

UNITED STATES DEPARTMENT OF AGRICULTURE  
Agricultural Research Service

State Agricultural Experiment Stations, Cooperating

**2015 - 2016**

**UNIFORM SOUTHERN SOFT RED WINTER WHEAT  
NURSERY**

**Report**

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This is a joint progress report of cooperative investigations underway in the State Agricultural Experiment Stations and the Agricultural Research Service (ARS) of the U.S. Department of Agriculture containing preliminary data which have not been sufficiently confirmed to justify general release; interpretations may be modified with additional experimentation. ARS expressly does not warrant the validity of the data provided in this report coming from non-ARS sources. The report is primarily a tool for the use of the cooperators and their official staff and those persons having direct and special interest in the development of agricultural research programs.

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.

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USDA-ARS  
Small Grains & Potato Germplasm Research  
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November 2016

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**2015-2016 UNIFORM SOUTHERN SOFT RED WINTER WHEAT NURSERY  
LIST OF ENTRIES AND PEDIGREES**

<b>Entry No.</b>	<b>Cultivar/ Designation</b>	<b>Pedigree</b>	<b>Contributor</b>	<b>1st Year in Nursery</b>
1	AGS 2000	Pio.2555/PF84301//FL 302 (formerly GA89482E7)	Check	97-98
2	Jamestown	Roane/Pioneer Brand 2691 (formerly VA02W-370)	Check	04-05
3	Hilliard	25R47/Jamestown (formerly VA11W-108)	Check	13-14
4	Pioneer Brand 26R41	26R58/WBP0287E1//8302/25R47	Check	15-16
5	VA12W-72	P25R47/GF951079-2E31//USG3555	Griffey	14-15
6	NC11-22289	NC97BGTD7/NC-Neuse//C9511	Murphy	15-16
7	NC10034-11	NC-Yadkin/Shirley	Murphy	15-16
8	TX12D4768	GA951216-2E26/AGS2060	Sutton	15-16
9	TX-EL2	011638-G1-G1/981592-8-8-1//991336-47-5W-1W	Sutton	15-16
10	GA071012-14E6	991371-6E12/SS8641	Johnson	15-16
11	GA051207-14E53	AGS2000/SC996284//IN981359C1	Johnson	15-16
12	GA07353-14E19	SS8641/Oglethorpe//991371-6E13	Johnson	15-16
13	GAJT141-14E45	Jamestown/AGS2026	Johnson	15-16
14	TN1601	P99840C4-8-4/[GA88622E51/P25R46//APD95-8811-2/(Cardinal/Massey)]-F6//TN802/IL01-11934	West	15-16
15	TN1602	MD00-72-5050/(AR494B-2-2/P2568)-F6//(P2552/AR584A-3-1)-F6/VA03W-235	West	15-16
16	TN1604	(AR584A-3-1/OK91P648-41)-F6/AGS2026/[(B950590/VA96W-270//92145E8-7-7-1-9/Pat)]-F6/B011260	West	15-16
17	VA12W-68	25R47/GF951079-2E31 (GA881130/Gore)//USG3555 (VA02W-555)	Griffey	15-16
18	VA13W-38	IL99-15867 (IL93-2879/P881705A-1-X-60)/Jamestown	Griffey	15-16
19	VA13W-124	12V51 (VA05W-251)/AGS2026 (GA951231-4E26)	Griffey	15-16
20	KWS 060	Branson/M05-1526	Murche	15-16
21	KWS 081	Truman/SEMO9813-21	Murche	15-16
22	KWS 083	Roane/Sunburst	Murche	15-16
23	LA08090C-9-2	GA991336-6E9/AGS2060	Harrison	15-16
24	LA08115C-30	LA01113D-44/LA07052,F1(GA98244-1-14-5-4/LA841)	Harrison	15-16
25	LA09011UB-2	AGS2026/VA05W-510	Harrison	15-16
26	DH11SRW8-48	Branson/BW4020	Obert	15-16
27	ES14-0618	IL01-16170/VA02W-555	Obert	15-16
28	AR06473-9-4-4	01063-1-3-2/McIntosh//SS8641	Mason	15-16
29	AR06024-7-2	AR800-1-3-1/VA01W-476	Mason	15-16
30	MD09W272-8-4-13-3-15	VA02W713//SS8641/25R42	Wight	15-16
31	MD09W272-8-4-14-6	VA02W713//SS8641/25R42	Wight	15-16
32	MD09W272-8-4-14-8	VA02W713//SS8641/25R42	Wight	15-16
33	MD07W478-14-5	VA05W500//SS8641/VA02W713	Wight	15-16

## LOCATION NOTES

### **Belle Mina, Alabama**

Cooperator: Kathryn M. Glass  
Auburn University  
Planted: November 12, 2015  
Harvested: June 13, 2016

### **Marianna, Arkansas**

Cooperator: Esten Mason  
University of Arkansas  
Planted: November 1, 2015  
Harvested: June 7, 2016  
Fertilizer: 150 N + 24 Amm Sulfate  
Notes: Low yielding plots impacted by stripe rust which caused severe lodging. Some scab as well, 10-days of rain prior to harvest hurt test weights. Stuttgart location did not get planted. Stripe rust data reported is from **Fayetteville** inoculated plots with susceptible check rated 9.

### **Quincy, Florida**

Cooperator: Md. Ali Babar  
University of Florida

### **Griffin, Georgia**

Cooperator: Mohamed Mergoum, Jerry Johnson, Steve Sutton, Ben Lopez, John Youmans  
University of Georgia  
Planted: November 16, 2015  
Harvested: June 2, 2016  
Fertilizer: 15 N preplant; 80 N topdressed

### **Plains, Georgia**

Cooperator: Mohamed Mergoum, Jerry Johnson, Steve Sutton, Ben Lopez, John Youmans  
University of Georgia  
Planted: November 24, 2015  
Harvested: May 25, 2016  
Fertilizer: 15 N preplant; 80 N topdressed  
Notes: Problems occurred for some lines due to long vernalization and susceptible to stripe rust and leaf rust.

### **Champaign, Illinois**

Cooperator: Jana Murche  
KWS Cereals USA  
Planted: October 2, 2015  
Fertilizer: 70 + 40 N  
Notes: Despite high yields levels, results were affected by winterkill and stripe rust.

### **Battle Ground, Indiana**

Cooperator: Sam Brown  
Trinity Wheat Research

Planted: September 24, 2015

Harvested: June 28, 2016

Fertilizer: fall 34-24-24; spring 64-0-0

Notes: Stripe rust and Septoria tritici were absolutely horrific! BYD was not pretty either. Excellent mild fall, exceptional growth. Appeared to be only minimal fall BYD infection. There was winter damage, but less than expected. June 20 saw 50-60 mph gusts with 1.5 in. rain. June 22 saw 80-100 mph gusts with 2 in. rain. A one-two combo punch that resulted in lodging and contributed to high CVs. Value of the yield data is debatable.

### **West Lafayette, Indiana**

Cooperator: Sue Cambron  
USDA-ARS, Crop Production & Pest Control Research

Notes: Hessian fly data with multiple biotypes. No data for biotype D due to loss of over half of the population when a cold storage unit overheated. It can still be determined which lines have the H5 gene, as those will be resistant to B and C but susceptible to O and L.

### **Windfall, Indiana**

Cooperator: Kyle Lively, Greg Marshall  
DuPont Pioneer

Planted: September 23, 2015

Notes: Some interaction between virus and winter kill. Both WSSMV and WSBMV present. Missing heading and virus data due to winterkill.

### **Winfield, Kansas**

Cooperator: Sid Perry  
Monsanto

Planted: October 15, 2015

Harvested: July 1, 2016

### **Calhoun, Kentucky**

Cooperator: Jana Murche  
KWS Cereals USA

Planted: October 2, 2015

Harvested: June 21, 2016

Fertilizer: 70 + 40 N

Notes: Nice trial. Stripe rust was the predominant disease.

### **Lexington, Kentucky**

Cooperator: David Van Sanford  
University of Kentucky

Planted: October 23, 2015

Harvested: June 27, 2016

Fertilizer: 105 total N; P,K according to soil tests  
Notes: Warm winter led to serious BYD.

#### **Logan Co., Kentucky**

Cooperator: David Van Sanford  
University of Kentucky  
Planted: October 13, 2015  
Harvested: June 18, 2016  
Fertilizer: 105 total N; P,K according to soil tests  
Notes: Inconsistent lodging, perhaps due to N application variability.

#### **Hopkinsville, Kentucky**

Cooperator: Don Obert  
Limagrain Cereal Seeds

#### **Baton Rouge, Louisiana**

Cooperator: Steve Harrison, Kelly Arceneaux, Katie McCarthy, Ally Lunos  
Louisiana State University  
Planted: December 8, 2015  
Harvested: May 30, 2016  
Fertilizer: 15-46-40 preplant; 90-0-0 topdress; Powerflex herbicide  
Notes: Exceptionally wet winter with prolonged periods of saturated soils as well as heavy rains after maturity. Delayed harvest and additional lodging due to heavy rainfall after maturity. Stands were a little uneven. Leaf rust came on late. FHB also came on late. Phenotype: 0=excellent overall phenotype; 9=very poor; average of 2 ratings.

#### **Winnsboro, Louisiana**

Cooperator: Steve Harrison, Kelly Arceneaux, Trey Price, Myra Purvis, Hunter Pruitt  
Louisiana State University  
Planted: November 14, 2015  
Harvested: May 23, 2016  
Fertilizer: 15-46-40 preplant; 90-0-0 topdress; Powerflex herbicide  
Notes: Exceptionally wet winter with prolonged periods of saturated soils as well as heavy rains after flowering. Stands were a little uneven. Leaf rust came on late. FHB also came on late. Phenotype: 0=excellent overall phenotype; 9=very poor; average of 2 ratings.

#### **Queenstown, Maryland**

Cooperator: Jason Wight  
University of Maryland  
Planted: October 13, 2015  
Harvested: June 27, 2016  
Fertilizer: 100 N  
Notes: All lines represented in the test, but a packaging error caused loss of one row of some lines.

**St. Paul, Minnesota**

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

**Brooksville, Mississippi**

Cooperator: Brad Burgess  
Mississippi State University  
Planted: November 17, 2015  
Harvested: June 3, 2016  
Fertilizer: 90 N (urea) topdress

**Portageville, Missouri**

Cooperator: Anne L. McKendry, David Tague  
University of Missouri  
Planted: October 21, 2015  
Harvested: June 22, 2016  
Fertilizer: 40 + 80 N spring  
Notes: Nursery planted in a timely fashion with good fall establishment. Season was very cool and dry early, then very hot. Harvest was timely. Stripe rust was significant and developed beyond the period when lines were rated, so could have been worse by end of season in susceptible lines. Test weights were impacted in susceptible lines.

**Laurel Springs & Raleigh, North Carolina**

Cooperator: David Marshall, Myron Fountain  
USDA-ARS, Plant Science Research

**Plymouth, North Carolina**

Cooperator: Paul Murphy  
North Carolina State University  
Planted: October 14, 2015  
Harvested: May 28, 2016  
Fertilizer: 130 N  
Notes: These are not quality data. Very heavy rains from Nov. through Feb. decimated the fertility regime. Temperature dropped to 28 for 4 hours on April 6 when most of test was pollinating or in late boot.

**Raleigh, North Carolina**

Cooperator: Christina Cowger  
USDA-ARS, Plant Science Research  
Notes: Eastern Septoria Nursery data. Stagonospora nodorum blotch (SNB) data with separate ratings for leaves and glumes. Randomized, straw-inoculated, irrigated. Data is from Raleigh, no data available from Kinston. Data are excellent for the early lines; heavy leaf rust pressure and high temperatures increased CVs on the late lines.

**Wooster, Ohio**

Cooperator: Byung-Kee Baik, Anthony Karcher  
USDA-ARS, Soft Wheat Quality  
Notes: Milling and baking quality data.

**Enid, Oklahoma**

Cooperator: 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**

Cooperator: Dennis West  
University of Tennessee  
Planted: October 21, 2015  
Harvested: June 15, 2016  
Fertilizer: 90-30-30

**Milan, Tennessee**

Cooperator: Dennis West  
University of Tennessee  
Planted: November 9, 2015  
Harvested: June 13, 2016  
Fertilizer: 110-0-0

**Farmersville, Texas**

Cooperator: Russell Sutton  
Texas A&M AgriLife Research  
Notes: Stand was lost after planting.

**Blacksburg, Virginia**

Cooperator: Carl Griffey  
Virginia Tech  
Planted: October 15, 2015  
Harvested: June 29, 2016  
Fertilizer: fall 30-60-80-S/8-B/1.5; spring 30 units UAN at GS25, 50 Units UAN at GS30

**Warsaw, Virginia**

Cooperator: Carl Griffey  
VPI & SU  
Planted: October 22, 2015  
Harvested: June 20, 2016  
Fertilizer: fall 30-60-60-5; spring 30lbs./A 12001.5



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

Cooperator: Xianming Chen

USDA-ARS, Wheat Genetics, Quality, Physiology, & Disease Research

Notes: Seedling and adult stripe rust data.

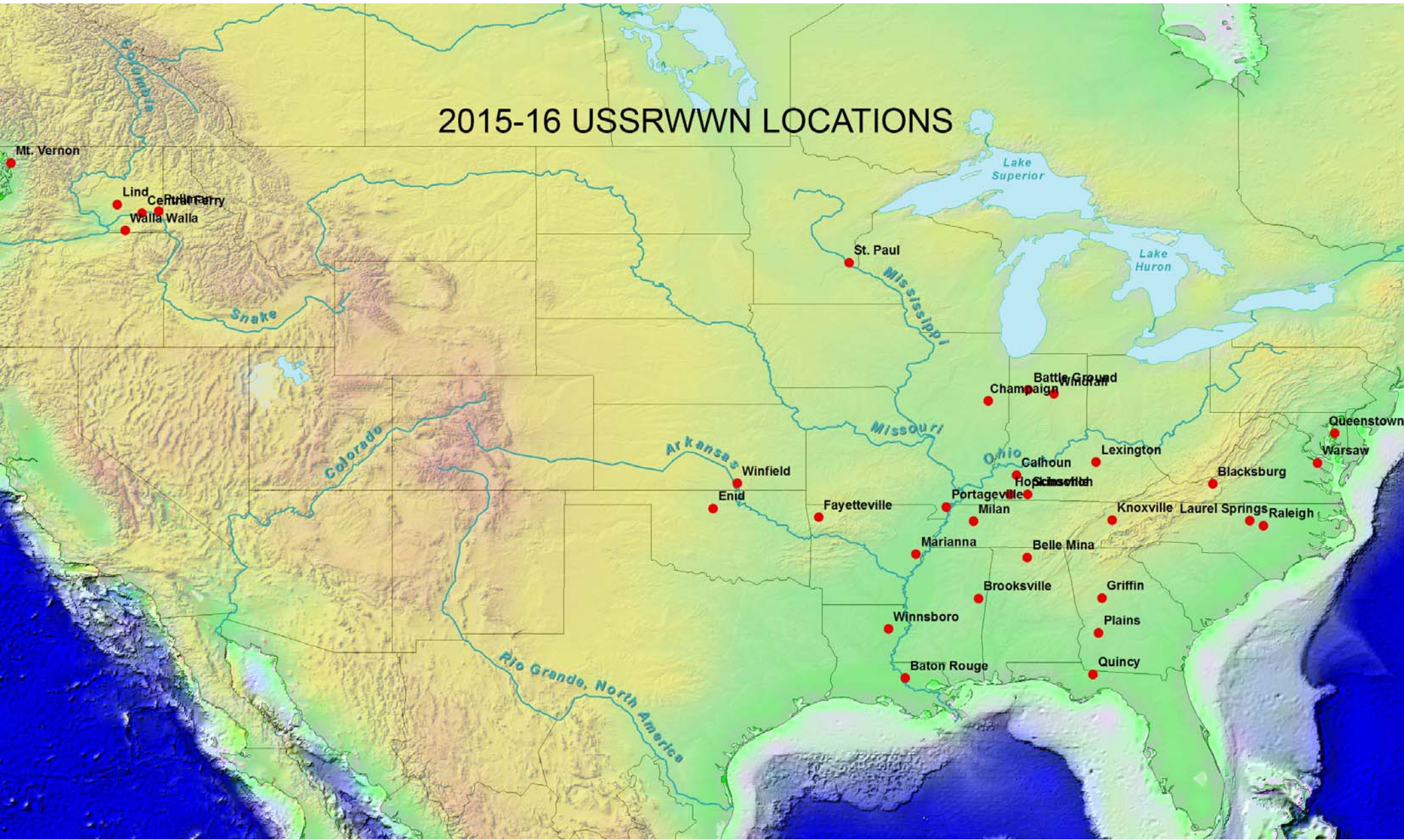
**Central Ferry, Pullman, Washington**

Cooperator: Kim Campbell

USDA-ARS, Wheat Genetics, Quality, Physiology, & Disease Research

Notes: Stripe rust came in early this year. Central Ferry had fall infection. Only one rating at Pullman because heat matured the crop early.

# 2015-16 USSRWWN LOCATIONS



## YIELD (bu/acre)

		Belle Mina		Marianna		Quincy		Griffin		Plains		Champaign	
		AL		AR		FL		GA		GA		IL	
		Glass		Mason		Babar		Mergoum		Mergoum		Murche	
		ab	rank	ab	rank	a	rank	a	rank	a	rank	b	rank
1	AGS 2000	84.9	3	19.0	32	68.7	14	73.7	16	30.1	28	83.8	30
2	Jamestown	69.3	29	65.6	20	62.8	18	72.0	18	70.1	17	117.2	14
3	Hilliard	81.6	8	96.2	1	53.9	29	78.0	9	75.8	12	130.9	3
4	Pioneer Brand 26R41	82.2	7	85.0	4	60.3	22	62.1	23	65.2	19	144.3	1
5	VA12W-72	70.5	27	79.4	9	79.1	5	79.0	8	80.9	9	132.3	2
6	NC11-22289	62.5	33	58.9	25	58.8	26	59.7	28	55.8	24	107.2	21
7	NC10034-11	66.9	31	60.8	23	64.7	16	67.9	21	40.1	26	102.8	23
8	TX12D4768	68.2	30	60.2	24	75.6	7	60.7	26	64.7	20	109.3	19
9	TX-EL2	80.1	12	88.1	2	61.9	19	83.7	6	83.2	6	127.5	6
10	GA071012-14E6	78.3	18	72.0	16	73.0	8	69.3	19	80.8	10	107.7	20
11	GA051207-14E53	84.0	5	73.4	14	71.9	9	85.6	2	70.8	15	113.2	16
12	GA07353-14E19	79.3	15	74.3	12	87.9	2	91.7	1	89.5	2	112.5	18
13	GAJT141-14E45	85.3	2	69.0	18	69.0	13	83.5	7	79.7	11	121.4	12
14	TN1601	74.6	23	8.5	33	59.5	25	61.6	24	19.8	30	48.9	33
15	TN1602	79.8	14	21.8	31	64.4	17	68.6	20	16.6	33	65.5	32
16	TN1604	84.1	4	82.3	5	54.7	28	77.4	12	72.3	13	128.2	5
17	VA12W-68	77.1	21	80.6	8	71.2	10	77.9	10	85.1	4	129.8	4
18	VA13W-38	81.3	9	36.3	28	77.7	6	84.1	4	43.9	25	84.9	29
19	VA13W-124	80.9	10	81.9	6	91.4	1	83.8	5	82.3	7	124.4	9
20	KWS 060	77.7	20	42.2	26	38.9	30	53.1	32	23.6	29	91.6	27
21	KWS 081	80.8	11	34.9	29	28.2	33	59.4	29	33.2	27	89.0	28
22	KWS 083	64.5	32	38.4	27	31.9	32	50.6	33	17.6	31	99.4	26
23	LA08090C-9-2	74.6	23	67.0	19	61.4	20	60.3	27	60.7	21	124.1	10
24	LA08115C-30	74.7	22	63.6	21	59.7	24	61.0	25	70.3	16	116.3	15
25	LA09011UB-2	79.1	16	72.8	15	69.7	12	73.0	17	71.4	14	113.0	17
26	DH11SRW8-48	83.5	6	70.2	17	57.1	27	64.6	22	60.5	22	125.3	7
27	ES14-0618	70.7	26	24.9	30	35.5	31	56.9	30	17.2	32	81.7	31
28	AR06473-9-4-4	77.9	19	86.0	3	85.2	3	77.8	11	66.3	18	107.2	22
29	AR06024-7-2	69.4	28	61.4	22	60.5	21	56.6	31	59.4	23	101.2	24
30	MD09W272-8-4-13-3-15	74.1	25	77.6	10	70.0	11	76.2	14	81.3	8	124.0	11
31	MD09W272-8-4-14-6	89.4	1	81.5	7	60.2	23	75.7	15	92.0	1	124.5	8
32	MD09W272-8-4-14-8	79.8	13	76.2	11	84.4	4	76.9	13	87.2	3	119.8	13
33	MD07W478-14-5	78.7	17	74.3	12	65.0	15	85.2	3	84.7	5	101.1	25
LOCATION MEANS		77.1		63.1		64.0		71.1		61.6		109.4	
LSD (.05)		11		15.6		18.1		14.4		12.8		10.28	
CV %		9		9.6		15.7		12.3		10		5.4	
Reps		3		2				3		2		3	
Harvest Plot Area (sq.ft.)		100		70				50		50		50	

## YIELD (bu/acre)

		Battle Ground		Winfield		Calhoun		Lexington		Schochoh		Hopkinsville			
		IN		KS		KY		KY		KY		KY			
		Brown	rank	Perry	rank	Murche	ab	rank	Van Sanford	ab	rank	Van Sanford	a	rank	Obert
1	AGS 2000	30.2	32	49.6	33	70.1	27	51.6	25	37.6	31	57.4	27		
2	Jamestown	75.7	15	76.1	11	74.3	19	47.1	29	96.6	3	66.0	23		
3	Hilliard	109.9	1	85.1	6	83.2	4	68.0	8	107.0	2	70.7	18		
4	Pioneer Brand 26R41	107.3	3	90.4	3	81.6	9	88.2	1	89.9	8	74.1	11		
5	VA12W-72	109.3	2	89.2	4	81.8	7	62.0	12	83.3	10	64.5	24		
6	NC11-22289	82.0	13	67.1	21	64.4	30	62.3	10	62.9	22	53.0	32		
7	NC10034-11	75.4	16	65.8	23	73.6	23	43.0	30	91.7	6	79.6	5		
8	TX12D4768	53.2	24	54.4	30	75.8	17	59.5	16	54.2	25	68.5	21		
9	TX-EL2	92.1	7	76.5	9	81.7	8	82.3	4	67.7	19	79.4	6		
10	GA071012-14E6	40.0	30	65.2	24	74.8	18	29.1	33	46.4	28	70.9	16		
11	GA051207-14E53	47.1	27	66.1	22	84.6	3	59.6	14	91.4	7	77.9	8		
12	GA07353-14E19	42.8	28	84.7	7	82.2	6	52.1	24	78.3	15	70.8	17		
13	GAJT141-14E45	84.1	10	64.1	25	73.9	21	52.2	23	66.5	20	72.3	15		
14	TN1601	16.9	33	53.8	31	54.8	33	48.9	27	53.7	26	47.4	33		
15	TN1602	30.7	31	92.7	1	64.4	31	54.1	21	81.0	11	54.8	31		
16	TN1604	94.0	6	83.1	8	82.9	5	71.5	7	78.9	12	80.2	4		
17	VA12W-68	96.3	4	91.0	2	86.7	2	87.7	2	91.8	5	82.1	3		
18	VA13W-38	70.7	18	75.9	12	76.4	16	57.7	18	71.1	16	78.8	7		
19	VA13W-124	96.0	5	69.3	17	88.0	1	48.4	28	37.7	30	89.1	1		
20	KWS 060	50.3	25	87.1	5	71.9	26	57.0	20	45.4	29	88.4	2		
21	KWS 081	65.2	20	67.9	19	73.7	22	73.9	5	27.2	33	68.9	19		
22	KWS 083	41.3	29	59.7	27	74.0	20	72.3	6	60.8	24	76.2	10		
23	LA08090C-9-2	63.2	21	59.0	29	77.7	15	49.2	26	69.6	17	63.3	25		
24	LA08115C-30	73.7	17	53.2	32	66.9	29	36.8	31	78.8	13	59.9	26		
25	LA09011UB-2	82.2	12	59.1	28	73.5	24	32.0	32	66.0	21	55.7	29		
26	DH11SRW8-48	79.5	14	71.3	15	79.5	12	60.4	13	92.3	4	66.6	22		
27	ES14-0618	48.1	26	76.5	9	59.4	32	58.6	17	62.4	23	55.6	30		
28	AR06473-9-4-4	61.3	23	67.6	20	80.8	10	53.5	22	69.0	18	68.9	20		
29	AR06024-7-2	61.7	22	60.3	26	68.3	28	62.0	11	53.5	27	56.3	28		
30	MD09W272-8-4-13-3-15	85.6	9	72.4	14	72.0	25	82.8	3	113.8	1	72.7	13		
31	MD09W272-8-4-14-6	84.0	11	70.1	16	80.4	11	66.9	9	85.6	9	77.0	9		
32	MD09W272-8-4-14-8	88.9	8	68.5	18	78.1	14	57.6	19	78.4	14	72.9	12		
33	MD07W478-14-5	70.2	19	75.8	13	78.9	13	59.5	15	31.3	32	72.4	14		
LOCATION MEANS		70.0		71.2		75.5		59.0		70.3		69.5			
LSD (.05)		15.7		15.8		7		8.9		27.4		16.8			
CV %		21.9		10.9		5.3		6.3		16.8		11.9			
Reps		2		2		3		2		2		2			
Harvest Plot Area (sq.ft.)		32		75		50		40		40					

## YIELD (bu/acre)

		Baton Rouge		Winnsboro		Queenstown		Brooksville		Portageville		Plymouth	
		LA		LA		MD		MS		MO		NC	
		Harrison		Harrison		Wight		Burgess		McKendry		Murphy	
		ab	rank	ab	rank	a	rank	a	rank	a	rank	ab	rank
1	AGS 2000	32.7	21	44.4	22	62.1	18	45.2	30	37.9	31	45.0	6
2	Jamestown	49.8	8	46.7	18	58.7	23	54.3	14	58.8	19	32.1	28
3	Hilliard	23.0	26	37.1	27	75.1	4	61.8	3	82.8	1	44.9	7
4	Pioneer Brand 26R41	25.4	25	39.6	25	66.1	13	40.9	31	71.3	6	36.7	26
5	VA12W-72	42.2	16	59.5	5	72.1	6	58.4	9	66.1	11	46.2	4
6	NC11-22289	26.2	23	46.8	17	51.0	30	33.2	33	54.4	24	39.5	19
7	NC10034-11	8.8	28	46.3	19	66.2	12	50.2	24	62.9	14	38.5	22
8	TX12D4768	35.3	18	49.4	15	61.0	21	54.4	13	59.4	18	46.3	3
9	TX-EL2	45.4	15	51.7	11	72.9	5	49.2	27	60.7	16	37.5	24
10	GA071012-14E6	50.9	6	53.5	10	56.2	24	60.7	5	71.3	6	38.2	23
11	GA051207-14E53	51.5	5	49.5	14	66.0	14	59.1	8	68.4	9	47.4	2
12	GA07353-14E19	51.6	4	64.6	2	62.5	17	52.9	17	74.8	4	46.2	5
13	GAJT141-14E45	49.8	9	63.7	3	61.9	20	53.9	15	77.1	3	43.8	10
14	TN1601	3.2	30	18.1	29	46.5	32	50.2	25	26.4	33	31.0	30
15	TN1602	27.5	22	33.7	28	51.3	29	50.5	22	40.6	30	37.3	25
16	TN1604	25.9	24	41.0	23	78.2	2	57.8	10	77.6	2	42.9	12
17	VA12W-68	47.7	12	53.9	9	78.5	1	51.4	21	74.4	5	43.8	11
18	VA13W-38	47.4	13	45.8	20	69.6	7	50.4	23	55.1	23	48.7	1
19	VA13W-124	48.3	10	62.8	4	76.9	3	46.1	29	68.6	8	43.8	9
20	KWS 060	1.0	32	10.3	32	62.7	16	59.9	6	41.9	28	40.1	18
21	KWS 081	2.8	31	16.6	30	52.9	28	52.7	19	55.2	22	31.1	29
22	KWS 083	0.6	33	12.7	31	62.0	19	52.2	20	41.2	29	30.3	32
23	LA08090C-9-2	33.7	20	51.1	12	55.5	26	53.3	16	59.8	17	28.8	33
24	LA08115C-30	33.8	19	39.7	24	43.2	33	52.8	18	65.4	12	38.6	21
25	LA09011UB-2	38.4	17	49.4	16	53.4	27	61.7	4	56.9	21	40.5	17
26	DH11SRW8-48	17.0	27	50.4	13	55.8	25	79.5	1	64.0	13	42.9	13
27	ES14-0618	7.2	29	9.6	33	46.7	31	59.3	7	37.2	32	30.6	31
28	AR06473-9-4-4	56.8	2	69.7	1	64.2	15	35.4	32	62.2	15	41.0	15
29	AR06024-7-2	45.9	14	38.7	26	57.8	23	48.4	28	46.6	27	33.8	27
30	MD09W272-8-4-13-3-15	53.1	3	56.7	6	69.2	8	57.1	11	54.2	25	44.7	8
31	MD09W272-8-4-14-6	48.1	11	56.4	7	66.8	10	56.7	12	52.4	26	38.8	20
32	MD09W272-8-4-14-8	49.9	7	55.9	8	66.9	9	65.0	2	66.8	10	40.7	16
33	MD07W478-14-5	63.2	1	44.8	21	66.3	11	49.8	26	58.5	20	41.1	14
LOCATION MEANS		34.7		44.5		62.3		53.5		59.1		39.8	
LSD (.05)		14.8		9		*		12.8		16.2		7.3	
CV %		8.7		6.8		*		20.5		16.8		9.4	
Reps		2		2		2 *		4		3			
Harvest Plot Area (sq.ft.)		70		70		54.5				55			

## YIELD (bu/acre)

		Raleigh		Knoxville		Milan		Blacksburg		Warsaw	
		NC		TN		TN		VA		VA	
		Marshall		West		West		Griffey		Griffey	
		a	rank	ab	rank	a	rank	ab	rank	ab	rank
1	AGS 2000	65.3	10	81.7	12	49.1	27	69.6	20	58.3	18
2	Jamestown	61.7	15	92.1	7	56.7	18	63.2	24	43.0	33
3	Hilliard	64.0	13	104.4	1	62.8	9	92.6	1	71.8	1
4	Pioneer Brand 26R41	59.4	18	78.0	20	63.0	8	74.5	15	63.2	12
5	VA12W-72	75.6	1	81.7	13	60.6	13	76.0	10	68.4	4
6	NC11-22289	48.8	27	51.1	33	51.4	25	75.1	14	45.6	32
7	NC10034-11	62.2	14	87.9	9	56.0	20	77.5	9	67.8	5
8	TX12D4768	56.5	23	68.8	30	54.2	22	50.2	33	57.4	20
9	TX-EL2	70.9	4	96.0	5	63.5	5	83.8	3	71.4	2
10	GA071012-14E6	53.8	25	80.7	14	52.3	23	67.9	22	49.4	28
11	GA051207-14E53	52.8	26	79.0	16	57.9	17	54.2	30	56.6	22
12	GA07353-14E19	67.3	5	78.9	17	65.7	4	75.2	12	57.1	21
13	GAJT141-14E45	65.7	9	75.6	23	63.4	6	67.3	23	63.5	11
14	TN1601	56.6	22	78.8	18	34.7	33	73.8	16	56.3	23
15	TN1602	66.4	7	73.9	27	51.1	26	60.9	26	59.2	16
16	TN1604	66.4	8	88.5	8	67.3	2	83.8	2	62.5	13
17	VA12W-68	70.9	3	78.1	19	58.2	16	78.8	8	66.3	6
18	VA13W-38	64.3	11	74.4	26	54.3	21	75.8	11	65.9	9
19	VA13W-124	28.3	33	98.6	3	67.0	3	80.7	6	68.5	3
20	KWS 060	54.5	24	70.5	29	39.6	32	69.3	21	66.2	7
21	KWS 081	38.1	31	71.0	28	47.8	29	59.6	27	55.4	25
22	KWS 083	29.9	32	82.6	11	46.6	30	82.0	5	54.8	27
23	LA08090C-9-2	57.5	21	82.6	10	56.7	18	59.3	28	55.0	26
24	LA08115C-30	61.7	15	62.7	31	52.1	24	55.5	29	57.8	19
25	LA09011UB-2	64.2	12	75.7	22	63.1	7	61.6	25	49.2	30
26	DH11SRW8-48	42.5	29	80.6	15	62.6	10	73.0	17	61.0	14
27	ES14-0618	38.2	30	74.9	24	45.3	31	53.8	31	49.4	29
28	AR06473-9-4-4	59.5	17	74.7	25	59.6	15	83.6	4	58.7	17
29	AR06024-7-2	44.5	28	51.6	32	48.1	28	51.0	32	45.8	31
30	MD09W272-8-4-13-3-15	57.6	20	92.4	6	71.6	1	71.3	19	56.0	24
31	MD09W272-8-4-14-6	66.9	6	96.8	4	60.1	14	79.0	7	59.7	15
32	MD09W272-8-4-14-8	59.3	19	102.7	2	62.3	11	73.0	18	63.6	10
33	MD07W478-14-5	74.6	2	77.5	21	61.2	12	75.1	13	66.0	8
LOCATION MEANS		57.8		80.1		56.5		70.5		59.1	
LSD (.05)				10.5		11.8		8.3		6	
CV %				8.1		10.2		6.9		6	
Reps				3		2		2		2	
Harvest Plot Area (sq.ft.)				42.5		60		45		45	

## YIELD (bu/acre)

	ENTRY MEANS ALL LOCATIONS		ENTRY MEANS IN-REGION		ENTRY MEANS CV <10%		
	rank		rank		rank		
1	AGS 2000	54.3	27	54.2	25	58.3	25
2	Jamestown	65.6	17	62.0	18	63.7	19
3	Hilliard	76.5	1	71.7	2	75.8	2
4	Pioneer Brand 26R41	71.7	10	65.3	15	72.6	8
5	VA12W-72	74.7	3	69.4	8	72.7	7
6	NC11-22289	57.3	25	53.1	26	58.1	26
7	NC10034-11	63.3	20	60.6	20	61.3	23
8	TX12D4768	60.7	23	59.0	22	61.9	22
9	TX-EL2	74.2	4	70.5	3	76.9	1
10	GA071012-14E6	62.7	21	61.5	19	63.9	18
11	GA051207-14E53	68.2	13	67.1	11	68.5	15
12	GA07353-14E19	71.4	11	70.1	5	70.4	12
13	GAJT141-14E45	69.8	12	66.8	12	69.6	13
14	TN1601	44.5	33	45.2	32	45.2	33
15	TN1602	54.2	28	52.9	28	52.5	31
16	TN1604	73.1	6	68.8	9	72.1	10
17	VA12W-68	76.5	2	72.1	1	75.5	3
18	VA13W-38	64.8	18	62.9	17	63.1	20
19	VA13W-124	72.3	9	68.6	10	75.1	4
20	KWS 060	54.1	29	50.7	29	54.4	29
21	KWS 081	51.5	30	48.2	31	53.5	30
22	KWS 083	51.4	31	49.0	30	55.6	28
23	LA08090C-9-2	61.9	22	58.9	23	63.9	17
24	LA08115C-30	59.9	24	56.7	24	58.8	24
25	LA09011UB-2	63.6	19	60.4	21	62.3	21
26	DH11SRW8-48	67.0	16	63.2	16	67.6	16
27	ES14-0618	47.8	32	44.7	33	47.3	32
28	AR06473-9-4-4	68.1	14	66.5	13	71.8	11
29	AR06024-7-2	55.8	26	53.0	27	57.2	27
30	MD09W272-8-4-13-3-15	73.3	5	70.2	4	73.1	6
31	MD09W272-8-4-14-6	72.6	8	69.5	7	74.7	5
32	MD09W272-8-4-14-8	72.8	7	69.9	6	72.5	9
33	MD07W478-14-5	67.6	15	65.4	14	69.1	14
LOCATION MEANS		64.3		61.5		64.8	
LSD (.05)							
CV %							
Reps							
Harvest Plot Area (sq.ft.)							

## TEST WEIGHT (lbs/bu)

		Belle Mina AL Glass	Marianna AR Mason	Quincy FL Babar	Griffin GA Mergoum	Plains GA Mergoum
1	AGS 2000	59.6	50.7	49.0	59.7	
2	Jamestown	59.0	55.9	53.9	60.2	62.1
3	Hilliard	57.3	55.2	43.7	60.2	57.1
4	Pioneer Brand 26R41	58.1	54.9	48.9	59.1	56.6
5	VA12W-72	58.1	54.1	51.9	60.4	58.8
6	NC11-22289	60.4	57.2	54.9	62.5	62.6
7	NC10034-11	58.1	55.8	51.8	60.9	58.1
8	TX12D4768	60.0	56.3	52.5	61.3	61.8
9	TX-EL2	58.0	55.6	46.2	61.4	59.8
10	GA071012-14E6	59.2	54.0	52.2	60.8	60.4
11	GA051207-14E53	58.7	55.2	50.7	61.9	58.8
12	GA07353-14E19	59.3	55.1	53.2	61.5	60.7
13	GAJT141-14E45	58.0	54.7	53.4	60.6	59.7
14	TN1601	58.6	.	49.2	59.7	
15	TN1602	58.1	50.3	51.8	60.7	
16	TN1604	57.0	55.2	48.0	59.4	57.1
17	VA12W-68	58.4	55.2	49.4	61.1	59.2
18	VA13W-38	59.1	55.4	53.6	60.4	59.1
19	VA13W-124	56.8	53.5	51.7	57.7	58.1
20	KWS 060	57.2	54.4		58.1	
21	KWS 081	57.0	54.0		57.3	
22	KWS 083	60.5	57.5		60.8	
23	LA08090C-9-2	59.4	56.6	51.3	60.3	59.1
24	LA08115C-30	58.6	53.7	52.1	58.4	59.1
25	LA09011UB-2	59.3	55.7	55.1	62.8	62.4
26	DH11SRW8-48	57.7	54.8	47.9	60.3	60.1
27	ES14-0618	58.8	.	44.9	60.4	
28	AR06473-9-4-4	60.6	56.2	55.2	62.1	61.6
29	AR06024-7-2	61.0	58.0	56.6	63.1	62.6
30	MD09W272-8-4-13-3-15	57.6	55.8	51.5	61.3	61.9
31	MD09W272-8-4-14-6	57.6	55.5	47.7	60.9	61.3
32	MD09W272-8-4-14-8	57.1	54.3	51.3	60.9	61.1
33	MD07W478-14-5	58.5	54.8	53.1	60.8	60.1
LOCATION MEANS		58.6	55.0	51.1	60.5	60.0



## TEST WEIGHT (lbs/bu)

	Champaign IL Murche	Battle Ground IN Brown	Winfield KS Perry	Calhoun KY Murche	Lexington KY Van Sanford	
1	AGS 2000	48.6	54.2	53.4	56.5	56.7
2	Jamestown	55.9	56.4	57.0	58.0	54.3
3	Hilliard	55.4	60.5	54.2	55.8	55.9
4	Pioneer Brand 26R41	55.8	58.3	53.7	55.4	55.8
5	VA12W-72	55.5	57.0	54.2	57.2	53.0
6	NC11-22289	58.7	59.8	56.2	57.8	56.4
7	NC10034-11	54.8	59.6	54.2	56.7	55.8
8	TX12D4768	58.0	61.1	54.1	57.2	56.3
9	TX-EL2	56.5	58.9	54.3	57.6	57.7
10	GA071012-14E6	56.5	60.8	53.9	54.0	58.6
11	GA051207-14E53	52.7	54.9	54.6	54.7	54.4
12	GA07353-14E19	55.7	57.7	55.3	57.2	58.0
13	GAJT141-14E45	49.5	59.3	55.1	54.4	56.0
14	TN1601	42.4	58.3	52.8	51.6	54.5
15	TN1602	45.4	60.8	55.1	54.6	50.3
16	TN1604	54.4	58.0	53.5	54.6	53.4
17	VA12W-68	55.3	58.4	54.7	57.2	56.3
18	VA13W-38	51.2	59.6	55.5	57.7	55.9
19	VA13W-124	55.0	58.7	52.1	55.5	58.3
20	KWS 060	50.0	59.6	54.9	55.0	52.9
21	KWS 081	50.7	59.5	53.2	55.0	56.6
22	KWS 083	55.1	60.8	55.9	59.5	62.1
23	LA08090C-9-2	51.8	58.9	53.6	55.8	59.5
24	LA08115C-30	53.5	56.3	53.0	55.1	53.1
25	LA09011UB-2	55.2	56.4	55.5	57.8	53.1
26	DH11SRW8-48	52.9	56.6	54.7	54.3	57.9
27	ES14-0618	49.6	58.4	56.3	53.4	58.1
28	AR06473-9-4-4	58.1	57.7	55.1	55.6	57.4
29	AR06024-7-2	58.1	58.6	56.7	60.8	62.1
30	MD09W272-8-4-13-3-15	55.1	60.4	54.8	55.8	54.7
31	MD09W272-8-4-14-6	54.1	58.3	53.6	53.6	54.8
32	MD09W272-8-4-14-8	53.6	58.7	54.2	54.3	52.4
33	MD07W478-14-5	56.0	57.7	53.8	57.3	57.9
LOCATION MEANS	53.7	58.5	54.5	56.0	56.1	

## TEST WEIGHT (lbs/bu)

	Schochoh	Hopkinsville	Baton Rouge	Winnsboro	Queenstown	
	KY	KY	LA	LA	MD	
	Van Sanford	Obert	Harrison	Harrison	Wight	
1	AGS 2000	50.7	58.6	50.3	49.6	55.8
2	Jamestown	55.1	61.7	56.5	53.9	61.2
3	Hilliard	53.2	58.5	52.6	49.9	52.2
4	Pioneer Brand 26R41	49.9	56.7	52.2	49.1	53.4
5	VA12W-72	53.3	58.4	50.0	51.2	54.5
6	NC11-22289	53.2	59.6	54.5	57.5	58.0
7	NC10034-11	54.5	57.1		52.6	54.4
8	TX12D4768	54.3	59.6	55.3	53.5	56.3
9	TX-EL2	56.5	60.8	51.5	50.6	56.1
10	GA071012-14E6	53.2	60.1	55.1	53.4	53.2
11	GA051207-14E53	48.7	57.4	52.1	49.8	53.6
12	GA07353-14E19	51.3	59.9	55.7	55.3	58.1
13	GAJT141-14E45	52.8	57.8	52.4	54.0	56.3
14	TN1601	51.4	54.7			50.1
15	TN1602	48.9	57.9	52.4	49.5	53.0
16	TN1604	48.7	55.3	51.6	49.8	51.1
17	VA12W-68	53.1	57.2	49.7	51.9	55.4
18	VA13W-38	54.3	58.7	55.5	55.6	57.1
19	VA13W-124	60.1	58.5	52.6	53.0	56.2
20	KWS 060	49.6	59.6			53.1
21	KWS 081	48.5	54.8			51.1
22	KWS 083	46.2	55.7			56.0
23	LA08090C-9-2	55.0	56.3	51.3	53.1	56.1
24	LA08115C-30	51.7	58.9	50.8	48.9	55.3
25	LA09011UB-2	52.9	58.8	55.1	54.6	56.9
26	DH11SRW8-48	51.3	56.8		51.5	54.1
27	ES14-0618	55.0	57.7			50.5
28	AR06473-9-4-4	54.8	59.1	57.3	55.4	56.0
29	AR06024-7-2	53.7	58.5	59.6	54.9	57.2
30	MD09W272-8-4-13-3-15	52.9	57.0	54.9	50.8	55.0
31	MD09W272-8-4-14-6	52.6	60.1	53.3	48.2	54.7
32	MD09W272-8-4-14-8	51.8	55.3	52.8	51.1	52.5
33	MD07W478-14-5	58.4	59.7	56.2	51.5	56.4
LOCATION MEANS	52.7	58.1	53.5	52.1	54.9	

## TEST WEIGHT (lbs/bu)

		Brooksville	Portageville	Plymouth	Raleigh	Knoxville
		MS	MO	NC	NC	TN
		Burgess	McKendry	Murphy	Marshall	West
1	AGS 2000	55.0	54.7	58.6	54.4	58.7
2	Jamestown	55.0	59.7	60.9	56.0	59.0
3	Hilliard	56.0	59.4	58.8	56.0	59.0
4	Pioneer Brand 26R41	55.5	59.2	59.3	54.9	56.5
5	VA12W-72	55.3	58.4	56.6	54.3	57.0
6	NC11-22289	56.0	59.4	62.3	55.8	58.2
7	NC10034-11	56.0	57.6	57.9	56.2	58.4
8	TX12D4768	55.5	59.3	61.2	55.7	59.4
9	TX-EL2	54.3	59.1	58.9	53.9	59.3
10	GA071012-14E6	55.8	59.0	59.7	54.2	59.0
11	GA051207-14E53	55.0	58.6	57.8	54.9	58.1
12	GA07353-14E19	55.8	59.3	60.6	53.9	59.5
13	GAJT141-14E45	54.5	59.5	59.7	54.4	57.1
14	TN1601	51.0	52.7	59.8	55.1	57.4
15	TN1602	54.5	53.5	60.8	53.3	57.6
16	TN1604	52.8	56.9	51.2	54.1	57.2
17	VA12W-68	55.5	58.8	58.8	54.6	58.4
18	VA13W-38	56.3	55.0	60.5	52.5	58.3
19	VA13W-124	50.5	56.7	58.5	53.2	56.0
20	KWS 060	54.3	56.8	57.0	55.5	57.8
21	KWS 081	54.8	56.7	54.0	54.6	57.3
22	KWS 083	58.3	59.5	52.1	57.6	61.3
23	LA08090C-9-2	56.5	59.0	59.8	56.7	60.6
24	LA08115C-30	51.0	58.0	59.2	54.5	58.7
25	LA09011UB-2	57.0	59.6	61.8	55.5	58.9
26	DH11SRW8-48	56.8	57.8	59.6	55.7	59.0
27	ES14-0618	56.0	56.9	60.0	54.9	59.2
28	AR06473-9-4-4	55.8	58.6	60.3	54.3	58.5
29	AR06024-7-2	57.3	60.3	61.9	56.3	60.3
30	MD09W272-8-4-13-3-15	54.0	58.4	60.7	54.9	58.2
31	MD09W272-8-4-14-6	54.3	58.0	59.9	53.8	58.0
32	MD09W272-8-4-14-8	54.8	58.0	59.6	53.1	57.6
33	MD07W478-14-5	55.0	58.4	58.6	53.8	57.6
LOCATION MEANS		55.0	58.0	59.0	54.8	58.4

## TEST WEIGHT (lbs/bu)

		Blacksburg	Warsaw	ENTRY MEANS	rank
		VA	VA	ALL LOCATIONS	
		Griffey	Griffey		
1	AGS 2000	55.9	59.1	54.7	29
2	Jamestown	56.9	58.9	57.6	3
3	Hilliard	54.8	59.9	55.7	19
4	Pioneer Brand 26R41	52.0	55.9	55.0	28
5	VA12W-72	53.6	57.7	55.5	23
6	NC11-22289	56.7	57.6	58.0	2
7	NC10034-11	54.5	58.8	56.4	14
8	TX12D4768	56.7	59.1	57.5	6
9	TX-EL2	55.6	60.4	56.5	13
10	GA071012-14E6	55.9	58.4	56.7	10
11	GA051207-14E53	54.1	57.6	55.2	26
12	GA07353-14E19	56.6	59.6	57.2	8
13	GAJT141-14E45	55.0	58.3	56.0	16
14	TN1601	54.7	57.4	54.0	33
15	TN1602	54.5	57.8	54.3	31
16	TN1604	53.8	54.7	54.0	32
17	VA12W-68	55.2	57.9	56.0	17
18	VA13W-38	57.4	57.7	56.6	12
19	VA13W-124	54.2	56.4	55.6	21
20	KWS 060	53.8	56.9	55.4	24
21	KWS 081	51.9	55.4	54.6	30
22	KWS 083	57.7	60.0	57.6	4
23	LA08090C-9-2	56.9	59.1	56.7	11
24	LA08115C-30	54.9	58.8	55.2	27
25	LA09011UB-2	57.1	58.5	57.3	7
26	DH11SRW8-48	55.5	57.5	55.8	18
27	ES14-0618	54.9	57.2	55.7	20
28	AR06473-9-4-4	56.9	58.8	57.5	5
29	AR06024-7-2	58.5	60.2	58.9	1
30	MD09W272-8-4-13-3-15	54.9	58.5	56.3	15
31	MD09W272-8-4-14-6	53.8	57.2	55.5	22
32	MD09W272-8-4-14-8	53.7	58.0	55.3	25
33	MD07W478-14-5	54.5	57.8	56.7	9
LOCATION MEANS		55.2	58.1	56.1	

## HEADING DATE (Julian days)

		Belle Mina	Marianna	Quincy	Griffin	Plains
		AL	AR	FL	GA	GA
		Glass	Mason	Babar	Mergoum	Mergoum
1	AGS 2000	102	103	89.0	91	96
2	Jamestown	101	98	88.0	87	92
3	Hilliard	110	107	105.5	105	106
4	Pioneer Brand 26R41	113	111	107.5	122	103
5	VA12W-72	107	100	94.5	102	105
6	NC11-22289	106	105	98.5	103	107
7	NC10034-11	109	110	103.0	106	110
8	TX12D4768	104	101	89.0	95	90
9	TX-EL2	107	108	86.0	98	96
10	GA071012-14E6	104	105	90.0	93	92
11	GA051207-14E53	107	104	95.0	100	102
12	GA07353-14E19	105	104	89.5	94	103
13	GAJT141-14E45	106	104	91.0	95	100
14	TN1601	110	111	104.5	108	118
15	TN1602	106	101	96.0	102	106
16	TN1604	112	111	108.0	109	121
17	VA12W-68	107	100	97.5	103	103
18	VA13W-38	105	101	92.0	97	106
19	VA13W-124	104	98	91.0	93	98
20	KWS 060	111	112	104.0	122	118
21	KWS 081	113	111		123	118
22	KWS 083	113	112		122	120
23	LA08090C-9-2	107	110	90.5	99	101
24	LA08115C-30	101	99	89.0	93	96
25	LA09011UB-2	104	98	93.5	96	106
26	DH11SRW8-48	110	110	100.0	106	107
27	ES14-0618	110	110	105.0	107	113
28	AR06473-9-4-4	105	101	86.0	95	91
29	AR06024-7-2	106	103	94.0	97	99
30	MD09W272-8-4-13-3-15	106	103	93.0	96	102
31	MD09W272-8-4-14-6	108	105	94.5	98	104
32	MD09W272-8-4-14-8	107	104	96.0	99	104
33	MD07W478-14-5	104	99	90.5	93	96
LOCATION MEANS		107.0	104.8	95.2	101.5	103.9

## HEADING DATE (Julian days)

		Champaign IL	Battle Ground IN	Windfall IN	Calhoun KY	Lexington KY
		Murche	Brown	Lively	Murche	Van Sanford
1	AGS 2000	129.1	127.0		113.9	117.3
2	Jamestown	125.4	126.0	130	112.4	115.2
3	Hilliard	128.4	128.0	131	119.3	119.5
4	Pioneer Brand 26R41	131.6	130.0	132	120.0	121.6
5	VA12W-72	127.7	126.5	131	117.7	114.8
6	NC11-22289	127.7	126.0	128	113.4	115.5
7	NC10034-11	129.4	127.0	132	118.0	122.2
8	TX12D4768	130.0	127.5	130	113.4	118.7
9	TX-EL2	129.3	131.0	134	115.7	121.3
10	GA071012-14E6	133.0	131.0		113.4	120.7
11	GA051207-14E53	128.6	126.0	131	115.0	116.3
12	GA07353-14E19	128.6	126.5		113.1	117.2
13	GAJT141-14E45	128.7	125.5	131	114.3	117.7
14	TN1601	129.7	127.5	132	118.7	121.8
15	TN1602	129.0	126.0	130	113.3	116.6
16	TN1604	132.4	130.0	132	121.0	121.9
17	VA12W-68	127.7	127.0	130	116.7	115.2
18	VA13W-38	126.5	126.5	129	114.0	115.7
19	VA13W-124	128.3	128.0	132	112.5	117.6
20	KWS 060	129.4	128.5	131	120.0	121.1
21	KWS 081	131.7	127.5	132	121.0	120.3
22	KWS 083	132.0	130.0	133	121.0	122.4
23	LA08090C-9-2	130.0	131.0		117.3	122.6
24	LA08115C-30	129.6	126.5	132	113.0	119.3
25	LA09011UB-2	126.4	127.0	129	113.3	115.7
26	DH11SRW8-48	128.9	128.0	131	118.7	120.9
27	ES14-0618	128.7	127.0	129	119.0	118.9
28	AR06473-9-4-4	131.0	132.0		115.7	120.6
29	AR06024-7-2	129.3	127.0	132	115.3	118.7
30	MD09W272-8-4-13-3-15	130.3	127.0	132	116.7	118.1
31	MD09W272-8-4-14-6	129.7	127.0	132	115.6	118.5
32	MD09W272-8-4-14-8	130.4	127.0	131	117.4	119.7
33	MD07W478-14-5	130.9	127.0		113.3	118.3
LOCATION MEANS		129.4	127.7	131.1	116.2	118.8

## HEADING DATE (Julian days)

	Schochoh KY Van Sanford	Hopkinsville KY Obert	Baton Rouge LA Harrison	Winnsboro LA Harrison	Queenstown MD Wight	
1	AGS 2000	107.2	109.0	101	81.0	112.0
2	Jamestown	105.7	107.0	92.5	81.0	109.0
3	Hilliard	112.8	113.0	very late	99.5	117.0
4	Pioneer Brand 26R41	116.3	114.5	very late	102.0	124.0
5	VA12W-72	112.5	111.5	103.5	91.0	117.0
6	NC11-22289	110.9	110.0	very late	94.0	116.0
7	NC10034-11	113.9	113.0	partial ver	98.0	118.0
8	TX12D4768	110.1	109.0	92.5	81.0	111.0
9	TX-EL2	108.2	109.5	101.5	81.0	116.0
10	GA071012-14E6	107.3	108.5	96.5	81.0	112.0
11	GA051207-14E53	108.2	110.0	103	91.0	115.0
12	GA07353-14E19	106.2	107.5	96	81.0	112.0
13	GAJT141-14E45	107.5	109.5	95	81.0	112.5
14	TN1601	115.4	113.0	partial ver	99.5	122.5
15	TN1602	110.9	110.0	103	91.0	114.0
16	TN1604	115.6	113.5	very late	99.5	125.0
17	VA12W-68	111.0	112.0	104	91.0	116.5
18	VA13W-38	106.8	109.5	99	91.0	113.0
19	VA13W-124	108.1	107.5	97	81.0	110.5
20	KWS 060	112.0	113.0	partial ver	102.0	123.0
21	KWS 081	117.6	114.5	partial ver	103.0	125.0
22	KWS 083	116.1	115.0	partial ver	105.5	125.5
23	LA08090C-9-2	109.6	111.5	105	86.0	117.5
24	LA08115C-30	106.8	108.5	96	81.0	110.0
25	LA09011UB-2	104.7	107.5	100.5	86.0	111.5
26	DH11SRW8-48	114.0	113.0	partial ver	96.0	119.0
27	ES14-0618	116.1	113.0	partial ver	103.0	122.0
28	AR06473-9-4-4	107.7	109.5	94.5	81.0	114.0
29	AR06024-7-2	110.7	112.0	100	86.0	116.0
30	MD09W272-8-4-13-3-15	111.6	110.5	95	87.5	116.0
31	MD09W272-8-4-14-6	110.1	112.5	101	96.0	116.0
32	MD09W272-8-4-14-8	111.5	111.5	100.5	94.5	115.0
33	MD07W478-14-5	107.1	108.5	93.5	81.0	111.5
LOCATION MEANS		110.6	110.8	98.7	90.4	116.2

## HEADING DATE (Julian days)

		Portageville MO	Plymouth NC	Raleigh NC	Knoxville TN	Blacksburg VA
		McKendry	Murphy	Marshall	West	Griffey
1	AGS 2000	108.7	92	91	109	119.5
2	Jamestown	108.7	91	91	104	118.0
3	Hilliard	113.0	104	102	114	123.5
4	Pioneer Brand 26R41	115.7	107	108	117	126.0
5	VA12W-72	110.7	98	102	106	120.0
6	NC11-22289	109.7	103	100	111	119.0
7	NC10034-11	112.3	105	104	113	124.0
8	TX12D4768	110.3	93	91	107	120.0
9	TX-EL2	111.7	97	94	111	121.0
10	GA071012-14E6	110.3	92	89	109	122.5
11	GA051207-14E53	109.7	97	98	109	119.0
12	GA07353-14E19	108.3	93	91	109	119.5
13	GAJT141-14E45	110.0	93	94	107	120.5
14	TN1601	115.7	110	105	116	124.0
15	TN1602	109.7	99	97	111	120.0
16	TN1604	116.7	110	108	116	123.5
17	VA12W-68	110.7	103	100	110	120.0
18	VA13W-38	109.3	93	95	109	119.0
19	VA13W-124	108.7	92	90	106	119.5
20	KWS 060	114.3	109	105	115	123.0
21	KWS 081	116.7	114	108	116	124.5
22	KWS 083	118.7	.	110	117	125.5
23	LA08090C-9-2	113.7	99	95	113	124.5
24	LA08115C-30	109.0	88	87	104	119.0
25	LA09011UB-2	109.0	97	96	106	118.5
26	DH11SRW8-48	113.7	110	104	114	123.5
27	ES14-0618	110.3	110	106	113	122.5
28	AR06473-9-4-4	113.7	92	92	109	120.5
29	AR06024-7-2	113.0	95	97	110	120.5
30	MD09W272-8-4-13-3-15	111.3	97	97	112	121.0
31	MD09W272-8-4-14-6	111.7	99	97	113	123.0
32	MD09W272-8-4-14-8	112.0	101	98	113	122.5
33	MD07W478-14-5	108.7	88	90	107	120.0
LOCATION MEANS		111.7	99.1	97.9	110.8	121.4



## HEADING DATE (Julian days)

		Warsaw VA	ENTRY MEANS ALL LOCATIONS	
		Griffey		rank
1	AGS 2000	109.0	105.4	4
2	Jamestown	100.5	104.0	1
3	Hilliard	114.5	113.6	24
4	Pioneer Brand 26R41	118.0	117.0	30
5	VA12W-72	109.0	109.9	18
6	NC11-22289	109.5	110.7	22
7	NC10034-11	115.0	114.1	26
8	TX12D4768	105.0	106.1	9
9	TX-EL2	112.5	109.0	13
10	GA071012-14E6	109.0	106.0	7
11	GA051207-14E53	110.0	109.3	16
12	GA07353-14E19	109.5	105.7	5
13	GAJT141-14E45	108.5	107.2	11
14	TN1601	116.0	115.9	28
15	TN1602	109.5	109.6	17
16	TN1604	119.5	117.3	31
17	VA12W-68	109.0	110.2	20
18	VA13W-38	106.0	107.8	12
19	VA13W-124	104.5	106.1	8
20	KWS 060	117.0	116.5	29
21	KWS 081	118.5	118.7	32
22	KWS 083	119.5	119.9	33
23	LA08090C-9-2	115.0	109.9	19
24	LA08115C-30	104.5	105.3	3
25	LA09011UB-2	106.0	107.2	10
26	DH11SRW8-48	115.0	114.1	25
27	ES14-0618	115.0	114.9	27
28	AR06473-9-4-4	107.5	105.9	6
29	AR06024-7-2	110.5	109.1	14
30	MD09W272-8-4-13-3-15	110.0	109.2	15
31	MD09W272-8-4-14-6	112.0	110.7	21
32	MD09W272-8-4-14-8	111.5	110.8	23
33	MD07W478-14-5	105.0	104.6	2
LOCATION MEANS		111.0		

## HEIGHT (inches)

		Belle Mina	Marianna	Quincy	Griffin	Plains
		AL	AR	FL	GA	GA
		Glass	Mason	Babar	Mergoum	Mergoum
1	AGS 2000	38.0	33.5	34	37	34
2	Jamestown	34.3	33.5	32	36	32
3	Hilliard	36.3	34.5	35	30	39
4	Pioneer Brand 26R41	33.3	33.0	30	33	34
5	VA12W-72	35.3	31.5	30	33	35
6	NC11-22289	40.3	34.5	27	35	40
7	NC10034-11	36.3	35.5	31	34	33
8	TX12D4768	44.7	34.0	38	33	40
9	TX-EL2	35.0	36.0	32	31	37
10	GA071012-14E6	35.0	32.5	30	35	34
11	GA051207-14E53	38.0	35.0	31	39	41
12	GA07353-14E19	36.3	32.0	30	36	37
13	GAJT141-14E45	35.0	31.5	31	36	35
14	TN1601	40.7	35.0	34	40	34
15	TN1602	39.3	35.0	34	36	31
16	TN1604	34.3	35.0	27	41	37
17	VA12W-68	36.0	33.5	31	37	37
18	VA13W-38	34.3	31.0	27	36	34
19	VA13W-124	36.0	35.0	27	32	35
20	KWS 060	37.7	33.5	28	35	30
21	KWS 081	39.0	36.0	32	40	38
22	KWS 083	33.3	28.5	24	28	29
23	LA08090C-9-2	35.7	35.0	30	36	38
24	LA08115C-30	35.7	33.5	29	32	36
25	LA09011UB-2	34.3	30.5	30	33	34
26	DH11SRW8-48	36.0	36.5	34	38	37
27	ES14-0618	37.0	32.0	27	32	35
28	AR06473-9-4-4	36.3	36.5	38	36	35
29	AR06024-7-2	42.7	38.5	33	32	42
30	MD09W272-8-4-13-3-15	33.0	32.5	28	29	36
31	MD09W272-8-4-14-6	34.7	30.5	28	32	37
32	MD09W272-8-4-14-8	35.0	32.0	33	33	36
33	MD07W478-14-5	35.3	32.0	29	36	38
LOCATION MEANS		36.5	33.6	30.7	34.6	35.8

## HEIGHT (inches)

	Champaign IL Murche	Battle Ground IN Brown	Calhoun KY Murche	Lexington KY Van Sanford	Schochoh KY Van Sanford	
1	AGS 2000	46.0	35	39.1	33.4	39.4
2	Jamestown	41.0	36	35.4	29.6	35.2
3	Hilliard	46.2	41	37.9	30.0	40.3
4	Pioneer Brand 26R41	41.8	36	33.1	31.3	38.1
5	VA12W-72	42.5	38	36.4	27.4	37.6
6	NC11-22289	40.9	38	38.6	30.4	43.6
7	NC10034-11	42.9	38	37.4	29.1	40.1
8	TX12D4768	46.6	39	43.6	36.4	41.7
9	TX-EL2	42.8	36	36.9	31.7	37.0
10	GA071012-14E6	40.4	36	35.1	27.7	35.0
11	GA051207-14E53	44.0	39	37.2	33.5	40.4
12	GA07353-14E19	41.4	37	36.5	27.7	37.3
13	GAJT141-14E45	42.5	38	36.3	28.2	35.7
14	TN1601	46.3	44	41.5	37.9	44.8
15	TN1602	44.2	40	37.8	34.0	40.3
16	TN1604	44.5	41	35.7	30.6	38.0
17	VA12W-68	42.4	39	36.9	29.4	39.5
18	VA13W-38	40.3	36	36.2	30.6	33.8
19	VA13W-124	42.7	39	39.9	32.9	38.3
20	KWS 060	44.2	43	39.0	40.0	39.6
21	KWS 081	45.6	42	40.0	36.6	43.9
22	KWS 083	41.9	36	33.6	33.7	36.4
23	LA08090C-9-2	42.0	37	36.8	34.2	41.2
24	LA08115C-30	42.7	36	37.5	29.9	38.6
25	LA09011UB-2	43.5	36	35.1	30.6	36.6
26	DH11SRW8-48	45.3	43	39.8	31.7	38.3
27	ES14-0618	45.3	41	35.6	28.5	37.7
28	AR06473-9-4-4	42.0	35	36.6	32.2	36.9
29	AR06024-7-2	45.6	40	41.8	33.3	42.3
30	MD09W272-8-4-13-3-15	41.1	36	33.6	28.0	36.2
31	MD09W272-8-4-14-6	41.9	37	33.6	27.8	36.1
32	MD09W272-8-4-14-8	41.3	38	33.6	39.1	36.1
33	MD07W478-14-5	41.9	37	36.8	30.5	38.4
LOCATION MEANS	43.1	38.3	37.1	31.8	38.6	

## HEIGHT (inches)

		Queenstown MD Wight	Brooksville MS Burgess	Portageville MO McKendry	Raleigh NC Marshall	Knoxville TN West
1	AGS 2000	37.0	30	37	35	35
2	Jamestown	34.0	30	36	31	31
3	Hilliard	42.0	29	40	31	33
4	Pioneer Brand 26R41	35.5	24	36	29	26
5	VA12W-72	36.5	30	37	32	32
6	NC11-22289	40.0	32	39	33	33
7	NC10034-11	38.0	28	41	36	35
8	TX12D4768	38.0	33	43	39	33
9	TX-EL2	35.0	21	38	32	32
10	GA071012-14E6	32.0	27	37	33	33
11	GA051207-14E53	40.0	32	39	34	37
12	GA07353-14E19	34.0	34	39	31	36
13	GAJT141-14E45	36.5	34	38	31	33
14	TN1601	42.5	39	38	37	38
15	TN1602	36.5	32	39	35	34
16	TN1604	41.0	34	39	31	34
17	VA12W-68	37.5	34	39	32	34
18	VA13W-38	36.0	32	38	32	33
19	VA13W-124	37.0	31	38	32	34
20	KWS 060	41.5	37	37	34	36
21	KWS 081	41.0	36	41	34	37
22	KWS 083	38.5	30	32	28	30
23	LA08090C-9-2	37.0	34	39	33	34
24	LA08115C-30	35.0	32	40	32	31
25	LA09011UB-2	35.5	33	35	31	32
26	DH11SRW8-48	39.0	31	39	33	33
27	ES14-0618	38.5	33	39	32	30
28	AR06473-9-4-4	35.0	33	37	32	31
29	AR06024-7-2	37.0	38	40	39	35
30	MD09W272-8-4-13-3-15	34.0	33	36	32	33
31	MD09W272-8-4-14-6	34.0	30	35	30	33
32	MD09W272-8-4-14-8	36.0	30	36	30	35
33	MD07W478-14-5	35.5	36	38	32	31
LOCATION MEANS		37.2	31.9	38.0	32.7	33.2

## HEIGHT (inches)

		Blacksburg	Warsaw	ENTRY MEANS ALL LOCATIONS	rank
		VA Griffey	VA Griffey		
1	AGS 2000	29.0	31.5	35.5	11
2	Jamestown	26.0	28.0	33.0	28
3	Hilliard	31.5	31.0	35.7	8
4	Pioneer Brand 26R41	29.0	28.0	32.4	33
5	VA12W-72	27.0	29.0	33.5	26
6	NC11-22289	27.5	30.0	35.5	12
7	NC10034-11	31.0	32.5	35.2	14
8	TX12D4768	28.5	33.0	37.9	3
9	TX-EL2	29.5	29.5	33.7	25
10	GA071012-14E6	25.5	29.0	32.8	31
11	GA051207-14E53	29.0	30.0	36.4	6
12	GA07353-14E19	28.5	28.5	34.2	21
13	GAJT141-14E45	30.0	29.5	34.2	22
14	TN1601	33.0	33.5	38.8	1
15	TN1602	27.5	30.0	35.6	9
16	TN1604	29.0	32.5	35.6	10
17	VA12W-68	29.0	29.0	35.1	15
18	VA13W-38	29.5	30.5	33.5	27
19	VA13W-124	27.5	30.0	34.5	18
20	KWS 060	33.0	32.0	36.5	5
21	KWS 081	32.5	33.5	38.1	2
22	KWS 083	31.5	30.5	32.1	34
23	LA08090C-9-2	29.0	30.5	35.4	13
24	LA08115C-30	26.5	29.0	33.9	24
25	LA09011UB-2	26.0	28.0	33.2	28
26	DH11SRW8-48	33.0	31.5	36.4	7
27	ES14-0618	30.0	30.0	34.3	20
28	AR06473-9-4-4	29.0	31.0	34.9	16
29	AR06024-7-2	31.0	32.0	37.8	4
30	MD09W272-8-4-13-3-15	27.0	29.0	32.8	30
31	MD09W272-8-4-14-6	25.5	27.5	32.6	32
32	MD09W272-8-4-14-8	28.0	28.5	34.2	23
33	MD07W478-14-5	27.5	30.0	34.4	19
LOCATION MEANS		29.0	30.2	34.8	

# LODGING

	Marianna	Champaign	Battle Ground	Schochoh	Baton Rouge
	AR	IL	IN	KY	LA
	Mason	Murche	Brown	Van Sanford	Harrison
	0-9	0-9	0-9	0-9	0-9
1	AGS 2000	1.5	1.0	3.0	4.5
2	Jamestown	0.0	1.7	3.0	3.0
3	Hilliard	0.0	1.0	1.0	5.5
4	Pioneer Brand 26R41	0.0	1.0	2.0	2.0
5	VA12W-72	0.0	1.0	2.5	3.0
6	NC11-22289	7.5	2.0	2.5	5.0
7	NC10034-11	0.5	1.0	3.5	6.0
8	TX12D4768	1.0	1.0	5.0	5.5
9	TX-EL2	0.0	1.0	3.0	4.5
10	GA071012-14E6	0.0	1.0	3.0	4.5
11	GA051207-14E53	0.0	1.0	3.5	2.5
12	GA07353-14E19	0.0	1.0	9.0	4.5
13	GAJT141-14E45	0.0	2.0	9.0	4.5
14	TN1601	6.5	3.0	9.0	6.0
15	TN1602	0.0	1.0	4.0	4.0
16	TN1604	0.0	2.0	4.0	3.0
17	VA12W-68	0.0	1.3	3.0	3.0
18	VA13W-38	1.5	1.0	7.5	2.5
19	VA13W-124	2.0	2.3	6.5	4.0
20	KWS 060	0.5	1.7	6.5	8.0
21	KWS 081	4.0	1.7	5.0	8.0
22	KWS 083	1.0	1.0	8.0	7.5
23	LA08090C-9-2	2.0	1.0	1.0	2.0
24	LA08115C-30	0.0	1.0	2.0	4.0
25	LA09011UB-2	1.5	3.7	7.0	5.0
26	DH11SRW8-48	0.0	1.0	2.0	6.0
27	ES14-0618	2.0	1.0	4.5	6.5
28	AR06473-9-4-4	0.0	1.0	4.0	3.0
29	AR06024-7-2	0.0	1.0	3.0	3.5
30	MD09W272-8-4-13-3-15	0.0	1.0	3.0	3.0
31	MD09W272-8-4-14-6	0.0	1.0	5.0	3.5
32	MD09W272-8-4-14-8	0.0	1.7	7.0	3.0
33	MD07W478-14-5	0.0	1.3	7.0	3.5
LOCATION MEANS	1.0	1.4	4.5	1.9	4.4
GROWTH STAGE / DATE			June 27		

# LODGING

	Winnsboro	Portageville	Raleigh	Knoxville	Blacksburg	
	LA	MO	NC	TN	VA	
	Harrison	McKendry	Marshall	West	Griffey	
	0-9	0-9		0-9	0-9	
1	AGS 2000	1.5	3.3	2	3	2.5
2	Jamestown	1.0	3.3	1	0	2.0
3	Hilliard	1.5	1.7	0	0	1.5
4	Pioneer Brand 26R41	1.0	2.0	0	0	0.0
5	VA12W-72	1.5	2.0	0	0	0.5
6	NC11-22289	2.0	4.3	1	0	1.0
7	NC10034-11	1.5	2.7	1	0	1.0
8	TX12D4768	1.5	2.0	2	0	1.0
9	TX-EL2	2.0	3.0	2	0	5.0
10	GA071012-14E6	1.0	1.3	0	0	0.5
11	GA051207-14E53	1.0	2.3	1	0	5.0
12	GA07353-14E19	1.0	1.7	1	0	1.0
13	GAJT141-14E45	2.0	1.3	2	0	3.0
14	TN1601	2.5	3.0	1	1	2.0
15	TN1602	2.0	0.7	0	0	0.5
16	TN1604	2.0	3.0	1	1	3.0
17	VA12W-68	1.5	2.7	0	0	1.0
18	VA13W-38	1.0	3.7	0	0	0.5
19	VA13W-124	1.0	2.7	0	0	5.0
20	KWS 060	5.0	3.7	2	1	1.5
21	KWS 081	4.5	5.0	1	4	7.0
22	KWS 083	3.5	2.0	1	0	1.0
23	LA08090C-9-2	1.5	2.3	1	0	0.0
24	LA08115C-30	2.0	1.7	1	0	0.0
25	LA09011UB-2	1.5	2.7	2	0	2.0
26	DH11SRW8-48	1.0	2.7	1	0	1.0
27	ES14-0618	3.5	1.7	0	0	1.0
28	AR06473-9-4-4	1.0	1.0	0	0	2.0
29	AR06024-7-2	2.0	1.3	0	0	0.0
30	MD09W272-8-4-13-3-15	2.0	2.0	0	0	0.5
31	MD09W272-8-4-14-6	1.5	1.0	0	0	1.5
32	MD09W272-8-4-14-8	1.5	1.3	0	0	2.0
33	MD07W478-14-5	2.0	4.0	2	1	6.0
LOCATION MEANS	1.8	2.4	0.8	0.3	1.9	
GROWTH STAGE / DATE						

# LODGING

		Warsaw
		VA
		Griffey
		0-9
1	AGS 2000	0.0
2	Jamestown	0.0
3	Hilliard	0.5
4	Pioneer Brand 26R41	0.0
5	VA12W-72	0.0
6	NC11-22289	0.0
7	NC10034-11	0.5
8	TX12D4768	0.0
9	TX-EL2	0.5
10	GA071012-14E6	0.0
11	GA051207-14E53	0.0
12	GA07353-14E19	0.0
13	GAJT141-14E45	0.0
14	TN1601	1.0
15	TN1602	0.0
16	TN1604	3.0
17	VA12W-68	0.0
18	VA13W-38	0.0
19	VA13W-124	0.5
20	KWS 060	0.5
21	KWS 081	4.5
22	KWS 083	0.0
23	LA08090C-9-2	0.0
24	LA08115C-30	0.0
25	LA09011UB-2	0.0
26	DH11SRW8-48	0.5
27	ES14-0618	0.0
28	AR06473-9-4-4	0.0
29	AR06024-7-2	0.0
30	MD09W272-8-4-13-3-15	0.0
31	MD09W272-8-4-14-6	0.0
32	MD09W272-8-4-14-8	0.0
33	MD07W478-14-5	0.0
	LOCATION MEANS	0.3
	GROWTH STAGE / DATE	



## WINTER DAMAGE

		Champaign	Battle Ground	Windfall
		IL	IN	IN
		Murche	Brown	Lively
		0-9	0-9	0-9
1	AGS 2000	6.4	5.0	7
2	Jamestown	4.4	3.0	7
3	Hilliard	3.0	1.0	4
4	Pioneer Brand 26R41	0.9	1.0	2
5	VA12W-72	2.8	3.0	4
6	NC11-22289	0.9	1.0	2
7	NC10034-11	2.9	1.0	3
8	TX12D4768	3.8	6.0	6
9	TX-EL2	5.0	6.0	7
10	GA071012-14E6	7.0	9.0	8
11	GA051207-14E53	2.8	5.0	6
12	GA07353-14E19	6.9	8.0	8
13	GAJT141-14E45	3.0	2.0	5
14	TN1601	1.8	1.0	2
15	TN1602	3.2	1.0	3
16	TN1604	1.1	1.0	3
17	VA12W-68	3.0	2.5	4
18	VA13W-38	3.6	2.5	6
19	VA13W-124	2.9	4.0	6
20	KWS 060	1.0	1.0	1
21	KWS 081	1.0	1.0	3
22	KWS 083	1.1	1.0	1
23	LA08090C-9-2	3.0	3.0	5
24	LA08115C-30	5.0	4.5	6
25	LA09011UB-2	3.0	3.0	4
26	DH11SRW8-48	1.0	1.0	2
27	ES14-0618	1.7	2.0	2
28	AR06473-9-4-4	7.0	9.0	8
29	AR06024-7-2	4.4	3.0	5
30	MD09W272-8-4-13-3-15	4.3	3.0	6
31	MD09W272-8-4-14-6	3.0	2.5	5
32	MD09W272-8-4-14-8	3.1	2.5	6
33	MD07W478-14-5	6.3	4.5	8
LOCATION MEANS		3.3	3.2	4.7
GROWTH STAGE / DATE			March 9	March 8

# LEAF RUST

	Quincy FL Babar 0-9	Plains GA Mergoum 0-9	Champaign IL Murche 0-9	Windfall IN Lively 0-9	Baton Rouge LA Harrison 0-9
1 AGS 2000	3	0	2.1	2	3
2 Jamestown	0	1	2.2	2	2
3 Hilliard	6	0	2.1	1	1
4 Pioneer Brand 26R41	3	0	2.7	2	1
5 VA12W-72	2	0	2.9	2	1
6 NC11-22289	2	1	2.7	0	0
7 NC10034-11	0	0	1.2	0	0
8 TX12D4768	0	9	3.3	1	1
9 TX-EL2	0	0	2.7	1	0
10 GA071012-14E6	0	1	2.5	2	2
11 GA051207-14E53	0	0	1.8	1	1
12 GA07353-14E19	0	0	0.8	0	0
13 GAJT141-14E45	0	0	1.0	0	0
14 TN1601	0			1	2
15 TN1602	3			2	3
16 TN1604	0	0	2.2	1	0
17 VA12W-68	5	0	3.0	4	6
18 VA13W-38	1		1.1	1	0
19 VA13W-124	0	0	0.9	0	0
20 KWS 060	7	0	4.5	7	6
21 KWS 081	4	3		8	6
22 KWS 083	6	9	4.3	6	6
23 LA08090C-9-2	0	0	1.3	0	0
24 LA08115C-30	0	3	3.9	1	3
25 LA09011UB-2	1	0	2.9	0	0
26 DH11SRW8-48	2	0	2.0	1	3
27 ES14-0618	4			7	5
28 AR06473-9-4-4	0	5	0.9	1	0
29 AR06024-7-2	0	0	3.6	2	0
30 MD09W272-8-4-13-3-15	0	0	1.7	0	0
31 MD09W272-8-4-14-6	0	0	1.4	0	0
32 MD09W272-8-4-14-8	0	0	1.1	0	0
33 MD07W478-14-5	0	1	2.1	0	1
LOCATION MEANS	1.5	1.1	2.2	1.7	1.6
GROWTH STAGE / DATE				June 8	

# LEAF RUST

		Winnsboro	Blacksburg	Warsaw
		LA	VA	VA
		Harrison 0-9	Griffey 0-9	Griffey 0-9
1	AGS 2000	1.1	1.0	1.5
2	Jamestown	0.8	1.0	3.0
3	Hilliard	0.0	1.0	2.5
4	Pioneer Brand 26R41	1.2	4.5	2.0
5	VA12W-72	0.4	4.5	2.5
6	NC11-22289	0.8	1.0	0.5
7	NC10034-11	0.0	1.5	1.5
8	TX12D4768	0.0	2.5	2.0
9	TX-EL2	1.2	2.0	0.0
10	GA071012-14E6	0.8	1.5	2.0
11	GA051207-14E53	1.6	4.0	0.5
12	GA07353-14E19	0.0	0.0	0.0
13	GAJT141-14E45	0.0	0.5	0.0
14	TN1601	0.0	0.0	0.5
15	TN1602	0.8	7.5	6.0
16	TN1604	0.4	4.0	1.0
17	VA12W-68	0.0	4.0	2.0
18	VA13W-38	0.4	1.0	1.0
19	VA13W-124	0.0	1.0	0.0
20	KWS 060	4.8	7.0	5.5
21	KWS 081	5.2	8.5	5.0
22	KWS 083	3.3	2.5	5.0
23	LA08090C-9-2	0.0	0.0	0.0
24	LA08115C-30	2.7	2.0	2.5
25	LA09011UB-2	0.8	3.0	3.0
26	DH11SRW8-48	0.5	1.0	1.5
27	ES14-0618	4.2	8.0	4.5
28	AR06473-9-4-4	0.0	0.0	0.0
29	AR06024-7-2	3.1	4.0	5.0
30	MD09W272-8-4-13-3-15	0.0	0.0	0.0
31	MD09W272-8-4-14-6	0.0	0.0	0.0
32	MD09W272-8-4-14-8	0.0	0.0	0.5
33	MD07W478-14-5	0.4	0.0	1.0
LOCATION MEANS		1.0	2.4	1.9
GROWTH STAGE / DATE				

## LEAF RUST (SEEDLING)

St. Paul  
MN  
Kolmer

	Lr gene marker*	Postulated Lr Genes	TNBGJ	TNRJJ	TBBGS
1	AGS 2000	Lr26	Lr10, Lr26	;	;
2	Jamestown		Lr18	;	23
3	Hilliard		Lr18	;	3+/2+
4	Pioneer Brand 26R41		Lr14a	32+	3+
5	VA12W-72	Lr37	Lr26	;1-	2+3;
6	NC11-22289	Lr9	Lr9	3+	3+
7	NC10034-11		-	3+2+	;23
8	TX12D4768	Lr9, Lr37, Lr24	?	;	3+
9	TX-EL2	Lr37	---	32+	2+3;
10	GA071012-14E6	Lr37	?	;2-	2+3;
11	GA051207-14E53	Lr37	Lr11	;2-	32+;
12	GA07353-14E19	Lr37	+	;	;12
13	GAJT141-14E45	Lr37	+	;1-	;12-
14	TN1601	Lr9, Lr26	+	;1-	;
15	TN1602	Lr26	10,11,26	;	;
16	TN1604	Lr37	Lr11	;12-	32+
17	VA12W-68	Lr37 het	Lr26+	;12-	;12+
18	VA13W-38		Lr26+	;2-	;12+
19	VA13W-124	Lr9, Lr37	Lr10,Lr11	;2-	3+
20	KWS 060		Lr1	3+	3+
21	KWS 081		Lr16	;1+	;1
22	KWS 083	Lr24, Lr26	Lr24	-	3+
23	LA08090C-9-2	Lr9, Lr37	+	;2	-
24	LA08115C-30	Lr37 het	?	23	23
25	LA09011UB-2	Lr37	Lr18	;1-	;1-
26	DH11SRW8-48		Lr10	3+	3+
27	ES14-0618		Lr14a	32	3+
28	AR06473-9-4-4	Lr37	+	;1-	;12-
29	AR06024-7-2	Lr37	Lr10,Lr11+	;12-	32+
30	MD09W272-8-4-13-3-15	Lr37, Lr26	+	;	;
31	MD09W272-8-4-14-6	Lr37, Lr26	+	;	;
32	MD09W272-8-4-14-8	Lr37, Lr26	+	;	;
33	MD07W478-14-5	Lr37	Lr10	;2+	32+;

\* marker data from Gina Brown-Guedira

+ = additional resistance, unable to postulate

--- = no resistance

? = unable to postulate gene

## LEAF RUST (SEEDLING)

St. Paul  
MN  
Kolmer

		TCRKG	KFBJG	MBDSD	MCTNB	MFJSB	MJBGJ	PBLRG
1	AGS 2000	;23	3+	;12-	;	3+;	;	;2
2	Jamestown	3+	;	;23-	;2-	;2/32+	;22+	;2
3	Hilliard	3+	;1-	;	22+	;2	;1	32+
4	Pioneer Brand 26R41	3+	3+	3+	3+	3+	3+2+;	3+
5	VA12W-72	32;	;2	2+3	3+	3+	;1-	;1-
6	NC11-22289	0;	0;	;	;	;	0;	0;
7	NC10034-11	3+	33+	32;	2+3	;	;2-	32;
8	TX12D4768	0;	3	3+	;	;3+	;	;1-
9	TX-EL2	;2+/3	2+	3+	3+	3+	22+	;22+
10	GA071012-14E6	;2-	;2	2+3	22+	;1-	;	;
11	GA051207-14E53	3+	2	2+3;	3+	3+	;	;2
12	GA07353-14E19	;2-	;2	;2	;	;	;	2
13	GAJT141-14E45	;23	;2-	;2	;22+	;1-	;	;
14	TN1601	0;	;	;	;	;	0;	0;
15	TN1602	23	0;	;	;	3+	;	;
16	TN1604	32+	;	;	3+	3+	;	;
17	VA12W-68	2+	;1-	2+3	3+	3+	;	;
18	VA13W-38	32+	;1-	3+2+;	3+	3+;	;2	3+
19	VA13W-124	3+	;1-	;	;	3+;	0;	0;
20	KWS 060	3+	;	-	3+	3+	3+	3+
21	KWS 081	;1-	;1	1+	1+	1+2	3+	1+
22	KWS 083	;	3+	;	;	3+	3+	;
23	LA08090C-9-2	0;	0;	;	;	0;	0;	-
24	LA08115C-30	3+	3+	3	3+	;1	;1-	-
25	LA09011UB-2	3+	;1	;1-	;	3+;	;	;1-
26	DH11SRW8-48	3+	3+	-	;	;3+	3+	3+
27	ES14-0618	3+	3+	3+	3+	3+	3+	3+;
28	AR06473-9-4-4	;22+	;22-	;	;2	;	;	22+
29	AR06024-7-2	3+	0;	0;	;	0;	0;	;
30	MD09W272-8-4-13-3-15	;2	;1-	;	;	;	;	;
31	MD09W272-8-4-14-6	;1	;	;	;1-	;	;	;
32	MD09W272-8-4-14-8	-	-	;	;	;	;	;
33	MD07W478-14-5	3+	3+	33+	;1-	3+	;2-	;

# LEAF RUST (SEEDLING)

Blacksburg  
VA  
Griffey

	16VT-LR Seedling TNRJ (0-3)	16VT-LR Seedling TCRK + MFQS (0-3)
1	AGS 2000	;1= 3
2	Jamestown	3; 3
3	Hilliard	23; 23;
4	Pioneer Brand 26R41	3 23
5	VA12W-72	23; 3
6	NC11-22289	3 ;23
7	NC10034-11	3 3
8	TX12D4768	23; 3/Tr0;
9	TX-EL2	2; 3
10	GA071012-14E6	23; 32;
11	GA051207-14E53	2; 3
12	GA07353-14E19	12; 21;
13	GAJT141-14E45	12; 3
14	TN1601	;1- ;1=Tr3
15	TN1602	;1= 23
16	TN1604	23; 3
17	VA12W-68	23; 3
18	VA13W-38	12-; 12-;
19	VA13W-124	23; 1;3
20	KWS 060	3 3
21	KWS 081	12-Tr3 1;
22	KWS 083	3 3
23	LA08090C-9-2	3 ;1Tr3
24	LA08115C-30	3 3
25	LA09011UB-2	3; 3/2;
26	DH11SRW8-48	3 3
27	ES14-0618	3 3
28	AR06473-9-4-4	2; 3;
29	AR06024-7-2	23; ;2
30	MD09W272-8-4-13-3-15	0; 3-
31	MD09W272-8-4-14-6	0; 23;
32	MD09W272-8-4-14-8	0; 3-
33	MD07W478-14-5	3; 3

## LEAF RUST (SEEDLING)

Blacksburg VA Griffey				
GENE	16 TNRJ (0-3)	15 TNRJ (0-3)	16 TCRK + MFQS (0-3)	15 TCRK + MFQS (0-3)
Lr1	3	3	3	3
Lr2a	3	3	2;	3;
Lr2c	3	3	;2	;3
Lr3	3	3	3-	N/A
Lr9	3	3	;3	0;/3
Lr16	21;N	1-CN	;1-	12-N
Lr24	3	3	32	3
Lr26	1-;C	;1-	3	3
Lr3ka	3	3	;2	12
Lr11	3	3	3	3+
Lr17	21;	12CN	;1=	12-;
Lr30	3	3	23-	2;
LrB	12-	21CN	12N	12/23
Lr10	3	3	3	3
Lr14a	3	3	3	3
Lr18	23	23C	23	23
Lr21	12-;N	1N	21;	;1N
Lr28	23	23	3	3
Lr41				
Lr42				
Lr3bg	21;	1CN	;23	12
Lr14b	3	3	3	3
Lr20	3	3	3	3
Lr23	23-	23-CN	12;	1;/23;

# STEM RUST

CDL 15/16#	St. Paul, MN - Jin		QFCSC	QTHJC	MCCFC	RCRSC	CRKQC	TPMKC	TTTTF	QCCSM	TKTTF	TKTTF	TRTTF	TKKTF	TTKSK	TTKSK	TTKST	TTTSK	TTKTT	St. Paul field stem rust	St. Paul field stem rust	Field notes	Gene postulation
	Nursery	Line	06ND76C	75ND717C	59KS19	77ND82A	99KS76A-1	74MN1409	1MN84A-1	5WA165-2	13ETH18-1	13GER17-2	06YEM34-	13GER16-1	04KEN156/0	04KEN156/0	06KEN19V	07KEN24-4	14KEN58-1	Field: M-9G, hill plot	Field: X-13, 1m row		Please refer to footnote F for comments
110	Local ck 1	McNair 701	4	4	4	4	4	4	4	4	3+	3+	3	3+	3+	3	3+	3+	70S	70S			
111	Local ck 2	Red Chief	22+	2+3	4	2+3	3	4	4	22+	3+	4	4	3+	2+3	2+3	2+	2+3	2+3	70S	60SMS		
112	Local ck 3	Prairie Red	2	2-	2	2	2-	2	2/3	2-;	22+	2	3	3	2	2	2	2	2	40MR/60S	40MR		1A.1R
113	USSR 1	AGS 2000	2-/2+	2-	2-	2-	2-/3	2-	2-	2-	2-	2-	2-/4	2-	22+	2+3	2+3/3+	2+3/3+	2+3	20MR/40S	25MR		Sr31+
114	USSR 2	Jamestown	3	2-	3	3	4	4	4	3/2-	3+	4	3+	3+	3+	3+	3	3+	3+	50S	50SMS		
115	USSR 3	Hilliard	3	3	3	3	3	4	4	3	3+		3+	3	3+					60S	50SMS		
116	USSR 4	Pioneer Brand 26R41	3+	4	0/4 (on	3	3-1	3	3	3	3LIF	3	3+	3+	3+	3+	3+LIF	3+	3+	80S	60S		
117	USSR 5	VA12W-72	4	31;	31;	3	13;	4	4	13;	3+		3+	3	3+					5S	10SMS	BIN	Sr2
118	USSR 6	NC11-22289	0	0	0	3	3	;1/31;	4	0;	4	3+	4	;	0;	0	0	3+	0;	15S	20MSS	BIN	Sr2+36
119	USSR 7	NC10034-11	3	0	0	3	4;/1-	4	4	4	3+	3+	3+	;1	0/2+	3LIF	3+LIF	3+LIF	0/3	25SMS	30MSS		
120	USSR 8	TX12D4768	0;/;	0	0	2	2nd lf)/	"3", 2nd	("3", 2	0;	2-/3+	3+;/;	3+	;1	0	0	0	2-/3+	0	TSMS	5R/20MS		Sr36
121	USSR 9	TX-EL2	2	2;	;1	33-z	31;	31;	3	31;	3+	3+	4	3+	22+	2+3	2+	23-	3	5S	15S	BIN	Sr2+Tmp
122	USSR 10	GA071012-14E6	;2-	;	;1-	31;	;1	13;	3	;13	3+	3+	4	3+	2+	2+	2+/3+	2+	3	5SMS	20S	BIN	Sr2+Tmp
123	USSR 11	GA051207-14E53	31;	0;	;13	3	;1	31;	4	;13	3+		4	3+	3+					TMS	5SMS	BIN	Sr2
124	USSR 12	GA07353-14E19	2-;	22+	;1	31;	;1	31;	3	;13	3+	3+	4	4	2+	2+	2+/3+	2+	3+	5S	15S	BIN	Sr2+Tmp
125	USSR 13	GAJT141-14E45	;1/31;	;1/31;	;1-	4	13;	31;	3	;13-	3+	3+	4	3+	2+3	3+	3+	3+	3+	-	10SMS	BIN	Sr2
126	USSR 14	TN1601	2-	2-	2-	2-	;	2-	2-	2-	2-		2-	2-	3+					20MR	20MR		Sr31
127	USSR 15	TN1602	2-	2-	2-	2-	;2=	2-/4	2-	2-/3	2LIF	0	2-	2-	2-	3+	3+LIF	3+LIF	3+	20MR	30MRMS		Sr31
128	USSR 16	TN1604	13;	;1	;1	3	;1/13-;	31;	3	;13	3+		4	3+	3					5SMS	20SMS	BIN	Sr2
129	USSR 17	VA12W-68	3	3	31;	3	13;	31;	4	;13	3+		3+	3+	3+					TMS	10SMS/40SMS	BIN	Sr2
130	USSR 18	VA13W-38	0	0;	0;	3	31;	31;	3	0	3+	3+	3+	;1	0	0	0	3	0	15MS	15MS		Sr2+36
131	USSR 19	VA13W-124	31;	;13	;13	3	;13-	3	4	;13	3+		4	3+	3					5SMS	10SMS	BIN	Sr2
132	USSR 20	KWS 060	3/;	3;/1-	4	3+	-	3	4	3	3+		4	3+	3+					60MSS	50MSS		
133	USSR 21	KWS 081	;2-	2-	;1-	31 (isla	3	;	3+	;1	3+		3+	3+	3+					60S	40MS		
134	USSR 22	KWS 083	2-	2	2	2	2-	2-	2	2=	2-	2-	2-	2+3	2-	2-	2	2-	2	10MR	20MR		Sr24+?
135	USSR 23	LA08090C-9-2	0;/2-	0	-	-	;	;1/13	3	0	;1	3+	3+	;	0	0	2+	0	0	TMSS	5MSS		?
136	USSR 24	LA08115C-30	31;	31;	31;	3	3/13	3	3	-	3+		4	3+	3					40SMS	50SMS		Sr2?
137	USSR 25	LA09011UB-2	31;	;13	;1-	31;	;13	-	3	;13	3+	3+	3+	3+	;1/3	3	3	3	3	10S	15S		Sr2?
138	USSR 26	DH11SRW8-48	2-	3	2-	4	3	-	4	2-	2+3		4	3+	3+					60SMS	50MSS		
139	USSR 27	ES14-0618	4	4	4	4	3	3	3	3	3		4	4	3					60S	60S		
140	USSR 28	AR06473-9-4-4	;13	;13 LIF	;13	3	;13-	13;	3	;13	3+		3+	3+	3+					5S	5MSS	BIN	Sr2
141	USSR 29	AR06024-7-2	31;/13;	31C	;1	4	;1-	13;	3	;13	3+		4	3-	3					20S	30SMS		
142	USSR 30	MD09W272-8-4-13-3	;	0;	;	0;	;	;	2-	0;	2-	2-	2-	2-	3	3+	3	3	3+	TR	TR		Sr31
143	USSR 31	MD09W272-8-4-14-6	;	0;	;	;	;	;	2-	0;	2-;	2-	2-	2-	3	3+	3	3	3+	0	TR		Sr31
144	USSR 32	MD09W272-8-4-14-8	;	0;	;	;	;	;	2-	0;	2-;	2-	2-	2-	3	3+	3	3	3+	TR	TR		Sr31
145	USSR 33	MD07W478-14-5	;13	;13	;13	31;	31;	31;	-	;13-	3+	3+	4	;11+	-	3	3	3	3+	5S	5SMS		Sr2?



# STEM RUST

Notes and explanations for stem rust evaluation of breeding germplasm			
<b>A. Races used in seedling evaluations:</b>			
Race	Origin	Virulence on differential genes	
MCCFC	USA	5 7b 9g 10 17 <b>Tmp</b> McN	
QCCSM	USA	5 9a 9d 9g 10 17 21 <b>24</b> McN	
QFCSC	USA	5 8a 9a 9d 9g 10 17 21 McN	
QTHJC	USA	5 6 8a 9b 9d 9g 10 11 17 21 McN	
RCRSC	USA	5 7b 9a 9b 9d 9g 10 17 21 36 McN	
RKQQC	USA	5 6 7b 8a 9a 9b 9d 9g 21 36 McN	
TPMKC	USA	5 7b 8a 9d 9e 9g 10 11 17 21 36 <b>Tmp</b> McN	
TTTTF	USA	5 6 7b 8a 9a 9b 9d 9e 9g 10 11 17 21 30 36 <b>38 Tmp</b> McN	
TTKSK	Kenya	5 6 7b 8a 9a 9b 9d 9e 9g 10 11 17 21 30 <b>31 38</b> McN	
TTKST	Kenya	5 6 7b 8a 9a 9b 9d 9e 9g 10 11 17 21 <b>24 30 31 38</b> McN	
TTKTT	Kenya	5 6 7b 8a 9a 9b 9d 9e 9g 10 11 17 21 <b>24 30 31 38 Tmp</b> McN	
TRTTF	Yemen	5 6 7b 9a 9b 9d 9e 9g 10 11 17 21 30 36 <b>38</b> Tmp McN	
TKTTF	Ethiopia	5 6 7b 8a 9a 9b 9d 9e 9g 10 17 21 30 36 <b>38 Tmp</b> McN (*avirulent on Sr7a)	
TKTTF	Germany	5 6 7b 8a 9a 9b 9d 9e 9g 10 17 21 30 36 <b>38 Tmp</b> McN (and <b>Sr7a</b> )	
TKKTP	Germany	5 6 7b 8a 9a 9b 9d 9e 9g 10 17 21 <b>24 30 38 Tmp</b> McN (and <b>1A,1R</b> )	
* <b>Red font</b> represents unique and/or significant virulence or combination of virulences			
References for description of significant races used in the screening:			
		TTKST: Jin et al. (2008) <i>Plant Dis</i> 92:923-926.	
		TTTTF: Jin et al. (2009) <i>Plant Dis</i> 93:367-370.	
		TTKTT: Newcomb et al. (2016) <i>Phytopathology</i> 106:729-736.	
		TRTTF: Olivera et al. (2012) <i>Plant Dis</i> 96:623-628.	
		TKTTF: Olivera et al. (2015) <i>Phytopathology</i> 105:917-928..	
<b>C. Entries repeated with additional races:</b>			
Entries had low infection types to TTKSK, missing data or mixed plants to this race, was repeated.			
Additional variants of Ug99 and foreign races were used in the repeat tests to help identify genes effective against TTKSK			
<b>D. Field stem rust nursery evaluations:</b>			
Entries were planted in 1-m row plots perpendicular to spreader rows of mixed susceptible wheat lines in X-13 field, and hill-plots in M-9G field			
Nurseries were inoculated by needle injection of spreader rows, and by spray inoculations			
A composite of the following stem rust races was used as inoculum: QFCSC, QTHJC, RCRSC, RKQQC, and TPMKC			
<b>E. Field ratings:</b>			
Stem rust infection responses (R, MR, MS, S or combination thereof) and disease severity (in percentage) were rated when entries were at the soft dough stage			
BIN-Black internode, a likely indication of the presence of Sr2. This trait is considered to be more consistent than pseudo black chaff (PBC) in the St. Paul nursery.			
<b>F. Gene postulations:</b>			
Gene postulations are tentative and for references only. Users are strongly advised to confirm with available markers or other means.			
Postulations were done mainly for Ug99 effective genes. Reasons for postulating other genes are given below:			
<b>Sr7a:</b> one of the few genes effective against US race TTTTTF and the Ethiopian TKTTF that caused epidemics on Digalu in 2013-14.			
<b>Sr11:</b> effective against TKTTF from Ethiopia and Germany.			
<b>Sr31:</b> highly effective against all races except Ug99 race group, providing high level of resistance in the field nursery.			
<b>Sr38:</b> highly effective in the field nursery, difficult to postulate due to mesothetic reactions to several races.			
<b>Sr2:</b> reduced disease severity in the field. Sr2 positive was based on a combination of BIN, low disease severity, and seedling infection types.			
<b>Sr2?:</b> postulation with reduced confidence due to a lack of BIN, incorrect seedling IT, or high field disease severity.			
Marker data for postulated genes may be available through USDA-ARS Genotyping Labs. References for markers of Sr7a and Sr11 can be found:			
		Turner et al. (2016) <i>Crop Sci</i> 56:1-7	
		Jayaveeramat et al. (2016) <i>Phytopathology</i> (in press, available as First Look)	

# STRIPE RUST

	Fayetteville AR Mason		Plains GA Mergoum	Champaign IL Murche	Battle Ground IN Brown
	0-9	0-9	0-9	0-9	0-9
1 AGS 2000	7.0	9.3	9	6.3	1.5
2 Jamestown	0.2	0.0	0	1.0	2.0
3 Hilliard	0.0	0.2	0	0.9	0.0
4 Pioneer Brand 26R41	0.0	0.0	0	1.0	0.0
5 VA12W-72	0.2	0.0	0	1.1	0.0
6 NC11-22289	3.0	7.0	5	3.7	3.0
7 NC10034-11	1.5	7.0	8	3.4	3.0
8 TX12D4768	0.7	3.0	2	2.4	1.0
9 TX-EL2	0.2	0.0	0	1.0	0.0
10 GA071012-14E6	1.5	7.0	1	2.7	4.0
11 GA051207-14E53	1.5	8.5	4	3.3	0.0
12 GA07353-14E19	1.5	5.0	0	2.1	2.0
13 GAJT141-14E45	0.2	0.7	0	1.4	1.5
14 TN1601	7.0	9.0	9	9.1	9.0
15 TN1602	5.0	9.3	9	9.0	9.0
16 TN1604	0.2	3.0	2	2.0	3.0
17 VA12W-68	0.0	0.0	0	1.0	0.5
18 VA13W-38	5.0	9.3	5	5.9	4.5
19 VA13W-124	1.5	1.5	0	1.9	0.0
20 KWS 060	5.0	8.5	9	6.1	9.0
21 KWS 081	7.0	9.3	7	8.4	6.5
22 KWS 083	5.0	3.0		4.0	9.0
23 LA08090C-9-2	0.7	3.0	3	3.3	2.0
24 LA08115C-30	0.7	0.2	0	1.6	0.5
25 LA09011UB-2	0.2	0.7	6	1.2	0.0
26 DH11SRW8-48	5.0	7.0	9	4.9	4.5
27 ES14-0618	3.0	9.3	0	8.7	6.0
28 AR06473-9-4-4	0.7	0.0	0	1.4	0.0
29 AR06024-7-2	0.0	0.7	0	2.0	1.0
30 MD09W272-8-4-13-3-15	0.0	0.0	0	1.6	0.0
31 MD09W272-8-4-14-6	0.0	0.2	0	2.0	0.0
32 MD09W272-8-4-14-8	0.0	0.2	0	1.3	0.0
33 MD07W478-14-5	1.5	5.0	2	2.6	1.0
LOCATION MEANS	2.0	3.8	2.8	3.3	2.5
GROWTH STAGE / DATE	April 14	April 25			May 12

# STRIPE RUST

	Calhoun KY Murche	Schochoh KY Van Sanford	Hopkinsville KY Obert	Winnsboro LA Harrison	Portageville MO McKendry
	0-9	0-9	0-9	0-9	
1 AGS 2000	5.0	3	4.0	2.0	27
2 Jamestown	1.0		3.0	0.8	0
3 Hilliard	1.0		1.5	0.0	1
4 Pioneer Brand 26R41	1.0	2	1.0	0.0	0
5 VA12W-72	1.0		1.0	0.0	0
6 NC11-22289	3.3	1	3.0	0.5	2
7 NC10034-11	3.7		2.0	0.0	3
8 TX12D4768	1.3		3.5	0.3	0
9 TX-EL2	1.0		2.5	0.5	1
10 GA071012-14E6	1.0		5.0	1.8	1
11 GA051207-14E53	1.3	1	4.0	0.3	3
12 GA07353-14E19	1.0		2.5	0.1	2
13 GAJT141-14E45	1.0	2	2.0	0.0	0
14 TN1601	6.7	2	8.5	2.1	27
15 TN1602	7.7	7	6.5	1.6	30
16 TN1604	1.0	1	1.0	0.0	0
17 VA12W-68	1.0		2.0	0.0	0
18 VA13W-38	2.7		6.0	0.6	20
19 VA13W-124	1.0		1.5	0.5	4
20 KWS 060	4.7	4.5	7.0	0.0	33
21 KWS 081	4.0		6.5	0.0	14
22 KWS 083	1.3		1.5	0.5	13
23 LA08090C-9-2	1.0		2.5	0.3	2
24 LA08115C-30	1.0		4.5	0.1	1
25 LA09011UB-2	1.0		2.5	0.3	1
26 DH11SRW8-48	3.0	3	5.5	0.3	16
27 ES14-0618	2.3	1	6.5	0.8	8
28 AR06473-9-4-4	1.0		1.5	0.0	0
29 AR06024-7-2	1.0		3.0	0.0	0
30 MD09W272-8-4-13-3-15	1.0		2.5	0.3	2
31 MD09W272-8-4-14-6	1.0		1.5	0.0	3
32 MD09W272-8-4-14-8	1.0		2.0	0.3	1
33 MD07W478-14-5	1.0		3.0	0.6	2
LOCATION MEANS	2.0		3.3	0.4	6.6
GROWTH STAGE / DATE					

# STRIPE RUST

	Laurel Springs NC Marshall	Milan TN West	Central Ferry WA Campbell	IT severity	
		0-9	0-9	0-100	
1	AGS 2000	5	6.0	6.5	13
2	Jamestown	0	2.5	8.0	10
3	Hilliard	0	1.0	5.0	10
4	Pioneer Brand 26R41	0	1.5	5.0	10
5	VA12W-72	0	1.0	5.0	8
6	NC11-22289	0	2.5	6.5	10
7	NC10034-11	0	1.0	8.0	18
8	TX12D4768	0	2.0	6.5	10
9	TX-EL2	0	2.0	5.0	8
10	GA071012-14E6	3	2.5	5.0	5
11	GA051207-14E53	3	1.5	6.5	15
12	GA07353-14E19	3	2.0	6.5	10
13	GAJT141-14E45	3	1.0	6.5	10
14	TN1601	7	6.0	8.0	28
15	TN1602	6	6.5	8.0	23
16	TN1604	4	1.0	5.0	8
17	VA12W-68	0	1.0	5.0	5
18	VA13W-38	4	4.0	6.5	10
19	VA13W-124	0	1.0	8.0	13
20	KWS 060	6	5.0	8.0	15
21	KWS 081	6	5.5	6.5	10
22	KWS 083	6	3.0	8.0	20
23	LA08090C-9-2	4	2.0	6.5	10
24	LA08115C-30	0	4.0	5.0	10
25	LA09011UB-2	0	2.0	5.0	10
26	DH11SRW8-48	0	3.5	8.0	13
27	ES14-0618	6	5.0	8.0	10
28	AR06473-9-4-4	3	2.0	5.0	5
29	AR06024-7-2	3	1.0	6.5	8
30	MD09W272-8-4-13-3-15	0	1.0	5.0	10
31	MD09W272-8-4-14-6	0	1.0	5.0	10
32	MD09W272-8-4-14-8	0	1.5	5.0	8
33	MD07W478-14-5	0	1.5	6.5	8
LOCATION MEANS	2.2	2.5	6.3	11.1	
GROWTH STAGE / DATE			April 15		

# STRIPE RUST

		Central Ferry		Pullman	
		WA		WA	
		Campbell		Campbell	
		IT	severity	IT	severity
		0-9	0-100	0-9	0-100
1	AGS 2000	8.0	63	8.0	90
2	Jamestown	3.5	13	8.0	50
3	Hilliard	5.0	10	8.0	60
4	Pioneer Brand 26R41	5.0	15	8.0	50
5	VA12W-72	2.0	4	5.0	8
6	NC11-22289	5.0	18	8.0	90
7	NC10034-11	8.0	48	8.0	55
8	TX12D4768	5.0	20	8.0	40
9	TX-EL2	2.0	4	5.0	5
10	GA071012-14E6	2.0	5	8.0	55
11	GA051207-14E53	6.5	15	8.0	55
12	GA07353-14E19	2.0	10	8.0	55
13	GAJT141-14E45	3.5	6	6.5	15
14	TN1601	8.0	68	8.0	85
15	TN1602	8.0	48	8.0	85
16	TN1604	5.0	13	8.0	40
17	VA12W-68	3.5	13	8.0	18
18	VA13W-38	6.5	25	8.0	80
19	VA13W-124	5.0	13	8.0	25
20	KWS 060	8.0	80	8.0	90
21	KWS 081	8.0	45	8.0	90
22	KWS 083	8.0	55	8.0	90
23	LA08090C-9-2	5.0	13	8.0	60
24	LA08115C-30	5.0	10	6.5	50
25	LA09011UB-2	3.5	8	8.0	28
26	DH11SRW8-48	8.0	73	8.0	85
27	ES14-0618	8.0	70	8.0	85
28	AR06473-9-4-4	2.0	4	5.0	10
29	AR06024-7-2	3.5	4	6.5	33
30	MD09W272-8-4-13-3-15	2.0	9	8.0	40
31	MD09W272-8-4-14-6	3.5	10	8.0	23
32	MD09W272-8-4-14-8	2.0	5	8.0	30
33	MD07W478-14-5	5.0	15	8.0	35
LOCATION MEANS		5.0	24.3	7.6	51.7
GROWTH STAGE / DATE		May 10		June 2	

# STRIPE RUST

**TABLE XMC1616F. STRIPE RUST INFECTION TYPE (IT<sup>a</sup>) AND SEVERITY (%) ON CULTIVARS AND LINES IN THE WINTER SOUTHERN WHEAT NURSERY (EXP16) COORDINATED BY HAROLD BOCKELMAN AT LOCATIONS IN WHITLOW FARM PULLMAN (LOC 04), MT. VERNON (LOC 05), WALLA WALLA (LOC 06), AND LIND (LOC 07), WA WHEN RECORDED AT THE INDICATED DATES AND STAGES OF PLANT GROWTH IN 2016 UNDER NATURAL INFECTION<sup>b</sup>**

Entry No.	Cultivar/Designation	1st Year	2016 PLOT	LOC 04				LOC 05 <sup>c</sup>				LOC 06				LOC 07				Field summary <sup>d</sup>	Overall rating <sup>e</sup>	Possible HTAP resistance <sup>f</sup>
				6/13		4/18		5/18		4/7		5/4		5/25								
				L. flower.		S. elong.		H.-flower.		S. elong.		Heading		L. flower.								
				IT	%	IT	%	IT	%	IT	%	IT	%	IT	%	IT	%					
1	AGS 2000	97-98	1	8	90	8	80	8	90	8	10	8	60	-	-	S	9	Low				
2	Jamestown	04-05	2	5	20	5	40	2	40	8	10	3	15	2	5	MR	3	Moderate				
3	Hilliard	13-14	3	5	20	5	30	6	80	8	5	3	15	2,8	10	MS	6	Low				
4	Pioneer Brand 26R41	15-16	4	5	30	3	20	6	80	8	5	3	10	2,8	10	MS	6	Low				
5	VA12W-72	14-15	5	2	1	3	15	2	10	5	2	2	5	8	10	MR-MS	5	Moderate				
6	NC11-22289	15-16	6	8	90	3	15	5	30	8	10	8	70	5	10	S	9	Low				
7	NC10034-11	15-16	7	8	70	8	60	7	80	8	20	8	80	5	5	S	8	No				
8	TX12D4768	15-16	8	8	10	8	60	5	70	8	30	8	30	2	2	MS	6	No				
9	TX-EL2	15-16	9	2	2	2	10	2	10	2	2	2	10	2	2	R	2	Moderate				
10	GA071012-14E6	15-16	10	5	10	5	30	4	30	8	15	5	30	8	5	MR	4	No				
11	GA051207-14E53	15-16	11	5	5	3	20	5	50	8	20	5	30	8	10	MR-MS	5	No				
12	GA07353-14E19	15-16	12	-	-	2	10	4	20	8	10	5	20	5	5	MR	3	No				
13	GAJT141-14E45	15-16	13	2	5	2	10	4	30	8	15	5	20	2	1	MR	4	Low				
14	TN1601	15-16	14	8	100	8	80	8	90	8	20	8	80	8	60	S	9	No				
15	TN1602	15-16	15	8	100	8	80	8	90	8	20	8	90	8	60	S	9	No				
16	TN1604	15-16	16	3	5	3	20	6	70	8	10	3	20	2	5	MS	6	Low				
17	VA12W-68	15-16	17	-	-	2	10	3	10	8	10	3	20	8	10	MR-MS	5	Moderate				
18	VA13W-38	15-16	18	8	100	8	60	3	50	8	15	8	80	8	20	S	9	Low				
19	VA13W-124	15-16	19	5	5	5	30	5	60	8	15	5	15	8	5	MR-MS	5	No				
20	KWS 060	15-16	20	8	100	8	80	8	90	8	10	8	90	8	90	S	9	No				
<b>PS 279</b>	<b>SUSCEPTIBLE CHECK</b>	<b>CHECK</b>	<b>21</b>	<b>8</b>	<b>100</b>	<b>8</b>	<b>80</b>	<b>8</b>	<b>80</b>	<b>8</b>	<b>20</b>	<b>8</b>	<b>95</b>	<b>8</b>	<b>100</b>	<b>S</b>	<b>9</b>	<b>No</b>				
21	KWS 081	15-16	22	8	100	8	80	8	90	8	10	8	95	8	80	S	9	No				
22	KWS 083	15-16	23	8	90	8	60	7	80	8	10	8	95	8	80	S	9	No				
23	LA08090C-9-2	15-16	24	8	10	3	20	7	90	8	10	5	25	8	60	S	9	No				
24	LA08115C-30	15-16	25	5	20	3	15	5	60	2	2	2	10	2	2	MR-MS	5	Low				
25	LA09011UB-2	15-16	26	5	5	2	10	2	20	8	5	8	20	8	5	MR-MS	5	No				
26	DH11SRW8-48	15-16	27	8	50	8	60	6	70	8	5	8	95	8	80	S	9	No				
27	ES14-0618	15-16	28	8	100	8	80	8	90	8	10	8	95	8	80	S	9	No				
28	AR06473-9-4-4	15-16	29	2	1	2	10	2	10	3	2	0	0	2	5	R	2	High				
29	AR06024-7-2	15-16	30	5	10	2	15	3	30	8	10	8	15	2	2	MR-MS	5	Low				
30	MD09W272-8-4-13-3-15	15-16	31	5	10	3	15	4	30	8	5	3	10	8	50	MS	7	Low				
31	MD09W272-8-4-14-6	15-16	<b>32</b>	5	10	2	10	3	20	8	5	3	15	8	20	MR-MS	5	No				
32	MD09W272-8-4-14-8	15-16	<b>33</b>	5	10	2	10	4	30	8	10	2	10	5	10	MR	4	No				
33	MD07W478-14-5	15-16	<b>34</b>	5	20	5	30	7	80	8	5	5	15	8	90	S	9	No				
<b>PS 279</b>	<b>SUSCEPTIBLE CHECK</b>	<b>CHECK</b>	<b>35</b>	<b>8</b>	<b>100</b>	<b>8</b>	<b>80</b>	<b>8</b>	<b>90</b>	<b>8</b>	<b>30</b>	<b>8</b>	<b>95</b>	<b>8</b>	<b>100</b>	<b>S</b>	<b>9</b>	<b>No</b>				

<sup>a</sup> 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.

<sup>b</sup> All locations were under natural infection.

<sup>c</sup> Entries with a high IT in the first note, but a low IT in the second note at Mt. Vernon (LOC 05) may indicate that they have high-temperature, adult-plant (HTAP) resistance.

<sup>d</sup> R = resistant, MR = moderately resistant, MS = moderately susceptible, and S =susceptible.

<sup>e</sup> 1 = most resistant and 9 most susceptible.

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

<sup>f</sup> The high-temperature adult-plant (HTAP) resistance data were based on greenhouse tests. Unknown = Whether the entry has HTAP resistance or not couldn't be determined as it was resistant to all tested races in the seedling stage.

# STRIPE RUST

**TABLE XMC1616GH. STRIPE RUST INFECTION TYPE (IT) ON SEEDLINGS AND ADULT-PLANTS OF CULTIVARS AND LINES IN THE SOUTHERN WHEAT NURSERY (EXP16) COORDINATED BY HAROLD BOCKELMAN 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 (ALL SEEDS WERE NOT TREATED)**

Entry No.	Cultivar/Designation	2016 PLOT	Infection type produced by PST races <sup>a</sup>										Possible HTAP <sup>c</sup> resistance
			Seedling Test <sup>b</sup> (4 - 20 C)					Adult-plant Test <sup>b</sup> (10 - 30 C)					
			PSTv-4	PSTv-14	PSTv-37	PSTv-40	PSTv-51	PSTv-14	PSTv-37	PSTv-40			
1	AGS 2000	1	8	8	8	8	8	8	5,5,5	5,5,5	5,5,5	Low	
2	Jamestown	2	8	8	8	8	8	8	3,3,3	3,3,3	2,2,2	Moderate	
3	Hilliard	3	8	8	8	8	8	8	3,3,3	5,5,5	3,3,3	Low	
4	Pioneer Brand 26R41	4	8	8	8	8	8	8	3,3,3	5,5,5	2,3,3	Low	
5	VA12W-72	5	8	8	8	8	8	8	2,2,2	3,3,3	2,2,2	Moderate	
6	NC11-22289	6	8	8	8	8	8	8	5,5,5	5,5,5	5,5,6	Low	
7	NC10034-11	7	8	8	8	8	8	8	6,6,6	8,8,8	8,8,8	No	
8	TX12D4768	8	8	8	8	8	8	8	3,3,3	8,8,8	3,3,3	No	
9	TX-EL2	9	8	8	8	8	8	8	2,2,2	3,3,3	2,2,3	Moderate	
10	GA071012-14E6	10	8	8	8	8	8	8	3,3,3	8,8,8	8,8,8	No	
11	GA051207-14E53	11	8	8	8	8	8	8	2,3,3	8,8,8	3,3,2	No	
12	GA07353-14E19	12	8	8	8	8	8	8	5,5,5	8,8,8	8,8,8	No	
13	GAJT141-14E45	13	8	8	8	8	8	8	3,3,3	5,5,5	5,5,5	Low	
14	TN1601	14	8	8	8	8	8	8	8,8,8	8,8,8	8,8,8	No	
15	TN1602	15	8	8	8	8	8	8	8,8,8	8,8,8	8,8,8	No	
16	TN1604	16	8	8	8	8	8	8	2,2,2	5,5,5	2,2,3	Low	
17	VA12W-68	17	8	8	8	8	8	8	2,3,3	3,3,4	2,2,2	Moderate	
18	VA13W-38	18	8	8	8	8	8	8	5,5,5	5,5,5	5,5,5	Low	
19	VA13W-124	19	8	8	8	8	8	8	3,3,8	8,8,8	8,8,8	No	
20	KWS 060	20	8	8	8	8	8	8	8,8,8	8,8,8	8,8,8	No	
<b>PS 279</b>	<b>SUSCEPTIBLE CHECK</b>	<b>21</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>8,8,8</b>	<b>8,8,8</b>	<b>8,8,8</b>	<b>No</b>	
21	KWS 081	22	8	8	8	8	8	8	8,8,8	8,8,8	5,5,5	No	
22	KWS 083	23	8	8	8	8	8	8	8,8,8	8,8,8	8,8,8	No	
23	LA08090C-9-2	24	8	8	8	8	8	8	8,8,8	8,8,8	8,8,8	No	
24	LA08115C-30	25	8	8	8	8	8	8	5,5,5	5,5,5	2,2,2	Low	
25	LA09011UB-2	26	8	8	8	8	8	8	5,5,5	5,5,5	8,8,8	No	
26	DH11SRW8-48	27	8	8	8	8	8	8	5,5,6	5,5,5	8,8,8	No	
27	ES14-0618	28	8	8	8	8	8	8	8,8,8	8,8,8	8,8,8	No	
28	AR06473-9-4-4	29	2	2	2	2	2	2	2,2,2	2,2,2	2,2,2	High	
29	AR06024-7-2	30	8	8	8	8	8	8	5,5,5	5,5,5	5,5,5	Low	
30	MD09W272-8-4-13-3-15	31	8	8	8	8	8	8	2,2,2	5,5,5	2,2,2	Low	
31	MD09W272-8-4-14-6	32	8	8	8	8	8	8	2,2,2	8,8,8	2,2,2	No	
32	MD09W272-8-4-14-8	33	8	8	8	8	8	8	2,2,2	8,8,8	3,3,3	No	
33	MD07W478-14-5	34	8	8	8	8	8	8	5,5,5	8,8,8	5,5,5	No	
<b>PS 279</b>	<b>SUSCEPTIBLE CHECK</b>	<b>35</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>8,8,8</b>	<b>8,8,8</b>	<b>8,8,8</b>	<b>No</b>	

<sup>a</sup> 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.

**Virulence/avirulence formulae (Yr genes) of the tested races:**

- PSTv-4: 1,6,9,17,27,SP,Tye/5,7,8,10,15,24,32,43,44,Tr1,Exp2
- PSTv-14: 1,6,7,8,9,17,27,43,44,Tr1,Exp2,Tye/5,10,15,24,32,SP
- PSTv-37: 6,7,8,9,17,27,43,44,Tr1,Exp2/1,5,10,15,24,32,SP,Tye
- PSTv-40: 6,7,8,9,10,24,27,32,43,44,Tr1,Exp2/1,5,15,17,SP,Tye
- PSTv-51: 1,6,7,8,9,10,17,24,27,32,43,44,SP,Tr1,Exp2,Tye/5,15

<sup>b</sup> 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°C for 6 to 9 weeks and then transplanted into big pots and grown in the greenhouse (10 to 25°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°C) and then grown in a greenhouse growth chamber at the 10-30°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.

<sup>c</sup> Entries with a high IT in the seedling low-temperature test but with a low IT to all tested three races in the adult-plant tests under high temperatures have possibly high-temperature adult-plant (HTAP) resistance.

# SEPTORIA

	Quincy FL Babar tritici 0-9	Battle Ground IN Brown tritici 0-9	Schochoh KY Van Sanford tritici 0-9	Winnsboro LA Harrison 0-9	
1	AGS 2000	6	3	5.5	3.0
2	Jamestown	3	6	6.5	3.5
3	Hilliard	2	0	2.0	1.0
4	Pioneer Brand 26R41	2	3	2.5	1.5
5	VA12W-72	3	2	4.0	1.5
6	NC11-22289	0	3	4.0	2.5
7	NC10034-11	0	6	2.0	1.0
8	TX12D4768	5	4	3.5	3.0
9	TX-EL2	5	3	4.5	2.5
10	GA071012-14E6	4	2	3.5	3.5
11	GA051207-14E53	0	4	3.0	2.0
12	GA07353-14E19	3	4	4.5	3.0
13	GAJT141-14E45	3	3	3.0	1.5
14	TN1601	0	6	5.0	1.0
15	TN1602	3	9	6.0	2.0
16	TN1604	0	7	2.5	2.0
17	VA12W-68	0	3	2.0	2.0
18	VA13W-38	2	6	5.5	2.0
19	VA13W-124	2	4	3.0	2.0
20	KWS 060	0	9	5.5	1.0
21	KWS 081	0	4	5.0	1.0
22	KWS 083	0	8	4.0	1.5
23	LA08090C-9-2	2	5	3.0	1.5
24	LA08115C-30	4	1	4.0	2.5
25	LA09011UB-2	0	4	3.5	1.5
26	DH11SRW8-48	0	7	4.0	2.0
27	ES14-0618	4	7	4.5	1.0
28	AR06473-9-4-4	3	3	4.5	2.0
29	AR06024-7-2	3	6	3.0	2.5
30	MD09W272-8-4-13-3-15	2	5	4.5	1.5
31	MD09W272-8-4-14-6	2	4	4.0	1.5
32	MD09W272-8-4-14-8	2	3	4.5	2.0
33	MD07W478-14-5	2	4	6.5	2.5
LOCATION MEANS		2.0	4.5	4.0	2.0
GROWTH STAGE / DATE			May 12		



# SEPTORIA

## 2015-16 Eastern Septoria Nursery

Early: FL, GA, LA, SC, NC, TN, AR, OK, TX

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

Entry nbr	Other test	US Entry #	Designation	Mkt Class	Maturity (E/L)	Leaves	Glumes
1	Sept check		AGS 2000	SRW	E	8.0	3.0
2	Sept check		AGS 2060	SRW	E	4.5	3.0
3	Sept check		Neuse	SRW	E	3.5	2.0
4	Sept check		USG 3209	SRW	E	7.5	6.0
5	Sept check		Branson	SRW	L	3.5	3.0
6	Sept check		Shirley	SRW	L	4.5	3.5
7	Sept check		Jensen	SRW	L	5.5	6.5
8	Sept check		Kaskaskia	SRW	L	4.0	4.5
9	Sept check		Malabar	SRW	L	4.5	6.0
48	US	2	Jamestown	SRW	L	5.0	3.5
49	US	3	Hilliard	SRW	L	4.0	2.0
50	US	4	Pioneer Brand 26R41	SRW	L	5.5	4.0
51	US	5	VA12W-72	SRW	L	5.0	3.5
52	US	6	NC11-22289	SRW	E	6.5	4.5
53	US	7	NC10034-11	SRW	E	3.0	2.5
54	US	8	TX12D4768	SRW	E	7.0	5.0
55	US	9	TX-EL2	SRW	E	8.0	3.0
56	US	10	GA071012-14E6	SRW	E	6.0	3.0
57	US	11	GA051207-14E53	SRW	E	4.0	3.0
58	US	12	GA07353-14E19	SRW	E	7.5	2.5
59	US	13	GAJT141-14E45	SRW	E	5.5	3.5
60	US	14	TN1601	SRW	E	4.0	1.5
61	US	15	TN1602	SRW	E	6.5	4.0
62	US	16	TN1604	SRW	E	3.0	2.0
63	US	17	VA12W-68	SRW	L	3.5	4.5
64	US	18	VA13W-38	SRW	L	6.5	3.0
65	US	19	VA13W-124	SRW	L	5.5	3.5
66	US	20	KWS 060	SRW	L	6.0	5.0
67	US	21	KWS 081	SRW	L	6.0	3.5
68	US	22	KWS 083	SRW	L	4.0	3.0
69	US	23	LA08090C-9-2	SRW	E	3.0	1.5
70	US	24	LA08115C-30	SRW	E	7.5	6.5
71	US	25	LA09011UB-2	SRW	E	6.0	2.0
72	US	26	DH11SRW8-48	SRW	L	6.5	5.5
73	US	27	ES14-0618	SRW	L	6.5	7.5
74	US	28	AR06473-9-4-4	SRW	E	6.0	3.5
76	US	30	MD09W272-8-4-13-3-15	SRW	L	5.0	2.5
77	US	31	MD09W272-8-4-14-6	SRW	L	6.0	4.5
78	US	32	MD09W272-8-4-14-8	SRW	L	5.0	3.0
79	US	33	MD07W478-14-5	SRW	L	4.0	3.5

## FUSARIUM HEAD BLIGHT (SCAB)

		Belle Mina	Fayetteville	Newport	Champaign	Calhoun	Winnsboro
		AL	AR	AR	IL	KY	LA
		Glass	Mason	Mason	Murche	Murche	Harrison
		0-9	0-9	0-9	0-9	0-9	FDK 0-9
1	AGS 2000	1	2.0	6.0	7.1	4.5	1
2	Jamestown	0	0.5	0.0	4.1	1.6	1
3	Hilliard	0	0.5	0.0	3.9	2.8	4
4	Pioneer Brand 26R41	0	1.0	0.0	2.3	1.6	3
5	VA12W-72	1	1.5	0.0	3.9	5.0	2
6	NC11-22289	1	0.5	0.0	1.8	1.6	1
7	NC10034-11	1	1.5	0.0	3.5	2.8	3
8	TX12D4768	1	0.5	0.5	2.5	3.1	1
9	TX-EL2	1	0.0	0.0	3.2	2.7	1
10	GA071012-14E6	1	2.0	1.0	3.0	5.4	3
11	GA051207-14E53	1	1.5	1.5	2.7	5.1	0
12	GA07353-14E19	1	2.0	0.0	3.6	5.8	3
13	GAJT141-14E45	1	1.5	0.5	3.9	3.7	2
14	TN1601	0	1.5	5.0	6.5	2.0	3
15	TN1602	1	2.0	8.0	5.0	5.3	3
16	TN1604	0	1.0	0.5	3.4	3.4	3
17	VA12W-68	0	0.5	0.0	3.4	3.4	3
18	VA13W-38	1	0.0	0.5	2.4	1.7	0
19	VA13W-124	0	1.0	0.0	3.5	3.3	2
20	KWS 060	0	0.5	0.5	4.7	1.7	1
21	KWS 081	0	0.5	0.0	2.8	1.3	3
22	KWS 083	0	0.5	0.5	2.1	1.3	0
23	LA08090C-9-2	1	1.0	0.0	2.5	2.7	0
24	LA08115C-30	1	6.0	0.0	5.1	7.6	4
25	LA09011UB-2	1	3.5	0.0	5.3	2.0	2
26	DH11SRW8-48	0	0.5	0.5	3.4	3.0	2
27	ES14-0618	0	0.0	2.5	5.0	1.3	1
28	AR06473-9-4-4	1	1.5	0.0	3.0	6.0	2
29	AR06024-7-2	1	0.5	0.0	2.1	1.0	1
30	MD09W272-8-4-13-3-15	1	0.0	0.0	1.7	1.7	2
31	MD09W272-8-4-14-6	0	0.0	0.0	1.7	2.0	1
32	MD09W272-8-4-14-8	1	0.5	0.0	1.7	1.2	1
33	MD07W478-14-5	0	0.5	0.0	2.9	2.6	4
LOCATION MEANS		0.6	1.1	0.8	3.4	3.0	1.9

# POWDERY MILDEW

	Quincy FL Babar 0-9	Raleigh NC Marshall	Warsaw VA Griffey 0-9	
1	AGS 2000	5	4	5.5
2	Jamestown	0	0	4.0
3	Hilliard	0	0	4.0
4	Pioneer Brand 26R41	2	0	3.0
5	VA12W-72	0	3	2.0
6	NC11-22289	0	0	1.5
7	NC10034-11	0	0	2.0
8	TX12D4768	0	6	5.0
9	TX-EL2	0	3	3.0
10	GA071012-14E6	2	0	2.5
11	GA051207-14E53	5	6	7.0
12	GA07353-14E19	3	6	6.0
13	GAJT141-14E45	0	3	3.5
14	TN1601	0	5	6.5
15	TN1602	0	5	3.5
16	TN1604	7	5	5.0
17	VA12W-68	0	3	3.5
18	VA13W-38	0	2	1.5
19	VA13W-124	0	3	5.5
20	KWS 060	6	0	3.5
21	KWS 081	0	0	2.5
22	KWS 083	0	0	1.5
23	LA08090C-9-2	0	5	6.0
24	LA08115C-30	3	2	4.5
25	LA09011UB-2	0	1	3.5
26	DH11SRW8-48	0	2	5.5
27	ES14-0618	6	3	5.5
28	AR06473-9-4-4	0	0	2.0
29	AR06024-7-2	0	5	6.0
30	MD09W272-8-4-13-3-15	0	5	4.5
31	MD09W272-8-4-14-6	0	4	4.0
32	MD09W272-8-4-14-8	0	3	4.0
33	MD07W478-14-5	0	0	1.5
LOCATION MEANS	1.2	2.5	3.9	

# VIRUSES

		Belle Mina	Battle Ground	Windfall	Calhoun	Lexington
		AL	IN	IN	KY	KY
		Glass	Brown	Lively	Murche	Van Sanford
		BYDV	BYDV	WSSMV/WSBMV	BYDV	BYDV
		0-9	0-9	0-9	0-9	0-9
1	AGS 2000	0	3.0	7	1.2	6.0
2	Jamestown	0	0.0	5	1.3	6.5
3	Hilliard	0	2.0	3	1.6	6.0
4	Pioneer Brand 26R41	0	1.5	1	1.3	4.5
5	VA12W-72	0	0.0	4	1.4	4.0
6	NC11-22289	4	3.0	2	1.9	0.5
7	NC10034-11	0	2.0	4	1.0	2.0
8	TX12D4768	2	3.5	5	1.7	4.5
9	TX-EL2	1	2.0	5	1.0	5.5
10	GA071012-14E6	0	3.0		2.3	6.0
11	GA051207-14E53	0	3.5	5	2.4	5.5
12	GA07353-14E19	0	2.0		1.3	5.0
13	GAJT141-14E45	4	2.5	5	1.7	5.5
14	TN1601	1	0.0	6	1.6	3.5
15	TN1602	0	0.0	2	1.4	3.5
16	TN1604	0	2.0	1	1.3	1.5
17	VA12W-68	0	1.0	2	1.4	3.5
18	VA13W-38	0	3.0	4	3.3	6.5
19	VA13W-124	6	2.0	6	3.3	7.5
20	KWS 060	1	0.0	1	2.0	2.5
21	KWS 081	0	1.0	1	1.6	3.0
22	KWS 083	0	0.0	3	1.3	2.0
23	LA08090C-9-2	0	3.0	7	2.3	4.5
24	LA08115C-30	1	3.0	6	5.6	6.0
25	LA09011UB-2	0	3.0	5	4.7	8.0
26	DH11SRW8-48	0	2.5	1	3.1	3.0
27	ES14-0618	2	3.0	1	4.1	2.0
28	AR06473-9-4-4	0	1.5		2.0	5.0
29	AR06024-7-2	0	3.0	4	1.7	3.5
30	MD09W272-8-4-13-3-15	0	2.0	2	2.0	4.5
31	MD09W272-8-4-14-6	1	2.0	2	2.0	3.5
32	MD09W272-8-4-14-8	0	1.0	3	2.7	4.0
33	MD07W478-14-5	3	3.5		2.0	4.0
LOCATION MEANS		0.8	2.0	3.6	2.1	4.3
GROWTH STAGE / DATE			May 12	March 23		

# VIRUSES

		Hopkinsville	Knoxville	Blacksburg
		KY	TN	VA
		Obert	West	Griffey
		BYDV	BYDV	BYDV
		0-9	0-9	0-9
1	AGS 2000	5.5	4.7	1.0
2	Jamestown	2.0	2.7	1.5
3	Hilliard	2.5	2.3	0.0
4	Pioneer Brand 26R41	3.5	4.0	0.5
5	VA12W-72	0.0	3.7	0.5
6	NC11-22289	1.0	2.0	0.0
7	NC10034-11	1.0	1.3	1.0
8	TX12D4768	4.0	3.3	1.0
9	TX-EL2	2.5	3.3	0.5
10	GA071012-14E6	3.0	5.3	1.0
11	GA051207-14E53	5.5	2.7	1.0
12	GA07353-14E19	3.0	3.7	1.0
13	GAJT141-14E45	2.5	3.0	1.0
14	TN1601	3.0	2.7	0.5
15	TN1602	3.5	3.7	1.0
16	TN1604	0.5	3.0	0.5
17	VA12W-68	2.5	3.0	1.0
18	VA13W-38	2.5	3.0	1.0
19	VA13W-124	1.0	2.7	1.5
20	KWS 060	1.5	3.0	0.5
21	KWS 081	1.5	2.7	1.0
22	KWS 083	2.0	2.3	0.0
23	LA08090C-9-2	3.5	2.3	1.0
24	LA08115C-30	3.5	3.7	2.5
25	LA09011UB-2	5.0	4.0	2.5
26	DH11SRW8-48	3.5	3.0	1.0
27	ES14-0618	4.0	2.0	1.0
28	AR06473-9-4-4	3.5	5.0	1.0
29	AR06024-7-2	1.0	3.3	1.5
30	MD09W272-8-4-13-3-15	3.0	3.0	0.5
31	MD09W272-8-4-14-6	2.0	2.0	1.0
32	MD09W272-8-4-14-8	5.5	2.7	0.5
33	MD07W478-14-5	3.5	5.7	1.0
	LOCATION MEANS	2.8	3.2	0.9
	GROWTH STAGE / DATE			

# BACTERIA

		Winnsboro
		LA
		Harrison
		0-9
1	AGS 2000	4.0
2	Jamestown	4.0
3	Hilliard	1.0
4	Pioneer Brand 26R41	1.0
5	VA12W-72	1.0
6	NC11-22289	1.0
7	NC10034-11	1.0
8	TX12D4768	5.5
9	TX-EL2	2.5
10	GA071012-14E6	4.0
11	GA051207-14E53	2.0
12	GA07353-14E19	5.5
13	GAJT141-14E45	1.0
14	TN1601	3.0
15	TN1602	2.5
16	TN1604	1.0
17	VA12W-68	1.5
18	VA13W-38	1.0
19	VA13W-124	1.0
20	KWS 060	1.5
21	KWS 081	1.0
22	KWS 083	1.0
23	LA08090C-9-2	2.0
24	LA08115C-30	5.0
25	LA09011UB-2	2.0
26	DH11SRW8-48	1.5
27	ES14-0618	1.5
28	AR06473-9-4-4	2.0
29	AR06024-7-2	2.0
30	MD09W272-8-4-13-3-15	1.5
31	MD09W272-8-4-14-6	1.0
32	MD09W272-8-4-14-8	1.5
33	MD07W478-14-5	2.5
LOCATION MEANS		2.1

# PHENOTYPE

		Baton Rouge		Winnsboro	
		LA		LA	
		Harrison		Harrison	
		0-9		0-9	
1	AGS 2000	6.0	6.0	6.0	6.0
2	Jamestown	4.3	4.5	4.5	4.5
3	Hilliard	7.0	4.0	4.0	4.0
4	Pioneer Brand 26R41	6.5	5.5	5.5	5.5
5	VA12W-72	4.0	4.0	4.0	4.0
6	NC11-22289	6.0	4.0	4.0	4.0
7	NC10034-11	6.3	5.0	5.0	5.0
8	TX12D4768	4.8	5.5	5.5	5.5
9	TX-EL2	4.0	6.0	6.0	6.0
10	GA071012-14E6	3.5	6.0	6.0	6.0
11	GA051207-14E53	3.8	5.0	5.0	5.0
12	GA07353-14E19	3.3	4.5	4.5	4.5
13	GAJT141-14E45	3.8	3.0	3.0	3.0
14	TN1601	7.3	6.0	6.0	6.0
15	TN1602	5.3	5.0	5.0	5.0
16	TN1604	6.8	4.5	4.5	4.5
17	VA12W-68	3.0	3.5	3.5	3.5
18	VA13W-38	5.3	4.5	4.5	4.5
19	VA13W-124	3.8	3.5	3.5	3.5
20	KWS 060	7.3	7.0	7.0	7.0
21	KWS 081	7.3	6.5	6.5	6.5
22	KWS 083	7.3	7.5	7.5	7.5
23	LA08090C-9-2	5.3	4.0	4.0	4.0
24	LA08115C-30	4.8	6.0	6.0	6.0
25	LA09011UB-2	5.5	5.0	5.0	5.0
26	DH11SRW8-48	7.0	5.5	5.5	5.5
27	ES14-0618	7.0	6.5	6.5	6.5
28	AR06473-9-4-4	3.0	3.5	3.5	3.5
29	AR06024-7-2	4.0	5.0	5.0	5.0
30	MD09W272-8-4-13-3-15	3.5	4.5	4.5	4.5
31	MD09W272-8-4-14-6	3.8	4.5	4.5	4.5
32	MD09W272-8-4-14-8	3.5	5.0	5.0	5.0
33	MD07W478-14-5	4.0	4.5	4.5	4.5
LOCATION MEANS		5.1	5.0	5.0	5.0

# HESSIAN FLY

W Lafayette  
IN  
Cambron

		Bio B	Bio C	Bio O	Bio L
		R-S	R-S	R-S	R-S
1	AGS 2000	0-18	0-21	0-15	0-18
2	Jamestown	21-0	16-0	0-17	0-20
3	Hilliard	20-0	20-0	0-20	0-20
4	Pioneer Brand 26R41	25-0	20-0	17-0	19-0
5	VA12W-72	18-0	17-0	19-0	19-0
6	NC11-22289	1-21	1-22	0-17	0-23
7	NC10034-11	17-2	0-20	0-17	0-22
8	TX12D4768	0-17	0-17	0-17	0-22
9	TX-EL2	0-20	0-22	0-18	0-17
10	GA071012-14E6	0-19	0-17	0-20	0-23
11	GA051207-14E53	19-0	7-13	14-2	19-0
12	GA07353-14E19	14-0	18-1	17-0	20-1
13	GAJT141-14E45	19-0	17-0	19-0	18-0
14	TN1601	0-18	5-11	0-17	0-22
15	TN1602	0-17	0-18	0-18	0-21
16	TN1604	19-0	21-0	18-0	20-0
17	VA12W-68	21-0	16-0	17-0	24-0
18	VA13W-38	0-18	11-10	0-17	0-17
19	VA13W-124	20-0	17-0	18-0	20-0
20	KWS 060	0-13	17-0	0-20	0-15
21	KWS 081	1-20	0-17	0-17	0-21
22	KWS 083	0-19	0-20	0-16	0-18
23	LA08090C-9-2	0-18	9-8	0-14	0-23
24	LA08115C-30	10-3	15-1	15-2	16-1
25	LA09011UB-2	16-0	18-0	21-0	17-0
26	DH11SRW8-48	10-3	0-17	0-13	0-16
27	ES14-0618	20-0	0-20	0-21	0-17
28	AR06473-9-4-4	19-0	19-0	0-17	0-21
29	AR06024-7-2	0-19	0-20	0-17	0-19
30	MD09W272-8-4-13-3-15	0-17	21-0	0-20	0-16
31	MD09W272-8-4-14-6	0-18	17-0	0-19	0-19
32	MD09W272-8-4-14-8	13-2	19-1	0-15	0-19
33	MD07W478-14-5	18-0	17-0	0-18	0-22



# ACID SOIL TOLERANCE

		Enid OK Carver		
		0-5	0-5	0-5
1	AGS 2000	2	2	3
2	Jamestown	1	2	2
3	Hilliard	1	1	1
4	Pioneer Brand 26R41	1	1	1
5	VA12W-72	1	0	1
6	NC11-22289	2	1	3
7	NC10034-11	4	3	2
8	TX12D4768	3	2	1
9	TX-EL2	2	1	1
10	GA071012-14E6	0	1	2
11	GA051207-14E53	1	1	2
12	GA07353-14E19	1	1	2
13	GAJT141-14E45	3	2	1
14	TN1601	3	3	3
15	TN1602	2	3	3
16	TN1604	2	1	1
17	VA12W-68	1	2	1
18	VA13W-38	2	3	3
19	VA13W-124	3	2	1
20	KWS 060	5	4	3
21	KWS 081	3	1	2
22	KWS 083	1	2	3
23	LA08090C-9-2	1	2	2
24	LA08115C-30	1	3	3
25	LA09011UB-2	2	3	3
26	DH11SRW8-48	5	5	4
27	ES14-0618	2	2	3
28	AR06473-9-4-4	2	2	2
29	AR06024-7-2	3	4	3
30	MD09W272-8-4-13-3-15	1	2	3
31	MD09W272-8-4-14-6	3	2	2
32	MD09W272-8-4-14-8	1	2	2
33	MD07W478-14-5	1	3	3
LOCATION MEANS		2.0	2.1	2.2
GROWTH STAGE / DATE		Nov. 20	April 15	May 18

ADVANCED NURSERY EVALUATION  
FOR SOFT WHEAT MILLING AND BAKING QUALITY  
2016 CROP

Samples analyzed were from Belle Mina, AL; Marianna, AR; Plains, GA; and Warsaw, VA

**Quality Data**

**\*For highlighted entries see the notes**

Lab Number	Entry Number	Entry	Test Weight (LB/BU)	NIR Kernel Protein (at 12%)	SKCS Kernel Hardness	SKCS Kernel Diameter (mm)	SKCS Kernel Weight (mg)	Adjusted Flour Yield (%)	Softness Equivalent (%)	Flour Protein (at 14%)	Lactic Acid SRC (%)	Sodium Carbonate SRC (%)	Cookie Diameter (cm)	Top Grade (0-9)
1651578	1	AGS 2000	58.4	11.0	13.8	2.7	35.3	69.6	58.4	8.9	105.2	70.0	18.2	2
1651579	2	Jamestown	60.0	11.1	6.4	2.8	39.7	66.2	57.4	8.8	123.0	73.1	17.3	1
1651580	3	Hilliard	59.2	10.2	12.8	2.8	33.9	66.8	61.5	8.1	116.9	71.6	18.3	3
1651581	4	Pioneer 26R41	57.9	9.9	12.5	2.7	34.7	69.0	63.1	7.8	113.4	70.1	18.0	3
1651582	5	VA12W-72	58.8	10.9	9.0	3.0	45.1	66.6	57.2	9.1	105.4	66.8	18.1	3
1651583	6	NC11-22289	60.5	12.2	19.0	2.9	34.5	67.1	51.2	9.9	127.0	67.6	17.8	2
1651584	7	NC10034-11	59.6	11.0	13.6	2.5	28.6	67.6	59.3	8.7	114.0	67.5	18.6	3
1651585	8	TX12D4768	60.5	10.9	19.1	3.0	39.8	68.1	52.2	9.1	112.3	67.4	18.1	3
1651586	9	TX-EL2	60.0	9.9	11.5	2.9	41.1	70.9	57.6	8.4	109.9	69.4	18.1	3
1651587	10	GA071012-14E6	59.6	11.1	15.3	3.0	40.8	69.6	56.2	9.2	124.8	67.3	18.0	2
1651588	11	GA051207-14E53	59.9	10.4	20.4	2.9	39.1	69.8	56.5	9.0	122.7	68.0	18.1	3
1651589	12	GA07353-14E19	60.4	9.9	15.4	2.9	40.2	68.7	58.4	8.6	114.5	70.3	18.3	4
1651590	13	GAJT141-14E45	59.9	10.6	20.8	2.7	32.1	66.5	59.6	8.7	125.8	74.3	17.8	2
1651591	14	TN1601	57.4	11.1	13.1	2.8	36.0	65.7	55.8	8.8	100.0	74.8	18.0	2
1651592	15	TN1602	57.8	10.5	24.3	2.7	33.7	64.8	52.0	8.8	84.3	70.9	17.8	3
1651593	16	TN1604	58.6	10.0	13.4	2.7	35.4	68.9	57.6	7.9	92.1	66.5	18.5	4
1651594	17	VA12W-68	59.6	11.2	10.0	3.0	44.1	66.5	55.9	9.3	106.6	67.4	18.1	1
1651595	18	VA13W-38	59.3	11.0	2.8	2.8	34.2	69.2	54.8	8.8	107.2	64.8	18.5	4
1651596	19	VA13W-124	58.2	9.7	17.3	2.8	37.2	67.7	55.7	8.0	102.0	70.1	17.8	4
1651597	20	KWS 060	57.4	10.0	9.3	2.5	28.9	68.9	64.8	7.8	113.1	69.7	18.5	3
1651598	21	KWS 081	57.5	10.2	8.1	2.4	29.1	68.5	61.5	8.0	111.9	67.8	19.0	4
1651599	22	KWS 083	61.1	10.8	37.2	2.7	31.4	63.1	55.9	8.6	115.2	78.0	17.2	1
1651600	23	LA08090C-9-2	61.4	11.2	23.9	2.8	34.0	68.0	50.3	9.1	110.5	65.3	18.4	3
1651601	24	LA08115C-30	59.2	10.3	10.3	2.8	36.8	67.7	60.0	8.4	131.0	78.6	17.9	2
1651602	25	LA09011UB-2	60.3	10.8	21.7	2.8	35.8	68.6	54.5	8.7	114.5	69.3	18.0	3
1651603	26	DH11SRW8-48	58.8	10.7	1.3	2.7	36.2	69.0	64.0	8.2	116.8	67.6	18.9	3
1651604	27	ES14-0618	58.3	10.8	17.8	2.6	29.7	66.8	60.7	8.8	108.9	70.5	17.9	3
1651605	28	AR06473-9-4-4	60.9	11.7	17.9	2.8	36.2	68.3	54.9	9.5	124.2	66.6	18.1	2
1651606	29	AR06024-7-2	61.7	11.7	19.7	2.8	32.0	66.4	56.6	9.4	103.0	67.3	18.1	3
1651607	30	MD09W272-8-4-13-3-15	59.5	11.3	15.5	2.7	34.2	64.6	57.9	9.1	103.4	71.9	17.9	3
1651608	31	MD09W272-8-4-14-6	58.2	11.2	13.2	2.6	33.1	65.5	61.3	8.9	107.9	74.6	18.0	2
1651609	32	MD09W272-8-4-14-8	58.8	11.0	13.6	2.7	34.0	65.8	62.3	8.8	102.4	74.9	17.9	2
1651610	33	MD07W478-14-5	59.4	10.6	16.3	2.8	33.6	68.0	57.7	8.3	106.9	69.2	17.6	2
		Average	59.3	10.7	15.0	2.8	35.5	67.5	57.7	8.7	111.4	70.0	18.1	2.7
		Standard Deviation	1.2	0.6	6.8	0.1	4.1	1.7	3.6	0.5	10.1	3.5	0.4	0.9

**Notes:**

= favorable quality trait value

= marginal quality trait value

\* Entry #9 was the only entry that registered a score of an "A" for milling quality.

\* Entries exhibited relatively low flour yield than the typical SRW wheat.

\* Entry #6 has the largest wheat grain protein and flour protein contents amongst the 33 entries at 12.2% and 9.9%, respectively.

**Rankings/Grade Summary**

Lab Number	Entry Number	Entry	Adjusted Flour Yield %	Adjusted Flour Yield % Rank	Adjusted Flour Yield % Grade	Cookie Diameter cm	Cookie Diameter cm Rank	Cookie Diameter cm Grade
1651578	1	AGS 2000	69.6	3	C	18.2	10	D
1651579	2	Jamestown	66.2	27	F	17.3	32	F
1651580	3	Hilliard	66.8	21	F	18.3	8	D
1651581	4	Pioneer 26R41	69.0	7	C	18.0	19	D
1651582	5	VA12W-72	66.6	23	F	18.1	14	D
1651583	6	NC11-22289	67.1	20	D	17.8	29	F
1651584	7	NC10034-11	67.6	19	D	18.6	3	C
1651585	8	TX12D4768	68.1	14	D	18.1	11	D
1651586	9	TX-EL2	70.9	1	A	18.1	12	D
1651587	10	GA071012-14E6	69.6	4	C	18.0	20	D
1651588	11	GA051207-14E53	69.8	2	B	18.1	17	D
1651589	12	GA07353-14E19	68.7	10	C	18.3	9	D
1651590	13	GAJT141-14E45	66.5	25	F	17.8	27	F
1651591	14	TN1601	65.7	29	F	18.0	18	D
1651592	15	TN1602	64.8	31	F	17.8	30	F
1651593	16	TN1604	68.9	9	C	18.5	6	C
1651594	17	VA12W-68	66.5	24	F	18.1	15	D
1651595	18	VA13W-38	69.2	5	C	18.5	4	C
1651596	19	VA13W-124	67.7	18	D	17.8	28	F
1651597	20	KWS 060	68.9	8	C	18.5	5	C
1651598	21	KWS 081	68.5	12	C	19.0	1	B
1651599	22	KWS 083	63.1	33	F	17.2	33	F
1651600	23	LA08090C-9-2	68.0	15	D	18.4	7	C
1651601	24	LA08115C-30	67.7	17	D	17.9	25	F
1651602	25	LA09011UB-2	68.6	11	C	18.0	21	D
1651603	26	DH11SRW8-48	69.0	6	C	18.9	2	B
1651604	27	ES14-0618	66.8	22	F	17.9	23	F
1651605	28	AR06473-9-4-4	68.3	13	C	18.1	13	D
1651606	29	AR06024-7-2	66.4	26	F	18.1	16	D
1651607	30	MD09W272-8-4-13-3-15	64.6	32	F	17.9	24	F
1651608	31	MD09W272-8-4-14-6	65.5	30	F	18.0	22	D
1651609	32	MD09W272-8-4-14-8	65.8	28	F	17.9	26	F
1651610	33	MD07W478-14-5	68.0	16	D	17.6	31	F

**Adjusted Flour Yield Grade  
(Based on Samples Between 2009 and 2015)**

Grade	Range	Percent
A	>70.85	15
B	9.71 to 70.8	20
C	8.23 to 69.7	30
D	6.86 to 68.2	20
F	<66.86	15

**Cookie Diameter  
(Based on Samples Between 2009 and 2015)**

Grade	Range	Percent
A	>19.25	15
B	8.83 to 19.2	20
C	8.35 to 18.8	30
D	7.94 to 18.3	20
F	<17.94	15