0.5	1.0
19	GA021245-9E16	3	1.7	1.0	0.0	1.0
20	MO080104	7	1.7	2.5	0.5	1.0
21	NC07-25169	1	1.0	1.0	1.0	2.5
22	NC07-24445	1	1.3	1.5	1.5	3.0
23	VA08W-294	1	1.0	2.0	0.5	1.5
24	VA07W-429	3	3.3	2.0	1.5	2.0
25	VA08MAS-412	1	2.0	2.0	1.0	1.5
26	VA05W-151	9	2.3	5.0	2.0	4.0
27	TN1002	7	4.0	2.0	1.5	5.0
28	TN1101	5	2.7	1.0	1.5	3.5
LOCATION MEANS		3.5	1.8	1.7	0.8	2.4

LODGING

		Knoxville TN West 0-9	Blacksburg VA Griffey 0-9	Warsaw VA Griffey 0-9	ENTRY MEANS ALL LOCATIONS	rank
1	AGS 2000	6	4.0	0.0	3.2	24
2	Pioneer Brand 26R61	5	2.0	0.0	1.4	1
3	Coker 9553	6	2.5	0.0	2.1	11
4	USG 3555	4	4.0	0.5	2.2	12
5	NC05-19896	6	8.0	0.0	3.2	22
6	LA02015E201	4	3.0	0.0	1.7	3
7	LA01069D-23-4-4	7	3.5	0.5	2.9	20
8	LA03217D-P2	5	0.0	0.0	1.8	5
9	LA02015E42	4	4.5	0.0	2.2	13
10	B05*0154	4	3.0	0.5	1.9	7
11	B06*0758	7	7.0	0.0	2.5	15
12	Y09*12C	6	5.5	0.0	2.5	16
13	G09311	6	2.0	1.0	2.6	18
14	G09308	6	4.0	0.5	2.9	21
15	G09418	6	3.5	0.0	3.4	26
16	M05-1526	5	6.0	1.0	3.2	23
17	GA021338-9E15	5	5.5	0.0	1.8	6
18	GA021338-9EE11	5	4.0	0.0	1.7	4
19	GA021245-9E16	5	4.5	0.0	2.0	10
20	MO080104	6	1.5	0.0	2.5	17
21	NC07-25169	4	1.5	0.5	1.6	2
22	NC07-24445	5	5.5	0.5	2.4	14
23	VA08W-294	4	5.0	0.5	1.9	8
24	VA07W-429	6	4.0	0.5	2.8	19
25	VA08MAS-412	5	2.5	1.0	2.0	9
26	VA05W-151	6	8.0	1.0	4.7	28
27	TN1002	6	6.0	0.5	4.0	27
28	TN1101	5	7.0	1.0	3.3	25
LOCATION MEANS		5.3	4.2	0.3		

WINTER DAMAGE

		Lafayette IN Moreno Stand 0-9	Oconto WI Murche winter kill 0-9
1	AGS 2000	3	6.0
2	Pioneer Brand 26R61	2	3.5
3	Coker 9553	3	1.0
4	USG 3555	6	5.5
5	NC05-19896	4	6.0
6	LA02015E201	2	3.5
7	LA01069D-23-4-4	2	2.5
8	LA03217D-P2	5	2.5
9	LA02015E42	4	5.0
10	B05*0154	2	2.0
11	B06*0758	3	6.0
12	Y09*12C	5	5.0
13	G09311	3	1.5
14	G09308	2	1.5
15	G09418	4	2.5
16	M05-1526	4	2.5
17	GA021338-9E15	2	8.0
18	GA021338-9EE11	6	7.5
19	GA021245-9E16	4	5.0
20	MO080104	3	0.5
21	NC07-25169	3	3.5
22	NC07-24445	3	3.5
23	VA08W-294	2	3.5
24	VA07W-429	2	3.5
25	VA08MAS-412	2	4.0
26	VA05W-151	3	2.5
27	TN1002	2	3.0
28	TN1101	2	2.0
LOCATION MEANS		3.1	3.7

LEAF RUST

		Plains GA Johnson 0-9	Battle Ground IN Obert 0-9	Baton Rouge LA Harrison 0-9	Winnsboro LA Harrison 0-9	St. Paul MN Kolmer sev / it
1	AGS 2000	0	2	0.0	0.0	30MR
2	Pioneer Brand 26R61	0	3	0.0	0.0	10RMR
3	Coker 9553	0	3	0.0	0.0	40MSS
4	USG 3555	1	2	0.0	0.0	20M
5	NC05-19896	0	3	0.0	0.0	TR
6	LA02015E201	0	3	0.0	0.0	TR
7	LA01069D-23-4-4	0	2	0.0	0.0	30MS
8	LA03217D-P2	0	2	0.0	0.0	20M
9	LA02015E42	0	2	0.0	0.0	10RMR
10	B05*0154	0	4	0.0	0.0	40S
11	B06*0758	0	0	0.5	0.0	TR
12	Y09*12C	0	5	0.0	0.0	10M
13	G09311	2	5	0.0	0.0	40MS
14	G09308	4	4	0.9	0.5	30S
15	G09418	3	4	1.8	0.0	30S
16	M05-1526	3	3	0.7	0.0	40S
17	GA021338-9E15	0	0	0.0	0.5	TR
18	GA021338-9EE11	0	2	0.0	0.0	TR
19	GA021245-9E16	0	3	0.0	0.0	TR
20	MO080104	3	4	0.0	0.0	40MSS
21	NC07-25169	0	4	0.0	0.0	5R
22	NC07-24445	0	2	0.0	0.0	5R
23	VA08W-294	0	0	0.0	0.0	10RMR
24	VA07W-429	0	2	0.0	0.0	TR
25	VA08MAS-412	0	3	0.0	0.0	TR
26	VA05W-151	0	1	0.5	0.0	10R
27	TN1002	5	2	5.4	1.0	60MSS
28	TN1101	2	4	0.0	0.0	30MRMS
LOCATION MEANS		0.8	2.6	0.3	0.1	
DATE / GROWTH STAGE			June 6			

LEAF RUST

		Kinston NC Murphy 0-9	Blacksburg VA Griffey 0-9	Warsaw VA Griffey 0-9	Oconto WI Murche 0-9	ENTRY MEANS (excluding St. Paul)
1	AGS 2000	0.5	2.5	1.0	0.0	0.8
2	Pioneer Brand 26R61	1.0	2.0	0.5	3.0	1.2
3	Coker 9553	2.5	3.0	0.0	1.5	1.3
4	USG 3555	7.0	5.5	2.5	4.5	2.8
5	NC05-19896	3.0	1.0	1.0	3.0	1.4
6	LA02015E201	0.0	0.0	0.0	0.0	0.4
7	LA01069D-23-4-4	0.5	1.5	0.5	4.0	1.1
8	LA03217D-P2	0.0	0.0	0.0	1.0	0.4
9	LA02015E42	0.0	1.5	0.0	0.0	0.4
10	B05*0154	7.0	3.0	0.5	5.0	2.4
11	B06*0758	0.0	0.0	0.0	0.0	0.1
12	Y09*12C	0.0	1.5	0.0	0.0	0.8
13	G09311	5.0	2.0	0.5	5.0	2.4
14	G09308	8.0	6.5	5.5	5.5	4.4
15	G09418	8.0	5.0	3.5	5.5	3.9
16	M05-1526	4.5	2.5	0.5	7.0	2.6
17	GA021338-9E15	0.0	0.0	0.0	0.0	0.1
18	GA021338-9EE11	0.0	0.5	0.0	0.5	0.4
19	GA021245-9E16	0.0	0.5	0.0	0.0	0.4
20	MO080104	7.5	5.0	2.5	6.5	3.6
21	NC07-25169	2.5	4.0	0.5	0.0	1.4
22	NC07-24445	1.0	1.0	0.0	0.0	0.5
23	VA08W-294	0.0	0.0	0.0	0.0	0.0
24	VA07W-429	0.0	0.0	0.0	1.0	0.4
25	VA08MAS-412	0.0	0.0	0.0	0.0	0.4
26	VA05W-151	4.0	6.5	0.5	0.0	1.6
27	TN1002	6.0	6.5	4.0	7.0	4.6
28	TN1101	6.0	4.0	1.5	1.0	2.3
LOCATION MEANS		2.6	2.3	0.9	2.2	1.5
DATE / GROWTH STAGE						

LEAF RUST

Seedling reaction of entries of the 2010-2011 Uniform Southern Soft Red Winter Wheat Nursery to selected isolates of *Puccinia triticina* (D.L. Long, USDA-ARS-CDL, St. Paul,									Virginia Tech Seedling Reaction to Leaf Rust	
		Reactions produced by Pt race*						Postulated		TCRK +
No.	Cultivar or Line	TCRK**	TFBJ	TDBJ	TNRJ	MCTS	TNGJ	genes***	TNRJ	MFQS
1	AGS 2000	3,	;/c-3	;	;-3	3	;/c	26	0;	;12-
2	Pioneer Brand 26R61	3	3;	;/c2	;/c	3-2c;	;/c	26	0;	3;
3	Coker 9553	3	;	;	3	3	3	11	3	3
4	USG 3555	3	;	;/c	3	3	3	11	0;	23;
5	NC05-19896	3	;	;-3	;	;	3	+	;12-	;1
6	LA02015E201	;	3	;-3	;	;	3	+	;1	23-;
7	LA01069D-23-4-4	3	3	3	3	3	3	-	2;	3
8	LA03217D-P2	3	3	3	3	3	-	-	3	23;
9	LA02015E42	3-;	3	;/c	;	;	;/c	+	0;	23-;
10	B05*0154	3	3	3	3	3	3	-	12;	23;
11	B06*0758	3	;/c-3	3	;	3	;/c	+	0;Tr3	12;
12	Y09*12C	3	3	3	3	;	;	+	23	3
13	G09311	3	3	3	3	3	3	-	2;	3
14	G09309	3	3	3	3	3	3	-	3	3
15	G09418	3	3	3	3	3	3	-	3	3
16	M05-1526	3	3	;/c2	;	3	;/c	26	0;	23
17	GA021338-9E15	;/2	;/c2	;/c2	;/c	;/c1	-	+	0;1=	12;
18	GA021338-9EE11	;	;/c	;	;	;/c2	;/c	+	0;	23
19	GA021245-9E16	;/c	;	;/c	;/c	;	;/c;	+	0;	;1
20	MO080104	3	3	3;	3	3	3	-	3	3
21	NC07-25169	;	;	3	;	;	3	+	2;	;1=
22	NC07-24445	3	3;	3	3	3	3	-	;1-	23;
23	VA08W-294	;	;	;/2	3	;	3	11,24	23	0;
24	VA07W-429	3	3	;	;	3-;	-	26	;1=Tr3	0;/3
25	VA08MAS-412	;	;	;	;	-	;/c1	+	;1-	0;Tr3
26	VA05W-151	;-3	;-3	3	;3	3-;	3	-	3-	3
27	TN1002	3	3	3	3	3	3	-	3	23
28	TN1101	3	3	;/c2	3	-	;/c-3	+	;1	NA

*Single genes tested: = 1,2a,2c,3,3Ka,9,10,11,18,24,2,30,B

**Virulence formula:

***+ = Lr gene(s) present but unable to identify with these Lr virulence combi

TCRK=1,2a,2c,3,3ka,10,11,14a,18,26,30

TFBJ=1,2a,2c,3,10,14a,24,26

TDBJ=1,2a,2c,3,10,14a,24

MCTS=1,3,3ka,10,11,14a,17,30,B

TNGJ=1,2a,2c,3,9,10,11,14a,24

TNRJ=1,2a,2c,3,3ka,9,10,11,14a,24,30

MFQS=Lr1, 3, 3ka, 10, 11, 14a, 24, 26, B

STEM RUST

		Fayetteville AR Milus	
		IT	% sev
1	AGS 2000	2	7
2	Pioneer Brand 26R61	3	15
3	Coker 9553	4	70
4	USG 3555	1	2
5	NC05-19896	0	0
6	LA02015E201	1	2
7	LA01069D-23-4-4	4	70
8	LA03217D-P2	2	15
9	LA02015E42	1	7
10	B05*0154	4	85
11	B06*0758	2	7
12	Y09*12C	1	2
13	G09311	3	70
14	G09308	1	2
15	G09418	1	2
16	M05-1526	4	15
17	GA021338-9E15	2	7
18	GA021338-9EE11	2	2
19	GA021245-9E16	0	0
20	MO080104	2	2
21	NC07-25169	4	85
22	NC07-24445	0	0
23	VA08W-294	2	7
24	VA07W-429	3	30
25	VA08MAS-412		
26	VA05W-151		
27	TN1002	3	50
28	TN1101	4	85

St. Paul MN Jin

STEM RUST

		QFCSC	QTHJC	MCCFC	RCRSC	RKQQC	TPMKC	TTTTF	SCCSC	QCCSM	Bulk	TTKSK	TTKSK-rep2	TTKST	TTTSK	TRTTF	Postulated	St Paul field	Stem rust	Notes/comments
		06ND76C	75ND717C	59KS19	77ND82A	99KS76A-1	74MN1409	01MN84A-1-2	09ID73-2	75WA165-2A		04KEN156/04	04KEN156/04	06KEN19V3	07KEN24-4	06YEM34-1	Gene	10/11#		
Local ck	**McNair 701**	4	4	4	4	4	4	4	4	4		4	4	4	4	4		**1114**	90S	
Local ck	**Red Chief**	2+	2+	3+	2+3	3	4	4/2	2+	2+		2+	2+3	2+	2+3	4		**1115**	60S	
1	AGS 2000	2-	2-	;2-	;2-/3	2-	2-	2-	;2-	2-		2+	3+	2+	2+3	2/;	wrong seed?	**1116**	40MR	
2	Pioneer Brand 26R61	2	2	2-	2-	2-	2-	2-	2	0;		4						**1117**	30MR	BIN
3	Coker 9553	4	4	4	4	3C	4	4	4	4		4						**1118**	80S	
4	USG 3555	0	0	0	2-	0	0;	0	0	0		;	0;/1	0	4	2	Sr36	**1119**	TR	
5	NC05-19896	0	0	0	3-;	0	4	4	0	0		3						**1120**	TR	
6	LA02015E201	0	0	0	;2-	0	2+	2-	0	0;1		;	2-;	2+3	2-	2	Sr24	**1121**	5R-MR	
7	LA01069D-23-4-4	4	4	4	3	4	4	3	4	4		4						**1122**	70S	
8	LA03217D-P2	2+	4	2+	2++	;	2+	4	2	2		4						**1123**	50MS	
9	LA02015E42	;		2	2-	2	2	2-	2-	;		2-	2-	2+3	2-	2	Sr24	**1124**	20MR	PBC
10	B05*0154	4	4	3	4	23-	4	4/2	4	4		4						**1125**	60S	
11	B06*0758	0	0/4	0	3;	;	;	4	0	0		0	0/3	0/3+	4	3	Sr36	**1126**	0	BIN, PBC
12	Y09*12C	4	4	4	4	4	4	4	4	4		3+						**1127**	40MR-MS	
13	G09311	4	4	4	4	4	4	4	4	4		4						**1128**	80S	
14	G09308	0	0	0	4	3	;3		0	0		;	0	0	3+	23	Sr36	**1129**	20MR	
15	G09418	0	0	0	4	3	3;	3+	0	0		;	0;	0;	4	3	Sr36	**1130**	20MR	BIN, PBC
16	M05-1526	2	2	2-/4	0	2	2-	0	2-	2-		4						**1131**	40MR	
17	GA021338-9E15	;	0	0	;	;	;	;1	0	0		2+/4	0/3	2+3	2+	22+	?	**1132**	0	
18	GA021338-9EE11	;	0	0	0	;	;	;	0	0;		3+						**1133**	0	
19	GA021245-9E16	0;	0;	0	;	;	;	;	0	0		4						**1134**	TR	
20	MO080104	4	4/2	4	4	4	4	4	4	4		4						**1135**	80S	
21	NC07-25169	0	0	0	2	2	2-	2-	0	0		;	0	0	;	2	Sr36+	**1136**	0	
22	NC07-24445	0	0	0	2+3	3	3	0	0	0		;	0;	0	4	3	Sr36	**1137**	5MR	BIN, PBC
23	VA08W-294	2	2	2	2	2-	2	2-	2-	2		2	2	0 esc?	2	3	1A.1R	**1138**	30MR	
24	VA07W-429	;3+	0/3	;3	4	;13/4	4	4	4	0		4						**1139**	10S (on node)/50S	
25	VA08MAS-412	;3+	;3	;3	4	;13	4	4	3;	;1		3+						**1140**	10 (on node)	
26	VA05W-151	2	2	2	2	2	2	2-	2-	2-		2-	2-	0 esc?	2	2	?	**1141**	30MR	
27	TN1002	2	4	2+N	4	4	2++	4	2+	2		4						**1142**	70S	
28	TN1101	4	4	4	4	3+	4	4	4	4		4						**1143**	70S	
Local ck	**McNair 701**	4	4	4	4	4	4	4	4	4		4	4	4	4	3+		**1144**	80S	
Local ck	**Red Chief**	2+	2+	4	2+3	2+3	4	4	2+	2+		2+/4	2+	2+3	3+	4		**1145**	90S	
	Notes on next page																			

STEM RUST

Notes and explanations for seedling testing:

Bulk: a composite of US races used in seedling test: MCCFC, QFCSC, QTHJC, RCRSC, RKQQC, TPMKC, TTTTF
for updated race nomenclature, please refer to: Jin et al. 2008 Plant Dis. 92:923-926.

Ratings: "S" denotes susceptible infection type (IT) 3 or 4.
"/" denotes hetergeneous, the predominant type given first.
"LIF" denotes low infection frequency, or fewer number of pustules.
"C" stands for excessive chlorosis
"N" stands for excessive necrosis

Gene postulations are tentative and done for genes effective against TTKSK (Ug99) only. No attempt was made to postulate other Sr genes.
Users are advised to confirm with available markers.
"Sr2 mosaic" was referred to seedling chlorosis, similar to Sr2 expression in seedling under certain environments

Repeated screening was done based on preliminary screening with race TTKSK (rep 1). Lines missing or suspected to be resistant
were repeated with 3 races of the TTKS lineage: TTKSK (Ug99), TTKST (Sr24 virulence), and TTTSK (Sr36 virulence).
TRTTF (a race with 1A.1R virulence, not in the TTKS lineage) was also used in the repeated tests

Avirulence/virulence formula of stem rust races used in screening:

race	Avirulence	Virulence
MCCFC	6 8a 9b 9d 9e 11 24 30 31 36 38	5 7b 9a 9g 10 17 Tmp McN
QCCSM	6 7b 8a 9b 9e 11 30 31 36 38 Tmp	5 9a 9d 9g 10 17 21 24 McN
QFCSC	6 7b 9b 9e 11 24 30 31 36 38 Tmp	5 8a 9a 9d 9g 10 17 21 McN
QTHJC	7b 9a 9e 24 30 31 36 Tmp	5 6 8a 9b 9d 9g 10 11 17 21 38 McN
RCRSC	6 8a 9e 11 24 30 31 Tmp	5 7b 9a 9b 9d 9g 10 17 21 38 McN
RKQQC	9e 10 11 17 24 30 31 38 Tmp	5 6 7b 8a 9a 9b 9d 9g 21 McN
SCCSC	6 7b 8a 9b 11 24 30 31 36 38 Tmp	5 9a 9d 9e 9g 10 17 21 McN
TPMKC	6 9a 9b 24 30 31 38	5 7b 8a 9a 9d 9e 9g 10 11 17 21 36 Tmp McN
TTTTF	24 31	5 6 7b 8a 9a 9b 9d 9e 9g 10 11 17 21 30 36 38 McN
TTKSK	24 36 Tmp	5 6 7b 8a 9a 9b 9d 9e 9g 10 11 17 21 30 31 38 McN
TTKST	36 Tmp	5 6 7b 8a 9a 9b 9d 9e 9g 10 11 17 21 24 30 31 38 McN
TTTSK	24 Tmp	5 6 7b 8a 9a 9b 9d 9e 9g 10 11 17 21 30 31 36 38 McN
TRTTF	8a 24 31	5 6 7b 9a 9b 9d 9e 9g 10 11 17 21 30 36 38 McN + 1A.1R

Notes and explanations for field testing:

Bulk: a composite of six US races used in seedling test: MCCFC, QFCSC, QTHJC, RCRSC, RKQQC, TPMKC
Field was inoculated by injection and by spray inoculation using the above bulk.

Ratings: Field notes were given in two parts: percent of disease and infection response
R-resistant; MR-moderately resistant; MS-moderately susceptible; S-susceptile.
"/" denotes hetergeneous, the predominant type given first.
BIN = black internode, a phenotypic marker for Sr2
PBC = pseudo black chaff, a phenotypic marker for Sr2

STRIPE RUST

		Griffin GA Johnson 0-9	Battle Ground IN Obert 0-9	Winnsboro LA Harrison 0-9	Laurel Springs NC Marshall IT	%
1	AGS 2000	3	2	0.0	8	80
2	Pioneer Brand 26R61	0	2	0.0	4	20
3	Coker 9553	0	1	0.0	1	5
4	USG 3555	0	2	0.0	1	1
5	NC05-19896	0	1	0.0	1	1
6	LA02015E201	0	4	0.0	1	5
7	LA01069D-23-4-4	0	3	0.0	4	25
8	LA03217D-P2	1	1	0.0	3	10
9	LA02015E42	0	1	0.0	1	5
10	B05*0154	2	1	0.0	3	5
11	B06*0758	3	1	0.0	1	5
12	Y09*12C	3	2	0.0	4	15
13	G09311	3	1	0.0	6	50
14	G09308	6	2	0.0	9	80
15	G09418	8	3	0.5	9	80
16	M05-1526	9	3	0.0	8	70
17	GA021338-9E15	0	1	0.5	1	5
18	GA021338-9EE11	0	4	0.5	1	5
19	GA021245-9E16	0	5	0.0	1	5
20	MO080104	3	2	0.0	4	25
21	NC07-25169	9	2	1.5	8	80
22	NC07-24445	7	1	0.0	2	10
23	VA08W-294	0	0	0.0	2	5
24	VA07W-429	0	1	0.0	1	5
25	VA08MAS-412	0	1	0.0	1	5
26	VA05W-151	9	0	0.0	8	70
27	TN1002	5	3	0.0	7	60
28	TN1101	7	6	0.5	8	60
LOCATION MEANS		2.8	2.0	0.1	3.9	28.3
DATE / GROWTH STAGE			June 6		May 22	

STRIPE RUST

TABLE XMC1116F. STRIPE RUST INFECTION TYPE (IT)* AND SEVERITY (%) ON CULTIVARS AND LINES IN THE WINTER SOUTHERN WHEAT NURSERY (EXP16) (COORDINATED BY HAROLD BOCKELMAN) (UNIFORM SOUTHERN SOFT RED WINTER WHEAT NURSERY) AT WHITLOW FARM (LOC 04) NEAR PULLMAN, MT VERNON (LOC 05), WALLA WALLA (LOC 06), AND LIND (LOC 07), WA WHEN RECORDED AT THE INDICATED DATES AND STAGES OF PLANT GROWTH, 2011 UNDER NATURAL INFECTION

						LOC 04		LOC 05				LOC 06		LOC 07		
						6/24		5/12		6/5		6/10		6/16		
Entry	Cultivar/				2011	S. Dough		Stem elong.		Boot		Flowering		S. dough		
No.	Designation				PLOT	IT	%	IT	%	IT	%	IT	%	IT	%	Summary
1	AGS 2000				1	8	90	8	50	5	60	8	70	5	70	S
2	Pioneer Brand 26R61				2	8	90	5	60	8	90	8	80	8	90	S
3	Coker 9553				3	3	20	5	30	2	10	2	10	5	20	MR
4	USG 3555				4	3	5	5	30	2	10	3	10	3	5	R
5	NC05-19896				5	8	50	8	50	3	10	8	20	5	10	MS
6	LA02015E201				6	3	10	8	40	3	5	3	30	5	20	MR
7	LA01069D-23-4-4				7	8	100	8	40	8	80	8	90	8	90	S
8	LA03217D-P2				8	8	100	8	50	5	50	8	90	8	90	S
9	LA02015E42				9	5	20	8	60	2	5	2	10	3	10	MR
10	B05*0154				10	3	20	5	30	2	10	5	40	5	30	MR
11	B06*0758				11	3	5	5	40	---	---	2,5	10	5	20	MR
12	Y09*12C				12	5	20	5	20	3	10	5	30	8	70	MS
13	G09311				13	8	100	8	60	8	90	8	90	8	100	S
14	G09308				14	8	70	8	60	8	80	8	80	8	90	S
15	G09418				15	8	90	8	60	8	80	8	80	8	90	S
16	M05-1526				16	8	100	8	60	8	90	8	90	8	100	S
17	GA021338-9E15				17	5	20	8	60	3	10	2	20	5	40	MR
18	GA021338-9EE11				18	3	10	8	50	2	10	5	30	5	40	MR
19	GA021245-9E16				19	5	50	8	50	3	30	5	40	5	20	MR
20	MO080104				20	5	20	8	70	3	30	5	50	5	50	MR
	PS 279	**(Susceptible check)**			**21**	**8**	**100**	**5**	**60**	**8**	**80**	**8**	**80**	**8**	**100**	**S**
21	NC07-25169				22	8	100	8	70	8	60	8	100	8	90	S
22	NC07-24445				23	5	20	8	70	2	10	5	20	5	20	MR
23	VA08W-294				24	5	50	5	40	3	5	8	50	5	30	MS
24	VA07W-429				25	3	10	5	50	3	10	8	40	5	20	MS
25	VA08MAS-412				26	3	10	5	60	5	20	3,8	20	5	20	MR
26	VA05W-151				27	8	100	5	50	8	80	8	100	8	70	S
27	TN1002				28	8	100	8	60	5	60	8	90	8	70	S
28	TN1101				29	5	50	8	60	8	80	8	50	5	60	S
	PS 279	**(Susceptible check)**			**30**	**8**	**100**	**8**	**70**	**8**	**80**	**8**	**80**	**8**	**100**	**S**

* Infection Type (IT) was recorded based on the 0-9 scale with ITs 8 and 9 combined as 8 (the most susceptible reaction) in field data. Generally IT 0-3 are considered resistant, 4-6 intermediate, and 7-9 susceptible. Heterogenous reactions of an entry were indicated by two or more ITs separated by "," for most plants with the first IT and few plants with the second IT or connected with "-" for entries containing plants with continuous ITs. Entries with a high IT in the first note, but a low IT in the second note may indicate that they have high-temperature, adult-plant (HTAP) resistance.

STRIPE RUST

TABLE XMC1116GH. STRIPE RUST INFECTION TYPE (IT) ON SEEDLINGS AND ADULT-PLANTS OF CULTIVARS AND LINES IN THE WINTER SOUTHERN WHEAT NURSERY (EXP16) COORDINATED BY HAROLD BOCKLMAN (UNIFORM SOUTHERN SOFT RED WINTER WHEAT NURSERY) TESTED WITH SELECTED *Puccinia striiformis* f. sp. *tritici* (PST) RACES UNDER CONTROLLED GREENHOUSE CONDITIONS AT LOW TEMPERATURES (DIURNAL TEMPERATURES GRADUALLY CHANGING FROM 4 TO 20C FOR THE SEEDLING TESTS AND AT HIGH TEMPERATURES (DIURNAL TEMPERATURES GRADUALLY CHANGING FROM 10 TO 30C FOR THE ADULT-PLANT TESTS (All seeds were not treated)

Entry No.	Cultivar/ Designation				2011 PLOT	Infection type produced by PST races*								Possible HTAP resistance
						Seedling Test** (4 - 20 C)					Adult-plant Test** (10 - 30 C)			
						PST-37	PST-45	PST-100	PST-114	PST-127	PST-100	PST-114	PST-127	
1	AGS 2000				1	2	2	8	8	8	8,8,8	8,8,8	8,8,8	No
2	Pioneer Brand 26R61				2	2	2	8	8	8	3,3,3	6,6,6	8,8,8	No
3	Coker 9553				3	8	8	8	8	8	2,2,2	2,2,2	1,1,1	High
4	USG 3555				4	2	2	8	8	8	2,2,2	2,2,2	1,1,1	High
5	NC05-19896				5	8	8	8	8	8	2,2,2	1,1,1	3,3,3	Moderate
6	LA02015E201				6	8	8	8	8	8	2,2,2	2,3,2	3,3,3	Moderate
7	LA01069D-23-4-4				7	8	8	8	8	8	3,3,3	5,5,5	8,8,8	No
8	LA03217D-P2				8	8	8	8	8	8	4,4,4	5,5,5	8,8,8	No
9	LA02015E42				9	3	2	8	8	8	2,2,3	2,2,2	3,3,3	Moderate
10	B05*0154				10	5	5	8	8	8	5,5,5	3,3,5	5,5,5	Low
11	B06*0758				11	8	8	8	8	8	3,3,3	2,2,2	3,3,3	Moderate
12	Y09*12C				12	8	8	8	8	8	4,4,8	8,8,8	8,8,8	No
13	G09311				13	8	8	8	8	8	5,5,5	5,6,7	3,3,3	Low
8,	G09308				14	8	8	8	8	8	8,8,8	3,4,4	3,3,3	No
15	G09418				15	8	8	8	8	8	8,8,8	5,5,5	3,3,3	No
16	M05-1526				16	2	2	8	8	8	8,8,8	8,8,8	8,8,8	No
17	GA021338-9E15				17	2	2	8	8	8	3,3,3	3,3,3	4,4,4	Low
18	GA021338-9EE11				18	2	2	8	8	8	2,2,2	2,2,2	3,3,5	Low
19	GA021245-9E16				19	2	2	8	8	8	2,2,2	2,2,3	3,3,3	Moderate
20	MO080104				20	8	8	8	8	8	4,4,4	3,4,4	3,3,3	Low
	PS 279	**(Susceptible check)**			**21**	**8**	**8**	**8**	**8**	**8**	**8,8,8**	**8,8,8**	**8,8,8**	**No**
21	NC07-25169				22	8	8	8	8	8	8,8,8	8,8,8	8,8,8	No
22	NC07-24445				23	8	8	8	8	8	2,2,2	3,3,3	2,2,2	Moderate
23	VA08W-294				24	8	8	8	8	8	3,3,3	3,3,3	8,8,8	No
24	VA07W-429				25	8	8	8	5	8	3,3,3	3,3,3	3,3,3	Low
25	VA08MAS-412				26	8	8	8	8	8	2,2,2	2,2,2	3,3,3	Moderate
26	VA05W-151				27	8	8	8	8	8	8,8,8	8,8,8	8,8,8	No
27	TN1002				28	8	8	8	8	8	8,8,8	3,3,3	3,3,3	No
28	TN1101				29	8	8	8	8	8	8,8,8	8,8,8	7,7,8	No
	PS 279	**(Susceptible check)**			**30**	**8**	**8**	**8**	**8**	**8**	**8,8,8**	**8,8,8**	**8,8,8**	**No**

Notes on following page…

STRIPE RUST

* Infection Type (IT) was recorded based on the 0-9 scale with ITs 8 and 9 combined as 8 (the most susceptible reaction) in field data. Generally IT 0-3 are considered resistant, 4-6 intermediate, and 7-9 susceptible. Heterogenous reactions of an entry were indicated by two or more ITs separated by "," for most plants with the first IT and few plants with the second IT or connected with "-" for entries containing plants with continuous ITs. Entries with a high IT in the seedling test, but a low IT in the adult-plant test may indicate that they have high-temperature, adult-plant (HTAP) resistance. PST-37 is virulent on differentials 1,3,6,8,9,10,11,12; PST-45 on 1,3,12,13,15; PST-100 on 1,3,8,9,10,11,12,16,17,18,19,20; PST-114 on 1,3,4,5,8,9,10,11,12,14,16,17,18,19,20; and PST-127 on 1,2,3,5,6,8,9,10,11,12,13,15,16,17,18,19,20.
DIFFERENTIALS: 1 = LEMHI (*Yr21*), 2 = CHINESE 166 (*Yr1*), 3 = HEINESE VII (*Yr2,YrHVII*), 4 = MORO (*Yr10,YrMor*), 5 = PAHA (*YrPa1,YrPa2,YrPa3*), 6 = DRUCHAMP (*Yr3a,YrDru1,YrDru2*), 7 = Yr5/6*AVS (*Yr5*), 8 = PRODURA (*YrPr1,YrPr2*), 9 = YAMHILL (*Yr2,Yr4a,YrYam*), 10 = STEPHENS (*Yr3a,YrSte1,YrSte2*), 11 = LEE (*Yr7,Yr22,Yr23*), 12 = FIELDER (*Yr6,Yr20*), 13 = TYEE (*YrTye*), 14 = TRES (*YrTr1,YrTr2*), 15 = HYAK (*Yr17,YrTye*), 16 = EXPRESS (*YrExp1,YrExp2*), 17 = Yr8/6*AVS (*Yr8*), 18 = Yr9/6*AVS (*Yr9*), 19 = CLEMENT (*Yr9,YrCle*), AND 20 = COMPAIR (Yr8,Yr19).

** For the seedling tests, about 5 to 10 plants were used. Inoculation was done at the 2-leaf stage and incubated in the dew chamber at 10C for about 24 h in dark. The inoculated plants were then grown in a greenhouse growth chamber at a diurnal temperature cycle gradually changing from 4 C at 2:00 am to 20 C at 2:00 pm with a 16 h photoperiod in the day time. Infection type was recorded for the line about 20 days after inoculation
For the adult-plant tests, One-leaf seedlings were strated to vernalized at 2-4C for about 6 weeks and vernalized seedlings were transplanted into a big pots. 3 plants were used in each race test. Inoculation was done at the boot to heading stages and incubated in the dew chamber at 10C for about 24 h in dark. The inoculated plants were then grown in a greenhouse growth chamber at a diurnal temperature cycle gradually changing from 10 C at 2:00 am to 30 C at 2:00 pm with a 16 h photoperiod in the day time. Infection type was recorded for each individual plant using the flag leaf about 20 days after inoculation.

SEPTORIA

		Bay AR Hancock tritici 1-9	Battle Ground IN Obert tritici 0-9	Delphi IN Fogleman tritici 0-9	Tipton IN Obert tritici 0-9	Schochoh KY Van Sanford tritici 0-9
1	AGS 2000	4.5	4.0	6.3	4.0	5.5
2	Pioneer Brand 26R61	4.5	2.0	5.0	2.5	5.5
3	Coker 9553	4.0	4.0	4.0	4.0	5.5
4	USG 3555	3.0	3.0	3.7	2.5	4.5
5	NC05-19896	4.0	6.0	3.0	1.0	5.0
6	LA02015E201	6.0	7.0	6.0	7.5	5.0
7	LA01069D-23-4-4	3.0	5.0	5.0	2.5	5.0
8	LA03217D-P2	3.5	6.0	8.0	4.0	5.5
9	LA02015E42	5.0	5.0	4.0	7.5	6.0
10	B05*0154	4.0	5.0	6.0	2.5	5.0
11	B06*0758	4.0	2.0	7.0	5.0	5.5
12	Y09*12C	3.0	5.0	6.0	6.0	5.0
13	G09311	3.5	4.0	8.0	6.0	5.5
14	G09308	3.5	6.0	4.0	6.0	5.0
15	G09418	4.0	4.0	6.0	6.0	5.0
16	M05-1526	3.0	7.0	6.0	6.0	5.0
17	GA021338-9E15	3.0	4.0	3.0	2.5	4.5
18	GA021338-9EE11	3.0	2.0	3.0	4.0	4.0
19	GA021245-9E16	5.5	5.0	4.0	6.0	5.0
20	MO080104	3.5	6.0	6.0	7.5	5.0
21	NC07-25169	5.5	2.0	3.0	5.0	4.0
22	NC07-24445	3.0	3.0	4.3	4.0	4.5
23	VA08W-294	3.5	2.0	5.3	2.5	4.5
24	VA07W-429	3.5	4.0	5.0	2.5	5.5
25	VA08MAS-412	3.0	4.0	3.0	2.5	5.0
26	VA05W-151	4.0	5.0	4.0	2.5	4.0
27	TN1002	6.0	5.0	8.0	9.0	5.5
28	TN1101	4.0	5.0	7.0	9.0	6.0
LOCATION MEANS		3.9	4.4	5.1	4.6	5.0
DATE / GROWTH STAGE			June 6	June 12	June 11	

SEPTORIA

		Wooster OH Sneller		Oconto WI Murche
		tritici	nodorum	tritici
		0-9	0-9	0-9
1	AGS 2000	2	0	5.5
2	Pioneer Brand 26R61	1	1	4.3
3	Coker 9553	3	3	3.8
4	USG 3555	2	3	3.8
5	NC05-19896	2	2	3.5
6	LA02015E201	3	2	5.0
7	LA01069D-23-4-4	4	4	4.8
8	LA03217D-P2	7	5	7.0
9	LA02015E42	4	3	4.0
10	B05*0154	2	2	4.3
11	B06*0758	2	2	4.5
12	Y09*12C	2	0	3.5
13	G09311	3	4	5.5
14	G09308	2	2	4.3
15	G09418	3	2	4.3
16	M05-1526	4	6	4.3
17	GA021338-9E15	3	0	3.0
18	GA021338-9EE11	3	1	4.0
19	GA021245-9E16	3	3	3.5
20	MO080104	3	4	6.0
21	NC07-25169	2	1	2.8
22	NC07-24445	2	4	3.3
23	VA08W-294	2	1	3.3
24	VA07W-429	4	3	4.5
25	VA08MAS-412	2	3	5.0
26	VA05W-151	3	1	4.8
27	TN1002	2	3	6.3
28	TN1101	5	3	5.3
LOCATION MEANS		2.9	2.4	4.4
DATE / GROWTH STAGE				

EASTERN SEPTORIA NURSERY

2010-11 Eastern Septoria Nursery

Late lines: NY, IL, IN, OH, KY, MO, VA, MD

Early lines: FL, GA, LA, SC, NC, TN, AR

			Stagonospora nodorum					
			Kinston Mean of 2 reps (0-9, 9 May)		Raleigh Mean of 2 reps (0-9, 11 May)		Mean of 2 locations (0-9)	
Entry	UE #	Designation	Leaves	Glumes	Leaves	Glumes	Leaves	Glumes
1	Sept check E	AGS 2000	5.5	0.5	6.0	0.5	5.8	0.5
2	Sept check E	AGS 2060	2.5	2.5	3.0	0.0	2.8	1.3
3	Sept check E	Neuse	4.5	2.0	3.0	0.5	3.8	1.3
4	Sept check E	SS 8309	3.0	1.0	5.5	1.0	4.3	1.0
5	Sept check E	USG 3209	3.5	3.0	5.0	3.0	4.3	3.0
88	Sept check L	Jensen	4.0	1.0	4.5	0.0	4.3	0.5
89	Sept check L	Kaskaskia	7.0	3.5	7.5	4.5	7.3	4.0
90	Sept check L	Bess	5.0	2.5	5.0	3.0	5.0	2.8
91	Sept check L	Pembroke	5.0	4.0	7.0	3.5	6.0	3.8
83	2	Pioneer Brand 26R61	4.0	2.0	4.0	1.0	4.0	1.5
84	3	Coker 9553	5.5	3.0	5.0	2.0	5.3	2.5
85	4	USG 3555	4.0	3.0	6.0	2.5	5.0	2.8
79	5	NC05-19896	4.0	1.5	2.5	1.0	3.3	1.3
72	6	LA02015E201	5.5	0.5	4.0	1.0	4.8	0.8
73	7	LA01069D-23-4-4	5.5	5.0	6.0	2.0	5.8	3.5
74	8	LA03217D-P2	8.0	3.5	6.5	5.0	7.3	4.3
75	9	LA02015E42	6.5	5.5	6.5	3.5	6.5	4.5
70	10	B05*0154	6.0	2.5	5.5	1.0	5.8	1.8
71	11	B06*0758	6.5	1.0	3.5	1.0	5.0	1.0
274	12	Y09*12C	7.0	2.0	6.0	2.0	6.5	2.0
281	13	G09311	6.0	5.0	7.0	6.0	6.5	5.5
282	14	G09308	4.5	5.5	7.0	5.0	5.8	5.3
283	15	G09418	4.0	4.0	6.0	3.5	5.0	3.8
275	16	M05-1526	4.0	3.0	5.5	4.0	4.8	3.5
76	17	GA021338-9E15	5.0	1.0	3.0	0.5	4.0	0.8
77	18	GA021338-9EE11	5.0	0.5	5.0	0.0	5.0	0.3
78	19	GA021245-9E16	4.0	2.0	5.5	1.5	4.8	1.8
280	20	MO080104	5.0	1.5	6.0	5.5	5.5	3.5
80	21	NC07-25169	5.5	0.5	3.5	0.5	4.5	0.5
81	22	NC07-24445	4.0	0.0	4.0	1.0	4.0	0.5
276	23	VA08W-294	4.0	1.5	5.5	2.0	4.8	1.8
277	24	VA07W-429	5.5	2.5	7.0	4.0	6.3	3.3
278	25	VA08MAS-412	6.0	2.5	6.5	4.0	6.3	3.3
279	26	VA05W-151	5.5	2.5	4.0	1.5	4.8	2.0
86	27	TN1002	5.0	2.0	6.0	1.5	5.5	1.8
87	28	TN1101	4.0	1.5	5.0	2.0	4.5	1.8

FUSARIUM HEAD BLIGHT (SCAB)

		Delphi IN Fogleman	Mt. Vernon IN Fogleman	Tipton IN Obert	Schochoh KY Van Sanford
		0-9	0-9	0-9	0-9
1	AGS 2000	7.5	7.5	3	4.5
2	Pioneer Brand 26R61	7.0	7.0	2	5.5
3	Coker 9553	8.0	8.0	4	2.5
4	USG 3555	4.0	4.0	5	1.0
5	NC05-19896	5.0	5.0	4	1.0
6	LA02015E201	4.5	4.5	3	2.5
7	LA01069D-23-4-4	7.5	7.5	3	2.5
8	LA03217D-P2	6.5	6.5	2	1.5
9	LA02015E42	7.5	7.5	3	3.0
10	B05*0154	4.5	4.5	2	1.5
11	B06*0758	3.5	3.5	2	3.0
12	Y09*12C	3.5	3.5	1	3.0
13	G09311	6.2	6.2	6	1.0
14	G09308	3.0	3.0	1	1.0
15	G09418	2.5	2.5	2	1.0
16	M05-1526	3.0	3.0	1	1.0
17	GA021338-9E15	3.5	3.5	1	3.0
18	GA021338-9EE11	3.5	3.5	1	3.0
19	GA021245-9E16	7.0	7.0	2	2.5
20	MO080104	3.0	3.0	1	
21	NC07-25169	3.0	3.0	2	
22	NC07-24445	5.0	5.0	4	2.0
23	VA08W-294	2.0	2.0	1	1.0
24	VA07W-429	4.0	4.0	2	2.0
25	VA08MAS-412	2.2	2.2	2	2.0
26	VA05W-151	4.0	4.0	3	1.0
27	TN1002	7.5	7.5	6	1.5
28	TN1101	7.0	7.0	3	3.5
LOCATION MEANS		4.8	4.8	2.6	2.2
LSD					

FUSARIUM HEAD BLIGHT (SCAB)

					Salisbury MD Costa			
		INC	SEV	Height	TKW	FDK	INDEX	ISK
		%	%	In.	grams	%		
1	AGS 2000	30	25	32.0	33.5	11.5	7.5	2.8
2	Pioneer Brand 26R61	40	20	31.5	37.1	11.3	8.0	3.4
3	Coker 9553	30	15	33.5	33.2	8.3	4.5	1.4
4	USG 3555	35	15	32.5	32.9	9.8	5.0	1.9
5	NC05-19896	35	15	32.5	23.8	23.8	5.0	4.3
6	LA02015E201	25	20	31.5	34.5	4.8	5.0	0.9
7	LA01069D-23-4-4	30	20	34.0	29.5	14.5	6.0	3.1
8	LA03217D-P2	25	25	32.0	28.0	12.0	6.0	2.6
9	LA02015E42	40	15	31.5	21.6	26.0	6.0	5.4
10	B05*0154	30	15	32.5	25.5	22.3	4.5	3.7
11	B06*0758	25	20	33.5	27.2	17.3	5.0	3.1
12	Y09*12C	35	20	32.0	25.7	14.0	7.0	3.5
13	G09311	20	20	30.0	22.2	21.5	5.0	5.3
14	G09308	15	15	29.0	22.7	17.5	2.5	1.2
15	G09418	30	20	33.0	24.9	16.3	6.0	3.1
16	M05-1526	15	10	32.5	25.2	16.3	1.5	0.8
17	GA021338-9E15	15	10	33.0	31.8	12.0	1.5	0.6
18	GA021338-9EE11	25	10	32.0	30.7	10.8	2.5	1.0
19	GA021245-9E16	50	25	33.5	27.1	13.0	12.5	6.0
20	MO080104	5	5	31.0	24.7	16.3	0.5	0.4
21	NC07-25169	35	15	35.0	29.9	10.0	5.5	1.8
22	NC07-24445	25	30	31.5	28.5	12.0	8.0	4.2
23	VA08W-294	20	10	36.0	34.2	4.5	2.0	0.2
24	VA07W-429	25	25	34.5	29.8	15.5	6.0	3.3
25	VA08MAS-412	45	25	34.5	25.4	31.3	11.5	13.1
26	VA05W-151	30	20	34.5	27.2	13.8	6.0	3.0
27	TN1002	20	30	35.0	29.9	11.5	6.0	2.5
28	TN1101	30	40	35.5	31.6	14.3	13.0	7.6
LOCATION MEANS		28.0	19.1	32.8	28.5	14.7	5.7	3.2
LSD		16.4	14.0	3.2	6.1	12.2	6.5	5.8

POWDERY MILDEW

		Fayetteville AR Milus % leaf area	Battle Ground IN Obert 0-9	Delphi IN Fogleman 0-9	Kinston NC Murphy 0-9	Warsaw VA Griffey 0-9
1	AGS 2000	0	4	2	0	0.5
2	Pioneer Brand 26R61	0	2	2	0	2.5
3	Coker 9553	0	5	2	1	0.5
4	USG 3555	0	2	2	4	0.0
5	NC05-19896	0	2	2	0	0.5
6	LA02015E201	0	4	2	5	3.5
7	LA01069D-23-4-4	15	7	7	7	4.5
8	LA03217D-P2	30	4	9	7	7.5
9	LA02015E42	7	2	6	7	5.5
10	B05*0154	0	2	2	5	4.0
11	B06*0758	0	2	3	2	0.0
12	Y09*12C	0	2	3	0	0.0
13	G09311	0	5	3	6	4.5
14	G09308	0	5	2	5	2.0
15	G09418	0	5	2	1	1.5
16	M05-1526	2	5	6	8	4.5
17	GA021338-9E15	0	2	3	0	4.0
18	GA021338-9EE11	0	2	4	1	2.0
19	GA021245-9E16	0	3	3	0	0.0
20	MO080104	0	5	2	0	1.0
21	NC07-25169	0	3	2	0	0.0
22	NC07-24445	0	3	2	0	0.0
23	VA08W-294	0	1	3	0	0.0
24	VA07W-429	0	1	3	0	0.0
25	VA08MAS-412		1	2	1	0.0
26	VA05W-151		2	3	4	2.0
27	TN1002	0	4	2	5	5.0
28	TN1101	0	6	3	0	0.0
LOCATION MEANS		2.1	3.3	3.1	2.5	2.0
DATE / GROWTH STAGE			June 6	June 9		

POWDERY MILDEW

		Oconto WI Murche 0-9	ENTRY MEANS (excluding Fayetteville)
1	AGS 2000	0.0	1.3
2	Pioneer Brand 26R61	0.0	1.3
3	Coker 9553	0.0	1.7
4	USG 3555	0.0	1.6
5	NC05-19896	0.0	0.9
6	LA02015E201	0.0	2.9
7	LA01069D-23-4-4	4.5	6.0
8	LA03217D-P2	5.5	6.6
9	LA02015E42	3.0	4.7
10	B05*0154	0.0	2.6
11	B06*0758	0.0	1.4
12	Y09*12C	0.0	1.0
13	G09311	3.0	4.3
14	G09308	0.0	2.8
15	G09418	0.0	1.9
16	M05-1526	4.5	5.6
17	GA021338-9E15	0.0	1.8
18	GA021338-9EE11	0.0	1.8
19	GA021245-9E16	0.0	1.2
20	MO080104	0.0	1.6
21	NC07-25169	0.0	1.0
22	NC07-24445	0.0	1.0
23	VA08W-294	0.0	0.8
24	VA07W-429	0.0	0.8
25	VA08MAS-412	0.0	0.8
26	VA05W-151	0.0	2.2
27	TN1002	0.0	3.2
28	TN1101	0.0	1.8
LOCATION MEANS		0.7	2.3
DATE / GROWTH STAGE			

VIRUSES

		Battle Ground IN Obert WSSMV 0-9	Winfield KS Perry SBMV 0-9	Wooster OH Sneller BYDV 0-9	Blacksburg VA Griffey BYDV 0-9
1	AGS 2000	2.5	9	0	0.0
2	Pioneer Brand 26R61	4.0	0	0	0.5
3	Coker 9553	2.0	0	0	0.5
4	USG 3555	3.0	0	6	0.0
5	NC05-19896	2.5	0	2	0.5
6	LA02015E201	2.5	0	5	0.5
7	LA01069D-23-4-4	4.0	0	3	0.0
8	LA03217D-P2	4.0	0	5	0.0
9	LA02015E42	2.5	0	3	0.0
10	B05*0154	4.5	0	0	0.5
11	B06*0758	5.5	0	0	1.0
12	Y09*12C	2.5	0	1	0.0
13	G09311	2.5	0	2	1.5
14	G09308	2.5	9	2	0.5
15	G09418	4.0	9	2	1.0
16	M05-1526	2.0	0	0	0.5
17	GA021338-9E15	2.5	0	1	0.0
18	GA021338-9EE11	2.5	0	1	0.0
19	GA021245-9E16	2.5	0	1	0.0
20	MO080104	4.5	0	1	1.0
21	NC07-25169	2.0	0	0	0.5
22	NC07-24445	4.0	0	1	0.0
23	VA08W-294	3.5	9	0	0.0
24	VA07W-429	3.5	0	2	1.0
25	VA08MAS-412	4.5	0	1	1.0
26	VA05W-151	2.5	0	0	0.5
27	TN1002	3.0	0	7	0.0
28	TN1101	5.0	9	5	0.0
LOCATION MEANS		3.2	1.6	1.8	0.4
DATE / GROWTH STAGE		June 6			

HESSIAN FLY

W Lafayette
IN
Cambron

		Bio B	Bio C	Bio D	Bio O	Bio L
		R-S	R-S	R-S	R-S	R-S
1	AGS 2000	0-16	0-14	0-10	5-9	0-18
2	Pioneer Brand 26R61	0-16	0-14	0-13	13-0	0-18
3	Coker 9553	0-17	0-18	0-14	0-12	0-18
4	USG 3555	0-15	0-19	0-14	0-12	0-17
5	NC05-19896	0--19	0-16	0-15	0-13	0-15
6	LA02015E201	0-17	0-17	0-15	0-13	0-16
7	LA01069D-23-4-4	9-8	0-14	0-9	16-0	0-16
8	LA03217D-P2	0-18	0-13	0-14	0-14	0-20
9	LA02015E42	0-19	0-14	0-14	0-16	0-17
10	B05*0154	2-14	0-15	0-11	0-15	0-16
11	B06*0758	0-20	0-15	0-10	9-6	0-17
12	Y09*12C	0-22	0-12	0-13	0-20	0-18
13	G09311	15-2	16-2	9-1	0-11	0-18
14	G09308	0-15	0-17	0-12	0-13	0-16
15	G09418	0-15	0-19	0-13	6-7	0-14
16	M05-1526	3-17	10-8	0-12	0-12	0-18
17	GA021338-9E15	0-10	0-13	0-8	6-2	0-13
18	GA021338-9EE11	0-12	0-11	0-16	6-5	0-18
19	GA021245-9E16	0-15	0-17	0-14	16-0	0-16
20	MO080104	14-0	12-5	0-14	0-20	0-18
21	NC07-25169	18-0	21-0	16-0	14-0	16-3
22	NC07-24445	10-4	0-16	0-17	0-17	0-16
23	VA08W-294	0-19	0-15	0-15	0-16	0-19
24	VA07W-429	0-15	9-7	0-13	13-3	0-18
25	VA08MAS-412	0-16	8-9	0-11	20-4	0-16
26	VA05W-151	0-19	0-20	0-14	10-7	0-13
27	TN1002	0-18	16-3	0-14	20-0	0-20
28	TN1101	0-14	0-16	0-13	0-20	0-18

ACID SOIL TOLERANCE

			Enid OK Carver	
		0-5	0-5	0-5
1	AGS 2000	0	0	1
2	Pioneer Brand 26R61	2	1	1
3	Coker 9553	1	1	0
4	USG 3555	1	0	0
5	NC05-19896	0	0	2
6	LA02015E201	2	2	1
7	LA01069D-23-4-4	2	1	1
8	LA03217D-P2	2	2	3
9	LA02015E42	2	3	4
10	B05*0154	1	1	0
11	B06*0758	0	0	0
12	Y09*12C	1	0	1
13	G09311	4	4	5
14	G09308	1	1	0
15	G09418	2	1	1
16	M05-1526	4	4	3
17	GA021338-9E15	1	1	1
18	GA021338-9EE11	1	1	1
19	GA021245-9E16	1	0	1
20	MO080104	1	1	1
21	NC07-25169	2	2	2
22	NC07-24445	1	1	1
23	VA08W-294	0	1	0
24	VA07W-429	0	0	0
25	VA08MAS-412	1	1	0
26	VA05W-151	0	0	0
27	TN1002	2	1	1
28	TN1101	1	0	1
LOCATION MEANS		1.3	1.1	1.1
DATE / GROWTH STAGE		Nov 8	Feb 23	April 28

FREEZE TEST

		Raleigh NC Livingston	
		Avg. Survival Rating	Avg. % Survival
1	AGS 2000	0.8	27.5
2	Pioneer Brand 26R61	2.4	82.5
3	Coker 9553	3.1	95.0
4	USG 3555	0.8	40.0
5	NC05-19896	2.1	85.0
6	LA02015E201	1.6	67.5
7	LA01069D-23-4-4	2.5	87.5
8	LA03217D-P2	1.4	70.0
9	LA02015E42	2.1	85.0
10	B05*0154	1.0	52.5
11	B06*0758	1.6	67.5
12	Y09*12C	2.6	85.0
13	G09311	0.7	47.5
14	G09308	1.4	65.0
15	G09418	1.1	57.5
16	M05-1526	2.1	80.0
17	GA021338-9E15	0.6	35.0
18	GA021338-9EE11	0.7	45.0
19	GA021245-9E16	1.6	87.5
20	MO080104	0.7	47.5
21	NC07-25169	1.5	62.5
22	NC07-24445	0.9	45.0
23	VA08W-294	2.9	87.5
24	VA07W-429	3.4	95.0
25	VA08MAS-412	3.2	87.5
26	VA05W-151	1.6	70.0
27	TN1002	1.1	57.5
28	TN1101	0.8	47.5
LOCATION MEANS		1.6	66.5
	LSD (0.5)	0.8	14.6

PHENOTYPE

		Baton Rouge LA Harrison 0-9	Winnsboro LA Harrison 0-9
1	AGS 2000	4.7	3.5
2	Pioneer Brand 26R61	3.5	3.0
3	Coker 9553	3.7	3.5
4	USG 3555	4.8	3.0
5	NC05-19896	4.7	4.0
6	LA02015E201	3.5	4.5
7	LA01069D-23-4-4	3.5	3.5
8	LA03217D-P2	3.8	4.5
9	LA02015E42	4.3	5.0
10	B05*0154	4.3	3.5
11	B06*0758	4.5	4.0
12	Y09*12C	5.2	3.5
13	G09311	4.3	4.0
14	G09308	4.8	4.5
15	G09418	4.7	4.0
16	M05-1526	4.2	4.5
17	GA021338-9E15	3.5	4.5
18	GA021338-9EE11	3.8	4.5
19	GA021245-9E16	4.2	3.0
20	MO080104	4.7	4.0
21	NC07-25169	5.3	5.0
22	NC07-24445	4.5	4.5
23	VA08W-294	3.5	3.5
24	VA07W-429	4.0	3.0
25	VA08MAS-412	3.7	3.0
26	VA05W-151	3.7	4.5
27	TN1002	4.8	4.0
28	TN1101	3.7	4.0
LOCATION MEANS		4.2	3.9

MARKER DATA

Raleigh, NC
Brown-Guedira

***vrn-A1a = short vernalizing allele**

		Rht-B1b	Rht-D1b	Rht8	Ppd-D1a	vrn-A1	Lr34/Yr18	Lr37/Yr17
1	AGS2000	no	**yes**	no	no	vrn-A1b	no	no
2	PioneerBrand26R61	no	het	no	**het**	**Both Allele**	no	no
3	Coker9553	het	het	no	**yes**	vrn-A1b	no	no
4	USG3555	no	**yes**	no	**yes**	vrn-A1b	no	no
5	NC05-19896	no	**yes**	no	**yes**	vrn-A1b	no	**yes**
6	LA02015E201	no	**yes**	no	**yes**	**Both Allele**	no	**yes**
7	LA01069D-23-4-4	no	**yes**	no	**yes**	**vrn-A1a**	no	no
8	LA03217D-P2	**yes**	no	no	**yes**	**vrn-A1a**	no	no
9	LA02015E42	no	**yes**	**het**	**yes**	**Both Allele**	no	no
10	B05_0154	no	**yes**	no	**yes**	vrn-A1b	no	no
11	B06_0758	no	**yes**	no	no	**vrn-A1a**	no	**yes**
12	Y09_12C	no	**yes**	no	no	**vrn-A1a**	no	no
13	G09311	**yes**	no	no	no	vrn-A1b	no	no
14	G09308	no	no	no	no	vrn-A1b	no	no
15	G09418	no	no	no	no	vrn-A1b	no	no
16	M05-1526	**yes**	no	no	no	vrn-A1b	no	no
17	GA021338-9E15	no	**yes**	no	**het**	vrn-A1b	no	**yes**
18	GA021338-9EE11	no	**yes**	no	no	vrn-A1b	no	**yes**
19	GA021245-9E16	no	**yes**	no	**yes**	vrn-A1b	no	**yes**
20	MO080104	no	no	no	**yes**	vrn-A1b	no	no
21	NC07-25169	no	**yes**	no	no	vrn-A1b	no	no
22	NC07-24445	no	**yes**	**het**	**yes**	vrn-A1b	no	no
23	VA08W-294	no	**yes**	no	no	vrn-A1b	no	no
24	VA07W-429	no	**yes**	no	**het**	**vrn-A1a**	no	**yes**
25	VA08MAS-412	no	**yes**	no	no	**vrn-A1a**	no	**yes**
26	VA05W-151	no	**yes**	no	no	vrn-A1b	no	no
27	TN1002	**yes**	no	no	**yes**	vrn-A1b	no	no
28	TN1101	no	**yes**	no	**yes**	vrn-A1b	no	no

MARKER DATA

	Raleigh, NC Brown-Guedira						11VA TCRK + MFQS	11VA TNRJ	
		Sr36	**Sr24/Lr24**	**Sr2**	**Sr9a**	**Lr9**	**Avir9**	**Vir9**	**Lr19/Sr25**
1	AGS2000	no	no	no	no	no	;12-	0;	no
2	PioneerBrand26R61	no	no	no	no	no	3;	0;	no
3	Coker9553	no	no	no	no	no	3	3	no
4	USG3555	**yes**	no	no	no	no	23;	0;	no
5	NC05-19896	**yes**	no	no	no	no	;1	;12-	no
6	LA02015E201	no	**yes**	no	no	no	23-;	;1	no
7	LA01069D-23-4-4	no	no	no	no	no	3	2;	no
8	LA03217D-P2	no	no	no	no	no	23;	3	no
9	LA02015E42	no	**yes**	no	no	no	23-;	0;	no
10	B05_0154	no	no	no	no	no	23;	12;	no
11	B06_0758	**yes**	no	no	no	no	12;	0;Tr3	no
12	Y09_12C	**yes**	no	no	no	no	3	23	no
13	G09311	no	no	no	no	no	3	2;	no
14	G09308	**yes**	no	no	no	no	3	3	no
15	G09418	**yes**	no	no	no	no	3	3	no
16	M05-1526	no	no	no	no	no	23	0;	no
17	GA021338-9E15	no	no	no	no	no	12;	0;1=	no
18	GA021338-9EE11	no	no	no	no	no	23	0;	no
19	GA021245-9E16	no	no	no	no	no	;1	0;	no
20	MO080104	no	no	no	no	no	3	3	no
21	NC07-25169	**yes**	**yes**	no	no	no	;1=	2;	no
22	NC07-24445	**yes**	no	no	no	no	23;	;1-	no
23	VA08W-294	no	no	no	no	**yes**	0;	23	no
24	VA07W-429	no	no	no	no	**yes**	0;/3	;1=Tr3	no
25	VA08MAS-412	no	no	no	no	**yes**	0;Tr3	;1-	no
26	VA05W-151	no	**yes**	no	no	no	3	3-	no
27	TN1002	no	**yes**	no	no	no	23	3	no
28	TN1101		no	no	no	no	SKIP	;1	no

MARKER DATA

Raleigh, NC
Brown-Guedira

***APR Yr from P26R61; only called yes if both flanking markers are present**

		Qyr.uga-2A	Fhb1	Fhb 5A Erl	Fhb 5A Nil	Fhb 2DL-V	Fhb Ernie	1RS	H13
1	AGS2000	no	no	no	no	no	no	non 1RS	no
2	PioneerBrand26R61	**yes**	no	no	no	no	no	**1RS:1BL**	no
3	Coker9553	?	**het**	no	**het?**	no	no	**1RS:1BL**	no
4	USG3555	no	no	no	no	no	**yes**	**1RS:1BL**	no
5	NC05-19896	no	no	**yes**	no	no	no	non 1RS	no
6	LA02015E201	no	no	no	no	no	no	non 1RS	no
7	LA01069D-23-4-4	**yes**	no	no	no	no	no	non 1RS	no
8	LA03217D-P2	**yes**	no	no	no	no	no	non 1RS	no
9	LA02015E42	no	no	no	no	no	no	**1RS:1AL**	no
10	B05_0154	?	no	no	no		no	non 1RS	no
11	B06_0758	no	no	no	no		no	non 1RS	no
12	Y09_12C	no	no	no	no	no	no	non 1RS	no
13	G09311	no	no	**yes**	no		**yes?**	non 1RS	no
14	G09308	no	no	no	no	no	no	non 1RS	no
15	G09418	no	no	no	no	no	no	non 1RS	no
16	M05-1526	no	no	**yes**	no	no	**yes?**	**1RS:1BL**	no
17	GA021338-9E15	no	no	no	no	no	no	**1RS:1BL**	no
18	GA021338-9EE11	no	no	no	no	no	no	**1RS:1BL**	no
19	GA021245-9E16	no	no	no	no	no	no	**1RS:1BL**	no
20	MO080104	no	no	no	no	no	no	non 1RS	no
21	NC07-25169	no	no	no	no		no	**1RS:1AL**	no
22	NC07-24445	no	no	no	no	no	**het?**	non 1RS	no
23	VA08W-294	no	no	no	no	no	no	**1RS:1AL**	no
24	VA07W-429	no	no	no	no	no	no	non 1RS	no
25	VA08MAS-412	no	no	no	no	no	no	non 1RS	no
26	VA05W-151	no	no	no	no	no	no	**1RS:1AL**	no
27	TN1002	no	no	no	no	no	no	non 1RS	no
28	TN1101	no	no	**yes**	no		no	non 1RS	no

MARKER DATA

Raleigh, NC
Brown-Guedira

***R alleles from P26R61**

		H9	H25	H26	Bdv2/3	Sbm1*	Bx7 overe	Glu-A1	Glu-D1
1	AGS2000	no	no		no	no	no	Ax2*	5+10
2	PioneerBrand26R61	no			no	**yes**	**het**	het	5+10
3	Coker9553	no	no		no	**yes**	no	het	het
4	USG3555	no	no		no	**yes**	no	Ax2*	2+12
5	NC05-19896	no	no		no	**yes**	no	Ax2*	2+12
6	LA02015E201	no	no		no	**yes**	no	Ax2*	
7	LA01069D-23-4-4	no	no		no	**yes**	no	Ax2*	5+10
8	LA03217D-P2	no	no		no	**yes**	no	Ax2*	5+10
9	LA02015E42		no		no	**yes**	no	Ax2*	2+12
10	B05_0154	no	no		no	**yes**	no	Ax2*	2+12
11	B06_0758	no	no		no	**yes**	**yes**	Ax2*	2+12
12	Y09_12C	no	no		no	**yes**	no	Ax2*	2+12
13	G09311	no	no		no	**yes**	no	Ax1 or null	2+12
14	G09308	no	no		no	no	no	Ax2*	5+10
15	G09418	no	no		no	no	no	Ax2*	5+10
16	M05-1526	no	no		no	**yes**	**het**	Ax1 or null	2+12
17	GA021338-9E15	no	no		no	**yes**	no	Ax1 or null	het
18	GA021338-9EE11	no	no		no	**yes**	no	Ax1 or null	5+10
19	GA021245-9E16	no	no		no	**yes**	**yes**	Ax2*	het
20	MO080104	no	no		no	**yes**	no	Ax2*	5+10
21	NC07-25169	no	no		no	**yes**	no	Ax2*	2+12
22	NC07-24445	no	no		no	**yes**	**het**	het	
23	VA08W-294	no	no		no	no	no	Ax2*	2+12
24	VA07W-429	no	no		no	**yes**	no	Ax2*	het
25	VA08MAS-412	no	no		no	**yes**	no	Ax2*	2+12
26	VA05W-151		no		no	**yes**	no	Ax2*	2+12
27	TN1002	no	no		no	**yes**	no	Ax2*	het
28	TN1101	no			no	no	no	Ax1 or null	2+12

2011 Crop
Advanced Milling and Baking Evaluation
Set 2011 A05

2011 Uniform Southern Soft Red Winter Wheat Nursery – Interior
(Queenstown MD; Warsaw VA; Knoxville TN; Cleveland MS)

Entries #: 1150701 – 1150728

A total of 28 samples were grown in a composite of nursery locations and submitted to the laboratory for milling and baking quality evaluations. The standard quality data were compared to the average for the cultivar checks given for this nursery, and quality scores for all entries are adjusted to the check average. A table of observed and historical quality scores is given below.

As we examined the grain before air aspiration, there were indications of FHB and black point infected grain. There were pre-harvest sprouting issues and weathering was a concern as well. Our flour analyses, when compared to the historical data of the given checks, indicate that milling yield, flour protein, and the SRC's of sucrose and water were within the expected target range for soft wheat characteristics. The softness equivalence, along with lactic acid and sodium carbonate SRC's, were above the range we observe for these cultivars.

The adjusted average values of the provided checks are predicted to have increased milling and baking scores, but decreased softness equivalent scores when compared to the historical average. The observed scores for the checks correlated to the historical scores for milling, baking, and softness equivalence at a level of $r=1.0$, $r>0.9$, and $r>0.9$, respectively. The relative rankings and correlation indicates that the results of the following milling, baking, and softness equivalent quality scores are likely predictive of future results.

2011 Uniform Southern Soft Red Winter Wheat Nursery – Interior

			From Advanced Milling Database Scoring						Predicted from Measured Data					
Lab Number	Entry Number	ENTRY	Milling Quality Score		Baking Quality Score		Softness Equivalent Score		Milling Quality Score		Baking Quality Score		Softness Equivalent Score	
1150701	USS ENTRY: 1	AGS 2000	75.06	B	58.37	D	75.04	B	79.02	B	70.91	B	76.01	B
1150702	USS ENTRY: 2	Pioneer Brand 26R61	62.34	C	40.32	E	63.79	C	64.87	C	58.79	D	56.65	D
1150703	USS ENTRY: 3	Coker 9553	56.31	D	45.30	E	68.79	C	57.72	D	56.73	D	67.34	C
1150704	USS ENTRY: 4	USG 3555	59.80	D	35.35	F	56.90	D	60.75	C	44.61	E	59.37	D
		Average	63.38		44.83		66.13		65.59		57.76		64.85	
		Adjustment Bias for Trial	-2.21		-12.92		1.29							
		Diagnostics - Correlations	1.0		0.9		0.9							

Additional Information on Analysis

Thank you for the submission of this trial. Our evaluation is different from previous years. The detailed changes in evaluations can be viewed on our website at: http://www.ars.usda.gov/Research/docs.htm?docid=21964. Please review the data analysis and the descriptions of the summary. Let us know if this is helpful or still requires improvement.

Of the characteristics of quality we measure at the Soft Wheat Quality Laboratory, milling yield is the most reproducible and perhaps most important because it is genetically and environmentally associated with good soft wheat flour quality. The average milling yield of the nursery and the 4 checks was the same at 69.9%. Lines more than 2 standard errors (~2% points) below the average are likely significantly below the average for milling yield. Only 1 sample, G09418 deviated more than the standard error and had the lowest yield at 67.8%. Samples B05*0154 (71.9%), NC05-19896 (71.5%), and B06*0758 (71.5%) were tops amongst the nursery set.

The next most heritable trait in the quality evaluations is softness equivalent. This trial's average softness equivalence was 57.1%. Entry B05*0154 had the greatest softness equivalence at 64.1% followed by LA03217D-P2 and LA02015E201. However, entry G09418 had hard wheat characteristics as it was below 50% for softness equivalence and is likely unacceptable for most soft wheat applications.

To select the best lines for milling and baking quality, we sequentially sorted for flour yield and selected all lines with greater flour yield than the nursery average. We then repeated the operation for softness equivalent and sucrose SRC, selecting the lines that were better than average in each case. Next, we discarded the weakest gluten lines to present a more accurate evaluation of the cookies. After the sort, 7 samples fit these criteria. The test lines with the most balanced milling and baking qualities consist of B05*0154, LA02015E201, and Y09*12C.

Lactic acid SRC is a good measure of gluten strength. The lactic acid SRC is also correlated to flour protein concentration, but the effect is dependent on genotypes and growing conditions. This nursery's average for lactic acid SRC (109%) is relatively "strong" for gluten strength (lactic acid greater than 105%) and may be of value for the manufacturing of crackers or other products requiring gluten strength. Of these samples, NC07-24445 is the strongest at 123.6%. Others with high lactic acid SRC values comprise of MO080104, G09418, and VA08W-294. Our tests also find that there are 2 strong gluten genotypes with good milling yield. These genotypes include VA05W-151 and GA021245-9E16.

Sucrose SRC is a measure of arabinoxylans content, which can strongly affect water absorption in baked products and probably is the best predictor of cookie quality. Sucrose SRC typically increases in wheat samples with lower flour yield and lower softness equivalent. The cross hydration of gliadins by sucrose also causes sucrose SRC values to be correlated to flour protein and lactic acid SRC. Soft wheat flours for cookies typically have a target of 95% or less and there are 7 samples that are beyond 95%. This list consists of TN1101, VA08W-294, and MO080104. Sample B05*0154 has the least sucrose SRC value at 83.3%, followed by LA02015E201 and Y09*12C.

High sodium carbonate SRC absorption values point towards an increase in damaged starch. Samples VA08W-294 and TN1101 should be of concern as they had the highest values within this trial. Normal values for good milling soft varieties are 68% or less. Y09*12C, B05*0154, and G09311 had the lowest sodium carbonate SRC absorption. Those 3 samples also had the lowest water SRC values. Lower water values are desired for cookies, cakes, and crackers with target values below 51% on small experimental mills and 54% on commercial or long-flow experimental mills.

Please contact me if you have questions concerning this trial.
Best regards, Tony Karcher

ADVANCED NURSERY EVALUATION
FOR SOFT WHEAT MILLING AND BAKING QUALITY
2011 CROP

Uniform Southern SRWW - Interior - Queenstown MD; Warsaw VA; Knoxville TN; Cleveland MS

Lab Number	Entry Number	ENTRY	Modified Milling Quality Score		Modified Baking Quality Score		Modified Softness Equivalent Score		Test Weight (LB/BU)		Whole Grain Protein (at 12%)		Whole Grain Hardness (0-100)		Flour Yield (%)		Softness Equivalent (%)		Flour Protein (at 14%)		As Is Lactic Acid SRC (%)		Sucrose SRC (%)		Cookie Diameter (cm)		Top Grade (0-9)		Water SRC (%)		Sodium Carbonate SRC (%)	
1150701	USS ENTRY:	AGS 2000	76.81	B	57.99	D	77.30	B	61.69		10.07		32.02		72.64	+	61.79	+	8.29		101.74		88.44	+	18.99		4		51.89	+	69.53	+
1150702	USS ENTRY:	Pioneer Brand 26R61	62.66	C	45.86	E	57.94	D	62.94		11.17		38.10		69.80		54.94	q	8.92		105.42		89.06	+	18.69		3		53.10		67.92	+
1150703	USS ENTRY:	Coker 9553	55.51	D	43.81	E	68.63	C	62.34		10.64		35.65		68.36	q	58.72		8.71		109.30		93.32		18.67		5		53.45		71.30	q
1150704	USS ENTRY:	USG 3555	58.54	D	31.68	F	60.66	C	60.61		10.41		32.58		68.97	q	55.90		8.46		109.42		98.40	q	18.43		5		55.25	q	72.83	q
1150705	USS ENTRY:	NC05-19896	71.27	B	51.45	D	63.08	C	61.69		10.31		29.86		71.53	+	56.76		8.09	+	105.31		87.21	+	18.72		6		53.28		66.03	+
1150706	USS ENTRY:	LA02015E201	69.01	C	65.47	C	74.33	B	62.53		10.28		31.20		71.07	+	60.74	+	8.29		107.94		83.59	+	19.15	+	4		51.24	+	66.99	+
1150707	USS ENTRY:	LA01069D-23-4-4	62.03	C	53.76	D	65.78	C	62.11		10.76		36.76		69.67		57.71		8.64		98.86	w	88.06	+	18.95		4		51.21	+	67.02	+
1150708	USS ENTRY:	LA03217D-P2	66.94	C	58.95	D	75.06	B	62.61		10.90		36.18		70.66		61.00	+	8.50		108.16		87.65	+	19.06	+	6		51.31	+	68.02	+
1150709	USS ENTRY:	LA02015E42	66.17	C	50.55	D	69.77	C	62.00		10.77		31.03		70.50		59.12		8.49		104.69		90.45		18.84		4		52.41	+	68.56	+
1150710	USS ENTRY: 1	B05*0154	72.96	B	75.27	B	83.80	A	59.37		9.64		23.71		71.87	+	64.09	+	7.20	+	100.18		83.32	+	19.49	+	5		50.68	+	65.54	+
1150711	USS ENTRY: 1	B06*0758	70.87	B	50.73	D	56.96	D	61.34		11.01		34.67		71.45	+	54.59	q	8.58		101.97		88.44	+	18.96		4		53.27		66.05	+
1150712	USS ENTRY: 1	Y09*12C	65.04	C	66.83	C	71.81	B	61.94		10.75		34.18		70.27		59.85		8.48		107.75		84.55	+	19.41	+	5		49.71	+	65.40	+
1150713	USS ENTRY: 1	G09311	63.74	C	57.02	D	64.31	C	60.84		10.79		30.01		70.01		57.19		8.41		105.06		84.67	+	18.89		3		50.51	+	65.79	+
1150714	USS ENTRY: 1	G09308	54.41	D	22.02	F	44.06	E	61.57		10.86		31.65		68.14	q	50.03	q	8.74		118.82	s	96.16	q	17.95	q	5		56.93	q	70.36	
1150715	USS ENTRY: 1	G09418	53.12	D	24.18	F	42.58	E	61.95		11.05		33.05		67.88	q	49.51	q	8.72		121.37	s	97.33	q	18.23	q	5		56.71	q	69.21	+
1150716	USS ENTRY: 1	M05-1526	64.62	C	53.73	D	68.86	C	60.11		10.64		30.86		70.19		58.80		8.63		94.61	w	87.43	+	18.83		5		52.33	+	68.02	+
1150717	USS ENTRY: 1	GA021338-9E15	67.74	C	37.61	F	57.13	D	62.46		10.22		31.15		70.82		54.65	q	8.10	+	94.07	w	92.35		18.34		4		54.94	q	69.73	+
1150718	USS ENTRY: 1	GA021338-9EE11	69.03	C	40.58	E	59.49	D	62.04		10.42		33.16		71.08	+	55.49	q	8.03	+	95.99	w	92.84		18.53		4		54.30	q	70.29	
1150719	USS ENTRY: 1	GA021245-9E16	68.45	C	43.37	E	56.53	D	62.40		11.30		38.43		70.96	+	54.44	q	9.04		110.27		90.64		18.70		5		53.38		66.86	+
1150720	USS ENTRY: 2	MO080104	55.39	D	33.12	F	67.89	C	62.69		10.54		31.17		68.33	q	58.46		8.10	+	122.26	s	97.70	q	18.27	q	3		55.99	q	71.93	q
1150721	USS ENTRY: 2	NC07-25169	59.96	D	37.76	F	45.81	E	63.95		11.56		40.24		69.25		50.65	q	9.00		109.98		91.58		18.63		3		53.66		65.79	+
1150722	USS ENTRY: 2	NC07-24445	56.80	D	35.76	F	52.79	D	60.69		10.31		31.61		68.62	q	53.12	q	8.17		123.62	s	93.42		18.41		5		54.82	q	69.52	+
1150723	USS ENTRY: 2	VA08W-294	53.79	D	29.49	F	66.24	C	62.28		10.49		31.97		68.01	q	57.87		7.80	+	119.17	s	98.16	q	18.06	q	5		57.87	q	74.02	q
1150724	USS ENTRY: 2	VA07W-429	55.02	D	32.50	F	70.93	B	59.41		10.42		32.14		68.26	q	59.53		7.98	+	118.36	s	97.16	q	18.10	q	4		55.28	q	71.55	q
1150725	USS ENTRY: 2	VA08MAS-412	55.83	D	36.70	F	70.83	B	59.46		10.23		29.78		68.42	q	59.50		7.78	+	118.21	s	97.24	q	18.38		3		56.37	q	72.62	q
1150726	USS ENTRY: 2	VA05W-151	68.66	C	39.86	F	61.06	C	63.11		10.52		36.35		71.00	+	56.04		8.45		116.71	s	94.75		18.66		4		54.64	q	71.83	q
1150727	USS ENTRY: 2	TN1002	61.40	C	58.68	D	67.73	C	59.87		10.04		31.23		69.54		58.40		8.10	+	112.06		88.89	+	19.27	+	5		51.56	+	67.56	+
1150728	USS ENTRY: 2	TN1101	59.06	D	29.55	F	70.28	B	58.91		10.27		30.59		69.07		59.31		7.87	+	110.65		99.88	q	18.14	q	4		56.12	q	73.51	q
		Average	63.03		45.15		63.99		61.53		10.58		32.83		69.87		57.08		8.34		109.00		91.53		18.67		4.36		53.65		69.06	

Footnotes

'q' - questionable or undesirable quality. Marked on lines greater than a standard deviation from the mean of the checks in a unpreferred level.

'+' - Above average quality marked on lines with greater than a standard deviation away from mean of the checks in a preferred level

's' - strong gluten. Greater than one standard deviation more than the mean of checks.

'w' - weak gluten. Greater than one standard deviation less than the mean of the check.

= More preferred than average
= Less preferred than average
= Stronger gluten than average
= Weaker gluten than average

ADVANCED NURSERY EVALUATION
FOR SOFT WHEAT MILLING AND BAKING QUALITY
2011 CROP

Adjustments and Quality Scores are from the Advanced Milling Database, Version 3/14/2011
Select as many checks that are available

			From Advanced Milling Database Scoring						Predicted from Measured Data						Data Transferred from Scores Sheet																											
Lab Number	Entry Number	ENTRY	Milling Quality Score		Baking Quality Score		Softness Equivalent Score		Milling Quality Score		Baking Quality Score		Softness Equivalent Score		Test Weight (LB/BU)		Whole Wheat Grain (at 12%)		Hardness (0-100)		Flour Yield (%)		Softness Equivalent (%)		Flour Protein (at 14%)		As Is Lactic Acid SRC (%)		Sucrose SRC (%)		Cookie Diameter (cm)		Top Grade (0-9)		Water SRC (%)		Sodium Carbonate SRC (%)	
1150701	ISS ENTRY:	AGS 2000	75.06	B	58.37	D	75.04	B	79.02	B	70.91	B	76.01	B	61.69		10.07		32.02		72.64		61.79		8.29		101.74		88.44		18.99		4		51.89		69.53	
1150702	ISS ENTRY:	Pioneer Brand 26R61	62.34	C	40.32	E	63.79	C	64.87	C	58.79	D	56.65	D	62.94		11.17		38.10		69.80		54.94		8.92		105.42		89.06		18.69		3		53.10		67.92	
1150703	ISS ENTRY:	Coker 9553	56.31	D	45.30	E	68.79	C	57.72	D	56.73	D	67.34	C	62.34		10.64		35.65		68.36		58.72		8.71		109.30		93.32		18.67		5		53.45		71.30	
1150704	ISS ENTRY:	USG 3555	59.80	D	35.35	F	56.90	D	60.75	C	44.61	E	59.37	D	60.61		10.41		32.58		68.97		55.90		8.46		109.42		98.40		18.43		5		55.25		72.83	
		Average	63.38		44.83		66.13		65.59		57.76		64.85		61.89		10.57		34.59		69.94		57.84		8.60		106.47		92.31		18.70		4.25		53.42		70.40	
		Adjustment Bias for Trial	-2.21		-12.92		1.29																																	
		Diagnostics - Correlations	1.0		0.9		0.9																																	
		Standard Errors Used for Grading*																			0.964		2.088		0.477		7.27		3.18		0.363				0.398		0.593	

* Standard errors derive from 5 state, 2 year study of 187 cultivars in the association analysis of soft wheat cultivars

Prediction Models

SE Score= -98.66 + 2.827*SE

BQ Score= -129.74 + 14.267*Dia - 1.279*Suc - 1.488*Fprotein + 0.891*SE

MY Score= -282.08 + 4.971*FYLD

ADVANCED EVALUATION
FOR SOFT WHEAT MILLING AND BAKING QUALITY
2011 CROP

Uniform Southern SRWW - Interior

GRAIN CONDITION SCALE

0	None
1	up to 10%
2	10% to 40%
3	above 40%

Lab Number	Entry Number	ENTRY	FHB (0-3)	Weathering (0-3)	Sprouting (0-3)	Black Point (0-3)	Shriveling After Cleaning (0-3)	Comments
1150701	USS ENTRY: 1	AGS 2000	1	0	0	0	1	CHECK
1150702	USS ENTRY: 2	Pioneer Brand 26R61	1	1	0	1	1	CHECK
1150703	USS ENTRY: 3	Coker 9553	1	1	0	0	1	CHECK
1150704	USS ENTRY: 4	USG 3555	1	1	0	1	1	CHECK
1150705	USS ENTRY: 5	NC05-19896	1	1	0	0	1	
1150706	USS ENTRY: 6	LA02015E201	1	1	0	1	1	
1150707	USS ENTRY: 7	LA01069D-23-4-4	1	0	0	0	2	
1150708	USS ENTRY: 8	LA03217D-P2	1	0	0	1	1	
1150709	USS ENTRY: 9	LA02015E42	2	1	0	1	1	
1150710	USS ENTRY: 10	B05*0154	1	1	0	1	1	
1150711	USS ENTRY: 11	B06*0758	1	2	0	1	1	
1150712	USS ENTRY: 12	Y09*12C	1	0	0	0	1	
1150713	USS ENTRY: 13	G09311	1	0	0	0	1	
1150714	USS ENTRY: 14	G09308	1	1	0	1	2	
1150715	USS ENTRY: 15	G09418	1	1	0	1	1	
1150716	USS ENTRY: 16	M05-1526	1	1	1	1	2	
1150717	USS ENTRY: 17	GA021338-9E15	1	1	0	0	1	
1150718	USS ENTRY: 18	GA021338-9EE11	1	1	0	0	0	
1150719	USS ENTRY: 19	GA021245-9E16	1	1	0	1	1	
1150720	USS ENTRY: 20	MO080104	1	0	0	0	0	
1150721	USS ENTRY: 21	NC07-25169	0	0	0	0	0	
1150722	USS ENTRY: 22	NC07-24445	1	0	0	0	1	
1150723	USS ENTRY: 23	VA08W-294	0	0	0	1	1	
1150724	USS ENTRY: 24	VA07W-429	0	2	0	1	2	
1150725	USS ENTRY: 25	VA08MAS-412	1	1	0	1	2	
1150726	USS ENTRY: 26	VA05W-151	1	0	0	1	1	
1150727	USS ENTRY: 27	TN1002	1	1	1	0	1	
1150728	USS ENTRY: 28	TN1101	1	1	0	0	1	

2011 Crop
Advanced Milling and Baking Evaluation
Set 2011 A06

2011 Uniform Southern Soft Red Winter Wheat Nursery – Coastal
(Baton Rouge LA; Plains GA; Winnsboro LA; Quincy FL)
Entries #: 1150730 – 1150757

A total of 28 samples were grown in a composite of nursery locations and submitted to the laboratory for milling and baking quality evaluations. The standard quality data were compared to the average for the cultivar checks given for this nursery, and quality scores for all entries are adjusted to the check average. A table of observed and historical quality scores is given below.

As we examined the grain before air aspiration, there were indications of FHB, weathering, and black point infected grain. There was no evidence of any pre-harvest sprouting issues. Our flour analyses, when compared to the historical data of the given checks, indicate that flour protein and the SRC's of sucrose and water were within the expected target range for soft wheat characteristics. The softness equivalence, along with lactic acid and sodium carbonate SRC's, were above the range we observe for these cultivars, while the flour yield was below.

The adjusted average values of the provided checks are predicted to have increased baking scores, but decreased in milling softness equivalent scores when compared to the historical average. The observed scores for the checks correlated to the historical scores for milling, baking, and softness equivalence at a level of $r>0.8$, $r>0.6$, and $r>0.9$, respectively. The relative rankings and correlation indicates that the results of the following milling and softness equivalent quality scores are likely predictive of future results. However, the baking quality score correlation of past performance with current performance is smaller than normal and should be monitored, as it may not be as predictive of future breeding performance as in previous trials.

2011 Uniform Southern Soft Red Winter Wheat Nursery – Coastal

			From Advanced Milling Database Scoring						Predicted from Measured Data					
Lab Number	Entry Number	ENTRY	Milling Quality Score		Baking Quality Score		Softness Equivalent Score		Milling Quality Score		Baking Quality Score		Softness Equivalent Score	
1150730	USS ENTRY: 29	AGS 2000	75.06	B	58.37	D	75.04	B	65.82	C	53.58	D	71.58	B
1150731	USS ENTRY: 30	Pioneer Brand 26R61	62.34	C	40.32	E	63.79	C	62.43	C	53.97	D	56.82	D
1150732	USS ENTRY: 31	Coker 9553	56.31	D	45.30	E	68.79	C	52.73	D	51.36	D	70.68	B
1150733	USS ENTRY: 32	USG 3555	59.80	D	35.35	F	56.90	D	50.93	D	24.45	F	58.31	D
		Average	63.38		44.83		66.13		57.98		45.84		64.35	
		Adjustment Bias for Trial	5.40		-1.01		1.79							
		Diagnostics - Correlations	0.8		0.6		0.9							

Additional Information on Analysis

Thank you for the submission of this trial. Our evaluation is different from previous years. The detailed changes in evaluations can be viewed on our website at: http://www.ars.usda.gov/Research/docs.htm?docid=21964. Please review the data analysis and the descriptions of the summary. Let us know if this is helpful or still requires improvement.

Of the characteristics of quality we measure at the Soft Wheat Quality Laboratory, milling yield is the most reproducible and perhaps most important because it is genetically and environmentally associated with good soft wheat flour quality. The average milling yield of the 4 checks was 68.4%. There were 13 entries that were greater than this average with GA021338-9E15 having the largest value at 70.8%. Others to note with good milling yield are B05*0154, GA021338-9EE11, and B06*0758. Entry MO080104 had the lowest value at 67%.

The next most heritable trait in the quality evaluations is softness equivalent. The average softness equivalence of the checks was 57.7%, and sample B05*0154 had the greatest softness equivalence at 62.3%. There were 8 additional samples that were above the checks average including LA03217D-P2, VA08MAS-412, and Y09*12C. However, samples NC07-25169, G09308, and

G09418 had hard wheat characteristics as they were below 50% for softness equivalence and are likely unacceptable for most soft wheat applications.

To select the best lines for milling and baking quality, we sequentially sorted for flour yield and selected all lines with greater flour yield than the nursery average. We then repeated the operation for softness equivalent and sucrose SRC, selecting the lines that were better than average in each case. Next, we discarded the weakest gluten lines to present a more accurate evaluation of the cookies. After the sort, 5 samples fit these criteria. The test lines with the most balanced milling and baking qualities consist of B05*0154, LA02015E201, Y09*12C, VA05W-151, and LA03217D-P2.

Lactic acid SRC is a good measure of gluten strength. The lactic acid SRC is also correlated to flour protein concentration, but the effect is dependent on genotypes and growing conditions. This nursery's average for lactic acid SRC (116.8%) is considered "strong" for gluten strength (lactic acid greater than 105%) and may be of value for the manufacturing of crackers or other products requiring gluten strength. Based on the cumulative average of the checks (117.2%), there were 11 samples that ranged from 127.2% to 117.8% that were greater than the average with VA07W-429 being tops. Our analysis also states that there are 4 strong gluten genotypes with good milling yield. These genotypes include LA02015E201, VA05W-151, LA03217D-P2, and GA021245-9E16.

Sucrose SRC is a measure of arabinoxylans content, which can strongly affect water absorption in baked products and probably is the best predictor of cookie quality. Sucrose SRC typically increases in wheat samples with lower flour yield and lower softness equivalent. The cross hydration of gliadins by sucrose also causes sucrose SRC values to be correlated to flour protein and lactic acid SRC. Soft wheat flours for cookies typically have a target of 95% or less and there are 15 samples that are below 95%. The top tier sample for sucrose SRC absorption consist of B05*0154 (84.3%). This sample also had the best baking quality score of 78.5.

High sodium carbonate SRC absorption values point towards an increase in damaged starch. Samples VA08W-294 and MO080104 should be of concern as they had the highest values within this trial. Normal values for good milling soft varieties are 68% or less. B05*0154, Y09*12C, and NC05-19896 had the lowest sodium carbonate SRC absorption.

Lower water values are desired for cookies, cakes, and crackers with target values below 51% on small experimental mills and 54% on commercial or long-flow experimental mills. B05*0154 and Y09*12C were below 51% while G09308 was beyond this target at 57.3%

Please contact me if you have questions concerning this trial. Best regards, Tony Karcher

ADVANCED NURSERY EVALUATION
FOR SOFT WHEAT MILLING AND BAKING QUALITY
2011 CROP

Uniform Southern SRWW - Coastal - Baton Rouge LA; Plains GA; Winnsboro LA; Quincy FL

Lab Number	Entry Number	ENTRY	Modified Milling Quality Score		Modified Baking Quality Score		Modified Softness Equivalent Score		Test Weight (LB/BU)		Whole Grain Protein (at 12%)		Whole Grain Hardness (0-100)		Flour Yield (%)		Softness Equivalent (%)		Flour Protein (at 14%)		As Is Lactic Acid SRC (%)		Sucrose SRC (%)		Cookie Diameter (cm)		Top Grade (0-9)		Water SRC (%)		Sodium Carbonate SRC (%)	
1150730	SS ENTRY: 2	AGS 2000	71.23	B	52.57	D	73.37	B	60.61		12.12		34.76		69.99	+	60.22	+	9.58		116.97		92.85		18.40		2		52.30	+	68.33	+
1150731	SS ENTRY: 3	Pioneer Brand 26R61	67.83	C	52.96	D	58.60	D	62.18		11.71		38.65		69.30		55.00	q	9.29		109.09	w	90.85	+	18.55		4		52.70	+	66.14	+
1150732	SS ENTRY: 3	Coker 9553	58.13	D	50.35	D	72.46	B	61.46		11.96		35.28		67.35	q	59.90	+	9.44		119.24		96.37		18.57		3		52.86	+	69.59	
1150733	SS ENTRY: 3	USG 3555	56.33	D	23.45	F	60.09	C	58.69		12.79		33.82		66.99	q	55.53	q	10.01		123.35		102.98	q	17.61	q	2		55.24	q	73.47	q
1150734	SS ENTRY: 3	NC05-19896	71.89	B	50.51	D	50.98	D	62.27		12.63		34.31		70.12	+	52.30	q	10.01		115.48		90.39	+	18.58		2		55.17	q	64.28	+
1150735	SS ENTRY: 3	LA02015E201	71.97	B	69.01	C	67.70	C	62.53		11.57		30.74		70.14	+	58.21		9.43		119.32		86.23	+	19.07	+	5		51.65	+	65.65	+
1150736	SS ENTRY: 3	LA01069D-23-4-4	64.71	C	63.72	C	64.07	C	61.33		12.23		37.42		68.68		56.93		9.52		109.48	w	90.82	+	19.20	+	5		51.13	+	65.36	+
1150737	SS ENTRY: 3	LA03217D-P2	69.57	C	60.71	C	75.88	B	62.73		11.55		34.99		69.65	+	61.11	+	9.27		117.78		91.63	+	18.78	+	4		51.99	+	67.54	+
1150738	SS ENTRY: 3	LA02015E42	65.87	C	42.38	E	59.14	D	62.21		12.87		31.45		68.91		55.19	q	10.28	q	115.36		96.96		18.45		2		52.93		67.17	+
1150739	SS ENTRY: 3	B05*0154	74.96	B	78.53	B	79.09	B	58.88		11.19		27.34		70.74	+	62.25	+	8.53	+	106.69	w	84.33	+	19.22	+	5		50.00	+	63.98	+
1150740	SS ENTRY: 3	B06*0758	71.98	B	64.61	C	58.48	D	60.94		11.75		35.93		70.14	+	54.95	q	9.47		107.34	w	89.34	+	19.25	+	4		52.47	+	64.63	+
1150741	SS ENTRY: 4	Y09*12C	67.28	C	63.07	C	70.46	B	60.82		11.61		31.24		69.19		59.19		9.47		114.49		90.42	+	18.98	+	6		50.90	+	64.14	+
1150742	SS ENTRY: 4	G09311	60.40	C	56.57	D	63.35	C	59.59		12.81		33.02		67.81		56.68		10.05		118.92		87.75	+	18.50		3		51.36	+	65.55	+
1150743	SS ENTRY: 4	G09308	56.97	D	33.36	F	41.31	E	61.53		12.43		35.34		67.12	q	48.88	q	9.66		122.50		95.89		18.05		4		57.28	q	68.22	+
1150744	SS ENTRY: 4	G09418	58.25	D	35.72	F	38.49	F	61.72		12.33		35.24		67.38	q	47.88	q	9.66		122.47		95.47		18.24		4		56.89	q	68.18	+
1150745	SS ENTRY: 4	M05-1526	58.92	D	44.83	E	68.70	C	58.24		13.72		31.56		67.51		58.57		10.67	q	116.03		95.79		18.34		4		53.01		67.13	+
1150746	SS ENTRY: 4	GA021338-9E15	75.19	B	50.26	D	61.05	C	61.16		11.86		32.03		70.78	+	55.86		9.37		105.40	w	93.31		18.53		1		54.84	q	67.47	+
1150747	SS ENTRY: 4	GA021338-9EE11	73.60	B	48.86	E	60.70	C	61.03		11.98		32.12		70.46	+	55.74		9.58		105.44	w	94.76		18.60		3		54.80	q	67.39	+
1150748	SS ENTRY: 4	GA021245-9E16	69.21	C	40.65	E	58.76	D	62.04		13.16		35.86		69.58	+	55.05	q	10.36	q	120.09		93.45		18.03		1		53.64		65.21	+
1150749	SS ENTRY: 4	MO080104	56.31	D	44.84	E	65.35	C	62.83		11.88		34.21		66.99	q	57.38		8.99	+	126.41	s	98.02		18.44		2		55.72	q	71.49	q
1150750	SS ENTRY: 4	NC07-25169	64.18	C	48.07	E	42.72	E	63.31		12.80		40.40		68.57		49.38	q	9.98		109.14	w	91.31	+	18.67	+	3		54.21	q	64.81	+
1150751	SS ENTRY: 5	NC07-24445	63.23	C	38.60	F	47.29	E	60.21		12.15		34.77		68.38		51.00	q	9.38		126.10	s	93.87		18.07		3		56.07	q	68.84	
1150752	SS ENTRY: 5	VA08W-294	59.08	D	45.84	E	62.87	C	60.61		11.86		30.75		67.54		56.51		8.85	+	113.00		96.04		18.38		4		56.64	q	71.86	q
1150753	SS ENTRY: 5	VA07W-429	59.32	D	39.36	F	67.79	C	58.80		11.93		30.94		67.59		58.25		9.23		127.17	s	98.03		18.03		3		56.13	q	70.09	q
1150754	SS ENTRY: 5	VA08MAS-412	59.61	D	45.77	E	71.29	B	58.34		11.81		31.43		67.65		59.48		8.81	+	123.30		96.12		18.19		4		55.55	q	69.55	
1150755	SS ENTRY: 5	VA05W-151	71.60	B	58.02	D	64.83	C	61.82		10.90		33.73		70.06	+	57.20		8.66	+	116.83		91.42	+	18.75	+	5		54.29	q	69.22	
1150756	SS ENTRY: 5	TN1002	59.45	D	56.73	D	67.60	C	58.65		11.61		32.76		67.62		58.18		9.42		125.98	s	92.43	+	18.77	+	5		52.03	+	66.58	+
1150757	SS ENTRY: 5	TN1101	60.45	C	38.98	F	66.93	C	57.89		10.95		34.69		67.82		57.94		8.97	+	115.59		97.46		17.95		4		55.06	q	69.84	
		Average	64.91		49.94		62.12		60.80		12.08		33.74		68.72		56.24		9.50		116.75		93.37		18.51		3.46		53.82		67.56	

Footnotes

'q' - questionable or undesirable quality. Marked on lines greater than a standard deviation from the mean of the checks in a unpreferred level.

'+' - Above average quality marked on lines with greater than a standard deviation away from mean of the checks in a preferred level

's' - strong gluten. Greater than one standard deviation more than the mean of checks.

'w' - weak gluten. Greater than one standard deviation less than the mean of the check.

= More preferred than average
= Less preferred than average
= Stronger gluten than average
= Weaker gluten than average

ADVANCED NURSERY EVALUATION
FOR SOFT WHEAT MILLING AND BAKING QUALITY
2011 CROP

Adjustments and Quality Scores are from the Advanced Milling Database, Version 3/14/2011
Select as many checks that are available

			From Advanced Milling Database Scoring						Predicted from Measured Data						Data Transferred from Scores Sheet																											
Lab Number	Entry Number	ENTRY	Milling Quality Score		Baking Quality Score		Softness Equivalent Score		Milling Quality Score		Baking Quality Score		Softness Equivalent Score		Test Weight (LB/BU)		Whole Wheat Grain (at 12%)		Hardness (0-100)		Flour Yield (%)		Softness Equivalent (%)		Flour Protein (at 14%)		As Is Lactic Acid SRC (%)		Sucrose SRC (%)		Cookie Diameter (cm)		Top Grade (0-9)		Water SRC (%)		Sodium Carbonate SRC (%)	
1150730	SS ENTRY: 2	AGS 2000	75.06	B	58.37	D	75.04	B	65.82	C	53.58	D	71.58	B	60.61		12.12		34.76		69.99		60.22		9.58		116.97		92.85		18.40		2		52.30		68.33	
1150731	SS ENTRY: 3	Pioneer Brand 26R61	62.34	C	40.32	E	63.79	C	62.43	C	53.97	D	56.82	D	62.18		11.71		38.65		69.30		55.00		9.29		109.09		90.85		18.55		4		52.70		66.14	
1150732	SS ENTRY: 3	Coker 9553	56.31	D	45.30	E	68.79	C	52.73	D	51.36	D	70.68	B	61.46		11.96		35.28		67.35		59.90		9.44		119.24		96.37		18.57		3		52.86		69.59	
1150733	SS ENTRY: 3	USG 3555	59.80	D	35.35	F	56.90	D	50.93	D	24.45	F	58.31	D	58.69		12.79		33.82		66.99		55.53		10.01		123.35		102.98		17.61		2		55.24		73.47	
		Average	63.38		44.83		66.13		57.98		45.84		64.35		60.74		12.15		35.63		68.41		57.66		9.58		117.16		95.76		18.28		2.75		53.28		69.38	
		Adjustment Bias for Trial	5.40		-1.01		1.79																																	
		Diagnostics - Correlations	0.8		0.6		0.9																																	
		Standard Errors Used for Grading*																			0.964		2.088		0.477		7.27		3.18		0.363				0.398		0.593	

* Standard errors derive from 5 state, 2 year study of 187 cultivars in the association analysis of soft wheat cultivars

Prediction Models

SE Score= -98.66 + 2.827*SE

BQ Score= -129.74 + 14.267*Dia - 1.279*Suc - 1.488*Fprotein + 0.891*SE

MY Score= -282.08 + 4.971*FYLD

ADVANCED EVALUATION
FOR SOFT WHEAT MILLING AND BAKING QUALITY
2011 CROP

Uniform Southern SRWW - Coastal

GRAIN CONDITION SCALE

0	None
1	up to 10%
2	10% to 40%
3	above 40%

Lab Number	Entry Number	ENTRY	FHB (0-3)	Weathering (0-3)	Sprouting (0-3)	Black Point (0-3)	Shriveling After Cleaning (0-3)	Comments
1150730	SS ENTRY: 2	AGS 2000	0	0	0	0	1	CHECK
1150731	SS ENTRY: 3	Pioneer Brand 26R61	0	0	0	1	1	CHECK
1150732	SS ENTRY: 3	Coker 9553	1	0	0	0	0	CHECK
1150733	SS ENTRY: 3	USG 3555	0	1	0	1	1	CHECK
1150734	SS ENTRY: 3	NC05-19896	1	0	0	1	1	
1150735	SS ENTRY: 3	LA02015E201	0	0	0	1	1	
1150736	SS ENTRY: 3	LA01069D-23-4-4	1	1	0	1	1	
1150737	SS ENTRY: 3	LA03217D-P2	0	0	0	1	0	
1150738	SS ENTRY: 3	LA02015E42	0	1	0	1	1	
1150739	SS ENTRY: 3	B05*0154	0	1	0	1	0	
1150740	SS ENTRY: 3	B06*0758	0	1	0	1	1	
1150741	SS ENTRY: 4	Y09*12C	0	0	0	0	1	
1150742	SS ENTRY: 4	G09311	0	0	0	0	1	
1150743	SS ENTRY: 4	G09308	0	0	0	0	0	
1150744	SS ENTRY: 4	G09418	0	0	0	1	0	
1150745	SS ENTRY: 4	M05-1526	0	0	0	1	1	
1150746	SS ENTRY: 4	GA021338-9E15	0	0	0	1	1	
1150747	SS ENTRY: 4	GA021338-9EE11	0	1	0	1	1	
1150748	SS ENTRY: 4	GA021245-9E16	0	0	0	1	1	
1150749	SS ENTRY: 4	MO080104	0	0	0	0	0	
1150750	SS ENTRY: 4	NC07-25169	0	0	0	0	1	
1150751	SS ENTRY: 5	NC07-24445	0	0	0	0	1	
1150752	SS ENTRY: 5	VA08W-294	0	0	0	0	1	
1150753	SS ENTRY: 5	VA07W-429	0	1	0	0	1	
1150754	SS ENTRY: 5	VA08MAS-412	0	1	0	0	1	
1150755	SS ENTRY: 5	VA05W-151	0	0	0	0	1	
1150756	SS ENTRY: 5	TN1002	0	1	0	1	1	
1150757	SS ENTRY: 5	TN1101	0	1	0	0	1	