UNITED STATES DEPARTMENT OF AGRICULTURE
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State Agricultural Experiment Stations, Cooperating

2011 - 2012

UNIFORM SOUTHERN SOFT RED WINTER WHEAT NURSERY

Report

Compiled by: H.E. Bockelman, Agronomist

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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

November 2012

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2011-2012 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	USG 3555	VA94-52-60/Pio2643//USG3209 (formerly VA02W-555)	Check	04-05
4	Jamestown	Roane/Pioneer Brand 2691 (formerly VA02W-370)	Check	04-05
5	NC08-23089	NC97-10076/C9704//P26R61	Murphy	11-12
6	NC08-23090	NC97-10076/C9704//P26R61	Murphy	11-12
7	NC08-23323	B960164/NC94-7197//McCormick	Murphy	11-12
8	NC08-23324	B960164/NC94-7197//McCormick	Murphy	11-12
9	LA04041D-117	AGS2060/GA951079A25	Harrison	11-12
10	LA04041D-63	AGS2060/GA951079A25	Harrison	11-12
11	LA04026D-7	LA95283CA78-1-2/GA941208E35	Harrison	11-12
12	LA04110D-7	GA941208E35/P26R61	Harrison	11-12
13	TN1201	(P2552//FFRX304/Dozier/3/VA94W-158//FFR555/Madison)/NC98-26192	West	11-12
14	TN1202	(C747/ABI90-8369-718)/KY90C-292-4-1//Tribute/(Verne/P2580)	West	11-12
15	GA031086-10E26	P26R24/GA961565//GA941208	Johnson	11-12
16	GA031134-10E29	P26R38/2*961565(GA881130*2/GA88151)	Johnson	11-12
17	GA04570-10E46	GA00440/3/P2684/AGS2000*2/GA84202(Lr37)	Johnson	11-12
18	GA031257-10LE34	SS8641/GA961591	Johnson	11-12
19	VA08W-176	KY96C-0079-5(2552/FFR525//2552/FFR555W)/McCormick	Griffey	11-12
20	VA09W-75	SS520/VA99W-188(VA91-54-343/Roane'S')//Tribute	Griffey	11-12
21	VA10W-28	SS-MPV57(VA97W-24)/M99*3098(TX85-264/VA88-52-69)	Griffey	11-12
22	VA10W-119	KY97C-0540-04(C9803/L910097//2552)/GA951079-2E31(GA881130/Gore)	Griffey	11-12
23	MD03W665-10-5	USG3209/Tribute//Chesapeake	Costa	11-12
24	MD03W151-10-12	KY96C-0768-1/McCormick	Costa	11-12
25	G96164	Roane//T814/L900819	Obert	11-12
26	G95407	IL84-3511/T812//Auburn/OH413	Obert	11-12
27	G00032	B960208/VA98W-593	Obert	11-12
28	AR01167-3-1	VA98W-593/AR800-1-3-1	Mason	11-12
29	AR01179-4-1	AR92145E8-7-7-1-0/AR910-12-1	Mason	11-12

LOCATION NOTES

Belle Mina, Alabama

Cooperators:	Kathy Glass
	Auburn University
Planted:	November 11, 2011
Harvested:	June 8, 2012
Fertilizer:	80 N
Notes:	Warm winter.

Fayetteville, Arkansas

Cooperators:	Gene Milus
	University of Arkansas
Notes:	FHB nursery. Data are means of 3 reps. Seed quality: 4=0%, 3=25%, 2=50%, 1=75%, 0-100% shriveled seed.

Stuttgart, Arkansas

Cooperators:	Esten Mason
	University of Arkansas
Planted:	November 2, 2011
Harvested:	May 18, 2012
Fertilizer:	150 N, split application
Notes:	Very dry year with less than an inch of rain during March and April. Otherwise, a good test. Heading notes are not the best and were taken on one rep. Height taken on two reps and Septoria on all three reps.

Stuttgart, Arkansas

Cooperators:	Don Obert
	Limagrain Cereal seeds
Planted:	November 4, 2011
Harvested:	May 22, 2012
Fertilizer:	Followed farmer's practice

Quincy, Florida

Cooperators:	Ann Blount, Ron Barnett
	University of Florida
Planted:	December 1, 2011
Harvested:	May 22, 2012
Notes:	We had an unusual season that was very warm thus the plots grew very rapidly and started jointing too soon and so a number were injured by a couple of cold snaps that we did have. Other entries did not receive enough cold temps so did not vernalize properly. We had quite a bit of powdery mildew and some late arriving leaf rust. Heading dates varied over a long period. We had a lot of showers at harvest time which caused some delays in harvesting and a lot of lodging. Thus low average yield and high CV. We hope to do better next time.

Griffin, Georgia

Cooperators:	Jerry Johnson, Dan Bland, S. Sutton, J. Youmans, J. Buck
	University of Georgia
Planted:	November 1, 2011
Harvested:	May 18, 2012
Fertilizer:	80 N

Notes: Very mild winter caused extreme differences in heading dates. Very high levels of stripe rust. High lodging due to freeze damage and rain at harvest.

Plains, Georgia

Cooperators: Jerry Johnson, Dan Bland, S. Sutton, J. Youmans, J. Buck
University of Georgia
Planted: November 14, 2011
Harvested: May 15, 2012
Fertilizer: 80 N
Notes: Very mild winter caused extreme differences in heading dates. Very high levels of stripe rust.

Centralia, Illinois

Cooperators: Don Obert
Limagrain Cereal Seeds
Planted: October 14, 2011
Harvested: June 8, 2012
Fertilizer: Followed farmer's practice

Harrisburg, Illinois

Cooperators: Jana Murche
KWS Cereals USA
Planted: October 8, 2011
Harvested: June 2, 2012
Fertilizer: 6 gal. 32%, 200# urea
Notes: No real explanation for the very high CV. The site was affected by drought and late frosts, which might have been the reason, but did not lead to clearly visual problems.

Lafayette, Indiana

Cooperators: Ben Moreno
WestBred
Notes: Good yields.

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: October 22, 2011
Harvested: May 22, 2012
Fertilizer: 60# topdress

Lexington, Kentucky

Cooperators: Dave Van Sanford
University of Kentucky
Planted: October 24, 2011
Harvested: June 22, 2012
Notes: Planted later than the UE. No freeze damage. Little disease pressure.

Logan Co., Kentucky

Cooperators:	Dave Van Sanford
	University of Kentucky
Planted:	October 12, 2011
Notes:	No harvest due to freeze damage.

Baton Rouge, Louisiana

Cooperators:	Stephen Harrison
	Louisiana State University
Notes:	We did not harvest the test at Baton Rouge due to severe lodging and failure of a number of entries to vernalize. We were about 6 F warmer than average in December through March. We had a mild freeze that injured stems in March followed by several severe storms in April that resulted in severe lodging. There really was not enough disease pressure to make notes worthwhile, so just write the BR location off as lost. 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 8, 2011
Harvested:	May 12, 2012
Notes:	Generally an ugly test. Too wet and warm all winter and early spring. Large differences in heading dates. Severe necrosis of leaves from heavy wind / rains / frost, which shut down leaves early. Probably induced a mix of bacteria and Septoria leaf blotch, but not distinct enough to classify. Very little leaf rust. Stripe rust came in late and was not well distributed. A little lodging early, but most plots were upright at harvest.

Queenstown, Maryland

Cooperators:	Jose Costa, Aaron Cooper
	University of Maryland
Planted:	October 10, 2011
Harvested:	June 14, 2012
Fertilizer:	30 N fall, 80 N spring

Salisbury, Maryland

Cooperators:	Jose Costa, Aaron Cooper
	University of Maryland
Planted:	October 17, 2011
Notes:	Misted and inoculated scab nursery. Scab came in late, not as heavy as in other years.

St. Paul, Minnesota

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

Newton, Mississippi

Cooperators:	Brad Burgess
	Mississippi State University
Planted:	November 8, 2011
Harvested:	May 18, 2012
Fertilizer:	100 N on 2/20
Notes:	Some deer feeding was observed after heading.

Portageville, Missouri

Cooperators:	Anne McKendry, David Tague University of Missouri
Planted:	October 24, 2011
Harvested:	June 5, 2012
Fertilizer:	40 N fall, 80 N spring
Notes:	High LSD and CV due to heavy rainfall right after planting. Extremely mild winter, early heading, and extraordinary drought throughout the crop season – worse (if that is possible) than Columbia.

Kinston, North Carolina

Cooperators:	Paul Murphy North Carolina State University
Fertilizer:	120 N
Notes:	Not the greatest test because the environment was skewed to benefit later lines. By the time spring N was applied the early lines had already taken off and did not get full benefit. They also had more leaf burn than later lines. Field also had uneven MN deficiency problems which I tried to cure (without much success) by spatial analysis.

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:	Pm3-markers: '-'=negative, '+'=positive. In North Carolina Pm3d and Pm3e are the only alleles at the Pm3 locus that confer effective resistance in the field. Eastern Septoria Nursery: Stagonospora nodorum blotch (SNB) pressure was strong and uniform in both locations (Kinston and Raleigh, NC). Lines highly susceptible to leaf rust were sometimes hard to rate for SNB. For ratings on leaves, a 5 and below was good to excellent; 6 was borderline, and 7-9 was undesirable.

Custar, Ohio

Cooperators:	Clay Sneller Ohio State University, OARDC
Notes:	Site suffered water damage and was not harvested.

Wooster, Ohio

Cooperators:	Anthony Karcher USDA-ARS, Soft Wheat Quality Laboratory
Notes:	Milling and baking quality data.

Enid, Oklahoma

Cooperators:	Brett Carver Oklahoma State University
Notes:	Our Enid (low pH) site was compromised by severe N deficiency from planting until early February. In many cases, genotypes with confirmed acid-soil tolerance suffered more from the low N-low pH condition than those known to be susceptible to low pH. Acid-tolerant genotypes rushed out of the gate, only to run out of gas and fizzle, with little to recover in the spring, while the susceptible types went pseudo-dormant through the fall and popped with the added N in February (by that time, roots could have penetrated the acidic zone). Even still, the extremely acid-susceptible types never had the chance. Nobody can reasonably interpret the data unless they hold prior knowledge of low pH adaptation. Hence it would be a disservice to someone "on the outside" reading the data now or worse yet, several years from now. We have (regional nursery) data from Enid, but I think we should withhold release, unless individual cooperators want to see it offline.

Knoxville, Tennessee

Cooperators:	Dennis West University of Tennessee
Planted:	October 26, 2011
Harvested:	June 5, 2012
Fertilizer:	30 N fall, 60 N spring
Notes:	Too wet at planting. Wetter for the next two months, causing some stand loss.

Farmersville, Texas

Cooperators:	Russell Sutton Texas AgriLife Research, TAMU

Blacksburg, Virginia

Cooperators:	Carl Griffey Virginia Tech
Planted:	September 30, 2011
Harvested:	June 23, 2012
Fertilizer:	30-40-60 fall, plus 1T lime

Warsaw, Virginia

Cooperators:	Carl Griffey Virginia Tech
Planted:	October 18, 2011
Harvested:	June 7, 2012
Fertilizer:	30-80-80-5 fall

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: Jana Murche
KWS Cereals USA

Notes: No winterkill this year.

2011-12 USSRWWN LOCATIONS

YIELD (bu/acre)

		Belle Mina AL ab Glass	rank	Stuttgart AR ab Mason	rank	Stuttgart AR a Obert	rank	Quincy FL a Barnett	rank	Griffin GA a Johnson	rank	Plains GA ab Johnson	rank
1	AGS 2000	64.2	4	67.7	6	65.8	13	31.1	16	58.9	24	66.7	23
2	Pioneer Brand 26R61	56.2	19	57.6	27	55.2	28	54.6	2	62.7	23	75.9	21
3	USG 3555	53.3	24	62.7	18	65.5	15	17.2	25	71.2	18	81.9	20
4	Jamestown	56.8	15	59.9	25	67.2	9	31.8	15	80.1	4	94.4	9
5	NC08-23089	51.1	27	62.1	19	61.8	20	50.2	3	68.3	20	87.1	13
6	NC08-23090	56.2	19	59.9	24	62.3	19	44.2	5	66.6	21	85.6	15
7	NC08-23323	50.7	28	62.0	20	53.2	29	47.0	4	74.2	14	84.3	16
8	NC08-23324	57.4	14	63.1	15	63.8	17	40.5	7	81.2	3	89.2	11
9	LA04041D-117	61.1	8	61.3	22	65.4	16	35.3	11	71.8	16	84.1	17
10	LA04041D-63	60.9	9	64.0	14	57.8	26	41.5	6	78.2	6	88.5	12
11	LA04026D-7	56.4	17	66.9	8	57.8	26	30.3	18	74.4	13	96.7	3
12	LA04110D-7	62.2	7	61.8	21	61.8	20	39.8	9	71.4	17	95.2	8
13	TN1201	57.7	13	64.3	13	66.8	12	28.9	20	53.2	26	35.0	26
14	TN1202	56.7	16	69.5	5	77.8	1	14.0	26	40.5	28	33.1	28
15	GA031086-10E26	60.1	10	49.9	29	58.6	25	17.2	24	77.7	8	95.3	7
16	GA031134-10E29	58.2	12	63.0	17	73.5	2	30.2	19	75.6	11	96.0	5
17	GA04570-10E46	62.4	6	70.6	3	67.0	11	33.3	12	86.6	2	102.2	1
18	GA031257-10LE34	66.6	2	66.4	9	68.1	7	33.3	12	92.2	1	96.5	4
19	VA08W-176	56.1	21	71.2	2	70.3	4	32.8	14	78.7	5	82.2	19
20	VA09W-75	59.2	11	66.1	10	72.4	3	59.2	1	78.1	7	97.9	2
21	VA10W-28	53.7	23	56.7	28	60.9	24	10.9	28	66.3	22	54.0	25
22	VA10W-119	69.1	1	65.6	12	68.8	5	40.3	8	72.5	15	85.9	14
23	MD03W665-10-5	55.3	22	60.8	23	63.5	18	38.4	10	58.5	25	61.9	24
24	MD03W151-10-12	51.5	26	59.4	26	61.0	23	31.1	17	75.8	10	95.6	6
25	G96164	49.7	29	66.0	11	67.6	8	7.9	29	47.2	27	25.8	29
26	G95407	53.2	25	67.1	7	65.7	14	12.6	27	38.9	29	33.9	27
27	G00032	56.4	17	63.1	15	61.5	22	23.4	21	70.2	19	83.7	18
28	AR01167-3-1	65.4	3	75.3	1	67.1	10	22.9	22	75.4	12	74.6	22
29	AR01179-4-1	63.1	5	69.5	4	68.3	6	22.3	23	77.2	9	89.5	10
LOCATION MEANS		58.0		63.9		64.7		31.8		69.8		78.4	
LSD (.05)		6.12		9.7		5.62		11.3		13.1		10.9	
CV %		6.46		5.4		12.91		26		11.5		6.7	
REPS		3		3		3		3		3		2	
Harvest Plot Area (sq.ft.)		100		70		42		55		50		50	

YIELD (bu/acre)

		Centralia IL Obert	rank	Harrisburg IL Murche	rank	Lafayette IN Moreno	rank	Winfield KS b Perry	rank	Lexington KY ab Van Sanford	rank	Winnsboro LA a Harrison	rank
1	AGS 2000	66.3	3	71.3	5	66.4	23	39.5	29	62.3	23	42.1	11
2	Pioneer Brand 26R61	45.8	29	75.9	2	52.2	27	61.3	13	62.5	22	45.6	6
3	USG 3555	60.0	17	65.9	12	77.6	15	83.9	1	75.7	5	44.5	10
4	Jamestown	58.8	20	67.2	9	55.3	24	74.9	4	67.9	15	47.8	2
5	NC08-23089	50.7	26	57.6	22	49.6	28	50.0	22	59.3	26	44.7	9
6	NC08-23090	49.2	28	51.5	27	54.4	25	50.5	21	60.6	25	41.9	12
7	NC08-23323	59.3	18	65.9	13	67.9	22	41.7	28	76.5	2	37.5	20
8	NC08-23324	62.3	11	56.2	23	72.6	18	41.8	26	70.5	9	36.0	21
9	LA04041D-117	51.3	25	54.7	25	80.0	14	48.6	23	75.6	6	47.5	4
10	LA04041D-63	59.3	19	75.3	3	71.3	19	57.2	16	76.4	3	47.6	3
11	LA04026D-7	60.1	16	67.1	10	52.5	26	53.1	19	62.7	21	38.9	17
12	LA04110D-7	56.5	23	68.1	8	34.4	29	65.5	8	63.6	20	44.9	7
13	TN1201	61.9	12	61.0	16	92.1	5	58.9	14	66.9	16	40.3	14
14	TN1202	65.3	4	57.9	21	92.9	3	58.2	15	54.3	28	30.0	27
15	GA031086-10E26	64.5	5	47.3	28	77.2	16	78.0	2	68.3	13	21.5	29
16	GA031134-10E29	60.2	15	51.9	26	81.3	11	76.5	3	71.2	8	38.4	18
17	GA04570-10E46	63.1	8	58.0	20	73.3	17	69.8	7	65.8	19	49.7	1
18	GA031257-10LE34	61.1	14	59.3	17	80.4	13	71.9	5	69.1	12	38.0	19
19	VA08W-176	63.8	6	71.0	6	88.8	7	65.2	9	88.5	1	44.7	8
20	VA09W-75	51.9	24	65.9	11	70.7	21	55.5	17	76.2	4	47.4	5
21	VA10W-28	63.0	9	64.0	15	111.0	1	63.3	12	57.5	27	35.9	22
22	VA10W-119	49.7	27	70.1	7	84.7	9	64.4	10	66.0	18	40.1	15
23	MD03W665-10-5	61.3	13	43.4	29	80.4	12	41.8	26	61.2	24	41.5	13
24	MD03W151-10-12	62.6	10	87.3	1	70.8	20	70.2	6	66.2	17	39.9	16
25	G96164	58.0	21	58.6	18	86.5	8	54.4	18	73.0	7	27.1	28
26	G95407	68.7	2	71.5	4	82.7	10	43.1	25	52.8	29	32.7	25
27	G00032	63.6	7	58.2	19	90.8	6	50.7	20	70.0	10	30.7	26
28	AR01167-3-1	57.0	22	64.5	14	96.1	2	63.7	11	69.6	11	33.4	24
29	AR01179-4-1	73.7	1	55.5	24	92.8	4	46.6	24	68.1	14	35.4	23
LOCATION MEANS		59.6		62.8		75.4		58.6		67.5		39.5	
LSD (.05)		8.06		16				4.8		11.9		8.2	
CV %		13.46		24.5				6.2		8		12.2	
REPS		3		3		1		2		2		2	
Harvest Plot Area (sq.ft.)		42		70				50		40		70	

YIELD (bu/acre)

		Queenstown MD ab Costa	rank	Newton MS a Burgess	rank	Portageville MO a McKendry	rank	Kinston NC a Murphy	rank	Knoxville TN a West	rank	Farmersville TX ab Sutton	rank
1	AGS 2000	94.9	5	45.0	7	43.4	22	54.6	27	49.8	25	70.1	17
2	Pioneer Brand 26R61	75.5	29	39.3	13	55.4	9	75.5	17	24.1	29	70.6	15
3	USG 3555	85.3	18	41.8	11	61.8	2	87.5	5	27.6	28	85.9	6
4	Jamestown	98.4	4	46.8	6	67.7	1	80.5	12	59.2	12	82.0	8
5	NC08-23089	85.5	17	26.7	28	43.0	23	76.1	15	55.5	17	55.4	24
6	NC08-23090	80.2	26	26.0	29	41.4	24	65.1	22	62.5	8	58.6	21
7	NC08-23323	91.3	6	36.6	16	39.2	26	83.5	9	50.2	24	45.5	27
8	NC08-23324	88.6	10	29.6	27	34.2	29	88.4	4	55.5	17	42.8	28
9	LA04041D-117	80.5	25	48.8	4	59.6	4	51.3	28	58.4	13	89.3	1
10	LA04041D-63	89.9	8	51.8	3	58.1	6	58.0	25	57.9	14	88.1	2
11	LA04026D-7	86.8	13	39.2	14	58.7	5	60.5	23	63.4	6	78.3	13
12	LA04110D-7	89.3	9	48.0	5	47.4	17	55.4	26	62.1	9	70.6	15
13	TN1201	86.1	15	44.7	8	37.9	27	91.6	3	61.6	10	65.5	19
14	TN1202	102.6	2	35.3	18	46.6	18	85.9	8	57.3	15	49.2	26
15	GA031086-10E26	104.3	1	30.4	26	60.5	3	79.6	13	79.6	2	87.6	3
16	GA031134-10E29	83.0	24	44.7	9	53.9	11	82.4	11	79.5	3	86.2	5
17	GA04570-10E46	85.2	19	43.5	10	53.0	12	71.7	19	63.2	7	87.1	4
18	GA031257-10LE34	83.4	22	53.1	2	52.6	13	94.5	2	85.8	1	84.4	7
19	VA08W-176	79.2	28	31.1	25	54.1	10	83.4	10	57.0	16	78.8	12
20	VA09W-75	90.8	7	34.3	21	56.1	8	87.4	6	59.4	11	65.3	20
21	VA10W-28	86.4	14	35.2	20	44.8	21	74.6	18	53.2	20	66.5	18
22	VA10W-119	87.3	12	55.1	1	49.6	16	94.7	1	74.9	4	81.4	9
23	MD03W665-10-5	83.2	23	39.8	12	46.4	19	87.2	7	38.7	27	57.3	23
24	MD03W151-10-12	98.7	3	31.6	24	52.5	14	70.9	20	63.5	5	80.2	10
25	G96164	87.6	11	34.3	22	37.2	28	58.6	24	54.5	19	58.2	22
26	G95407	80.0	27	37.9	15	45.0	20	78.0	14	52.0	23	28.7	29
27	G00032	84.3	21	35.3	19	40.9	25	49.6	29	41.0	26	55.1	25
28	AR01167-3-1	85.8	16	35.4	17	56.7	7	69.9	21	53.2	20	73.9	14
29	AR01179-4-1	84.5	20	31.7	23	50.6	15	76.0	16	52.8	22	79.5	11
LOCATION MEANS		87.5		39.1		49.9		74.9		57.0		69.7	
LSD (.05)		9.8		5.9		11.9		15		18.4		9.2	
CV %		5.5		13		14.6		10		19.6		8	
REPS		2		4		3		2		3			
Harvest Plot Area (sq.ft.)				75		55		55		43			

YIELD (bu/acre)

		Blacksburg VA Griffey	a rank	Warsaw VA Griffey	ab rank	Oconto WI Murche	rank
1	AGS 2000	50.4	20	78.3	23	68.8	17
2	Pioneer Brand 26R61	31.8	29	74.3	26	72.0	14
3	USG 3555	73.3	2	94.0	3	80.4	3
4	Jamestown	66.3	9	92.0	5	69.7	16
5	NC08-23089	53.3	16	72.1	28	65.7	22
6	NC08-23090	52.5	17	77.1	24	66.9	20
7	NC08-23323	49.2	25	81.0	19	63.4	26
8	NC08-23324	50.1	21	88.9	8	63.6	25
9	LA04041D-117	52.3	19	82.1	17	80.8	2
10	LA04041D-63	43.1	26	81.5	18	82.8	1
11	LA04026D-7	39.5	27	79.1	21	76.8	6
12	LA04110D-7	36.6	28	83.7	14	70.0	15
13	TN1201	72.2	4	80.5	20	72.5	10
14	TN1202	80.5	1	82.8	16	74.5	8
15	GA031086-10E26	57.4	12	90.1	7	76.2	7
16	GA031134-10E29	71.1	7	85.6	11	72.2	12
17	GA04570-10E46	49.2	24	78.6	22	72.4	11
18	GA031257-10LE34	65.9	10	88.7	9	79.4	4
19	VA08W-176	56.2	15	83.2	15	66.9	21
20	VA09W-75	72.5	3	92.7	4	65.3	23
21	VA10W-28	71.7	5	84.8	12	78.5	5
22	VA10W-119	71.3	6	91.3	6	72.0	13
23	MD03W665-10-5	56.9	13	87.5	10	60.4	28
24	MD03W151-10-12	59.6	11	94.5	2	72.9	9
25	G96164	49.6	23	75.3	25	64.1	24
26	G95407	56.6	14	72.3	27	61.7	27
27	G00032	52.4	18	69.9	29	58.0	29
28	AR01167-3-1	50.0	22	84.5	13	68.1	18
29	AR01179-4-1	70.5	8	95.1	1	68.0	19
LOCATION MEANS		57.3		83.5		70.5	
LSD (.05)		11.56		11.39			
CV %		11.87		8.02			
REPS		2		2			
Harvest Plot Area (sq.ft.)		45		45			

YIELD (bu/acre)

		ENTRY MEANS ALL LOCATIONS		ENTRY MEANS IN-REGION [a]		ENTRY MEANS CV <10% [b]	
			rank		rank		rank
1	AGS 2000	59.9	22	59.1	21	72.0	17
2	Pioneer Brand 26R61	58.3	25	57.3	24	67.5	23
3	USG 3555	66.5	8	64.3	12	77.0	12
4	Jamestown	67.8	4	68.7	4	78.8	4
5	NC08-23089	58.4	23	59.5	20	67.5	22
6	NC08-23090	57.8	26	58.8	22	68.3	21
7	NC08-23323	60.0	21	60.1	18	70.2	19
8	NC08-23324	60.8	19	61.2	17	71.5	18
9	LA04041D-117	63.8	14	64.0	13	76.3	13
10	LA04041D-63	66.1	10	65.2	8	78.5	6
11	LA04026D-7	61.9	16	61.8	16	75.3	15
12	LA04110D-7	61.3	18	62.1	14	75.2	16
13	TN1201	61.9	15	59.6	19	65.1	26
14	TN1202	60.2	20	57.3	25	64.0	27
15	GA031086-10E26	65.8	11	64.9	9	79.4	1
16	GA031134-10E29	68.3	3	68.3	5	77.6	10
17	GA04570-10E46	66.9	6	66.8	6	78.8	3
18	GA031257-10LE34	71.0	1	71.2	1	79.3	2
19	VA08W-176	66.8	7	65.5	7	77.0	11
20	VA09W-75	67.8	5	69.7	2	78.3	7
21	VA10W-28	61.6	17	57.1	26	65.7	25
22	VA10W-119	69.3	2	69.6	3	78.1	8
23	MD03W665-10-5	58.3	24	58.6	23	66.7	24
24	MD03W151-10-12	66.5	9	64.5	11	78.0	9
25	G96164	54.3	28	51.2	28	62.2	28
26	G95407	54.1	29	50.5	29	55.4	29
27	G00032	57.6	27	55.5	27	68.9	20
28	AR01167-3-1	63.9	13	62.1	15	75.6	14
29	AR01179-4-1	65.3	12	64.6	10	78.5	5
LOCATION MEANS		62.8		62.0		72.6	
LSD (.05)							
CV %							
REPS							
Harvest Plot Area (sq.ft.)							

TEST WEIGHT (lbs/bu)

		Belle Mina AL Glass	Stuttgart AR Mason	Quincy FL Barnett	Griffin GA Johnson	Plains GA Johnson
1	AGS 2000	57.3	62.6	53.8	58.3	58.3
2	Pioneer Brand 26R61	58.3	64.0	56.0	60.2	61.1
3	USG 3555	55.5	61.0	48.6	57.6	55.7
4	Jamestown	58.5	62.7	57.6	59.5	59.3
5	NC08-23089	56.2	62.3	55.0	58.9	58.0
6	NC08-23090	56.8	62.4	56.3	59.2	58.7
7	NC08-23323	55.2	63.4	55.4	61.8	57.3
8	NC08-23324	56.1	63.0	54.4	61.4	60.9
9	LA04041D-117	56.3	61.6	53.4	58.8	57.9
10	LA04041D-63	56.7	62.1	54.4	58.3	57.9
11	LA04026D-7	58.0	64.3	57.0	60.2	60.4
12	LA04110D-7	58.6	64.1	59.8	60.0	60.7
13	TN1201	54.5	62.5	52.5	58.4	50.5
14	TN1202	52.8	61.8	46.1	51.4	52.5
15	GA031086-10E26	55.2	60.4	53.8	59.7	56.6
16	GA031134-10E29	55.2	61.1	49.9	57.6	58.3
17	GA04570-10E46	58.0	63.1	54.7	61.8	60.7
18	GA031257-10LE34	57.7	62.3	56.0	59.8	59.6
19	VA08W-176	56.8	63.0	51.2	61.6	52.5
20	VA09W-75	55.9	62.9	55.0	58.4	57.5
21	VA10W-28	56.0	62.1	49.9	59.6	52.7
22	VA10W-119	56.9	62.5	56.6	58.5	56.1
23	MD03W665-10-5	55.2	62.6	56.4	59.7	54.8
24	MD03W151-10-12	55.8	61.3	53.1	59.3	58.7
25	G96164	56.5	63.9	44.8	60.5	47.7
26	G95407	52.9	61.3	48.6	53.8	48.9
27	G00032	55.3	61.9	55.0	56.6	57.3
28	AR01167-3-1	54.7	61.5	49.9	56.4	56.8
29	AR01179-4-1	54.7	61.5	52.5	58.6	58.1
LOCATION MEANS		56.1	62.4	53.4	58.8	56.7

TEST WEIGHT (lbs/bu)

		Harrisburg IL Murche	Winfield KS Perry	Lexington KY Van Sanford	Winnsboro LA Harrison	Queenstown MD Costa
1	AGS 2000	57.6	54.3	59.1	56.5	60.6
2	Pioneer Brand 26R61	60.0	57.5	60.3	56.9	58.4
3	USG 3555	60.1	58.2	58.5	55.3	60.3
4	Jamestown	59.9	59.8	60.6	57.8	60.7
5	NC08-23089	57.6	56.3	59.3	56.1	60.1
6	NC08-23090	57.7	56.3	59.7	56.8	59.6
7	NC08-23323	57.5	49.8	58.5	54.4	58.2
8	NC08-23324	59.9	51.8	59.4	53.9	59.9
9	LA04041D-117	60.8	56.8	58.1	55.6	60.5
10	LA04041D-63	57.3	59.1	58.7	56.1	59.7
11	LA04026D-7	58.4	59.7	59.9	58.6	60.2
12	LA04110D-7	58.8	59.0	60.2	59.5	59.8
13	TN1201	57.4	56.7	56.3	56.7	58.2
14	TN1202	53.6	50.3	51.5	52.4	60.9
15	GA031086-10E26	56.9	57.8	56.4	51.1	59.0
16	GA031134-10E29	57.0	58.0	57.8	52.1	58.5
17	GA04570-10E46	62.2	58.1	59.2	58.1	59.1
18	GA031257-10LE34	58.8	59.5	59.6	55.4	60.4
19	VA08W-176	59.8	59.8	60.8	57.7	59.7
20	VA09W-75	56.5	58.6	57.9	56.8	58.0
21	VA10W-28	61.3	59.0	58.1	57.9	59.5
22	VA10W-119	59.1	57.3	57.4	55.6	58.1
23	MD03W665-10-5	51.9	56.1	57.9	57.4	58.7
24	MD03W151-10-12	56.8	57.7	57.6	55.0	59.5
25	G96164	58.3	59.9	57.9	56.6	58.3
26	G95407	60.7	52.0	54.0	52.5	58.9
27	G00032	61.2	53.1	59.2	53.8	58.6
28	AR01167-3-1	53.6	54.2	56.2	54.2	59.4
29	AR01179-4-1	57.8	54.7	56.0	54.2	60.0
LOCATION MEANS		58.2	56.6	58.1	55.7	59.4

TEST WEIGHT (lbs/bu)

		Newton MS Burgess	Portageville MO McKendry	Kinston NC Murphy	Knoxville TN West	Farmersville TX Sutton
1	AGS 2000	55	52.9	57.9	57.0	56.5
2	Pioneer Brand 26R61	56	57.9	56.2	58.3	59.0
3	USG 3555	55	55.1	53.6	55.0	58.1
4	Jamestown	58	57.7	58.0	58.0	59.6
5	NC08-23089	53	56.5	56.5	57.0	55.4
6	NC08-23090	53	56.5	56.3	57.0	55.8
7	NC08-23323	57	56.1	56.7	58.2	54.4
8	NC08-23324	56	56.0	56.8	57.9	53.4
9	LA04041D-117	56	54.7	55.4	57.0	57.5
10	LA04041D-63	56	54.7	54.8	56.7	58.1
11	LA04026D-7	55	58.4	58.1	58.9	60.3
12	LA04110D-7	58	58.8	57.7	58.7	57.9
13	TN1201	57	54.5	57.5	56.1	54.5
14	TN1202	50	53.2	54.6	53.6	51.5
15	GA031086-10E26	52	55.1	56.6	56.3	58.1
16	GA031134-10E29	54	54.4	54.8	55.9	57.9
17	GA04570-10E46	58	56.6	58.5	59.4	59.0
18	GA031257-10LE34	57	58.0	58.2	58.9	58.3
19	VA08W-176	56	55.5	58.6	59.8	57.7
20	VA09W-75	56	56.2	57.1	56.9	57.7
21	VA10W-28	56	54.6	55.4	56.8	56.0
22	VA10W-119	56	55.9	56.2	56.9	57.8
23	MD03W665-10-5	58	55.2	57.6	57.5	55.3
24	MD03W151-10-12	53	55.3	55.2	56.3	58.4
25	G96164	60	55.4	58.2	58.6	57.1
26	G95407	54	52.6	54.8	55.2	47.5
27	G00032	53	53.3	53.5	58.8	52.8
28	AR01167-3-1	52	54.8	51.8	55.4	55.0
29	AR01179-4-1	53	51.2	55.0	56.5	55.6
LOCATION MEANS		55.3	55.4	56.2	57.2	56.4

TEST WEIGHT (lbs/bu)

		Blacksburg VA Griffey	Warsaw VA Griffey	Oconto WI Murche	ENTRY MEANS ALL LOCATIONS	rank
1	AGS 2000	56.2	61.7	59.1	57.5	12
2	Pioneer Brand 26R61	58.8	61.7	60.4	58.9	5
3	USG 3555	56.2	60.3	57.9	56.8	21
4	Jamestown	58.6	62.0	59.6	59.3	1
5	NC08-23089	56.8	60.7	56.7	57.4	14
6	NC08-23090	56.9	59.9	57.2	57.6	11
7	NC08-23323	57.2	62.1	56.0	57.2	17
8	NC08-23324	57.9	62.5	55.7	57.6	10
9	LA04041D-117	54.1	60.5	56.0	57.3	16
10	LA04041D-63	54.3	60.6	53.0	57.1	19
11	LA04026D-7	58.5	62.3	57.4	59.2	4
12	LA04110D-7	56.6	61.4	58.3	59.3	2
13	TN1201	56.7	61.4	55.7	56.5	25
14	TN1202	56.2	60.7	54.3	53.7	29
15	GA031086-10E26	56.0	61.7	58.6	56.7	23
16	GA031134-10E29	57.4	61.6	58.6	56.7	24
17	GA04570-10E46	58.5	62.4	59.1	59.2	3
18	GA031257-10LE34	59.2	62.5	59.2	58.9	6
19	VA08W-176	61.1	63.0	59.9	58.6	7
20	VA09W-75	58.1	60.6	56.9	57.6	9
21	VA10W-28	56.7	60.3	56.6	57.1	18
22	VA10W-119	57.9	61.7	59.1	57.8	8
23	MD03W665-10-5	59.1	61.2	57.4	57.3	15
24	MD03W151-10-12	54.0	61.0	58.8	57.0	20
25	G96164	58.9	62.3	58.9	57.4	13
26	G95407	56.8	59.5	55.7	54.4	28
27	G00032	58.2	62.1	57.7	56.7	22
28	AR01167-3-1	54.7	62.1	56.4	55.5	27
29	AR01179-4-1	56.6	60.1		56.2	26
LOCATION MEANS		57.2	61.4	57.5	57.3	

HEADING DATE (Julian days)

		Belle Mina AL Glass	Stuttgart AR Mason	Stuttgart AR Obert	Quincy FL Barnett	Griffin GA Johnson
1	AGS 2000	89	85	90.3	78	83
2	Pioneer Brand 26R61	91	87	92.7	83	87
3	USG 3555	90	87	94.0	95	90
4	Jamestown	86	85	90.0	82	80
5	NC08-23089	86	85	87.3	79	80
6	NC08-23090	86	85	87.3	80	80
7	NC08-23323	91	87	91.7	93	88
8	NC08-23324	91	85	94.3	92	88
9	LA04041D-117	89	87	90.0	76	80
10	LA04041D-63	89	85	92.0	74	81
11	LA04026D-7	89	85	89.3	75	82
12	LA04110D-7	89	87	91.3	86	81
13	TN1201	95	90	98.3	112	93
14	TN1202	95	89	97.3	98	92
15	GA031086-10E26	89	87	92.3	97	88
16	GA031134-10E29	91	85	93.0	93	87
17	GA04570-10E46	91	85	90.7	81	83
18	GA031257-10LE34	88	85	92.3	91	87
19	VA08W-176	93	88	97.7	100	86
20	VA09W-75	92	87	94.7	82	83
21	VA10W-28	95	87	95.3	112	90
22	VA10W-119	89	85	92.7	92	84
23	MD03W665-10-5	93	87	96.3	100	89
24	MD03W151-10-12	89	85	94.3	86	81
25	G96164	97	89	98.7		99
26	G95407	93	88	95.3	110	85
27	G00032	93	88	94.7	79	87
28	AR01167-3-1	93	85	94.0	98	88
29	AR01179-4-1	95	89	97.3	95	87
LOCATION MEANS		90.9	86.5	93.3	90.0	85.8

HEADING DATE (Julian days)

		Plains GA Johnson	Lafayette IN Moreno	Lexington KY Van Sanford	Winnsboro LA Harrison	Queenstown MD Costa
1	AGS 2000	80	110	112.0	76.0	106.5
2	Pioneer Brand 26R61	82	110	112.8	78.0	107.5
3	USG 3555	85	110	109.0	84.5	106.5
4	Jamestown	79	109	110.5	75.0	104.5
5	NC08-23089	78	110	107.6	72.0	108.5
6	NC08-23090	79	110	107.8	72.0	108.5
7	NC08-23323	87	111	111.7	85.0	109.5
8	NC08-23324	86	111	116.4	83.0	107.5
9	LA04041D-117	77	110	108.4	75.0	104.5
10	LA04041D-63	77	112	110.6	77.0	104.5
11	LA04026D-7	79	113	114.0	77.0	106.0
12	LA04110D-7	80	109	109.5	76.5	109.0
13	TN1201	97	121	117.4	88.5	106.0
14	TN1202	91	118	120.5	86.0	109.5
15	GA031086-10E26	84	111	113.0	78.0	105.0
16	GA031134-10E29	87	116	114.3	80.0	107.0
17	GA04570-10E46	81	110	110.9	77.5	107.0
18	GA031257-10LE34	85	112	111.1	78.5	101.5
19	VA08W-176	91	116	118.0	86.0	107.5
20	VA09W-75	84	111	114.7	78.5	105.0
21	VA10W-28	95	116	114.0	86.0	106.5
22	VA10W-119	85	111	113.9	78.0	102.5
23	MD03W665-10-5	92	114	115.7	85.5	108.0
24	MD03W151-10-12	82	111	111.5	77.5	107.0
25	G96164	101	121	119.4	94.0	110.0
26	G95407	95	121	116.4	86.0	110.0
27	G00032	82	116	119.0	78.5	110.0
28	AR01167-3-1	90	113	111.9	80.0	105.0
29	AR01179-4-1	92	117	117.5	86.0	107.0
LOCATION MEANS		85.6	113.1	113.4	80.5	106.8

HEADING DATE (Julian days)

		Salisbury MD Costa	Kinston NC Murphy	Knoxville TN West	Farmersville TX Sutton	Blacksburg VA Griffey
1	AGS 2000	105.0	90.0	97	88	108.5
2	Pioneer Brand 26R61	107.0	93.0	100	88	110.0
3	USG 3555	108.0	92.0	100	87	110.0
4	Jamestown	105.0	88.0	98	84	108.5
5	NC08-23089	101.0	86.0	94	84	109.5
6	NC08-23090	102.0	87.0	95	84	107.5
7	NC08-23323	108.0	95.0	102	89	112.0
8	NC08-23324	110.0	96.0	102	89	112.5
9	LA04041D-117	101.5	86.0	98	84	106.5
10	LA04041D-63	102.0	86.0	98	85	107.0
11	LA04026D-7	104.5	90.0	100	85	110.0
12	LA04110D-7	106.5	89.0	98	84	107.0
13	TN1201	113.5	100.0	107	93	118.5
14	TN1202	112.5	98.0	105	93	120.0
15	GA031086-10E26	107.0	91.5	97	85	110.5
16	GA031134-10E29	106.0	91.0	100	88	113.0
17	GA04570-10E46	103.0	90.5	99	89	110.0
18	GA031257-10LE34	106.0	91.5	96	85	111.5
19	VA08W-176	111.0	97.5	105	90	117.5
20	VA09W-75	106.0	90.5	101	88	110.5
21	VA10W-28	112.5	101.5	103	91	119.5
22	VA10W-119	106.5	91.0	97	85	110.0
23	MD03W665-10-5	109.5	92.0	102	89	111.0
24	MD03W151-10-12	107.0	87.0	99	84	106.5
25	G96164	112.5	100.1	105	94	120.0
26	G95407	110.0	92.0	101	94	117.5
27	G00032	111.0	97.5	104	89	114.5
28	AR01167-3-1	106.5	95.0	103	88	111.5
29	AR01179-4-1	108.5	95.0	103	88	114.0
LOCATION MEANS		107.2	92.4	100.3	87.7	111.9

HEADING DATE (Julian days)

		Warsaw VA Griffey	ENTRY MEANS ALL LOCATIONS	rank
1	AGS 2000	98.5	93.6	6
2	Pioneer Brand 26R61	103.0	95.7	13
3	USG 3555	103.0	96.9	16
4	Jamestown	97.0	92.6	5
5	NC08-23089	97.5	91.6	1
6	NC08-23090	98.5	91.8	3
7	NC08-23323	105.5	97.9	18
8	NC08-23324	106.0	98.1	21
9	LA04041D-117	94.0	91.7	2
10	LA04041D-63	95.0	92.2	4
11	LA04026D-7	99.5	93.6	7
12	LA04110D-7	99.0	93.9	8
13	TN1201	109.0	103.7	28
14	TN1202	108.5	102.1	27
15	GA031086-10E26	103.0	96.1	15
16	GA031134-10E29	104.0	97.2	17
17	GA04570-10E46	99.5	94.3	10
18	GA031257-10LE34	103.5	95.3	12
19	VA08W-176	108.0	100.8	24
20	VA09W-75	104.5	95.8	14
21	VA10W-28	107.5	102.0	26
22	VA10W-119	100.5	95.2	11
23	MD03W665-10-5	106.0	99.4	22
24	MD03W151-10-12	100.0	94.2	9
25	G96164	109.5	104.7	29
26	G95407	108.0	101.4	25
27	G00032	106.0	98.1	20
28	AR01167-3-1	104.5	97.9	19
29	AR01179-4-1	107.0	99.9	23
LOCATION MEANS		102.9	96.8	

HEIGHT (inches)

		Belle Mina AL Glass	Stuttgart AR Mason	Quincy FL Barnett	Griffin GA Johnson
1	AGS 2000	35	29.5	36	36
2	Pioneer Brand 26R61	35	30.0	38	37
3	USG 3555	27	25.5	31	34
4	Jamestown	30	24.5	32	34
5	NC08-23089	28	25.5	34	34
6	NC08-23090	28	25.0	36	32
7	NC08-23323	32	28.5	36	37
8	NC08-23324	33	29.5	36	37
9	LA04041D-117	31	25.5	36	34
10	LA04041D-63	32	29.5	40	36
11	LA04026D-7	33	29.5	37	37
12	LA04110D-7	35	26.5	34	38
13	TN1201	33	28.0	33	34
14	TN1202	31	28.5	32	34
15	GA031086-10E26	29	27.0	33	34
16	GA031134-10E29	29	27.0	32	37
17	GA04570-10E46	34	30.0	39	41
18	GA031257-10LE34	32	25.5	33	35
19	VA08W-176	32	28.0	35	39
20	VA09W-75	30	27.5	35	38
21	VA10W-28	35	31.5	36	43
22	VA10W-119	34	31.0	35	39
23	MD03W665-10-5	29	28.5	30	34
24	MD03W151-10-12	28	26.0	33	37
25	G96164	36	27.0	31	40
26	G95407	35	32.5	32	42
27	G00032	31	29.0	35	40
28	AR01167-3-1	35	28.0	33	39
29	AR01179-4-1	32	29.0	36	40
LOCATION MEANS		31.9	28.0	34.4	37.0

HEIGHT (inches)

		Plains GA Johnson	Harrisburg IL Murche	Lafayette IN Moreno	Lexington KY Van Sanford
1	AGS 2000	35	33	32	31.0
2	Pioneer Brand 26R61	37	33	38	31.8
3	USG 3555	31	30	32	27.6
4	Jamestown	31	29	33	31.1
5	NC08-23089	30	31	33	28.6
6	NC08-23090	30	30	36	29.4
7	NC08-23323	34	30	34	28.5
8	NC08-23324	33	31	34	29.2
9	LA04041D-117	31	29	31	28.9
10	LA04041D-63	34	31	34	30.3
11	LA04026D-7	37	32	27	30.7
12	LA04110D-7	37	33	33	31.6
13	TN1201	32	33	33	28.7
14	TN1202	31	31	34	29.7
15	GA031086-10E26	30	31	33	27.1
16	GA031134-10E29	30	31	36	28.6
17	GA04570-10E46	36	33	37	32.2
18	GA031257-10LE34	31	29	34	28.3
19	VA08W-176	33	32	37	30.6
20	VA09W-75	32	31	37	29.6
21	VA10W-28	37	36	38	31.1
22	VA10W-119	34	33	36	30.6
23	MD03W665-10-5	30	29	31	26.9
24	MD03W151-10-12	30	27	31	29.1
25	G96164	33	32	34	29.9
26	G95407	35	36	36	31.0
27	G00032	31	35	35	29.7
28	AR01167-3-1	35	33	33	29.2
29	AR01179-4-1	36	34	36	28.7
LOCATION MEANS		33.0	31.7	34.1	29.6

HEIGHT (inches)

		Winnsboro LA Harrison	Queenstown MD Costa	Salisbury MD Costa	Newton MS Burgess
1	AGS 2000	39.0	38.0	33.5	34
2	Pioneer Brand 26R61	37.0	35.5	35.5	36
3	USG 3555	31.0	38.5	29.5	34
4	Jamestown	35.0	34.0	31.5	32
5	NC08-23089	33.5	39.0	30.5	34
6	NC08-23090	34.0	38.0	32.5	34
7	NC08-23323	34.5	42.5	35.0	32
8	NC08-23324	36.5	35.0	33.5	38
9	LA04041D-117	34.5	37.5	30.5	34
10	LA04041D-63	37.0	37.5	33.0	31
11	LA04026D-7	37.0	34.5	32.0	35
12	LA04110D-7	37.5	39.0	35.5	33
13	TN1201	39.0	37.5	37.0	30
14	TN1202	38.0	35.5	35.0	35
15	GA031086-10E26	35.5	34.5	32.5	33
16	GA031134-10E29	33.0	34.5	30.5	36
17	GA04570-10E46	38.5	38.0	34.5	33
18	GA031257-10LE34	33.5	37.0	33.0	37
19	VA08W-176	37.5	34.0	36.0	40
20	VA09W-75	35.5	34.5	35.0	40
21	VA10W-28	43.0	39.0	35.0	33
22	VA10W-119	37.0	33.5	33.5	31
23	MD03W665-10-5	37.0	35.0	33.5	37
24	MD03W151-10-12	32.0	33.5	32.5	32
25	G96164	35.5	40.0	35.0	36
26	G95407	40.5	39.5	35.5	36
27	G00032	35.5	39.0	34.5	37
28	AR01167-3-1	37.5	33.5	33.0	35
29	AR01179-4-1	39.0	35.5	33.5	35
LOCATION MEANS		36.3	36.7	33.5	34.6

HEIGHT (inches)

		Portageville MO	Blacksburg VA	Warsaw VA	ENTRY MEANS ALL LOCATIONS	
		McKendry	Griffey	Griffey		
						rank
1	AGS 2000	31	35.5	33.5	34.1	7
2	Pioneer Brand 26R61	31	39.5	34.0	35.2	4
3	USG 3555	26	35.0	32.0	30.9	28
4	Jamestown	28	34.5	30.5	31.3	27
5	NC08-23089	28	35.0	30.5	31.6	24
6	NC08-23090	28	36.0	31.5	32.0	22
7	NC08-23323	30	35.0	30.5	33.3	16
8	NC08-23324	30	35.0	31.0	33.4	15
9	LA04041D-117	29	33.0	31.0	31.7	23
10	LA04041D-63	32	37.5	31.5	33.8	12
11	LA04026D-7	31	33.5	32.5	33.2	18
12	LA04110D-7	31	32.5	34.5	34.1	8
13	TN1201	30	37.0	33.5	33.2	17
14	TN1202	32	36.0	30.0	32.8	19
15	GA031086-10E26	31	33.5	30.0	31.6	25
16	GA031134-10E29	28	37.0	31.0	32.0	21
17	GA04570-10E46	32	37.5	35.0	35.4	3
18	GA031257-10LE34	28	36.5	31.0	32.3	20
19	VA08W-176	31	37.5	32.5	34.3	6
20	VA09W-75	28	38.0	32.0	33.5	14
21	VA10W-28	31	39.0	35.0	36.2	1
22	VA10W-119	30	39.5	34.0	34.1	9
23	MD03W665-10-5	27	34.0	28.5	31.4	26
24	MD03W151-10-12	28	31.0	30.5	30.7	29
25	G96164	30	39.5	31.5	34.0	11
26	G95407	33	39.5	36.5	36.0	2
27	G00032	32	36.0	31.0	34.0	10
28	AR01167-3-1	31	38.0	31.5	33.6	13
29	AR01179-4-1	32	37.5	34.0	34.5	5
LOCATION MEANS		30.0	36.2	32.1	33.3	

LODGING

		Belle Mina	Stuttgart	Quincy	Griffin
		AL	AR	FL	GA
		Glass	Obert	Barnett	Johnson
		0-9	0-9	0-9	%
1	AGS 2000	0	0.0	7	80
2	Pioneer Brand 26R61	0	1.3	3	20
3	USG 3555	0	0.0	5	10
4	Jamestown	0	0.0	8	50
5	NC08-23089	0	1.7	5	30
6	NC08-23090	0	0.0	4	20
7	NC08-23323	0	1.0	7	30
8	NC08-23324	0	2.0	7	0
9	LA04041D-117	0	0.0	8	20
10	LA04041D-63	0	0.0	6	0
11	LA04026D-7	0	0.0	4	70
12	LA04110D-7	0	0.0	7	20
13	TN1201	0	0.0	2	20
14	TN1202	0	0.0	4	20
15	GA031086-10E26	0	1.0	8	40
16	GA031134-10E29	0	0.0	8	50
17	GA04570-10E46	0	0.0	7	10
18	GA031257-10LE34	0	0.0	8	0
19	VA08W-176	0	0.0	2	0
20	VA09W-75	0	0.0	7	0
21	VA10W-28	1	0.0	6	0
22	VA10W-119	0	0.0	1	0
23	MD03W665-10-5	0	0.0	2	0
24	MD03W151-10-12	0	1.3	6	0
25	G96164	0	0.0	3	0
26	G95407	1	0.0	3	30
27	G00032	0	1.3	7	20
28	AR01167-3-1	0	0.0	8	0
29	AR01179-4-1	1	0.0	4	10
LOCATION MEANS		0.1	0.3	5.4	19.0
GROWTH STAGE / DATE			May 21		

LODGING

		Newton MS Burgess 1-5	Portageville MO McKendry 0-9	Blacksburg VA Griffey 0-9	Warsaw VA Griffey 0-9
1	AGS 2000	1	0.7	6.0	0.5
2	Pioneer Brand 26R61	1	0.0	0.5	1.0
3	USG 3555	2	1.7	4.0	2.0
4	Jamestown	2	1.0	3.0	1.0
5	NC08-23089	1	2.3	3.0	1.5
6	NC08-23090	1	2.3	2.0	1.5
7	NC08-23323	2	0.0	4.5	1.5
8	NC08-23324	1	0.0	3.5	1.0
9	LA04041D-117	1	0.0	1.5	0.5
10	LA04041D-63	1	0.3	1.5	0.0
11	LA04026D-7	1	0.3	6.0	1.0
12	LA04110D-7	2	0.3	8.0	1.0
13	TN1201	1	0.3	3.5	1.0
14	TN1202	1	1.0	2.0	1.0
15	GA031086-10E26	1	0.7	7.0	1.0
16	GA031134-10E29	1	1.0	3.5	1.0
17	GA04570-10E46	2	0.0	2.5	0.0
18	GA031257-10LE34	1	0.0	2.5	1.0
19	VA08W-176	1	1.0	3.0	1.0
20	VA09W-75	1	0.7	4.0	1.0
21	VA10W-28	1	0.0	1.0	0.5
22	VA10W-119	1	0.0	3.0	1.0
23	MD03W665-10-5	2	1.7	2.0	1.5
24	MD03W151-10-12	1	1.7	7.0	1.5
25	G96164	1	0.3	1.0	0.5
26	G95407	2	0.0	2.5	1.0
27	G00032	1	2.0	1.5	1.0
28	AR01167-3-1	1	0.7	0.0	0.5
29	AR01179-4-1	1	0.7	2.0	1.0
LOCATION MEANS		1.2	0.7	3.2	1.0
GROWTH STAGE / DATE					

LEAF RUST

		Belle Mina AL Glass 0-9	Quincy FL Barnett 0-9	Plains GA Johnson 0-9	Harrisburg IL Murche 0-9	Kinston NC Murphy 0-9
1	AGS 2000	1	0.2	0	5	1.5
2	Pioneer Brand 26R61	1	0.3	0	6	1.5
3	USG 3555	1	1.8	8	4	5.5
4	Jamestown	1	1.3	1	8	0.5
5	NC08-23089	2	0.2	0	1	0.0
6	NC08-23090	3	0.5	0	3	0.5
7	NC08-23323	2	0.0	1	1	0.0
8	NC08-23324	0	0.0	0	2	0.0
9	LA04041D-117	1	0.0	0	3	1.0
10	LA04041D-63	1	0.2	0	2	1.0
11	LA04026D-7	0	0.2	0	2	0.0
12	LA04110D-7	1	0.2	0	2	1.0
13	TN1201	0	0.0	0	1	1.0
14	TN1202	1	0.2	1	7	6.5
15	GA031086-10E26	0	0.0	0	2	0.0
16	GA031134-10E29	0	1.2	0	5	3.0
17	GA04570-10E46	0	0.0	0	1	0.5
18	GA031257-10LE34	0	0.0	0	1	0.0
19	VA08W-176	0	0.2	0	1	0.0
20	VA09W-75	0	0.0	0	1	0.0
21	VA10W-28	0	0.0	0	1	1.0
22	VA10W-119	0	0.2	0	6	0.5
23	MD03W665-10-5	1	0.0	0	2	0.0
24	MD03W151-10-12	0	0.7	4	5	3.0
25	G96164	1	2.7	6	5	7.0
26	G95407	2	0.8	0	1	5.0
27	G00032	0	0.0	0	1	0.0
28	AR01167-3-1	0	0.2	0	6	2.0
29	AR01179-4-1	1	0.2	0	1	0.0
LOCATION MEANS		0.7	0.4	0.7	3.0	1.4

LEAF RUST

		Warsaw VA Griffey 0-9	ENTRY MEANS ALL LOCATIONS
1	AGS 2000	1.5	1.5
2	Pioneer Brand 26R61	1.0	1.6
3	USG 3555	7.5	4.6
4	Jamestown	4.0	2.6
5	NC08-23089	2.5	0.9
6	NC08-23090	1.5	1.4
7	NC08-23323	0.5	0.8
8	NC08-23324	1.0	0.5
9	LA04041D-117	1.5	1.1
10	LA04041D-63	1.5	0.9
11	LA04026D-7	1.0	0.5
12	LA04110D-7	1.0	0.9
13	TN1201	1.5	0.6
14	TN1202	2.5	3.0
15	GA031086-10E26	0.5	0.4
16	GA031134-10E29	3.5	2.1
17	GA04570-10E46	0.0	0.3
18	GA031257-10LE34	0.0	0.2
19	VA08W-176	1.0	0.4
20	VA09W-75	0.0	0.2
21	VA10W-28	2.0	0.7
22	VA10W-119	2.0	1.4
23	MD03W665-10-5	0.0	0.5
24	MD03W151-10-12	1.0	2.3
25	G96164	6.5	4.7
26	G95407	9.0	3.0
27	G00032	0.5	0.3
28	AR01167-3-1	4.5	2.1
29	AR01179-4-1	0.5	0.5
LOCATION MEANS		2.1	1.4

LEAF RUST (seedling)
Kolmer, St. Paul, MN

			LEAF RUST RACES									
		Lr gene postulation	**MCTNB**	**TDBGG**	**TBBGJ**	**TNRJ**	**MCDS**	**KFBJ**	**MLDS**	**TCRKG**	**TFBJ**	**TCTSB**
1	AGS 2000	Lr26	;	;	;	22^+	3^+	3^+	;1	$;22^+$	$;1^-$	;
2	Pioneer Brand 26R61	Lr26	$;/2^+$	;	;	32^+	;1	3^+2^+	;	$;12^-$	;12	;12
3	USG 3555	Lr11, Lr26	32^+	;	;	2^+	$;/2^+$	22^+	;	;1	;12	3^+
4	Jamestown	Lr18	$;1^-$	;	;	;2	;12	;	;	3^+	;	;
5	NC08-23089	+	;	$;1^-$	;	;2	;	$;1^-$	;	;	;	;
6	NC08-23090	+	;	$;1^-$	;	$;^+$	;	$;1^-$	;	;	;	;
7	NC08-23323	Lr9, Lr11	;	0;	;	3^+	0;	0;	$;1^-$	0;	0;	0;
8	NC08-23324	Lr9, Lr24	;	0;	0;	3^+	0;	0;	$;1^-$	0;	0;	0;
9	LA04041D-117	Lr18	;	;	;	;2	;12	$;1^-$	$;1^-$	32^+	;	;
10	LA04041D-63	Lr18	;	;	;	;2	;12	2	;	2^+	;	;
11	LA04026D-7	+	;	;	;	;	;	;	$;1^-$	;	$;1^-$	;
12	LA04110D-7	Lr11, Lr26	;12	;	;	32^+	32^+	23	$;1^-$	22^+	;	$;12^-$
13	TN1201	Lr9	0;	0;	;	3^+	;	;	3^+	0;	0;	;
14	TN1202	Lr14a	3	;	;	3^+	3^+	3^+	23	32^+	3	3^+
15	GA031086-10E26	+	$;1^-$	;	;	$;1^-$	;	;	$;1^-$	1^+	;2	;
16	GA031134-10E29	Lr11	33^+	;	;	3^+2^+	$;12^-$	;2	$;1^-$	3^+	;	3^+
17	GA04570-10E46	+	;	;	;	$;1^-$	;	$;1^-$	0;	$;1^-$	;	;2
18	GA031257-10LE34	+	;	;	;	$;1^-$	;	$;1^-$	0;	$;1^-$	;	;
19	VA08W-176	Lr24	;	3^+	$;1^-$	3^+	;	3^+	;	;	3^+	0;
20	VA09W-75	+	;	0;	;	;1	;	;	$;1^-$	0;	;	;
21	VA10W-28	?	;	$;1^-$	2^+	$;1^-$	$;1^-$	;	$;1^-$	1^+	;	2^+
22	VA10W-119	Lr18	;	;	;	$;1^-$	$;1^-$	$;1^-$	$;1^-$	3^+	;	;
23	MD03W665-10-5	Lr9, Lr11	;	0;	;	3^+	;	0;	;	0;	0;	;
24	MD03W151-10-12	?	;	;	;	2^+3	;2	;	$;1^-$	3^+	;	;
25	G96164	Lr14a	3^+	;	;	3^+	3^+	3^+	3^+2^+	3^+	;23	3^+
26	G95407	Lr10, Lr11	;	$;2/3^+$	32^+	3^+	$;1^-$	;	;	3^+	;13	3^+
27	G00032	Lr9, Lr24	;	0;	;	3^+	;	;	;	0;	0;	0;
28	AR01167-3-1	Lr18	$2^+/;$	;	;	;	$;1^-$	;	;	3^+	;	$;1/3^+$
29	AR01179-4-1	Lr9, Lr17	;	;	;	$;1^-$	;	;	2^+3	;	;	0;

Races:	Virulences- Lr genes	Key:
KFBJG	2a,2c,3,24,26,10,14a,28	--- = no Lr genes
MLDSB	1,3,9,17,B,10,14a,	+ = all low infection types
MCTNB	1,3,26,3ka,11,17,30,B,14a	' = not able to postulate Lr gene
MCDSB	1,3,26,17,B, 10,14a,	
TCTSB	,2c,3,26,3ka,11,17,30,B,10, 14a	
TFBJQ	,2a,2c,3,24,26,10,14a,21,28	
TCRKG	,2c,3,26,3ka,11,30,10,14a,18,28	
TDBGG	1,2a,2c,3,24,10,28	
TNRJJ	2c,3,9,24,3ka,11,30,10,14a,28,39	
TBBGJ	1,2a,2c,3,10, 28,39	

STEM RUST (seedling)

Jin, St. Paul, MN

			QFCSC	QTHJC	MCCFC	RCRSC	RKQQC	TPMKC	TTTTF	SCCSC	QCCSM	TRTTF	RRTTF	TTKSK	TTKSK	TTKSK	TTKST	TTTSK		2011-12 field nursery, St Paul		
CDL			06ND76C	75ND717C	59KS19	77ND82A	99KS76A-1	74MN1409	01MN84A-1-2	09ID73-2	75WA165-2A	06YEM34-1	10PAK05-1	04KEN156/04	06KEN19V3	04KEN156/0	06KEN19V3	07KEN24-4		Field-X-13	Field-Buckthorn	
11/12 #	Nursery	Line												Rep1	Rep2	REPEAT	REPEAT	REPEAT	Note	6/21/2012	6/25/2012	NOTES
122	1	AGS 2000	2-/4	2	2-	2-;	2/;2-	2-	2-;	2-	2-;/2-	2-	2-	2+	2+	2+	2+	2		30MR	-	
123	2	Pioneer Brand 26R61	2	2	2-	2-	2	2	2-	2-	2-	2-	2-	4lif	4	4	4	4/2		40MR/60S	10MR/40MS	
124	3	USG 3555	0	0	0	2-	2-;	0;	2-;	0	0	2-	;2-/3	;	0	0	4	4		0	5MR	
125	4	Jamestown	3	23	4	4	4	4	4/2-	3-3	4	4	3	3	4	4	3+	4		80S	90S	
126	5	NC08-23089	2-;	2-	2-	2-	;2-/2-/;	2	2-	;1-	2-	2-	2-	2-	2-	2-	2	2-		40MR	60MR	
127	6	NC08-23090	2	2/4	2-	2-	;/;2-	2	2-	2-;	2-/0;	2-	2-	;	2-/4	2-	2-	2-		40MR	40MR	
128	7	NC08-23323	2	2	2-	2	2	2	2-	;2-/;	2-	2+3	2	;2	2+	2	2-	2-	1A.1R	40MR	60MR	
129	8	NC08-23324	2-	2	2-	2	2	2	2	2-;/2	2-	2+3	2-	2-	2	2-	2-	2-	1A.1R	40MR	60MR	
130	9	LA04041D-117	2-	2	2-N	23-	2+3	2	3-	2-	2-	4	3	2-	2	2+	2+	2		60S	100S	
131	10	LA04041D-63	2-	2	2-N	2-	2+3	22+	4	2-	2-	4	4	3	2+/4					60S	100S	
132	11	LA04026D-7	;13	;3LIF	0;	41;	;13-	31;	4	31;	31;	4	3+	3+	4					10MR-MS	10MR,30S	
133	12	LA04110D-7	4	4	4	4	4	4	4	4	4	4	4	3+	3					70S	90S	
134	13	TN1201	4	4	4	4	4/11+;	4	4	4	4	3	3/4	3	4					50MS-S	60MS-S	
135	14	TN1202	23-	3	23-/2-	4	4	4	3-	4	4	4	3+	3+	4					60S	100S	
136	15	GA031086-10E26	;3-1	31;	31;	33-	;13-	4	4	41;	2-1;	4	4	3+	4					30MS-S	70S	
137	16	GA031134-10E29	31;	31;	41;	4	31;	4	4	4	2-1;	4	4	4	4					30MS-S	50MS-S	
138	17	GA04570-10E46	0	0;	-	0;	;	;	0	0	0	2	2	0;/3	2/4	0/2+	2	2		0	TR	
139	18	GA031257-10LE34	4	41;	41;	4	3-1;	4/31C	4	4/41;	31;	4	4	3+	4					30S	30S	
140	19	VA08W-176	2-/4	2-	2-	2	2-	2	2	;2-/2	2-/2	2-	2-	2-	2-	2-	2-	2-		-	30MR	
141	20	VA09W-75	2	2	2-	23-	;12-	2	2-	2	2-	4	2	2-	2	2-	2-	2-	1A.1R	30MR	20MR	
142	21	VA10W-28	4/2-	31C	4/2-	4/2-	3-C/;2-	4/2	4	4/2	2-/4	4/2	3	3+	3					30MR/50S	10MR	
143	22	VA10W-119	4/31;	4	4/31;	4	;13/4	4	4	41;	4/31;	4	3+	3+	3+					30S	60S	
144	23	MD03W665-10-5	0	0	0	2-	2-	2-;	2-;	0	0	2	2	0;	0;	0	0	4	Sr36	5MR	5MR	
145	24	MD03W151-10-12	0	0	0	4	4	31;	4	0	0	3/2-	-	;	0	0	0	4	Sr36	10MR	10MS	
146	25	G96164	0	0	0	4	4	4	4	0	0/2	3+	4	0	0	0	0/3	4	Sr36	20MR	30MS	
147	26	G95407	2	2-	2-	4	4	4	4	22+	2N	4	4	4	4					60MS-S	100S	
148	27	G00032	2-	2-	2-	2-	23-	2	;2-	;2-/4	4	2-	2-	2/4	2-	2-	2	2	Sr24	10MR/70S	10MR	
149	28	AR01167-3-1	2-	4	2	4	4	23-	4	2	2-N	3	4	4	4					70S	90S	
150	29	AR01179-4-1	31;	;13-	;13-	31;	;1-/3-1;	31;	4	4	;1LIF	3	3	4	4					0	10MS	
151	Local ck 1	**McNair 701**	4	4	4	4	4	4	4	4	4	4	4	4	4					90S	90S	

STEM RUST (seedling)

Jin, St. Paul, MN

Notes and explanations for seedling testing:

Races Common US race panel: MCCFC, QFCSC, QTHJC, RCRSC, RKQQC, TPMKC, TTTTF
2 US races with unique virulence: SCCSC (virulenct to Sr9e, Sr13), QCCSM (virulent to Sr24)
For updated race nomenclature, please refer to: Jin et al. 2008 Plant Dis. 92:923-926.

Ratings Infection type (IT) 3 or 4 are considered susceptible
"/" 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 from Yemen, not in the TTKS lineage) and RRTTF (from Pakistan) were also used

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
RRTTF	8a 9e 24 31	5 6 7b 9a 9b 9d 9g 10 11 17 21 30 36 38 McN

Notes and explanations for adult testing:

Races bulked: QFCSC, QTHJC, RCRSC, RKQQC, TPMKC
Inoculation was done by injection and spray inoculation
Lines were planted in dash-row (1 ft in length)
A second replicate was planted in a different field

BIN=Black internode, PBC=Pseudo black chaff
Either or both may indicate the presence of Sr2

STRIPE RUST

		Belle Mina AL Glass 0-9	Griffin GA Johnson 0-9	Plains GA Johnson 0-9	Harrisburg IL Murche 0-9	Winfield KS Perry 0-9
1	AGS 2000	1	5	6	2.0	7
2	Pioneer Brand 26R61	1	0	1	1.9	7
3	USG 3555	1	0	0	1.0	1
4	Jamestown	0	0	0	1.0	1
5	NC08-23089	1	4	4	2.7	9
6	NC08-23090	1	2	4	4.2	9
7	NC08-23323	2	1	1	5.3	8
8	NC08-23324	2	0	0	4.7	9
9	LA04041D-117	0	0	0	1.0	1
10	LA04041D-63	0	0	0	1.1	1
11	LA04026D-7	0	0	0	1.0	1
12	LA04110D-7	1	0	3	2.4	8
13	TN1201	1	3	6	2.6	8
14	TN1202	2	7	7	3.7	9
15	GA031086-10E26	0	0	0	1.1	1
16	GA031134-10E29	0	0	0	0.9	1
17	GA04570-10E46	0	1	0	1.0	1
18	GA031257-10LE34	0	0	0	1.4	1
19	VA08W-176	1	1	0	1.0	1
20	VA09W-75	1	0	0	0.9	1
21	VA10W-28	1	1	4	1.6	7
22	VA10W-119	1	3	4	1.4	1
23	MD03W665-10-5	1	5	4	3.5	7
24	MD03W151-10-12	0	1	1	1.1	1
25	G96164	1	4	3	1.3	7
26	G95407	2	9	5	6.0	9
27	G00032	1	0	2	3.0	9
28	AR01167-3-1	0	0	0	1.0	1
29	AR01179-4-1	0	0	0	0.9	1
LOCATION MEANS		0.8	1.6	1.9	2.1	4.4

STRIPE RUST

		Winnsboro LA Harrison 0-9	Knoxville TN West 0-9	Farmersville TX Sutton 0-9	Oconto WI Murche	ENTRY MEANS ALL LOCATIONS
1	AGS 2000	0.0	5.3	6	4.4	4.1
2	Pioneer Brand 26R61	0.0	4.0	2	1.7	2.1
3	USG 3555	0.0	4.0	0	1.2	0.9
4	Jamestown	0.0	5.0	0	1.5	0.9
5	NC08-23089	0.0	4.6	6	6.7	4.2
6	NC08-23090	1.0	4.6	7	3.7	4.1
7	NC08-23323	3.0	3.6	7	6.2	4.1
8	NC08-23324	1.5	4.3	7	7.6	4.0
9	LA04041D-117	0.0	6.3	0	0.1	0.9
10	LA04041D-63	0.0	5.3	0	0.0	0.8
11	LA04026D-7	0.0	4.6	0	0.1	0.8
12	LA04110D-7	0.5	4.0	8	2.4	3.3
13	TN1201	0.0	3.6	1	2.3	3.1
14	TN1202	0.0	5.6	8	2.3	5.0
15	GA031086-10E26	0.0	3.3	0	0.5	0.7
16	GA031134-10E29	0.0	3.6	0	1.0	0.7
17	GA04570-10E46	0.0	4.0	0	1.6	1.0
18	GA031257-10LE34	0.0	3.3	0	0.9	0.7
19	VA08W-176	0.0	2.3	0	1.6	0.9
20	VA09W-75	0.0	3.6	0	0.9	0.8
21	VA10W-28	0.0	3.3	1	0.8	2.2
22	VA10W-119	0.0	3.3	1	0.6	1.7
23	MD03W665-10-5	0.0	3.6	8	4.9	4.1
24	MD03W151-10-12	0.0	3.3	0	0.6	0.9
25	G96164	0.0	2.3	1	2.1	2.4
26	G95407	3.0	6.6	8	8.4	6.3
27	G00032	0.0	3.3	8	3.1	3.3
28	AR01167-3-1	0.0	4.0	0	0.9	0.8
29	AR01179-4-1	0.0	3.0	0	0.9	0.6
LOCATION MEANS		0.3	4.1	2.7	2.4	2.2

STRIPE RUST

TABLE XMC1216F. 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, 2012 UNDER NATURAL INFECTION

Entry No.	Cultivar/ Designation	Pedigree	Contributor	1st Year in Nursery	2012 PLOT	LOC 04 7/2 Flowering		LOC 05 5/14 Stem elong.		LOC 05 6/11 Milk		LOC 06 6/13 Milk-S. dough		LOC 07 6/14 Milk		Summary**	Overall rating***
						IT	%	IT	%	IT	%	IT	%	IT	%		
1	AGS 2000	Pio.2555/PF84301//FL 302 (for	Check	97-98	1	8	90	8	50	8	100	8	80	8	2	S	9
2	Pioneer Brand 26R61	Omega78/S76/4/Arthur71/3/Stadl	Check	97-98	2	8	90	8	50	8	80	8	80	8	5	S	9
3	USG 3555	VA94-52-60/Pio2643//USG3209 (	Check	04-05	3	3	20	2	20	5	40	5	50	8	2	MR-MS	5
4	Jamestown	Roane/Pioneer Brand 2691 (form	Check	04-05	4	5	20	5	40	5	40	5	30	3	2	MR-MS	5
5	NC08-23089	NC97-10076/C9704//P26R61	Murphy	11-12	5	8	100	8	50	8	100	8	80	8	10	S	9
6	NC08-23090	NC97-10076/C9704//P26R61	Murphy	11-12	6	8	100	8	50	8	90	8	80	8	10	S	9
7	NC08-23323	B960164/NC94-7197//McCormick	Murphy	11-12	7	8	100	8	50	8	100	8	80	8	5	S	9
8	NC08-23324	B960164/NC94-7197//McCormick	Murphy	11-12	8	8	100	8	50	8	90	8	80	8	5	S	9
9	LA04041D-117	AGS2060/GA951079A25	Harrison	11-12	9	5	20	2	20	5	60	8	80	2	10	S	8
10	LA04041D-63	AGS2060/GA951079A25	Harrison	11-12	10	5	20	2	20	5	50	5	30	8	2	MR-MS	5
11	LA04026D-7	LA95283CA78-1-2/GA941208E35	Harrison	11-12	11	5	5	2	10	5	50	3	30	8	2	MR-MS	5
12	LA04110D-7	GA941208E35/P26R61	Harrison	11-12	12	8	100	8	50	8	70	8	80	8	15	S	9
13	TN1201	(P2552//FFRX304/Dozier/3/VA94	West	11-12	13	8	100	8	50	5	70	8	90	8	15	S	9
14	TN1202	(C747/ABI90-8369-718)/KY90C-2	West	11-12	14	8	100	8	60	8	100	8	80	8	15	S	9
15	GA031086-10E26	P26R24/GA961565//GA941208	Johnson	11-12	15	5	10	5	30	5	60	5	50	8	15	MR-MS	5
16	GA031134-10E29	P26R38/2*961565(GA881130*2/C	Johnson	11-12	16	2	2	2	15	3	30	2	10	2	5	MR-MS	3
17	GA04570-10E46	GA00440/3/P2684/AGS2000*2/GA	Johnson	11-12	17	3	10	2	15	8	80	5	30	3	2	S	8
18	GA031257-10LE34	SS8641/GA961591	Johnson	11-12	18	5	20	5	20	5	60	5	40	8	2	MR-MS	5
19	VA08W-176	KY96C-0079-5(2552/FFR525//255	Griffey	11-12	19	5	10	2	20	3	30	5	70	2	2	MS	6
20	VA09W-75	SS520/VA99W-188(VA91-54-343	Griffey	11-12	20	8	90	2	25	5	40	8	90	8	5	S	9
21	VA10W-28	SS-MPV57(VA97W-24)/M99*3098	Griffey	11-12	21	8	80	5	30	3	30	5	30	8	2	S	8
22	VA10W-119	KY97C-0540-04(C9803/L910097/	Griffey	11-12	22	8	80	8	40	3	20	5	40	8	2	S	8
23	MD03W665-10-5	USG3209/Tribute//Chesapeake	Costa	11-12	23	8	100	8	40	8	100	8	80	8	2	S	9
24	MD03W151-10-12	KY96C-0768-1/McCormick	Costa	11-12	24	8	40	2	25	5	30	5	80	3	2	MS	6
25	G96164	Roane//T814/L900819	Obert	11-12	25	8	90	5	60	5	60	5	40	8	2	S	9
26	G95407	IL84-3511/T812//Auburn/OH413	Obert	11-12	26	8	100	8	60	8	100	8	80	8	10	S	9
27	G00032	B960208/VA98W-593	Obert	11-12	27	8	100	8	60	8	100	8	50	8	5	S	9
28	AR01167-3-1	VA98W-593/AR800-1-3-1	Mason	11-12	28	5	20	2	30	5	40	5	60	3	5	MR-MS	5
29	AR01179-4-1	AR92145E8-7-7-1-0/AR910-12-1	Mason	11-12	29	5	15	2	25	5	30	5	20	8	5	MR	4
	PS 279	**(Susceptible check) END OF NURSERY**			**30**	**8**	**100**	**8**	**60**	**8**	**90**	**8**	**90**	**8**	**10**	**S**	**9**

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 first note, but a low IT in the second note at LOC 05 may indicate that they have high-temperature, adult-plant (HTAP) resistance.

** R = resistant, MR = moderately resistant, MS = moderately susceptible, and S =susceptible.

*** 1 = most resistant and 9 most susceptible.

Note: 1) The summary and ratings are based on the highest IT and % severity to discourge use of race-specific resistance.

STRIPE RUST

TABLE XMC1216GH. 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 20°C FOR THE SEEDLING TESTS AND AT HIGH TEMPERATURES (DIURNAL TEMPERATURES GRADUALLY CHANGING FROM 10 TO 30°C FOR THE ADULT-PLANT TESTS (Seed of all entries were not treated)

Entry No.	Cultivar/ Designation	Pedigree	Contributor	1st Year in Nursery	2012 PLOT	Infection type produced by PST races[a]								Possible HTAP[c] resistance
						Seedling Test[b] (4 - 20 C)					Adult-plant Test[b] (10 - 30 C)			
						PST-37	PST-45	PST-100	PST-114	PST-127	PST-100	PST-114	PST-127	
1	AGS 2000	Pio.2555/PF84301//FL 302 (for	Check	97-98	1	2	2	8	8	8	8,8,8	8,8,8	8,8,8	No
2	Pioneer Brand 26R61	Omega78/S76/4/Arthur71/3/Stadle	Check	97-98	2	8	2	8	8	8	5,5,5	5,5,5	7,7,7	Low
3	USG 3555	VA94-52-60/Pio2643//USG3209 (f	Check	04-05	3	2	2	8	8	8	3,3,3	2,3,3	3,3,3	Moderate
4	Jamestown	Roane/Pioneer Brand 2691 (form	Check	04-05	4	8	8	8	8	8	2,3,5	5,5,5	2,3,5	Low
5	NC08-23089	NC97-10076/C9704//P26R61	Murphy	11-12	5	8	8	8	8	8	8,8,8	8,8,8	8,8,8	No
6	NC08-23090	NC97-10076/C9704//P26R61	Murphy	11-12	6	8	8	8	8	8	8,8,8	8,8,8	8,8,8	No
7	NC08-23323	B960164/NC94-7197//McCormick	Murphy	11-12	7	8	8	8	8	8	8,8,8	8,8,8	8,8,8	No
8	NC08-23324	B960164/NC94-7197//McCormick	Murphy	11-12	8	8	8	8	8	8	8,8,8	2,2,3	8,8,8	Specific
9	LA04041D-117	AGS2060/GA951079A25	Harrison	11-12	9	8	8	8	8	8	3,3,3	2,2,2	3,3,3	Moderate
10	LA04041D-63	AGS2060/GA951079A25	Harrison	11-12	10	2	8	8	8	8	2,2,2	2,2,2	3,3,3	High
11	LA04026D-7	LA95283CA78-1-2/GA941208E35	Harrison	11-12	11	2	2	8	8	8	2,2,3	2,2,2	2,2,2	High
12	LA04110D-7	GA941208E35/P26R61	Harrison	11-12	12	5	8	8	8	8	5,5,5	2,8	8,8,8	Specific
13	TN1201	(P2552//FFRX304/Dozier/3/VA94V	West	11-12	13	8	8	8	8	8	3,3,3	5,5,5	3,3,3	Moderate
14	TN1202	(C747/ABI90-8369-718)/KY90C-2	West	11-12	14	8	8	8	8	8	8,8,8	8,8,8	8,8,8	No
15	GA031086-10E26	P26R24/GA961565//GA941208	Johnson	11-12	15	8	8	8	8	8	8,8,8	8,8,8	8,8,8	No
16	GA031134-10E29	P26R38/2*961565(GA881130*2/G	Johnson	11-12	16	8	5,8	2	8	8	2,2,2	2,2,2	2,2,2	High
17	GA04570-10E46	GA00440/3/P2684/AGS2000*2/GA	Johnson	11-12	17	2,8	2	3	8	8	2,2,2	2,2,2	2,2,2	High
18	GA031257-10LE34	SS8641/GA961591	Johnson	11-12	18	8	5	8	8	8	8,8,8	8,8,8	8,8,8	No
19	VA08W-176	KY96C-0079-5(2552/FFR525//255	Griffey	11-12	19	8	8	8	8	8	8,8,8	8,8,8	8,8,8	No
20	VA09W-75	SS520/VA99W-188(VA91-54-343/	Griffey	11-12	20	8	8	8	8	8	8,8,8	2,8	8,8,8	No
21	VA10W-28	SS-MPV57(VA97W-24)/M99*3098	Griffey	11-12	21	2	8	8	8	8	8,8,8	8,8,8	8,8,8	No
22	VA10W-119	KY97C-0540-04(C9803/L910097/	Griffey	11-12	22	2	8	8	8	8	8,8,8	8,8,8	8,8,8	No
23	MD03W665-10-5	USG3209/Tribute//Chesapeake	Costa	11-12	23	2	2,5	8	8	8	5,5,5	8,8,8	5,5,5	Specific
24	MD03W151-10-12	KY96C-0768-1/McCormick	Costa	11-12	24	2	8	8	8	8	5,5,5	5,5,5	5,5,5	Low
25	G96164	Roane//T814/L900819	Obert	11-12	25	8	8	8	8	8	3,3,3	3,3,3	3,3,5	Moderate
26	G95407	IL84-3511/T812//Auburn/OH413	Obert	11-12	26	8	8	8	8	8	8,8,8	8,8,8	8,8,8	No
27	G00032	B960208/VA98W-593	Obert	11-12	27	8	8	8	8	8	8,8,8	2,2,2	8,8,8	Specific
28	AR01167-3-1	VA98W-593/AR800-1-3-1	Mason	11-12	28	8	8	5	8	5	2,2,2	2,2,2	2,2,2	High
29	AR01179-4-1	AR92145E8-7-7-1-0/AR910-12-1	Mason	11-12	29	8	2	8	8	8	3,5,5	8,8,8	8,8,8	Specific
	PS 279	**(Susceptible check) END OF NURSERY**			**30**	**8**	**9**	**8**	**8**	**8**	**8,8,8**	**8,8,8**	**8,8,8**	**No**

STRIPE RUST

[a] 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 and the number of plants for each IT is indicated in "( )". For adult-plant tests, if the flag leaf has a IT different from the leaf below, the ITs are separated by"/" with the flag leaf IT first.

[b] The seedling tests were conducted in October to December 2011 for each race without replications. For adult-plant tests, seeds were planted in late November and seedlings of about 3-5 cm were vernalized at 2-4 ^{o}C for 6 to 9 weeks and then transplanted into big pots and grown in the greenhouse (10 to 25 ^{o}C diurnal temperature cycle, 16h light) from January to March. Plants at boot to flowering stages were inoculated (Jan to March 2012) with a mixture of urediniospores of a particular race with talc powdery at about 1:20 ratio, incubated for 20 to 24 h in a dew chamber (dark, 10 ^{o}C) and then grown in a greenhouse growth chamber at the 10-30^{o}C diurnal temperature cycle with 16 h light. IT was recorded for each plant 18 to 20 days after inoculation. The three reps for each race test were done in different time periods.

[c] Entries with a high IT in the seedling low-temperature test but with a low IT in the adult-plant tests under high temperatures have possibly high-temperature adult-plant (HTAP) resistance.

SEPTORIA

		Belle Mina AL		Stuttgart AR	Quincy FL	Logan Co. KY	Winnsboro LA
		Glass		Mason	Barnett	Van Sanford	Harrison
		tritici	nodorum	tritici	leaf blotch	tritici	sep + xantho
		0-9	0-9	0-9	0-9	0-9	0-9
1	AGS 2000	1	1	5.3	2.0	6.0	5.0
2	Pioneer Brand 26R61	1	1	4.3	1.7	4.5	5.5
3	USG 3555	1	1	4.3	2.3	5.0	2.0
4	Jamestown	1	2	6.3	1.7	4.5	6.0
5	NC08-23089	3	3	5.7	1.7	4.0	6.5
6	NC08-23090	2	2	4.7	2.7	4.0	5.5
7	NC08-23323	1	1	5.0	1.7	3.5	5.0
8	NC08-23324	1	1	4.3	2.3	4.0	4.0
9	LA04041D-117	2	2	5.7	2.0	5.5	6.0
10	LA04041D-63	2	2	5.7	1.7	5.0	5.5
11	LA04026D-7	2	2	4.0	2.0	4.0	5.5
12	LA04110D-7	1	1	5.3	2.3	3.5	5.5
13	TN1201	1	1	2.7	1.0	4.5	1.0
14	TN1202	2	2	4.0	2.0	4.5	3.5
15	GA031086-10E26	1	1	6.7	1.7	5.5	7.5
16	GA031134-10E29	2	2	5.7	2.0	4.5	3.5
17	GA04570-10E46	1	1	3.0	2.3	5.0	3.0
18	GA031257-10LE34	1	1	5.3	1.3	3.5	5.5
19	VA08W-176	1	1	3.7	1.3	3.0	1.5
20	VA09W-75	1	1	3.0	2.7	3.0	3.0
21	VA10W-28	1	1	2.7	1.7	3.5	2.5
22	VA10W-119	1	1	5.3	1.3	5.5	4.5
23	MD03W665-10-5	1	1	4.0	1.3	3.5	1.5
24	MD03W151-10-12	3	3	5.7	2.3	5.5	6.5
25	G96164	1	1	1.7	1.3	4.0	1.0
26	G95407	1	1	3.0	2.0	5.5	4.0
27	G00032	1	1	4.7	1.7	4.0	4.0
28	AR01167-3-1	1	1	3.0	1.7	5.0	3.0
29	AR01179-4-1	1	1	2.0	1.3	3.0	2.0
LOCATION MEANS		1.3	1.4	4.4	1.8	4.4	4.1
GROWTH STAGE / DATE				April 2			

2011-12 Eastern Septoria Nursery

Early, rated 4/24/12: FL, GA, LA, SC, NC, TN, AR

Late, rated 5/1/12: NY, IL, IN, OH, KY, MO, VA, MD

			Kinston (means of 2 reps)		Lake Wheeler (means of 2 reps)		Mean 2 locations		
		Early/ Late	Leaves	Glumes	Leaves	Glumes	Leaves	Glumes	Notes
1	AGS 2000 - S check (lvs)	E	7.0	2.5	6.0	2.5	6.5	2.5	
2	Pioneer Brand 26R61	E	5.0	2.5	5.0	1.5	5.0	2.0	
3	USG 3555	E	5.0	3.5	4.5	2.5	4.8	3.0	
4	Jamestown	L	7.0	5.0	7.0	5.0	7.0	5.0	
5	NC08-23089	E	7.0	4.0	6.0	5.0	6.5	4.5	
6	NC08-23090	E	6.5	3.5	6.0	5.0	6.3	4.3	
7	NC08-23323	E	4.5	2.5	5.5	1.5	5.0	2.0	
8	NC08-23324	E	5.0	2.0	5.0	2.0	5.0	2.0	
9	LA04041D-117	E	7.5	5.5	6.0	6.0	6.8	5.8	
10	LA04041D-63	E	7.0	3.5	6.0	5.0	6.5	4.3	
11	LA04026D-7	E	6.0	4.5	5.0	3.5	5.5	4.0	
12	LA04110D-7	E	5.5	3.5	5.0	4.0	5.3	3.8	
13	TN1201	E	4.5	0.0	3.0	0.5	3.8	0.3	
14	TN1202	E	5.5	1.5	4.0	1.0	4.8	1.3	
15	GA031086-10E26	E	4.0	2.0	4.0	1.5	4.0	1.8	
16	GA031134-10E29	E	4.5	1.0	4.5	1.0	4.5	1.0	
17	GA04570-10E46	E	7.0	3.0	5.0	2.5	6.0	2.8	
18	GA031257-10LE34	E	2.5	2.0	4.0	1.5	3.3	1.8	
19	VA08W-176	L	5.0	1.5	4.5	1.0	4.8	1.3	
20	VA09W-75	L	6.0	3.5	6.0	3.5	6.0	3.5	
21	VA10W-28	L	6.0	1.0	5.0	1.5	5.5	1.3	
22	VA10W-119	L	5.5	4.5	5.5	4.5	5.5	4.5	
23	MD03W665-10-5	L	5.0	3.5	5.5	3.0	5.3	3.3	
24	MD03W151-10-12	L	7.0	7.0	7.5	6.5	7.3	6.8	
25	G96164	L	3.0	1.5	3.5	2.5	3.3	2.0	LR, PM
26	G95407	L	4.5	2.0	6.5	5.0	5.5	3.5	v late, LR
27	G00032	L	7.5	7.0	7.0	6.5	7.3	6.8	
28	AR01167-3-1	E	5.5	2.5	5.5	4.0	5.5	3.3	
29	AR01179-4-1	E	3.5	2.0	3.5	1.5	3.5	1.8	
	AGS 2060 - MR check (lvs, gls)	E	3.0	1.0	4.0	0.5	3.5	0.8	
	Neuse - MR check (lvs, gls)	E	3.0	1.0	3.0	0.0	3.0	0.5	
	USG 3209 - S check (gls)	E	6.0	4.5	5.0	4.0	5.5	4.3	
	Shirley - MR check (lvs)	L	5.0	2.5	4.5	3.5	4.8	3.0	
	Pembroke - S check (lvs)	L	7.0	6.5	7.0	5.0	7.0	5.8	
	Malabar - MR check (lvs)	L	3.0	0.0	3.0	0.5	3.0	0.3	
	Branson - S check (lvs/gls)	L	6.5	4.0	4.5	3.5	5.5	3.8	

FUSARIUM HEAD BLIGHT (SCAB)

		Fayetteville AR Milus		
		severity	scabby seed	seed quality
		%	%	0-4
1	AGS 2000	35.0	8.3	2.7
2	Pioneer Brand 26R61	45.0	17.3	2.3
3	USG 3555	18.3	8.0	3.0
4	Jamestown	4.0	2.3	4.0
5	NC08-23089	30.0	3.7	3.3
6	NC08-23090	21.7	3.0	3.3
7	NC08-23323	10.0	2.0	3.7
8	NC08-23324	10.0	2.0	3.7
9	LA04041D-117	16.7	4.3	4.0
10	LA04041D-63	23.3	6.3	3.3
11	LA04026D-7	26.7	19.3	2.3
12	LA04110D-7	11.7	6.0	3.7
13	TN1201	23.3	9.0	2.7
14	TN1202	75.0	30.0	1.0
15	GA031086-10E26	41.7	26.7	1.0
16	GA031134-10E29	23.3	9.0	3.3
17	GA04570-10E46	42.5	2.3	4.0
18	GA031257-10LE34	35.0	10.7	2.7
19	VA08W-176	20.0	1.0	4.0
20	VA09W-75	15.0	2.0	4.0
21	VA10W-28	10.0	3.7	3.3
22	VA10W-119	18.3	12.3	2.7
23	MD03W665-10-5	50.0	9.0	3.0
24	MD03W151-10-12	36.7	8.3	2.7
25	G96164	23.3	5.7	3.3
26	G95407	35.0	6.3	3.7
27	G00032	33.3	4.7	3.3
28	AR01167-3-1	50.0	17.3	2.3
29	AR01179-4-1	33.3	8.0	3.7
LOCATION MEANS		28.2	8.6	3.1

FUSARIUM HEAD BLIGHT (SCAB)

			Salisbury MD Costa		Oconto WI Murche
		FHB 0-9	FDK %	100 kw (grams)	
1	AGS 2000	6.5	10.0	4.0	2.0
2	Pioneer Brand 26R61	6.5	18.5	4.4	4.4
3	USG 3555	5.0	7.5	4.3	3.4
4	Jamestown	3.5	7.0	4.0	1.1
5	NC08-23089	6.0	5.5	3.3	2.6
6	NC08-23090	4.0	8.0	3.9	2.4
7	NC08-23323	2.0	4.5	4.0	5.1
8	NC08-23324	2.5	11.0	3.9	6.5
9	LA04041D-117	6.5	4.0	4.5	3.2
10	LA04041D-63	6.0	12.5	4.4	2.9
11	LA04026D-7	6.0	10.0	5.0	2.4
12	LA04110D-7	7.5	12.5	4.7	3.3
13	TN1201	5.0	30.5	3.7	2.0
14	TN1202	6.0	24.0	3.3	4.3
15	GA031086-10E26	5.0	9.0	4.2	5.2
16	GA031134-10E29	4.5	9.0	4.2	2.2
17	GA04570-10E46	6.5	6.0	4.6	2.9
18	GA031257-10LE34	6.5	12.0	4.2	2.6
19	VA08W-176	4.0	9.0	3.3	4.7
20	VA09W-75	2.5	2.0	4.2	3.7
21	VA10W-28	4.0	21.5	3.1	2.1
22	VA10W-119	4.5	13.5	4.9	1.7
23	MD03W665-10-5	3.0	9.5	4.1	5.4
24	MD03W151-10-12	5.0	8.5	4.1	4.8
25	G96164	5.0	9.0	3.4	1.9
26	G95407	5.0	11.0	4.1	1.7
27	G00032	5.0	12.5	3.3	1.5
28	AR01167-3-1	6.0	31.5	3.4	1.8
29	AR01179-4-1	4.5	7.0	3.5	2.1
LOCATION MEANS		5.0	11.6	4.0	3.1

POWDERY MILDEW

		Belle Mina AL Glass 0-9	Quincy FL Barnett 0-9	Griffin GA Johnson 0-9	Plains GA Johnson 0-9	Kinston NC Murphy 0-9
1	AGS 2000	1	2.0	0	0	5.5
2	Pioneer Brand 26R61	1	0.7	1	1	3.5
3	USG 3555	1	0.0	0	0	1.0
4	Jamestown	0	0.0	0	1	3.0
5	NC08-23089	0	0.7	0	0	6.0
6	NC08-23090	0	1.0	0	0	5.0
7	NC08-23323	1	0.0	0	0	5.0
8	NC08-23324	1	0.7	0	0	4.5
9	LA04041D-117	1	1.3	0	1	3.0
10	LA04041D-63	1	1.7	0	0	5.0
11	LA04026D-7	0	0.0	0	1	1.5
12	LA04110D-7	1	2.3	0	0	2.5
13	TN1201	1	1.7	0	0	3.0
14	TN1202	0	0.7		1	1.0
15	GA031086-10E26	1	4.3	0	0	5.5
16	GA031134-10E29	1	1.7	0	0	3.0
17	GA04570-10E46	1	1.3	0	0	3.5
18	GA031257-10LE34	1	2.3	0	0	2.0
19	VA08W-176	1	0.0	0	0	1.5
20	VA09W-75	1	0.3	0	0	1.0
21	VA10W-28	0	4.7	0	0	3.5
22	VA10W-119	1	2.7	0	0	3.0
23	MD03W665-10-5	1	0.0	0	0	0.5
24	MD03W151-10-12	0	0.0	0	0	2.0
25	G96164	1	2.0	0	0	7.0
26	G95407	0	5.0	0	0	6.5
27	G00032	0	5.7	8	9	7.5
28	AR01167-3-1	1	6.7	6	2	3.0
29	AR01179-4-1	1	2.3	6	0	3.0
LOCATION MEANS		0.7	1.8	0.8	0.6	3.5

POWDERY MILDEW

		Blacksburg VA Griffey 0-9	Warsaw VA Griffey 0-9	ENTRY MEANS ALL LOCATIONS
1	AGS 2000	0.0	0.0	1.2
2	Pioneer Brand 26R61	0.0	2.0	1.3
3	USG 3555	0.5	0.0	0.4
4	Jamestown	0.5	0.5	0.7
5	NC08-23089	1.5	0.5	1.2
6	NC08-23090	1.0	0.0	1.0
7	NC08-23323	3.0	1.5	1.5
8	NC08-23324	2.0	1.5	1.4
9	LA04041D-117	0.5	0.0	1.0
10	LA04041D-63	1.0	0.0	1.2
11	LA04026D-7	0.0	0.0	0.4
12	LA04110D-7	0.5	0.0	0.9
13	TN1201	0.5	0.5	1.0
14	TN1202	0.0	0.0	0.4
15	GA031086-10E26	0.5	0.5	1.7
16	GA031134-10E29	0.5	0.5	1.0
17	GA04570-10E46	1.5	0.5	1.1
18	GA031257-10LE34	0.0	2.5	1.1
19	VA08W-176	0.5	0.0	0.4
20	VA09W-75	0.0	0.0	0.3
21	VA10W-28	1.0	2.0	1.6
22	VA10W-119	0.5	0.5	1.1
23	MD03W665-10-5	0.0	0.5	0.3
24	MD03W151-10-12	0.0	0.0	0.3
25	G96164	1.5	1.5	1.9
26	G95407	2.5	0.0	2.0
27	G00032	6.0	9.0	6.5
28	AR01167-3-1	3.0	7.5	4.2
29	AR01179-4-1	1.5	4.5	2.6
LOCATION MEANS		1.0	1.2	1.4

PM3 MARKERS

Raleigh
NC
Cowger
Pm3 allele-specific primers

		3a	3b	3c	3d	3e	3f	3g
1	AGS 2000	+	-	-	-	-	-	-
2	Pioneer Brand 26R61	-	-	-	-	-	-	-
3	USG 3555							
4	Jamestown	-	-	-	-	-	-	-
5	NC08-23089	-	-	-	-	-	-	-
6	NC08-23090	-	-	-	-	-	-	-
7	NC08-23323	-	-	-	-	-	-	-
8	NC08-23324	-	-	-	-	-	-	-
9	LA04041D-117	+	-	-	-	-	-	-
10	LA04041D-63	+	-	-	-	-	-	-
11	LA04026D-7	+	-	-	-	-	-	-
12	LA04110D-7	-	-	-	-	-	-	-
13	TN1201	-	-	-	-	-	-	-
14	TN1202	-	-	-	-	-	-	-
15	GA031086-10E26	+	-	-	-	-	-	-
16	GA031134-10E29	-	+	-	-	-	-	-
17	GA04570-10E46	+	-	-	-	-	-	-
18	GA031257-10LE34	+	-	-	-	-	-	-
19	VA08W-176	-	-	-	-	-	-	-
20	VA09W-75	-	-	-	-	-	-	-
21	VA10W-28	-	-	-	-	-	-	-
22	VA10W-119	+	-	-	-	-	-	-
23	MD03W665-10-5	+	-	-	-	-	-	-
24	MD03W151-10-12	+	-	-	-	-	-	-
25	G96164	-	-	-	-	-	-	-
26	G95407	+	-	-	-	-	-	-
27	G00032	-	-	-	-	-	-	-
28	AR01167-3-1	-	-	-	-	-	+	-
29	AR01179-4-1	-	-	-	-	-	-	-

VIRUSES

		Belle Mina AL Glass BYDV 0-9	Harrisburg IL Murche BYDV 0-9	Winfield KS Perry WSBV +WSSMV 0-9	Logan Co. KY Van Sanford BYDV 0-9	Kinston NC Murphy BYDV 0-9
1	AGS 2000	1	3.0	7.5	0.5	2.5
2	Pioneer Brand 26R61	1	6.6	1.0	0.0	3.5
3	USG 3555	1	3.3	4.0	1.0	1.5
4	Jamestown	1	2.9	2.5	0.0	0.0
5	NC08-23089	2	4.1	1.5	0.0	2.0
6	NC08-23090	1	3.6	1.5	0.5	1.5
7	NC08-23323	2	2.2	1.0	0.0	5.0
8	NC08-23324	1	3.2	1.0	0.5	4.5
9	LA04041D-117	1	4.0	8.5	0.5	2.5
10	LA04041D-63	1	5.1	7.5	1.5	2.0
11	LA04026D-7	1	7.0	6.0	0.0	2.0
12	LA04110D-7	1	6.6	1.0	0.0	1.0
13	TN1201	1	0.7	2.5	1.0	0.5
14	TN1202	1	2.8	1.0	2.5	0.5
15	GA031086-10E26	1	3.6	1.0	0.5	0.5
16	GA031134-10E29	1	3.3	2.0	0.5	0.5
17	GA04570-10E46	1	3.4	1.0	0.0	1.5
18	GA031257-10LE34	1	3.5	2.0	0.0	0.5
19	VA08W-176	1	1.8	1.0	2.0	3.0
20	VA09W-75	1	2.5	6.0	0.5	0.5
21	VA10W-28	0	1.1	1.5	1.0	2.5
22	VA10W-119	1	3.9	3.5	0.0	0.5
23	MD03W665-10-5	1	5.0	6.5	1.0	3.0
24	MD03W151-10-12	1	6.7	6.0	0.0	3.0
25	G96164	1	1.1	3.0	1.5	2.5
26	G95407	0	1.6	1.5	1.0	0.5
27	G00032	1	2.5	1.5	1.0	2.0
28	AR01167-3-1	1	1.5	1.5	1.5	1.5
29	AR01179-4-1	0	1.9	8.0	1.5	5.0
LOCATION MEANS		1.0	3.4	3.2	0.7	1.9

VIRUSES

		Knoxville TN West BYDV 0-9	Blacksburg VA Griffey BYDV 0-9
1	AGS 2000	4.0	4.0
2	Pioneer Brand 26R61	4.0	5.0
3	USG 3555	3.0	3.0
4	Jamestown	2.6	3.0
5	NC08-23089	2.6	2.5
6	NC08-23090	3.0	5.0
7	NC08-23323	3.0	6.5
8	NC08-23324	2.6	6.5
9	LA04041D-117	4.0	3.0
10	LA04041D-63	4.0	5.5
11	LA04026D-7	3.3	6.0
12	LA04110D-7	2.6	5.0
13	TN1201	2.0	4.0
14	TN1202	2.6	4.0
15	GA031086-10E26	2.3	3.0
16	GA031134-10E29	2.0	4.0
17	GA04570-10E46	3.3	4.5
18	GA031257-10LE34	2.0	2.0
19	VA08W-176	3.0	6.0
20	VA09W-75	2.6	1.0
21	VA10W-28	2.0	5.0
22	VA10W-119	2.3	3.5
23	MD03W665-10-5	4.6	7.0
24	MD03W151-10-12	3.3	4.5
25	G96164	3.0	4.5
26	G95407	2.6	5.0
27	G00032	2.6	5.5
28	AR01167-3-1	3.3	5.5
29	AR01179-4-1	2.6	7.5
LOCATION MEANS		2.9	4.5

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	0-17	all S	0-15	16-0	0-18
2	Pioneer Brand 26R61	0-14	all S	0-16	16-0	0-16
3	USG 3555	0-16	all S	0-18	0-16	0-19
4	Jamestown	21-0	19-0	21-0	0-20	0-17
5	NC08-23089	0-16	all S	0-16	0-16	0-20
6	NC08-23090	0-22	all S	0-18	0-18	0-17
7	NC08-23323	0-18	all S	0-13	0-16	0-16
8	NC08-23324	0-19	all S	0-16	0-17	0-15
9	LA04041D-117	0-19	all S	0-16	0-16	0-19
10	LA04041D-63	0-21	all S	0-15	0-18	0-16
11	LA04026D-7	0-16	all S	0-15	16-0	0-15
12	LA04110D-7	0-17	all S	0-17	17-0	0-16
13	TN1201	17-2	all S	0-19	0-17	0-17
14	TN1202	0-20	19-1	0-20	0-20	0-20
15	GA031086-10E26	18-0	17-0	17-0	18-0	18-0
16	GA031134-10E29	20-0	18-0	15-0	17-0	16-2
17	GA04570-10E46	0-17	all S	0-17	0-18	0-12
18	GA031257-10LE34	0-14	all S	0-17	5-15	0-17
19	VA08W-176	0-19	all S	0-15	0-18	0-21
20	VA09W-75	0-18	all S	0-17	0-20	0-17
21	VA10W-28	0-17	all S	0-16	0-17	0-17
22	VA10W-119	18-0	18-0	15-0	15-0	19-0
23	MD03W665-10-5	0-12	all S	0-14	0-17	0-18
24	MD03W151-10-12	0-17	all S	0-14	0-15	0-18
25	G96164	19-1	all S	0-17	0-23	0-18
26	G95407	0-19	all S	0-18	0-20	0-20
27	G00032	0-21	all S	0-22	0-17	0-20
28	AR01167-3-1	0-22	all S	0-21	0-22	0-19
29	AR01179-4-1	0-22	all S	0-20	0-20	0-16

FREEZE TEST

Raleigh
NC
Livingston

		% Survival			Avg. Survival Ratings		
		Rep 1	Rep 2	Avg.	Rep 1	Rep 2	Avg.
1	AGS 2000	50	45	48	1.0	1.2	1.1
2	Pioneer Brand 26R61	90	85	88	3.2	3.0	3.1
3	USG 3555	30	25	28	1.0	0.8	0.9
4	Jamestown	70	85	78	2.5	2.8	2.7
5	NC08-23089	75	60	68	1.3	1.4	1.4
6	NC08-23090	60	85	73	1.2	1.3	1.3
7	NC08-23323	30	30	30	0.8	0.6	0.7
8	NC08-23324	40	30	35	1.0	0.9	1.0
9	LA04041D-117	50	55	53	1.2	1.4	1.3
10	LA04041D-63	60	50	55	1.1	0.9	1.0
11	LA04026D-7	40	55	48	0.9	0.9	0.9
12	LA04110D-7	50	40	45	0.8	0.7	0.8
13	TN1201	80	85	83	2.6	2.8	2.7
14	TN1202	80	90	85	3.0	2.8	2.9
15	GA031086-10E26	70	70	70	1.6	1.2	1.4
16	GA031134-10E29	75	80	78	2.0	1.8	1.9
17	GA04570-10E46	65	50	58	1.0	1.0	1.0
18	GA031257-10LE34	65	60	63	1.2	1.0	1.1
19	VA08W-176	40	35	38	0.7	0.5	0.6
20	VA09W-75	50	65	58	1.3	1.2	1.3
21	VA10W-28	75	70	73	1.6	1.8	1.7
22	VA10W-119	80	90	85	2.8	3.0	2.9
23	MD03W665-10-5	75	85	80	2.4	2.6	2.5
24	MD03W151-10-12	65	50	58	1.0	1.4	1.2
25	G96164	50	40	45	0.9	0.9	0.9
26	G95407	80	80	80	2.7	3.0	2.9
27	G00032	75	50	63	1.6	1.5	1.6
28	AR01167-3-1	30	30	30	0.8	0.7	0.8
29	AR01179-4-1	40	50	45	1.0	1.0	1.0

PHENOTYPE / VERNALIZATION

		Winnsboro LA Harrison phenotype 0-9	Castroville TX Sutton vernalization
1	AGS 2000	4.0	Y
2	Pioneer Brand 26R61	3.9	Y
3	USG 3555	4.3	N
4	Jamestown	3.8	Y
5	NC08-23089	5.5	Y
6	NC08-23090	5.5	Y
7	NC08-23323	4.8	N
8	NC08-23324	3.9	N
9	LA04041D-117	4.7	Y
10	LA04041D-63	4.6	Y
11	LA04026D-7	4.5	Y
12	LA04110D-7	4.3	Y
13	TN1201	5.0	N
14	TN1202	5.5	N
15	GA031086-10E26	5.6	N
16	GA031134-10E29	4.0	N
17	GA04570-10E46	3.7	Y
18	GA031257-10LE34	4.2	N
19	VA08W-176	4.7	N
20	VA09W-75	3.8	Y
21	VA10W-28	5.6	N
22	VA10W-119	3.8	N
23	MD03W665-10-5	4.0	N
24	MD03W151-10-12	5.1	Y
25	G96164	6.0	N
26	G95407	5.1	N
27	G00032	4.8	Y
28	AR01167-3-1	5.2	N
29	AR01179-4-1	4.8	N

2012 Crop
Advanced Milling and Baking Evaluation
Set 2012 A07

2012 USSRWWN
Entries #: 1250941 – 1250969

A total of 29 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.

			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	
1250941	1	AGS 2000	74.18	B	59.66	D	74.63	B	72.87	B	51.48	D	62.13	C
1250942	2	Pioneer Brand 26R61	61.64	C	45.08	E	60.33	C	56.68	D	49.84	E	52.14	D
1250943	3	USG 3555	58.30	D	34.04	F	59.28	D	52.69	D	40.45	E	55.21	D
1250944	4	Jamestown	61.05	C	50.13	D	67.28	C	55.71	D	42.72	E	60.47	C
		Average	63.79		47.23		65.38		59.49		46.12		57.49	
		Adjustment Bias for Trial	4.31		1.11		7.89							
		Diagnostics - Correlations	1.0		0.7		0.9							

The adjusted average values of the provided checks are predicted to have decreased milling, baking, and 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>0.7, and r>0.9, respectively. The rankings and correlations for the quality measures among the checks were consistent with expectations from previous evaluations. Therefore, we expect the outcome of the evaluations to be predictive of future performance of these breeding lines.

Changes in 2012 Evaluations
After many years of use and buildup, our bake sheets have been replaced with newer ones. These new sheets produce a cookie with an average difference of 0.6 cm when compared to the old bake sheets. The cookie diameter was 96.8% (3.2% smaller) of the size of a cookie baked on the old sheets. This value was based on cookies made with 22 flour samples at the beginning of the evaluation process and resulted in a standard deviation of 1.36 and standard error of 0.29. We will be reporting the diameters using the new sheets for this year's samples, so you may need to adjustment the baking quality score if comparing with test lines from previous years.

Additional Information on Analysis
The grain condition for this sample set contained sparse Fusarium Head Blight, weathering, and black point grain. Sprouting was observed in LA04110D-7, leading to a probability of high alpha-amylase activity as well as increased starch damage. Flour analysis of this nursery specifies that the quality trait averages of milling yield, flour protein, and sucrose SRC were within the expected target range for soft wheat characteristics. Softness equivalence and the solvent retention capacities of lactic acid, water, and sodium carbonate were above normal for these cultivars.

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. This nursery produced an average milling yield of 69.8%, which is right on target for flour yield as it is typically 70% and greater. The largest yield concentration occurred in test line G95407 at 72.5%, followed by TN1202 and GA04570-10E46. At 67.3%, test line NC08-23323 had the smallest yield.

After milling yield, the second trait that we recommend for use in selection is softness equivalent. It tends to have high heritability and is an important predictor of break flour yield. Larger values are preferred for most soft wheat manufactured goods, particularly cakes and other high sugar baked products. The average for this sample set was 57% with G95407 recording the largest softness equivalent value at 62.2%. Along with G95407, entries GA031086-10E26 and VA08W-176 all scored an "A" for softness equivalence. All the lines in the set were genetically soft, but NC08-23324 and NC08-23323 had small softness equivalent scores and would likely be poorly suited for products like cakes.

Generally, sucrose SRC is related to the levels of pentosan components. Lactic acid SRC is associated with gluten protein characteristics and sodium carbonate SRC coincides with damaged starch. Water SRC is influenced by all water absorbing components in flour. The combined pattern of these flour SRC results establishes a practical flour quality and functionality profile that is useful in predicting baking performance.

Sucrose SRC is probably the best predictor of cookie quality and is a measure of arabinoxylan content, which can strongly affect water absorption in baked products. 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 also have a target of 95% or less. These 29 samples produced an average near the 95% target with a value of 92.7%. The highest baking score belongs to TN1202 at 86. This is due to the combination of low sucrose SRC and flour protein which TN1202 embraces. The cookie diameter of NC08-23323 was one of the smallest at 17.6 cm, reflecting the poor baking quality score of 28.8.

Gluten strength is measured by the lactic acid SRC. The lactic acid SRC also correlates to flour protein concentration, but the effect is dependent on genotypes and growing conditions. The average for this trial was 110.2% with 20 entries that extend from 105.5% to 121.1% which exhibit "strong" characteristics of gluten strength (above 105%) and may be of value for the manufacturing of crackers or other products requiring gluten strength. The largest lactic acid SRC goes to LA04110D-7, whereas TN1202 received the smallest value.

High sodium carbonate SRC absorption values point towards a potential of damaged starch. Normal values for good milling soft varieties are 68% or less, but this nursery provided an average of 70.8% with only 4 samples being below 68%. These samples consist of TN1202, GA04570-10E46, VA10W-28, and NC08-23090. Sample NC08-23324 had the highest sodium carbonate SRC absorption at 76.7%.

Lower water values are desired for cookies, cakes, and crackers with target values below 51% on small experimental mills, such as our Quadrumat Junior Flour Mill. The average water SRC of the entries was on the high end with 54.2%. Out of the provided checks, AGS 2000 had the lowest value. However, there were still 3 samples that were better than AGS 2000. They include TN1202, TN1201, and GA04570-10E46. The sample with the highest value goes to NC08-23324 at 57.7%.

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 and then repeated the operation for softness equivalent. Knowing that soft wheat products such as cookies and crackers require flours with low water absorption, the sort procedure was continued upon the solvent retention capacities of sucrose, sodium carbonate, and water 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, 6 samples were left. They consist of LA04041D-63, LA04041D-117, G95407, GA04570-10E46, TN1202, and MD03W151-10-12

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

ADVANCED NURSERY EVALUATION
FOR SOFT WHEAT MILLING AND BAKING QUALITY
2012 CROP

USSRWWN Composite of these locations: Belle Mina, AL; Knoxville, TN; Newton, MS; Queenstown, MD; Plains, GA; Warsaw, VA

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 (%)	
1250941	1	AGS 2000	77.18	B	52.58	D	70.02	B	60.95		10.24		28.31		71.40	+	56.88		8.34		103.35	w	91.54	+	18.22		4		51.95	+	71.22	+
1250942	2	Pioneer Brand 26R61	60.99	C	50.95	D	60.03	C	61.17		10.86		34.30		68.15		53.34		8.90		112.78		91.36	+	18.37		6		54.32		70.20	+
1250943	3	USG 3555	57.00	D	41.56	E	63.10	C	59.78		10.30		30.10		67.34	q	54.43		8.38		111.03		99.32	q	18.30		5		54.64	q	75.49	q
1250944	4	Jamestown	60.01	C	43.82	E	68.36	C	62.29		10.55		31.48		67.95		56.29		8.13		117.20	s	94.89		17.92		5		54.85	q	71.31	+
1250945	5	NC08-23089	63.28	C	45.79	E	72.83	B	60.44		10.18		26.09		68.61		57.87	+	8.19		111.49		95.89	q	18.06		4		56.96	q	73.27	q
1250946	6	NC08-23090	60.93	C	35.26	F	71.83	B	60.44		10.11		28.46		68.14		57.52	+	8.25		113.67	s	98.10	q	17.55	q	4		57.01	q	73.99	q
1250947	7	NC08-23323	58.40	D	28.76	F	55.95	D	61.63		10.23		32.49		67.63	q	51.90	q	8.60		117.66	s	99.69	q	17.62	q	5		56.97	q	75.48	q
1250948	8	NC08-23324	60.95	C	33.33	F	58.62	D	61.52		10.24		32.12		68.14		52.84	q	8.49		118.13	s	100.61	q	17.95		5		57.70	q	76.72	q
1250949	9	LA04041D-117	74.03	B	66.13	C	80.59	A	59.91		9.99		24.14		70.77	+	60.62	+	8.07		104.93	w	89.94	+	18.77	+	7		52.44	+	69.70	+
1250950	10	LA04041D-63	75.79	B	63.73	C	77.80	B	60.27		10.29		24.23		71.13	+	59.63	+	8.35		110.10		91.31	+	18.81	+	7		52.48	+	68.66	+
1250951	11	LA04026D-7	70.50	B	47.91	E	68.46	C	61.49		10.19		23.67		70.06	+	56.32		8.26		117.93	s	92.18	+	17.98		5		55.29	q	70.67	+
1250952	12	LA04110D-7	71.47	B	59.04	D	69.87	C	61.95		10.19		25.24		70.26	+	56.82		8.00		121.14	s	90.92	+	18.59	+	6		53.20	+	68.01	+
1250953	13	TN1201	66.89	C	70.90	B	69.00	C	60.01		9.99		32.01		69.33		56.51		8.15		102.20	w	86.33	+	19.04	+	6		50.85	+	68.78	+
1250954	14	TN1202	81.72	A	86.00	A	78.38	B	59.54		9.26		24.98		72.32	+	59.83	+	7.41	+	92.81	w	83.28	+	19.54	+	6		50.42	+	66.39	+
1250955	15	GA031086-10E26	60.68	C	64.51	C	82.39	A	60.73		9.47		28.86		68.08		61.25	+	7.84	+	116.97	s	94.88		19.03	+	6		54.21		72.20	
1250956	16	GA031134-10E29	68.27	C	63.90	C	70.73	B	60.12		9.84		27.82		69.61		57.13		8.14		105.48	w	90.67	+	18.90	+	7		54.21		67.77	+
1250957	17	GA04570-10E46	81.70	A	66.71	C	70.65	B	62.02		10.42		27.75		72.31	+	57.10		8.32		102.00	w	86.62	+	18.75	+	6		50.98	+	66.99	+
1250958	18	GA031257-10LE34	68.42	C	57.86	D	64.45	C	61.66		9.86		24.62		69.64		54.91		7.65	+	109.66		92.91	+	18.77	+	4		53.67		69.26	+
1250959	19	VA08W-176	64.35	C	70.18	B	73.16	B	62.07		10.40		31.10		68.82		57.99	+	8.24		104.89	w	87.75	+	19.04	+	7		53.26	+	68.17	+
1250960	20	VA09W-75	59.80	D	48.93	E	77.04	B	60.39		9.71		29.57		67.91		59.36	+	7.66	+	116.98	s	97.83	q	18.30		5		57.09	q	73.58	q
1250961	21	VA10W-28	79.77	B	52.84	D	60.67	C	59.89		9.89		26.58		71.93	+	53.57		8.59		104.34	w	93.96		18.69	+	6		56.50	q	67.60	+
1250962	22	VA10W-119	79.35	B	53.15	D	66.20	C	61.05		10.30		27.58		71.84	+	55.53		8.50		109.40		92.42	+	18.44		4		55.67	q	68.82	+
1250963	23	MD03W665-10-5	68.73	C	44.59	E	71.42	B	60.61		10.96		36.44		69.71	+	57.37	+	8.34		99.98	w	95.18		17.96		3		55.09	q	71.93	
1250964	24	MD03W151-10-12	74.45	B	69.05	C	79.69	B	60.09		9.97		28.42		70.85	+	60.30	+	8.06		120.12	s	89.42	+	18.94	+	5		53.56		71.13	+
1250965	25	G96164	67.37	C	66.17	C	68.20	C	61.52		9.48		37.16		69.43		56.23		7.93	+	109.24		89.75	+	19.01	+	7		53.91		71.36	+
1250966	26	G95407	82.60	A	67.21	C	85.09	A	59.04		9.53		22.69		72.49	+	62.21	+	7.85	+	102.26	w	89.48	+	18.68	+	4		52.93	+	69.82	+
1250967	27	G00032	71.64	B	64.58	C	77.21	B	61.38		10.03		31.22		70.29	+	59.42	+	8.06		115.36	s	94.44		19.13	+	7		52.18	+	70.78	+
1250968	28	AR01167-3-1	72.42	B	58.10	D	68.04	C	59.91		9.90		24.81		70.45	+	56.17		7.71	+	111.02		93.91		18.80	+	6		53.51	+	70.18	+
1250969	29	AR01179-4-1	68.99	C	40.29	E	61.08	C	60.09		9.72		24.61		69.76	+	53.72		7.66	+	113.72	s	94.94		17.79	q	5		55.12	q	72.34	
		Average	69.23		55.65		70.38		60.76		10.07		28.51		69.81		57.00		8.14		110.20		92.74		18.52		5.41		54.17		70.75	

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
2012 CROP

			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 (%)
1250941	1	AGS 2000	74.18	B	59.66	D	74.63	B	72.87	B	51.48	D	62.13	C	60.95		10.24		28.31		71.40		56.88		8.34		103.35		91.54		18.22		4		51.95		71.22
1250942	2	Pioneer Brand 26R61	61.64	C	45.08	E	60.33	C	56.68	D	49.84	E	52.14	D	61.17		10.86		34.30		68.15		53.34		8.90		112.78		91.36		18.37		6		54.32		70.20
1250943	3	USG 3555	58.30	D	34.04	F	59.28	D	52.69	D	40.45	E	55.21	D	59.78		10.30		30.10		67.34		54.43		8.38		111.03		99.32		18.30		5		54.64		75.49
1250944	4	Jamestown	61.05	C	50.13	D	67.28	C	55.71	D	42.72	E	60.47	C	62.29		10.55		31.48		67.95		56.29		8.13		117.20		94.89		17.92		5		54.85		71.31
		Average	63.79		47.23		65.38		59.49		46.12		57.49		61.05		10.49		31.05		68.71		55.23		8.44		111.09		94.28		18.20		5.00		53.94		72.05
		Adjustment Bias for Trial	4.31		1.11		7.89																														
		Diagnostics - Correlations	1.0		0.7		0.9																														
		Standard Errors Used for Grading*																			0.964		2.088		0.477		2.420		1.000		0.363				0.398		0.593

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
2012 CROP

USSRWWN

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
1250941	1	AGS 2000	0	1	0	0	1	CHECK
1250942	2	Pioneer Brand 26R61	0	1	0	1	1	CHECK
1250943	3	USG 3555	0	2	0	1	1	CHECK
1250944	4	Jamestown	0	0	0	0	0	CHECK
1250945	5	NC08-23089	0	1	0	1	1	
1250946	6	NC08-23090	0	1	0	1	0	
1250947	7	NC08-23323	1	1	0	0	0	
1250948	8	NC08-23324	0	1	0	1	0	
1250949	9	LA04041D-117	0	1	0	0	1	
1250950	10	LA04041D-63	0	1	0	0	1	
1250951	11	LA04026D-7	0	1	0	1	0	
1250952	12	LA04110D-7	0	1	1	1	1	
1250953	13	TN1201	0	2	0	0	1	
1250954	14	TN1202	1	2	0	1	2	
1250955	15	GA031086-10E26	0	1	0	1	1	
1250956	16	GA031134-10E29	0	1	0	1	1	
1250957	17	GA04570-10E46	0	1	0	1	0	
1250958	18	GA031257-10LE34	0	1	0	1	1	
1250959	19	VA08W-176	0	1	0	1	0	
1250960	20	VA09W-75	0	0	0	0	0	
1250961	21	VA10W-28	0	1	0	1	1	
1250962	22	VA10W-119	1	0	0	1	0	
1250963	23	MD03W665-10-5	0	1	0	0	0	
1250964	24	MD03W151-10-12	0	1	0	0	0	
1250965	25	G96164	1	1	0	0	0	
1250966	26	G95407	0	1	0	0	0	
1250967	27	G00032	0	1	0	0	0	
1250968	28	AR01167-3-1	0	1	0	0	0	
1250969	29	AR01179-4-1	0	1	0	0	0	