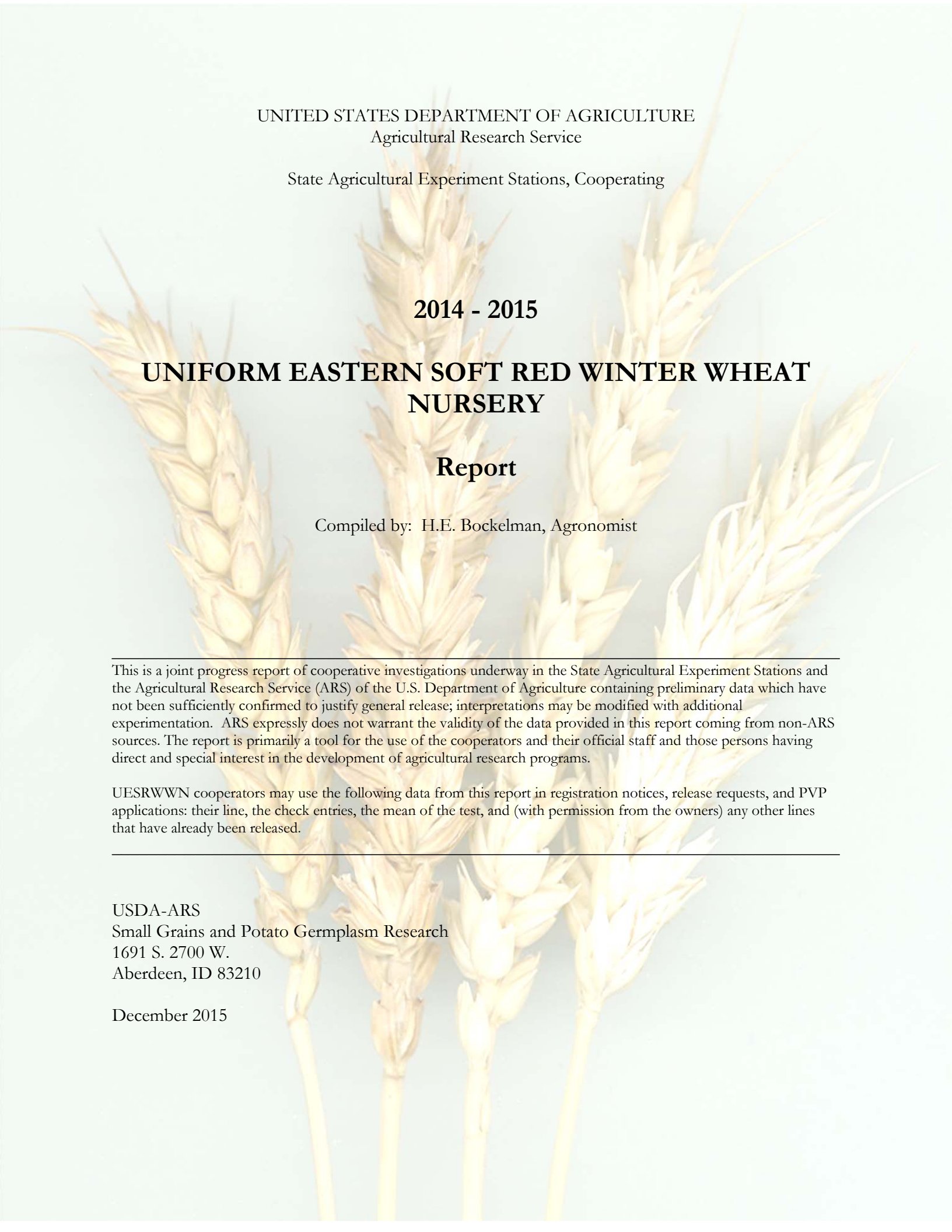




UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service

State Agricultural Experiment Stations, Cooperating

2014 - 2015

UNIFORM EASTERN 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.

UESRWWN 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
Small Grains and Potato Germplasm Research
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December 2015

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2014-2015 UNIFORM EASTERN SOFT RED WINTER WHEAT NURSERY
LIST OF ENTRIES AND PEDIGREES

Entry No.	Cultivar/ Designation	Pedigree	Contributor	1st Year in Nursery
1	Branson	Pio2737W/891-4584A (Pike/FL302) (formerly M00-3701)	Check	03-04
2	Bess	MO11769/Madison (formerly MO981020)	Check	02-03
3	Shirley	VA94-52-25 /Coker 9835//VA96-54-234 (formerly VA03W-409)	Check	05-06
4	MO080104	L910097/MO 92-599	Check	09-10
5	0762A1-2-8	981129A1-45-3/99793RE2-3//INW0301/92145E8-7-7-3-57/3/981477A1/981312A1//INW0316	Anderson/Linvill	13-14
6	NC10-23663	P2691/TC14Spear289B//NC00-16203	Murphy	13-14
7	OH07-263-3	OH748/Bravo	Sneller	13-14
8	TN1505	961395-3E25/[(Becker/FL302)/OH599]/(Cardinal/FL302)/Patton]-F6//P26R15/[Foster/P2628//IL90-6364]-F6	West	14-15
9	VA11W-106	P25R47/Jamestown	Griffey	14-15
10	VA11W-182	Branson/Shirley	Griffey	14-15
11	VA12W-248	KY97C-0574-01/USG3555//USG3295	Griffey	14-15
12	OH07-206-69	P92226E2-5-3/OH751	Sneller	14-15
13	OH08-180-48	Douglas/McCormick	Sneller	14-15
14	053A1-2-5-3-5-3	7D(E)//INW0412/98134G4-1W//Truman/INW0303	Anderson/Linvill	14-15
15	11405A1-4	07469A1-10-1-18-2/3/Bess//07117B1-29-7-9-9-4/0527A1-9-15-2	Anderson/Linvill	14-15
16	MD09W272-8-4-13-3	VA02W713//SS8641/25R42	Cooper	14-15
17	MDC07026-F2-19-13-1	SS8641//McCormick*2/Ning7840	Cooper	14-15
18	MDC07026-F2-19-13-4	SS8641//McCormick*2/Ning7840	Cooper	14-15
19	F2024R	D8006W/P25R37	Olson	14-15
20	F2029R	P25R37/E1007W	Olson	14-15
21	MO 110201	981020//P92201D5-2/980725	McKendry	14-15
22	MO 121058	011126*2/PL 25R47	McKendry	14-15
23	ES12-1049	VA99W-200/BW239	Obert	14-15
24	ES12-1307	SR30-530/BW402	Obert	14-15
25	AR05094-4-1	Terral TV 8450/Beretta	Mason	14-15
26	AR05079-2-1	P961341A3-1-2/AR93035-4-1	Mason	14-15
27	KY05C-1369-14-6-3	KY93C-0004-22-1/VA01W-476//KY98C-1517-01	Van Sanford	14-15
28	KY05C-1051-37-18-5	97397J1-4-1-4-7/Freedom	Van Sanford	14-15
29	IL02-19463-7	Patton/Cardinal//IL96-2550	Kolb	14-15
30	IL10-19464	Bess//IL00-8530//IL00-8530	Kolb	14-15
31	IL10-21934	IL97-1828/IL03-18438//IL00-8633	Kolb	14-15

LOCATION NOTES

Marianna, Arkansas

Cooperator: Esten Mason
University of Arkansas
Planted: October 26, 2014
Harvested: June 9, 2015
Fertilizer: 150 N + 24 Am Sulfate
Notes: Good nursery in Marianna with a lot of stripe rust and scab late. Yr ratings were taken early and progressed higher. **Fayetteville** and **Newport** disease data for Yr and FHB are on a single rep.

Griffin, Georgia

Cooperator: Jerry Johnson, Dan Bland, Steve Sutton
University of Georgia
Planted: November 3, 2014
Harvested: June 6, 2015
Fertilizer: 20 N preplant; 75 N topdressed

Brownstown, Illinois

Cooperator: Fred Kolb
University of Illinois
Planted: October 27, 2014
Harvested: July 6, 2015
Fertilizer: 30 lbs am sulfate fall; 55 lbs spring
Notes: Location was planted about three weeks later than normal. Very little fall growth. Adequate to excessive soil moisture through the spring growing season. Test weights were low due to stripe and leaf rust and delayed harvest due to multiple rain events.

Champaign, Illinois

Cooperator: Jana Murche
KWS Cereals USA
Planted: October 23, 2014
Harvested: July 6, 2015
Fertilizer: 30 N lbs fall; 125 lbs spring
Notes: A nice trial. Despite high N input we didn't see any lodging and perfect harvest conditions. Quite a few diseases were present, but not at a large pressure.

Urbana, Illinois

Cooperator: Fred Kolb
University of Illinois
Planted: September 25, 2014
Harvested: July 3, 2015
Fertilizer: 30 lbs am sulfate fall; 55 lbs spring
Notes: Adequate to excessive soil moisture through the spring growing season. Test weights were low due to stripe and leaf rust and delayed harvest due to multiple rain events.

Battle Ground, Indiana

Cooperator: Sam Brown
Trinity Wheat Research
Planted: October 25, 2014
Harvested: July 4, 2015
Fertilizer: 18-18-18 fall; 100-0-0 spring
Notes: We had 18 inches of rain from August to October of 2014. 12 inches of rain in June 2015. Rains started in June after anthesis (May 18th-23rd) and there was not much scab in this nursery. Having planted late because of the wet conditions, and with a cool spring there was very little BYDV. Seed quality (TW) was actually better than expected with all of the June and July rains and disease pressures. The winter was brutal with low temps often around zero and as low as -18 degrees F. There was usually at least a little snow cover. Winterkill was less than expected, especially since planting was delayed because of the excess moisture.

Lafayette, Indiana

Cooperator: Don Obert
Limagrain Cereal Seeds

New Haven, Indiana

Cooperator: Jana Murche
KWS Cereals USA
Planted: September 30, 2014
Harvested: July 11, 2015
Fertilizer: 30 lbs fall; 90 lbs spring
Notes: Location was not disease-free, but we missed the diseases on our visits. Very little stripe and leaf rust; scab probably had the most influence.

West Lafayette, Indiana

Cooperator: Mohsen Mohammadi
Purdue University
Harvested: July 15, 2015
Fertilizer: 95 N topdressed; Harmony Extra herbicide

West Lafayette, Indiana

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

Lexington, Kentucky

Cooperator: David Van Sanford
University of Kentucky
Planted: October 24, 2014
Harvested: July 6, 2015
Fertilizer: P and K according to soil test; N split in spring 35 and 70 actual
Notes: Test weights declined precipitously as rain after rain pummeled the plots. Ohio entries were severely bunted and not harvested.

Logan Co., Kentucky

Cooperator: David Van Sanford
University of Kentucky
Planted: October 25, 2014
Harvested: June 19, 2015
Fertilizer: P and K according to soil test; N split in spring 35 and 70 actual
Notes: Miscommunication with farmer led to fungicide application on these plots.

Clarksville, Maryland

Cooperator: Jason Wight, Aaron Cooper
University of Maryland
Planted: October 9, 2014
Harvested: July 2, 2015
Fertilizer: 10 N fall; 65 N spring
Notes: An extraordinarily cold and wet planting and harvest seasons reduced tillering and raised variability.

Ingham Co., Michigan

Cooperator: Eric Olson
Michigan State University
Planted: September 26, 2014
Harvested: July 16, 2015
Fertilizer: 150 lbs of 6-24-24
Notes: Excellent Septoria and Cephalosporium pressure. Stagonospora was present early on but Septoria appeared dominant at the time of rating. Fhb data are taken from the inoculated/misted nursery as well as yield trial plots. For both, 20 random spikes were rated to calculate both incidence and severity. Correlation for severity is ~0.30, not perfect all but maybe useful for some lines. Very wet conditions and saturated soil for most of the season. PHS data includes an overall visual sprouting score from 0-9 and a % sprouted florets. Genotypes not significant for either sprouting trait ($P>0.1$).

St. Paul, Minnesota

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

Columbia, Missouri

Cooperator: Anne McKendry, David Tague, Caitlin Vore
University of Missouri
Notes: This was not a good test - it was planted late and harvested late due to very wet weather. Both LSDs and CVs were excessively high. Weather was cool and wet through heading and into grain fill. Temperatures warmed during grainfill but conditions were still wet with rainfall occurring every 2 - 3 days through harvest. Test weights were low due to excessive rainfall, naturally-occurring FHB, and stripe rust in some varieties. Lodging was higher than usual again due to several severe storms.

Mead, Nebraska

Cooperator: Stephen Baenziger
University of Nebraska
Notes: Very severe year for stripe rust (new race) and scab. Nebraska check lines added to bring the trial to 35 entries.

Ithaca, New York

Cooperator: Mark Sorrells
Cornell University
Planted: September 25, 2014
Harvested: July 17, 2015
Fertilizer: 200 lbs of 10-20-20; 120 lbs am nitrate topdressed

Laurel Springs & Raleigh, North Carolina

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

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. One location with two reps, but conditions were excellent and the data quality is high.

Raleigh, North Carolina

Cooperator: David Livingston, Tan Tuong
USDA-ARS, Plant Science Research
Notes: Freeze test data.

Custar, Ohio

Cooperator: Clay Sneller
Ohio State University, OARDC
Harvested: July 24, 2015
Notes: Very late harvest due to excessive rain. Probably harvested three weeks after maturity. Shattering was minimal. Test weights were in the 35-45 range which I consider too low/stressed to really be useful.

Napoleon, Ohio

Cooperator: Don Obert
Limagrain Cereal Seeds

Wooster, Ohio

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

Enid, Oklahoma

Cooperator: Brett Carver
Oklahoma State University
Notes: Acid soil tolerance data.

Nairn, Ontario

Cooperator: Mark Etienne
Dow AgroSciences
Planted: November 14, 2014
Harvested: August 22, 2015
Fertilizer: 200 lbs of 6-24-24; 120kg NO3 actual in spring
Notes: Data set comprises of a yield trial (planted November 14th, 2014), disease nursery and inoculated FHB nursery. The disease and inoculated nursery were located at a different site than the main trial with about a month difference between planting dates. Fall was fairly open, high levels of winter kill in the trial; relatively good survival in the disease and inoculated FHB nursery. FHB levels were not as high as expected, low temperatures at or around anthesis reduced symptoms within this and other trials grown in the FHB nursery. Very low, if any, disease pressure in the late planted trial with very sparse tillering and lower than expected yields--rep 3 of trial was discarded due to differential winter kill.

Knoxville, Tennessee

Cooperator: Dennis West
University of Tennessee
Planted: October 24, 2014
Harvested: June 16, 2015
Fertilizer: 300 lbs 10-10-10 fall; 60 N spring

Blacksburg, Virginia

Cooperator: Carl Griffey
VPI & SU
Planted: October 1, 2014
Harvested: June 29, 2015
Fertilizer: 30-50-50 fall; 30-0-0 UAN spring

Warsaw, Virginia

Cooperator: Carl Griffey
VPI & SU
Planted: October 21, 2014
Harvested: June 22, 2015
Fertilizer: 30-60-60-5 fall; 24-0-0-3 spring

Central Ferry, Pullman, Washington

Cooperator: Kim Campbell
USDA-ARS, Wheat Genetics, Quality, Physiology, & Disease Research
Notes: Stripe rust came in early this year. Lines were only rated once at Pullman because heat matured the crop very early.

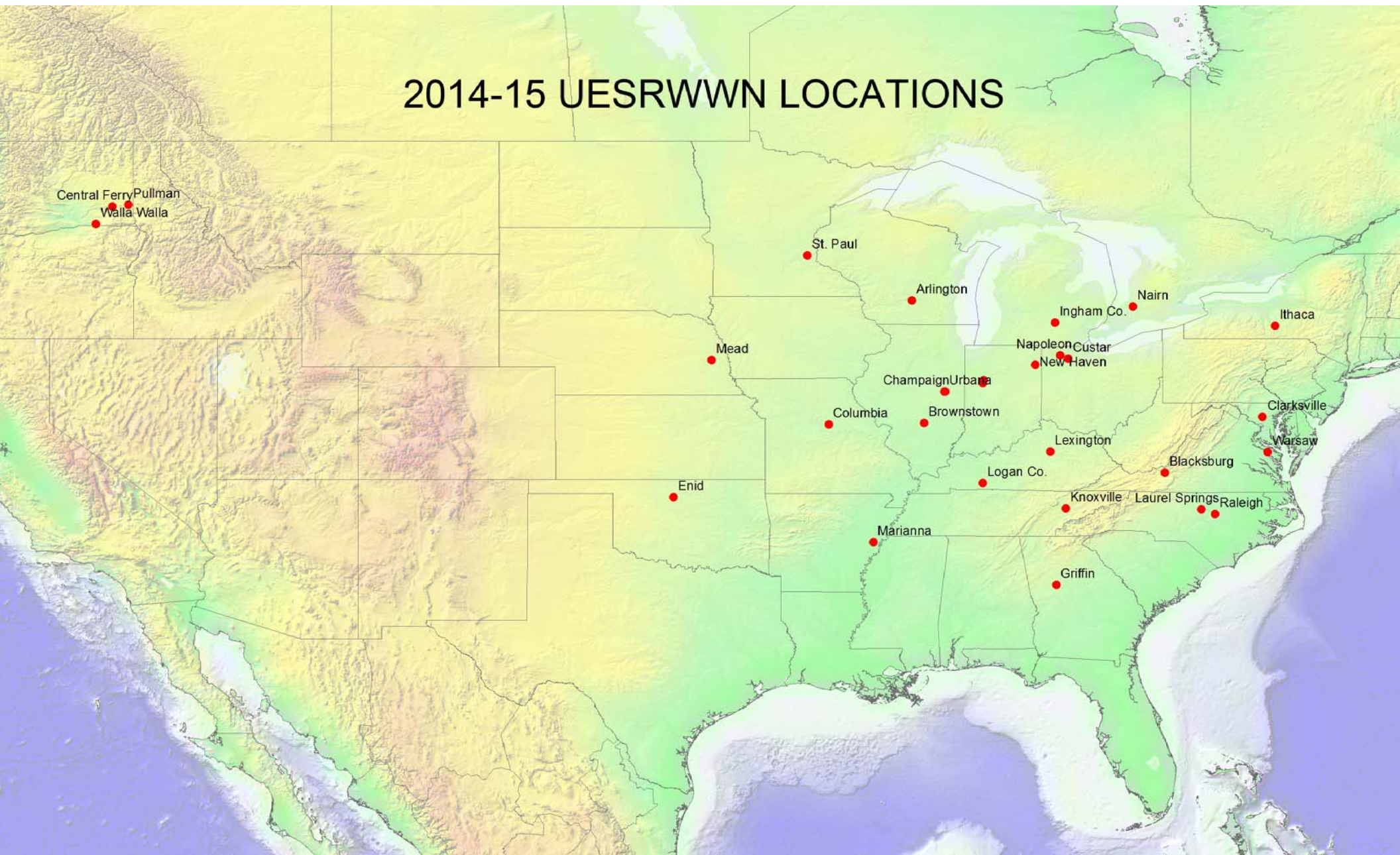
Mt. Vernon, Pullman, Walla Walla, Lind, Washington

Cooperator: Xianming Chen
USDA-ARS, Wheat Genetics, Quality, Physiology, & Disease Research
Notes: Seedling and adult stripe rust data.

Arlington, Wisconsin

Cooperator: Shawn Conley, Adam Roth
University of Wisconsin
Planted: September 24, 2014
Harvested: July 24, 2015
Fertilizer: 55 N spring; previous crop soybeans
Notes: Stripe rust was the predominant disease. Leaf rust, Stagonospora/Septoria, and FHB were also present.

2014-15 UESRWWN LOCATIONS



YIELD (bu/acre)

		Marianna		Griffin		Brownstown		Urbana		Champaign		BattleGround	
		AR		GA		IL		IL		IL		IN	
		Mason		Johnson		Kolb		Kolb		Murche		Brown	
		a	rank		rank	ab	rank	ab	rank	ab	rank	a	rank
1	Branson	72.1	2	66.2	18	73.0	17	107.4	7	102.0	3	77.5	5
2	Bess	46.2	21	65.8	19	77.0	10	107.4	7	96.4	19	70.9	10
3	Shirley	22.6	29	58.0	24	69.6	22	103.6	14	87.5	28	58.3	25
4	MO080104	67.1	8	66.5	17	79.7	5	105.2	12	101.7	4	70.5	11
5	0762A1-2-8	71.1	3	77.5	10	81.4	2	107.6	6	100.0	9	62.4	22
6	NC10-23663	57.0	14	51.2	31	61.4	31	106.1	11	85.4	30	52.6	30
7	OH07-263-3	16.9	31	59.5	22	74.4	14	96.2	27	87.3	29	55.2	26
8	TN1505	47.5	20	74.3	14	76.2	11	99.7	22	98.4	17	54.5	27
9	VA11W-106	75.2	1	85.9	2	83.5	1	112.3	1	99.7	11	75.9	8
10	VA11W-182	48.5	18	74.8	13	75.8	12	99.2	23	97.6	18	52.4	31
11	VA12W-248	45.3	23	65.8	19	69.6	22	99.0	26	100.3	7	69.2	12
12	OH07-206-69	40.8	25	51.7	30	69.6	22	94.5	29	88.4	26	52.7	29
13	OH08-180-48	40.0	26	58.0	24	73.7	15	106.6	10	100.1	8	53.3	28
14	053A1-2-5-3-5-3	48.1	19	65.2	21	73.7	15	100.1	21	99.4	13	63.0	21
15	11405A1-4	45.9	22	74.2	15	68.7	25	101.0	20	92.3	22	60.6	24
16	MD09W272-8-4-13-3	29.1	28	59.1	23	62.5	30	84.7	31	76.7	31	61.9	23
17	MDC07026-F2-19-13-1	67.6	5	82.5	4	75.1	13	108.4	5	101.0	5	80.5	4
18	MDC07026-F2-19-13-4	67.4	7	88.4	1	65.4	27	103.6	14	98.9	16	64.8	17
19	F2024R	59.5	12	76.1	12	77.2	9	103.4	16	90.0	25	64.4	19
20	F2029R	66.5	9	70.2	16	70.6	19	99.2	23	90.2	24	71.3	9
21	MO 110201	65.8	11	84.0	3	81.4	2	110.1	3	93.5	21	76.4	7
22	MO 121058	67.9	4	82.5	4	81.3	4	109.4	4	103.2	2	77.2	6
23	ES12-1049	53.6	15	78.7	8	78.5	6	101.7	18	99.5	12	91.8	2
24	ES12-1307	52.3	16	78.2	9	77.3	8	107.4	7	100.8	6	96.2	1
25	AR05094-4-1	65.8	10	77.1	11	70.6	19	111.9	2	99.3	14	68.5	13
26	AR05079-2-1	67.6	6	82.4	6	72.8	18	101.7	18	99.2	15	83.6	3
27	KY05C-1369-14-6-3	44.6	24	54.7	28	70.4	21	89.2	30	87.9	27	68.5	13
28	KY05C-1051-37-18-5	59.1	13	55.7	27	67.2	26	99.1	25	91.4	23	64.8	17
29	IL02-19463-7	17.5	30	52.1	29	64.1	29	96.0	28	95.3	20	64.3	20
30	IL10-19464	49.9	17	56.5	26	78.3	7	103.7	13	99.9	10	65.3	16
31	IL10-21934	35.5	27	79.4	7	65.2	28	103.3	17	111.5	1	68.4	15
LOCATION MEANS		52.1		69.4		73.1		102.5		95.9		67.6	
LSD (.05)		11.8				11.3		5.3		5.22		12.9	
CV %		11.1				7.9		2.6		3.31		14.5	
Reps		2		1		3		3		3		2	
Harvest Plot Area (sq.ft.)		70		50		34		34		50		32	

YIELD (bu/acre)

		Lafayette		New Haven		W Lafayette		Lexington		Logan Co.		Clarksville	
		IN		IN		IN		KY		KY		MD	
		Obert		Murche		Mohammadi		Van Sanford		Van Sanford		Wight	
		ab	rank	ab	rank	ab	rank	ab	rank	ab	rank	a	rank
1	Branson	87.2	18	75.0	21	69.8	14	68.3	16	100.3	4	53.6	28
2	Bess	84.8	25	86.6	10	70.3	11	68.9	15	93.5	14	42.6	31
3	Shirley	85.5	22	64.1	29	60.4	28	74.1	7	101.0	3	48.5	29
4	MO080104	91.3	11	88.3	8	79.5	2	67.0	20	99.5	6	76.4	4
5	0762A1-2-8	94.2	7	98.9	2	68.2	17	66.8	21	105.2	2	63.7	17
6	NC10-23663	84.0	28	67.6	27	51.4	30	63.8	23	83.4	25	69.7	12
7	OH07-263-3	97.3	5	84.2	11	65.6	20			96.4	11	81.7	1
8	TN1505	86.1	21	70.4	26	64.4	23	75.0	5	98.6	8	71.7	8
9	VA11W-106	100.9	2	77.6	18	70.2	13	70.9	9	110.5	1	61.7	21
10	VA11W-182	90.0	14	72.8	25	67.9	18	63.4	24	86.3	24	63.1	19
11	VA12W-248	88.2	17	76.8	20	64.6	22	78.2	4	87.5	22	71.8	7
12	OH07-206-69	90.9	12	78.1	17	45.9	31			79.3	29	69.1	13
13	OH08-180-48	90.2	13	82.8	13	59.2	29			82.5	26	44.7	30
14	053A1-2-5-3-5-3	86.2	19	83.1	12	73.3	6	67.0	19	89.9	17	63.7	18
15	11405A1-4	85.1	24	78.6	15	64.8	21	69.8	14	80.9	28	56.1	26
16	MD09W272-8-4-13-3	73.4	31	52.1	31	64.3	24	62.4	25	64.0	31	70.7	10
17	MDC07026-F2-19-13-1	106.2	1	87.9	9	75.4	3	81.0	2	87.9	19	76.5	3
18	MDC07026-F2-19-13-4	98.1	4	88.8	7	75.2	4	74.2	6	87.5	21	73.3	6
19	F2024R	88.4	15	64.9	28	67.0	19	57.9	28	81.7	27	59.0	25
20	F2029R	84.0	27	73.7	24	60.4	27	61.8	26	97.4	10	66.5	15
21	MO 110201	81.1	29	77.3	19	68.7	16	71.5	8	92.1	15	59.3	24
22	MO 121058	98.8	3	80.2	14	71.0	9	82.7	1	98.8	7	74.7	5
23	ES12-1049	96.6	6	93.9	4	74.5	5	67.6	18	91.8	16	71.2	9
24	ES12-1307	92.9	10	99.6	1	71.8	8	70.4	12	98.4	9	65.1	16
25	AR05094-4-1	92.9	9	78.1	16	69.3	15	70.6	11	99.9	5	59.5	23
26	AR05079-2-1	84.2	26	73.9	23	73.1	7	66.3	22	96.2	12	54.5	27
27	KY05C-1369-14-6-3	88.3	16	60.5	30	63.0	25	69.8	13	89.3	18	69.1	14
28	KY05C-1051-37-18-5	81.0	30	74.5	22	62.5	26	68.0	17	94.6	13	70.1	11
29	IL02-19463-7	85.4	23	94.3	3	70.5	10	58.5	27	87.1	23	60.4	22
30	IL10-19464	86.1	20	93.6	5	70.2	12	70.7	10	72.6	30	63.0	20
31	IL10-21934	93.3	8	91.1	6	81.8	1	78.4	3	87.9	20	76.8	2
LOCATION MEANS		89.4		79.7		67.6		69.5		91.0		64.8	
LSD (.05)		10.5		9.91		4.72		8.96		12.6		15.9	
CV %		5.9		5.99		4.97		5.6		6.3		17	
Reps		2		2				2		2		3	
Harvest Plot Area (sq.ft.)				45		48		40		40		46	

YIELD (bu/acre)

		Ingham Co. MI		Columbia MO		Mead NE		Ithaca NY		Raleigh NC		Custar OH	
		Olson		McKendry		Baenziger		Sorrells		Marshall		Sneller	
		ab	rank	a	rank		rank	ab	rank	a	rank	a	rank
1	Branson	87.3	1	32.5	23	27.1	18	74.7	11	99.1	5	62.8	11
2	Bess	64.9	25	43.3	12	31.5	13	81.2	2	88.7	17	63.0	10
3	Shirley	70.2	21	32.5	23	13.8	27	66.2	28	104.6	2	60.1	15
4	MO080104	69.0	23	49.1	5	48.6	4	77.5	6	95.5	7	69.9	4
5	0762A1-2-8	84.6	2	54.2	2	38.3	8	67.1	27	88.0	20	54.1	22
6	NC10-23663	71.3	18	25.2	31	17.4	24	68.1	24	92.0	13	47.4	30
7	OH07-263-3	75.7	10	32.2	26	12.9	29	75.1	9	81.0	28	64.4	8
8	TN1505	80.6	6	42.9	13	22.2	21	66.0	29	85.4	22	65.1	7
9	VA11W-106	71.1	19	47.4	6	44.9	6	80.7	3	92.6	11	58.3	19
10	VA11W-182	63.5	27	44.7	10	29.8	15	65.0	30	69.3	29	58.6	18
11	VA12W-248	73.7	15	35.5	22	13.5	28	72.7	14	97.6	6	55.8	20
12	OH07-206-69	63.4	28	35.8	21	5.3	31	69.5	20	101.3	4	52.9	25
13	OH08-180-48	72.1	17	31.6	27	27.6	17	67.6	26	89.9	15	53.7	23
14	053A1-2-5-3-5-3	81.5	5	42.8	14	22.4	20	69.9	19	93.4	9	61.3	13
15	11405A1-4	77.4	8	40.3	16	22.0	22	68.9	21	84.3	23	58.7	17
16	MD09W272-8-4-13-3	55.2	31	38.8	20	15.0	26	54.6	31	86.2	21	43.4	31
17	MDC07026-F2-19-13-1	74.1	13	44.5	11	56.5	1	68.6	22	104.1	3	68.5	6
18	MDC07026-F2-19-13-4	75.6	11	40.7	15	50.6	2	71.5	16	107.7	1	70.2	3
19	F2024R	66.7	24	29.6	29	32.6	12	74.0	12	94.1	8	59.3	16
20	F2029R	70.9	20	39.5	19	35.9	10	68.2	23	88.5	18	54.8	21
21	MO 110201	64.4	26	56.6	1	35.2	11	74.0	13	88.2	19	53.2	24
22	MO 121058	70.2	21	46.1	9	45.4	5	74.8	10	93.0	10	71.2	1
23	ES12-1049	75.9	9	47.2	7	22.9	19	86.3	1	90.1	14	61.8	12
24	ES12-1307	82.3	3	31.6	27	15.7	25	80.1	4	92.2	12	68.9	5
25	AR05094-4-1	63.2	29	49.6	4	48.7	3	78.9	5	84.3	23	70.6	2
26	AR05079-2-1	78.1	7	46.4	8	38.7	7	67.8	25	83.0	26	60.4	14
27	KY05C-1369-14-6-3	72.6	16	32.5	23	19.9	23	70.3	17	82.2	27	51.3	27
28	KY05C-1051-37-18-5	62.3	30	40.2	17	29.0	16	72.5	15	83.6	25	50.3	28
29	IL02-19463-7	74.7	12	29.0	30	10.6	30	70.1	18	67.1	30	48.3	29
30	IL10-19464	81.7	4	52.0	3	37.7	9	76.6	8	65.0	31	52.9	25
31	IL10-21934	74.0	14	39.8	18	30.9	14	77.1	7	89.9	15	63.2	9
LOCATION MEANS		72.5		40.5		29.1		72.1		89.1		59.2	
LSD (.05)		5.5		13.8		12		9.3				15.9	
CV %		4.5		20.7		22		6				17	
Reps		2		3		2		3				2	
Harvest Plot Area (sq.ft.)		60		55		50		41				50	

YIELD (bu/acre)

		Napoleon OH Obert		Nairn ON Etienne		Knoxville TN West		Blacksburg VA Griffey		Warsaw VA Griffey		Arlington WI Roth	
		ab	rank	a	rank	a	rank	ab	rank	ab	rank	a	rank
1	Branson	87.8	16	65.2	4	83.9	9	65.7	19	80.3	16	108.0	3
2	Bess	88.9	14	59.8	10	80.4	18	66.5	17	77.8	20	93.5	19
3	Shirley	73.9	30	67.0	3	84.9	7	76.1	6	94.6	1	84.7	25
4	MO080104	95.6	3	60.6	7	81.7	15	75.3	8	85.5	6	102.6	5
5	0762A1-2-8	89.2	13	53.7	13	72.8	25	81.0	4	77.8	19	94.3	16
6	NC10-23663	68.0	31	68.1	2	83.0	13	73.4	10	81.8	14	89.8	23
7	OH07-263-3	94.8	5	32.3	26	82.7	14	68.7	15	85.4	7	73.1	29
8	TN1505	89.3	12	64.7	5	83.5	10	77.4	5	84.3	10	95.9	13
9	VA11W-106	83.0	22	36.4	22	93.7	1	66.5	18	85.0	8	110.6	1
10	VA11W-182	84.0	21	60.1	8	76.3	22	62.8	21	90.6	2	97.7	10
11	VA12W-248	84.0	20	33.0	25	88.1	4	69.1	13	85.8	5	92.9	20
12	OH07-206-69	81.1	25	22.7	31	67.4	29	56.3	30	39.4	31	60.4	31
13	OH08-180-48	90.5	11	50.3	15	60.8	31	56.5	29	57.8	30	65.5	30
14	053A1-2-5-3-5-3	74.5	28	39.0	20	78.4	20	60.7	22	68.6	27	96.1	12
15	11405A1-4	82.4	23	29.0	29	73.7	24	57.2	26	68.7	26	90.5	21
16	MD09W272-8-4-13-3	74.3	29	35.1	24	63.6	30	59.9	24	63.8	28	82.0	27
17	MDC07026-F2-19-13-1	101.6	1	59.7	11	80.0	19	75.9	7	88.9	3	98.3	8
18	MDC07026-F2-19-13-4	91.9	9	30.9	27	74.9	23	68.9	14	88.2	4	94.2	17
19	F2024R	78.5	27	69.9	1	67.8	28	60.5	23	76.8	22	103.2	4
20	F2029R	92.0	8	42.4	17	70.1	26	55.7	31	77.7	21	90.0	22
21	MO 110201	92.4	6	51.7	14	84.5	8	72.3	11	84.1	11	97.9	9
22	MO 121058	84.9	19	56.9	12	91.8	2	83.7	1	84.7	9	97.0	11
23	ES12-1049	95.0	4	30.6	28	83.2	12	75.3	8	79.8	17	98.4	7
24	ES12-1307	91.3	10	42.1	18	80.6	16	64.2	20	81.0	15	95.8	15
25	AR05094-4-1	87.9	15	62.4	6	87.6	5	67.8	16	82.5	13	108.5	2
26	AR05079-2-1	79.7	26	59.8	9	89.0	3	81.4	3	78.7	18	94.0	18
27	KY05C-1369-14-6-3	85.2	18	28.2	30	70.0	27	56.9	28	75.0	24	75.7	28
28	KY05C-1051-37-18-5	82.4	24	36.1	23	85.3	6	70.8	12	76.0	23	95.8	14
29	IL02-19463-7	92.3	7	43.4	16	83.4	11	59.7	25	59.1	29	88.8	24
30	IL10-19464	85.7	17	38.6	21	76.8	21	57.0	27	74.2	25	83.8	26
31	IL10-21934	98.4	2	41.0	19	80.4	17	82.3	2	83.7	12	100.5	6
LOCATION MEANS		86.5		47.4		79.4		67.9		78.0		92.3	
LSD (.05)		12.5		10.49		13.9		10.26		4.3		8.6	
CV %		7		11.38		10.7		8.9		3.2		13.5	
Reps		2		3		3		2		2		3	
Harvest Plot Area (sq.ft.)				45		40		45		45		70	

YIELD (bu/acre)

		ENTRY MEANS ALL LOCATIONS		ENTRY MEANS IN-REGION		ENTRY MEANS CV <10%	
			rank		rank		rank
1	Branson	76.1	11	78.8	8	83.0	11
2	Bess	72.9	15	75.1	15	81.8	14
3	Shirley	69.2	24	72.3	22	79.0	20
4	MO080104	79.3	3	81.3	3	85.8	7
5	0762A1-2-8	77.2	6	78.9	7	86.3	4
6	NC10-23663	67.5	26	70.5	25	74.3	29
7	OH07-263-3	69.3	23	72.4	20	83.4	10
8	TN1505	73.9	14	76.3	14	82.0	13
9	VA11W-106	78.9	4	80.2	4	85.5	8
10	VA11W-182	70.6	20	72.3	23	78.4	21
11	VA12W-248	71.6	16	74.5	16	80.7	18
12	OH07-206-69	61.6	30	64.7	30	71.4	30
13	OH08-180-48	65.9	27	68.1	29	78.3	22
14	053A1-2-5-3-5-3	70.9	18	73.4	17	79.1	19
15	11405A1-4	68.0	25	69.8	26	76.6	26
16	MD09W272-8-4-13-3	59.7	31	61.8	31	65.2	31
17	MDC07026-F2-19-13-1	81.3	1	82.3	1	87.1	1
18	MDC07026-F2-19-13-4	77.1	7	77.8	11	83.7	9
19	F2024R	70.9	17	72.4	19	75.9	27
20	F2029R	70.7	19	72.3	21	77.0	25
21	MO 110201	75.7	12	77.1	12	81.8	15
22	MO 121058	80.3	2	81.8	2	86.4	3
23	ES12-1049	76.9	8	79.3	5	85.9	6
24	ES12-1307	76.5	9	79.2	6	86.0	5
25	AR05094-4-1	77.3	5	78.6	9	82.5	12
26	AR05079-2-1	75.5	13	76.9	13	81.0	16
27	KY05C-1369-14-6-3	65.6	28	68.2	28	75.3	28
28	KY05C-1051-37-18-5	69.7	22	72.2	24	77.1	24
29	IL02-19463-7	65.5	29	68.6	27	77.5	23
30	IL10-19464	70.5	21	72.6	18	80.8	17
31	IL10-21934	76.4	10	78.3	10	86.8	2
LOCATION MEANS		72.3		74.4		80.5	
LSD (.05)							
CV %							
Reps							
Harvest Plot Area (sq.ft.)							

TEST WEIGHT (lbs/bu)

		Marianna AR Mason	Griffin GA Johnson	Brownstown IL Kolb	Urbana IL Kolb	Champaign IL Murche
1	Branson	56.6	55.1	48.6	51.6	55.0
2	Bess	57.8	56.7	53.1	54.8	56.6
3	Shirley	55.0	52.5	50.0	52.3	54.1
4	MO080104	58.7	58.6	53.9	55.9	63.3
5	0762A1-2-8	55.5	55.0	50.3	52.2	55.3
6	NC10-23663	56.8	57.8	49.6	53.8	54.2
7	OH07-263-3	55.0	56.4	53.1	55.3	56.0
8	TN1505	56.4	56.6	52.2	54.5	59.9
9	VA11W-106	58.8	57.5	51.7	54.1	54.2
10	VA11W-182	56.0	54.2	49.7	51.9	54.3
11	VA12W-248	54.5	57.7	49.6	53.6	52.7
12	OH07-206-69	54.3	54.4	50.1	52.9	57.5
13	OH08-180-48	55.2	54.0	50.8	54.4	58.4
14	053A1-2-5-3-5-3	58.5	55.8	50.8	55.3	58.3
15	11405A1-4	55.0	54.9	49.7	53.4	57.6
16	MD09W272-8-4-13-3	57.4	57.5	54.0	55.7	58.7
17	MDC07026-F2-19-13-1	60.8	58.5	53.5	56.1	61.2
18	MDC07026-F2-19-13-4	59.8	58.4	53.3	55.5	58.3
19	F2024R	57.6	58.1	51.8	54.2	55.8
20	F2029R	57.5	56.0	50.1	53.0	55.0
21	MO 110201	58.2	56.8	54.1	54.7	58.1
22	MO 121058	59.0	56.0	50.9	52.9	56.2
23	ES12-1049	56.1	57.2	51.7	55.2	58.0
24	ES12-1307	57.8	56.7	52.6	54.5	60.3
25	AR05094-4-1	57.3	57.7	51.1	52.7	53.4
26	AR05079-2-1	58.9	59.2	53.3	57.0	58.7
27	KY05C-1369-14-6-3	59.3	59.4	53.8	57.9	61.1
28	KY05C-1051-37-18-5	59.5	59.5	52.4	57.1	61.5
29	IL02-19463-7	55.0	56.6	52.1	54.5	59.1
30	IL10-19464	58.4	57.7	54.4	56.5	60.3
31	IL10-21934	55.7	57.2	51.1	55.3	60.1
LOCATION MEANS		57.2	56.8	51.7	54.5	57.5

TEST WEIGHT (lbs/bu)

		BattleGround	New Haven	W Lafayette	Lexington	Logan Co.
		IN	IN	IN	KY	KY
		Brown	Murche	Mohammadi	Van Sanford	Van Sanford
1	Branson	57.0	50.2	52.0	52.6	58.9
2	Bess	58.9	52.0	52.7	55.6	57.7
3	Shirley	57.0	50.0	50.5	51.8	56.6
4	MO080104	57.8	57.8	55.3	56.2	60.8
5	0762A1-2-8	55.1	56.0	50.7	51.8	57.9
6	NC10-23663	54.8	53.1	51.3	54.7	59.1
7	OH07-263-3	55.8	53.9	54.6		57.9
8	TN1505	57.8	55.6	54.6	53.7	60.4
9	VA11W-106	54.3	54.0	53.1	52.0	59.8
10	VA11W-182	55.8	53.2	51.2	51.9	55.3
11	VA12W-248	56.3	50.7	50.9	52.2	57.6
12	OH07-206-69	55.4	50.9	49.1		52.3
13	OH08-180-48	54.8	55.0	50.9		54.9
14	053A1-2-5-3-5-3	57.2	53.1	53.3	51.7	59.6
15	11405A1-4	57.3	52.1	50.4	53.4	53.5
16	MD09W272-8-4-13-3	54.9	54.3	55.6	55.9	59.4
17	MDC07026-F2-19-13-1	55.4	58.5	55.5	55.2	58.6
18	MDC07026-F2-19-13-4	56.4	56.8	55.7	54.7	58.3
19	F2024R	53.1	49.2	53.6	51.8	56.9
20	F2029R	56.9	51.4	52.1	49.1	56.7
21	MO 110201	56.3	50.1	53.8	54.7	59.3
22	MO 121058	54.8	53.7	50.7	50.0	58.7
23	ES12-1049	57.7	53.7	54.1	54.0	61.0
24	ES12-1307	53.5	57.8	53.9	54.2	61.3
25	AR05094-4-1	54.2	50.0	50.4	52.3	57.9
26	AR05079-2-1	54.6	53.2	54.4	55.6	60.9
27	KY05C-1369-14-6-3	56.0	52.6	55.8	57.3	61.6
28	KY05C-1051-37-18-5	55.2	58.5	54.2	56.1	61.6
29	IL02-19463-7	54.3	59.7	55.8	53.8	58.9
30	IL10-19464	55.2	54.7	53.6	56.0	60.3
31	IL10-21934	54.6	57.1	53.9	57.4	57.8
LOCATION MEANS		55.8	53.8	53.0	53.8	58.4

TEST WEIGHT (lbs/bu)

		Clarksville MD Wight	Ingham Co. MI Olson	Columbia MO McKendry	Ithaca NY Sorrells	Raleigh NC Marshall
1	Branson	58.0	58.5	45.1	56.1	56.1
2	Bess	59.7	53.0	47.8	57.0	58.9
3	Shirley	57.7	51.6	43.4	55.4	52.8
4	MO080104	62.5	56.2	52.7	58.9	57.4
5	0762A1-2-8	54.6	53.1	47.7	56.0	56.4
6	NC10-23663	59.2	54.9	45.1	57.4	59.8
7	OH07-263-3	60.9	60.0	49.2	57.2	59.0
8	TN1505	57.2	60.3	46.0	58.1	58.4
9	VA11W-106	60.1	55.5	46.9	57.1	58.6
10	VA11W-182	56.0	53.5	42.3	55.3	54.6
11	VA12W-248	60.2	53.6	47.9	56.7	55.6
12	OH07-206-69	56.7	55.6	47.0	56.4	59.0
13	OH08-180-48	53.7	55.6	46.1	56.4	48.5
14	053A1-2-5-3-5-3	56.6	57.5	47.3	56.5	57.3
15	11405A1-4	58.5	53.8	46.2	56.6	55.2
16	MD09W272-8-4-13-3	59.9	55.3	50.5	59.0	59.1
17	MDC07026-F2-19-13-1	61.0	54.0	48.0	59.0	58.2
18	MDC07026-F2-19-13-4	60.2	55.1	49.9	58.7	58.5
19	F2024R	58.9	52.2	47.0	57.7	59.4
20	F2029R	55.7	52.9	46.7	57.3	57.2
21	MO 110201	63.7	54.1	48.8	57.7	59.3
22	MO 121058	55.5	54.5	45.6	57.7	47.8
23	ES12-1049	58.1	55.4	48.2	57.8	57.9
24	ES12-1307	56.6	58.1	47.5	56.6	58.9
25	AR05094-4-1	57.6	52.0	45.4	57.4	58.2
26	AR05079-2-1	60.4	58.9	49.1	59.4	60.7
27	KY05C-1369-14-6-3	59.8	58.2	51.1	59.4	60.4
28	KY05C-1051-37-18-5	61.8	57.9	49.3	59.1	62.3
29	IL02-19463-7	58.6	55.6	50.3	56.5	58.1
30	IL10-19464	57.3	61.9	52.8	57.0	59.3
31	IL10-21934	59.1	57.9	49.9	57.9	57.7
LOCATION MEANS		58.6	55.7	47.8	57.4	57.4

TEST WEIGHT (lbs/bu)

		Nairn ON Etienne	Knoxville TN West	Blacksburg VA Griffey	Warsaw VA Griffey	Arlington WI Roth
1	Branson	59.5	55.4	54.0	57.2	57.9
2	Bess	61.3	57.0	55.7	58.2	58.6
3	Shirley	59.5	56.2	52.7	56.6	52.4
4	MO080104	62.4	58.3	56.8	60.1	60.7
5	0762A1-2-8	58.9	54.6	53.2	55.8	57.2
6	NC10-23663	60.9	56.3	56.1	58.6	55.1
7	OH07-263-3	62.7	58.7	56.4	58.5	57.0
8	TN1505	62.4	57.2	56.2	58.1	59.9
9	VA11W-106	61.5	56.7	56.0	57.8	60.3
10	VA11W-182	60.6	54.8	52.3	55.3	56.9
11	VA12W-248	60.3	56.0	54.7	58.0	57.1
12	OH07-206-69	57.9	56.1	53.7	54.4	48.6
13	OH08-180-48	58.7	55.9	51.9	55.2	51.4
14	053A1-2-5-3-5-3	60.2	58.4	54.7	56.6	59.6
15	11405A1-4	59.7	55.6	53.6	56.5	55.8
16	MD09W272-8-4-13-3	62.4	58.2	56.4	59.1	59.7
17	MDC07026-F2-19-13-1	62.0	59.2	54.8	59.0	59.8
18	MDC07026-F2-19-13-4	62.8	57.8	54.9	58.6	57.9
19	F2024R	59.0	58.3	55.1	57.6	59.9
20	F2029R	58.7	57.0	53.9	56.5	57.3
21	MO 110201	59.1	58.7	54.6	58.4	57.6
22	MO 121058	58.7	55.8	54.2	56.7	58.3
23	ES12-1049	59.4	57.1	55.6	59.3	60.0
24	ES12-1307	59.8	57.8	54.8	59.1	59.0
25	AR05094-4-1	57.2	57.5	54.2	57.2	60.1
26	AR05079-2-1	62.2	59.7	56.3	58.6	60.9
27	KY05C-1369-14-6-3	62.2	58.5	57.3	60.4	61.9
28	KY05C-1051-37-18-5	59.8	60.0	58.0	59.9	61.2
29	IL02-19463-7	60.6	57.2	55.7	58.5	60.7
30	IL10-19464	59.3	58.1	58.2	60.1	59.9
31	IL10-21934	59.5	56.7	57.1	59.8	59.6
LOCATION MEANS		60.3	57.3	55.1	57.9	58.1

TEST WEIGHT (lbs/bu)

ENTRY MEANS ALL LOCATIONS

			rank
1	Branson	54.8	22
2	Bess	56.2	16
3	Shirley	53.4	31
4	MO080104	58.2	2
5	0762A1-2-8	54.4	27
6	NC10-23663	55.4	19
7	OH07-263-3	56.7	11
8	TN1505	56.8	9
9	VA11W-106	56.0	17
10	VA11W-182	53.7	30
11	VA12W-248	54.8	21
12	OH07-206-69	53.8	28
13	OH08-180-48	53.8	29
14	053A1-2-5-3-5-3	55.9	18
15	11405A1-4	54.4	25
16	MD09W272-8-4-13-3	57.2	7
17	MDC07026-F2-19-13-1	57.4	6
18	MDC07026-F2-19-13-4	57.1	8
19	F2024R	55.4	20
20	F2029R	54.6	24
21	MO 110201	56.4	14
22	MO 121058	54.4	26
23	ES12-1049	56.4	15
24	ES12-1307	56.5	13
25	AR05094-4-1	54.7	23
26	AR05079-2-1	57.6	4
27	KY05C-1369-14-6-3	58.2	3
28	KY05C-1051-37-18-5	58.2	1
29	IL02-19463-7	56.6	12
30	IL10-19464	57.6	5
31	IL10-21934	56.8	10
LOCATION MEANS		55.9	

HEADING DATE (Julian days)

		Marianna AR Mason	Griffin GA Johnson	Champaign IL Murche	Urbana IL Kolb	BattleGround IN Brown
1	Branson	115	104	135.7	132	139.0
2	Bess	116	101	138.3	136	140.0
3	Shirley	116	105	138.0	136	140.0
4	MO080104	115	101	136.3	135	138.5
5	0762A1-2-8	115	104	138.3	134	140.0
6	NC10-23663	113	102	137.7	135	140.0
7	OH07-263-3	116	103	137.3	134	141.0
8	TN1505	116	104	137.7	135	138.5
9	VA11W-106	116	105	139.0	136	141.0
10	VA11W-182	116	106	137.3	134	139.0
11	VA12W-248	109	100	137.7	135	139.0
12	OH07-206-69	116	110	137.0	135	140.0
13	OH08-180-48	114	106	137.7	135	140.0
14	053A1-2-5-3-5-3	115	105	136.3	134	139.0
15	11405A1-4	113	102	136.3	133	139.0
16	MD09W272-8-4-13-3	117	96	138.3	131	140.0
17	MDC07026-F2-19-13-1	116	107	138.0	135	139.0
18	MDC07026-F2-19-13-4	116	106	138.0	135	140.0
19	F2024R	116	108	138.3	137	140.5
20	F2029R	115	108	138.7	137	141.0
21	MO 110201	117	107	140.3	137	143.5
22	MO 121058	115	107	138.3	137	141.0
23	ES12-1049	112	101	136.1	133	138.5
24	ES12-1307	113	105	136.0	134	138.0
25	AR05094-4-1	116	106	137.3	136	140.0
26	AR05079-2-1	117	108	138.3	137	141.0
27	KY05C-1369-14-6-3	107	102	136.0	129	136.0
28	KY05C-1051-37-18-5	117	106	137.7	136	140.0
29	IL02-19463-7	116	105	135.0	132	137.5
30	IL10-19464	115	102	137.0	134	138.0
31	IL10-21934	109	95	136.3	131	138.0
LOCATION MEANS		114.7	104.1	137.4	134.5	139.5

HEADING DATE (Julian days)

		Lafayette	New Haven	W Lafayette	Lexington	Logan Co.
		IN	IN	IN	KY	KY
		Obert	Murche	Mohammadi	Van Sanford	Van Sanford
1	Branson	136.0	141.5	139.5	128.6	120
2	Bess	137.5	143.0	143.3	130.2	124
3	Shirley	138.5	145.5	144.3	130.6	126
4	MO080104	136.0	143.5	141.0	129.6	123
5	0762A1-2-8	138.0	143.5	143.0	129.2	123
6	NC10-23663	137.0	144.0	145.3	129.3	126
7	OH07-263-3	136.0	143.0	143.3	131.4	124
8	TN1505	136.5	144.0	141.5	129.0	123
9	VA11W-106	138.0	144.0	143.3	130.7	125
10	VA11W-182	137.0	144.0	143.8	129.0	124
11	VA12W-248	135.5	143.5	142.0	129.1	122
12	OH07-206-69	137.0	143.5	144.8	131.3	125
13	OH08-180-48	136.0	144.0	142.8	131.1	124
14	053A1-2-5-3-5-3	135.0	144.0	142.3	129.4	124
15	11405A1-4	135.5	142.5	142.0	128.7	124
16	MD09W272-8-4-13-3	136.0	143.0	143.8	128.7	125
17	MDC07026-F2-19-13-1	136.5	144.5	143.5	132.0	125
18	MDC07026-F2-19-13-4	136.5	144.5	143.3	130.8	126
19	F2024R	138.0	145.5	143.0	131.6	126
20	F2029R	138.0	146.0	144.5	132.1	125
21	MO 110201	139.0	147.0	146.8	131.9	127
22	MO 121058	138.0	145.0	144.5	131.0	126
23	ES12-1049	135.0	142.0	141.3	127.4	123
24	ES12-1307	136.0	142.5	140.5	129.6	123
25	AR05094-4-1	137.5	144.0	141.3	130.6	124
26	AR05079-2-1	139.0	145.5	144.3	132.9	129
27	KY05C-1369-14-6-3	134.0	141.5	139.0	126.3	121
28	KY05C-1051-37-18-5	137.0	144.0	143.3	131.7	126
29	IL02-19463-7	135.0	142.0	138.5	128.4	122
30	IL10-19464	135.5	142.0	140.5	129.4	125
31	IL10-21934	134.0	141.5	139.0	127.2	121
LOCATION MEANS		136.6	143.7	142.5	130.0	124.2

HEADING DATE (Julian days)

		Clarksville MD Wight	Columbia MO McKendry	Ithaca NY Sorrells	Raleigh NC Marshall	Nairn ON Etienne
1	Branson	117	130.3	148.3	109	157.0
2	Bess	120	131.7	149.3	110	158.7
3	Shirley	120	132.7	150.3	111	158.3
4	MO080104	120	129.7	148.7	109	158.0
5	0762A1-2-8	120	132.7	149.7	110	159.0
6	NC10-23663	119	133.0	148.7	110	160.3
7	OH07-263-3	120	132.0	148.7	111	159.7
8	TN1505	120	132.7	148.7	109	157.7
9	VA11W-106	122	133.7	150.0	111	158.7
10	VA11W-182	117	131.7	149.7	110	159.0
11	VA12W-248	117	131.3	149.0	108	159.3
12	OH07-206-69	121	132.3	148.0	112	158.3
13	OH08-180-48	120	132.0	149.0	112	159.0
14	053A1-2-5-3-5-3	120	132.0	148.7	110	158.7
15	11405A1-4	120	132.0	147.3	110	157.7
16	MD09W272-8-4-13-3	118	132.0	148.3	106	158.0
17	MDC07026-F2-19-13-1	124	133.0	148.7	111	159.3
18	MDC07026-F2-19-13-4	122	134.0	149.0	112	159.7
19	F2024R	122	133.3	149.3	113	158.7
20	F2029R	121	133.3	150.0	112	159.3
21	MO 110201	125	133.7	151.0	114	160.0
22	MO 121058	124	134.3	150.3	111	161.0
23	ES12-1049	117	131.0	147.3	107	158.0
24	ES12-1307	117	130.0	148.0	108	159.0
25	AR05094-4-1	122	131.3	148.7	110	157.3
26	AR05079-2-1	124	135.0	150.7	112	162.0
27	KY05C-1369-14-6-3	116	129.3	147.0	107	158.3
28	KY05C-1051-37-18-5	121	132.3	150.0	111	158.0
29	IL02-19463-7	117	129.0	147.0	109	157.7
30	IL10-19464	116	130.3	147.7	106	157.3
31	IL10-21934	116	130.7	147.3	105	157.7
LOCATION MEANS		119.8	132.0	148.8	109.9	158.7

HEADING DATE (Julian days)

		Knoxville	Blacksburg	Warsaw	ENTRY MEANS	
		TN	VA	VA	ALL LOCATIONS	
		West	Griffey	Griffey		rank
1	Branson	117	127.5	126.0	129.1	5
2	Bess	120	129.0	126.5	130.8	18
3	Shirley	120	128.5	127.5	131.6	23
4	MO080104	120	128.5	126.5	130.0	11
5	0762A1-2-8	120	127.5	126.0	130.7	15
6	NC10-23663	119	128.0	127.0	130.8	16
7	OH07-263-3	120	128.0	126.0	130.8	17
8	TN1505	120	127.5	125.5	130.3	13
9	VA11W-106	122	129.5	127.0	131.8	25
10	VA11W-182	117	129.0	122.5	130.3	12
11	VA12W-248	117	127.5	125.5	129.3	7
12	OH07-206-69	121	129.0	127.0	131.6	22
13	OH08-180-48	120	130.5	127.0	131.1	20
14	053A1-2-5-3-5-3	120	129.0	126.0	130.5	14
15	11405A1-4	120	128.0	126.0	129.8	10
16	MD09W272-8-4-13-3	118	126.5	123.5	129.4	8
17	MDC07026-F2-19-13-1	124	129.5	127.0	131.8	26
18	MDC07026-F2-19-13-4	122	129.5	127.0	131.7	24
19	F2024R	122	130.5	128.5	132.3	28
20	F2029R	121	129.0	127.0	132.1	27
21	MO 110201	125	132.0	129.5	133.7	31
22	MO 121058	124	129.0	127.0	132.4	29
23	ES12-1049	117	127.0	125.5	128.8	3
24	ES12-1307	117	128.5	126.0	129.5	9
25	AR05094-4-1	122	128.5	127.0	131.1	19
26	AR05079-2-1	124	130.0	127.5	133.2	30
27	KY05C-1369-14-6-3	116	125.0	123.0	127.4	1
28	KY05C-1051-37-18-5	121	129.0	127.0	131.6	21
29	IL02-19463-7	117	127.0	126.0	129.0	4
30	IL10-19464	116	126.5	126.0	129.1	6
31	IL10-21934	116	125.5	123.5	127.4	2
LOCATION MEANS		119.8	128.4	126.2	130.6	

HEIGHT (inches)

		Marianna AR Mason	Griffin GA Johnson	Brownstown IL Kolb	Urbana IL Kolb	Champaign IL Murche
1	Branson	35	30	32	36	30.3
2	Bess	33	34	35	38	32.3
3	Shirley	32	31	32	35	27.3
4	MO080104	37	39	36	39	31.7
5	0762A1-2-8	33	32	29	34	28.3
6	NC10-23663	38	37	34	36	30.7
7	OH07-263-3	39	40	36	40	32.7
8	TN1505	39	35	34	37	31.7
9	VA11W-106	35	32	32	35	29.7
10	VA11W-182	29	24	26	29	24.3
11	VA12W-248	35	36	33	35	31.0
12	OH07-206-69	40	38	39	41	32.7
13	OH08-180-48	35	32	34	37	31.0
14	053A1-2-5-3-5-3	40	34	35	38	32.0
15	11405A1-4	39	36	34	37	30.7
16	MD09W272-8-4-13-3	31	36	34	36	31.0
17	MDC07026-F2-19-13-1	35	30	31	33	29.3
18	MDC07026-F2-19-13-4	35	32	29	33	29.0
19	F2024R	38	36	35	37	31.7
20	F2029R	45	33	34	37	30.7
21	MO 110201	40	37	38	39	35.0
22	MO 121058	39	31	34	36	31.3
23	ES12-1049	33	33	35	36	28.4
24	ES12-1307	37	38	35	37	28.7
25	AR05094-4-1	42	36	36	40	34.3
26	AR05079-2-1	44	36	39	40	32.7
27	KY05C-1369-14-6-3	37	35	32	40	30.3
28	KY05C-1051-37-18-5	37	36	35	39	30.7
29	IL02-19463-7	33	34	36	38	32.3
30	IL10-19464	37	32	34	37	32.3
31	IL10-21934	34	34	33	39	35.0
LOCATION MEANS		36.6	34.2	33.9	36.9	30.9

HEIGHT (inches)

		BattleGround	New Haven	W Lafayette	Lexington	Logan Co.
		IN	IN	IN	KY	KY
		Brown	Murche	Mohammadi	Van Sanford	Van Sanford
1	Branson	29.0	33.9	29.0	28.6	30.1
2	Bess	29.0	34.0	31.6	33.1	34.2
3	Shirley	27.5	32.0	27.8	28.8	35.8
4	MO080104	32.0	36.8	31.3	31.6	33.1
5	0762A1-2-8	25.5	32.5	27.4	29.0	33.3
6	NC10-23663	28.0	31.9	30.5	34.2	35.6
7	OH07-263-3	31.0	39.2	33.0		34.3
8	TN1505	28.0	33.3	29.3	29.4	33.0
9	VA11W-106	28.5	31.7	28.8	26.9	35.0
10	VA11W-182	29.0	31.6	24.8	25.9	34.3
11	VA12W-248	31.5	32.7	30.4	32.1	31.9
12	OH07-206-69	30.5	37.7	31.8		34.8
13	OH08-180-48	28.5	35.5	28.5		34.4
14	053A1-2-5-3-5-3	31.5	36.1	31.5	33.3	34.3
15	11405A1-4	29.0	34.6	29.4	30.0	33.8
16	MD09W272-8-4-13-3	29.0	32.0	29.0	31.6	35.0
17	MDC07026-F2-19-13-1	29.0	30.6	28.6	29.1	35.4
18	MDC07026-F2-19-13-4	28.5	31.0	27.8	34.2	36.0
19	F2024R	28.0	34.9	31.4	28.1	35.8
20	F2029R	30.0	33.5	31.0	30.7	34.5
21	MO 110201	33.5	36.9	34.6	30.8	36.6
22	MO 121058	29.5	34.8	30.3	30.4	36.0
23	ES12-1049	31.0	33.9	29.8	32.9	33.0
24	ES12-1307	31.5	33.9	29.0	29.7	33.2
25	AR05094-4-1	33.0	37.3	32.1	31.7	34.1
26	AR05079-2-1	34.5	35.9	33.9	33.0	39.0
27	KY05C-1369-14-6-3	30.5	34.4	29.0	32.8	30.5
28	KY05C-1051-37-18-5	29.0	35.2	30.3	30.5	35.8
29	IL02-19463-7	30.5	36.9	31.3	33.2	32.3
30	IL10-19464	30.0	35.8	29.9	33.8	34.7
31	IL10-21934	31.0	37.1	31.6	36.3	31.5
LOCATION MEANS		29.9	34.4	30.1	31.1	34.2

HEIGHT (inches)

		Clarksville MD Wight	Ingham Co. MI Olson	Columbia MO McKendry	Mead NE Baenziger	Ithaca NY Sorrells
1	Branson	36	36.0	36	34.5	30.7
2	Bess	34	40.5	38	39.0	32.7
3	Shirley	32	34.7	34	32.0	28.3
4	MO080104	41	40.2	41	37.0	35.4
5	0762A1-2-8	34	36.0	34	31.0	29.9
6	NC10-23663	37	35.6	38	35.5	30.7
7	OH07-263-3	41	40.8	40	38.0	34.3
8	TN1505	37	37.2	36	35.5	33.5
9	VA11W-106	33	37.1	35	35.0	31.5
10	VA11W-182	29	29.4	31	29.5	24.8
11	VA12W-248	36	38.4	37	35.5	30.7
12	OH07-206-69	40	40.2	37	36.0	34.3
13	OH08-180-48	35	36.9	37	33.5	33.5
14	053A1-2-5-3-5-3	36	38.4	40	35.5	35.4
15	11405A1-4	35	39.8	39	36.0	32.7
16	MD09W272-8-4-13-3	37	37.5	37	30.0	30.3
17	MDC07026-F2-19-13-1	32	33.4	33	34.0	28.7
18	MDC07026-F2-19-13-4	30	32.7	36	34.0	28.7
19	F2024R	30	37.6	37	38.0	33.5
20	F2029R	30	35.8	38	37.5	33.5
21	MO 110201	35	39.4	41	38.0	36.2
22	MO 121058	32	38.6	37	37.0	33.5
23	ES12-1049	33	37.8	38	31.0	31.1
24	ES12-1307	33	38.5	38	28.5	29.5
25	AR05094-4-1	35	38.6	42	37.5	36.6
26	AR05079-2-1	35	38.8	41	34.5	
27	KY05C-1369-14-6-3	33	39.1	39	34.5	33.5
28	KY05C-1051-37-18-5	34	41.5	40	36.5	31.5
29	IL02-19463-7	33	38.6	39	37.0	33.1
30	IL10-19464	32	38.7	38	37.5	34.3
31	IL10-21934	33	40.6	39	36.0	33.5
LOCATION MEANS		34.3	37.7	37.6	35.0	32.2

HEIGHT (inches)

		Raleigh NC Marshall	Nairn ON Etienne	Knoxville TN West	Blacksburg VA Griffey	Warsaw VA Griffey
1	Branson	33	24.2	30	32.5	32.0
2	Bess	38	25.2	31	35.0	35.0
3	Shirley	34	20.9	28	32.0	31.5
4	MO080104	38	20.9	31	36.5	38.0
5	0762A1-2-8	33	20.5	29	33.0	32.5
6	NC10-23663	34	23.6	28	35.0	33.0
7	OH07-263-3	40	25.0	38	39.0	40.0
8	TN1505	37	24.6	31	34.0	35.5
9	VA11W-106	33	20.5	31	32.5	33.0
10	VA11W-182	30	20.5	25	26.5	27.5
11	VA12W-248	36	22.2	28	34.0	35.5
12	OH07-206-69	41	21.9	33	35.0	37.0
13	OH08-180-48	39	20.7	29	34.0	33.5
14	053A1-2-5-3-5-3	37	24.6	31	32.5	36.0
15	11405A1-4	37	21.7	30	35.0	34.5
16	MD09W272-8-4-13-3	33	23.2	26	35.0	36.5
17	MDC07026-F2-19-13-1	35	19.1	26	33.5	32.0
18	MDC07026-F2-19-13-4	33	19.3	28	32.0	32.0
19	F2024R	38	22.4	32	34.0	35.0
20	F2029R	34	23.0	32	34.0	35.5
21	MO 110201	43	25.0	32	37.5	37.0
22	MO 121058	36	21.1	29	34.0	35.0
23	ES12-1049	36	18.9	29	35.5	35.0
24	ES12-1307	37	21.9	30	31.5	33.5
25	AR05094-4-1	38	24.2	32	35.5	37.0
26	AR05079-2-1	38	26.4	32	37.0	37.5
27	KY05C-1369-14-6-3	38	22.6	32	33.0	35.5
28	KY05C-1051-37-18-5	38	21.1	36	39.0	37.0
29	IL02-19463-7	40	22.2	35	35.5	34.5
30	IL10-19464	36	20.1	28	33.5	35.5
31	IL10-21934	37	21.9	29	38.5	36.0
LOCATION MEANS		36.5	22.2	30.4	34.4	34.8

HEIGHT (inches)

		Arlington WI Roth	ENTRY MEANS ALL LOCATIONS	rank
1	Branson	32.7	32.0	25
2	Bess	35.7	34.2	11
3	Shirley	34.0	31.0	28
4	MO080104	37.0	35.4	6
5	0762A1-2-8	33.3	31.0	29
6	NC10-23663	35.0	33.4	19
7	OH07-263-3	38.7	37.0	1
8	TN1505	36.3	33.7	15
9	VA11W-106	35.3	32.0	26
10	VA11W-182	29.7	27.7	31
11	VA12W-248	35.7	33.2	20
12	OH07-206-69	37.3	35.9	4
13	OH08-180-48	34.7	33.1	21
14	053A1-2-5-3-5-3	37.3	34.7	8
15	11405A1-4	32.7	33.7	16
16	MD09W272-8-4-13-3	35.0	32.6	23
17	MDC07026-F2-19-13-1	32.3	31.0	30
18	MDC07026-F2-19-13-4	31.7	31.1	27
19	F2024R	38.3	33.9	12
20	F2029R	37.0	33.8	13
21	MO 110201	39.3	36.4	2
22	MO 121058	37.0	33.4	18
23	ES12-1049	33.7	32.6	24
24	ES12-1307	34.0	32.8	22
25	AR05094-4-1	36.3	35.7	5
26	AR05079-2-1	39.0	36.4	3
27	KY05C-1369-14-6-3	35.7	33.7	14
28	KY05C-1051-37-18-5	37.3	34.8	7
29	IL02-19463-7	35.7	34.3	10
30	IL10-19464	35.3	33.6	17
31	IL10-21934	36.7	34.5	9
LOCATION MEANS		35.5		

LODGING

		Griffin GA Johnson 0-9	Urbana IL Kolb 0-9	W Lafayette IN Mohammadi straw strength 1-9	Columbia MO McKendry 0-9	Raleigh NC Marshall 0-9
1	Branson	4	1.0	6.0	4.3	1
2	Bess	5	1.0	5.0	2.7	2
3	Shirley	2	1.1	5.5	1.3	1
4	MO080104	1	1.1	5.5	3.3	1
5	0762A1-2-8	0	1.0	4.5	1.3	1
6	NC10-23663	2	1.3	5.5	2.7	2
7	OH07-263-3	2	1.1	6.0	2.0	0
8	TN1505	2	1.0	5.0	2.3	1
9	VA11W-106	2	1.0	5.0	2.3	1
10	VA11W-182	2	1.0	5.0	3.7	1
11	VA12W-248	5	0.9	5.5	2.0	1
12	OH07-206-69	3	1.1	5.5	2.3	0
13	OH08-180-48	1	1.2	5.5	4.3	1
14	053A1-2-5-3-5-3	1	1.0	5.5	2.3	1
15	11405A1-4	9	0.9	5.0	2.3	1
16	MD09W272-8-4-13-3	9	1.0	6.0	4.3	1
17	MDC07026-F2-19-13-1	2	1.1	5.5	4.0	1
18	MDC07026-F2-19-13-4	2	1.2	5.0	4.0	1
19	F2024R	4	2.3	5.5	4.7	2
20	F2029R	0	0.7	4.5	3.7	1
21	MO 110201	2	0.9	6.0	4.0	1
22	MO 121058	1	1.0	5.0	2.3	1
23	ES12-1049	2	1.7	5.0	3.3	1
24	ES12-1307	2	0.9	5.0	1.3	1
25	AR05094-4-1	3	1.0	5.5	2.0	1
26	AR05079-2-1	1	1.2	5.5	2.3	1
27	KY05C-1369-14-6-3	8	2.0	4.0	4.3	1
28	KY05C-1051-37-18-5	3	3.2	5.0	4.7	1
29	IL02-19463-7	8	1.0	6.0	3.0	2
30	IL10-19464	8	0.9	5.5	4.0	2
31	IL10-21934	6	0.9	5.0	4.3	2
LOCATION MEANS		3.3	1.2	5.3	3.1	1.1

LODGING

		Warsaw VA Griffey 0-9	Arlington WI Roth 0-9
1	Branson	0.5	1.3
2	Bess	2.5	2.0
3	Shirley	0.0	1.0
4	MO080104	0.5	1.3
5	0762A1-2-8	0.0	1.3
6	NC10-23663	3.5	2.7
7	OH07-263-3	1.5	1.0
8	TN1505	0.0	1.0
9	VA11W-106	1.5	1.0
10	VA11W-182	0.0	1.0
11	VA12W-248	1.0	1.0
12	OH07-206-69	1.0	2.7
13	OH08-180-48	2.0	3.3
14	053A1-2-5-3-5-3	0.5	1.3
15	11405A1-4	2.5	1.0
16	MD09W272-8-4-13-3	2.0	4.0
17	MDC07026-F2-19-13-1	0.5	2.3
18	MDC07026-F2-19-13-4	1.0	1.3
19	F2024R	1.0	1.7
20	F2029R	0.5	1.0
21	MO 110201	1.0	1.7
22	MO 121058	1.0	1.0
23	ES12-1049	0.5	1.7
24	ES12-1307	0.5	2.0
25	AR05094-4-1	0.5	1.3
26	AR05079-2-1	0.0	1.0
27	KY05C-1369-14-6-3	0.5	1.3
28	KY05C-1051-37-18-5	4.0	2.7
29	IL02-19463-7	2.5	1.3
30	IL10-19464	2.5	2.7
31	IL10-21934	2.5	2.0
LOCATION MEANS		1.2	1.7

WINTER DAMAGE

		BattleGround	Mead	Nairn	Nairn	Arlington
		IN	NE	ON	ON	WI
		Brown	Baenziger	Etienne	Etienne	Roth
		0-9	0-10	0-9	% survival	0-9
1	Branson	3.0	2.0	0.8	91	0.0
2	Bess	2.5	0.8	0.6	93	0.0
3	Shirley	4.0	0.5	0.8	91	0.0
4	MO080104	1.0	2.3	1.0	89	0.0
5	0762A1-2-8	4.0	3.3	1.1	88	0.0
6	NC10-23663	4.5	3.5	1.7	81	0.0
7	OH07-263-3	4.0	0.5	1.4	84	0.0
8	TN1505	5.5	0.5	2.0	77	0.0
9	VA11W-106	2.8	0.0	1.1	88	0.0
10	VA11W-182	4.0	1.0	1.6	82	0.0
11	VA12W-248	2.0	1.5	1.0	89	0.0
12	OH07-206-69	3.0	4.3	1.7	81	1.0
13	OH08-180-48	4.3	0.0	1.7	81	0.7
14	053A1-2-5-3-5-3	2.8	1.3	1.7	81	0.0
15	11405A1-4	2.8	2.0	1.4	85	0.0
16	MD09W272-8-4-13-3	3.8	7.3	1.4	85	2.7
17	MDC07026-F2-19-13-1	2.0	0.0	1.2	87	0.0
18	MDC07026-F2-19-13-4	3.3	0.0	2.2	76	0.0
19	F2024R	2.5	0.8	1.4	85	0.0
20	F2029R	1.0	0.5	0.8	91	0.0
21	MO 110201	1.3	2.3	1.0	89	0.0
22	MO 121058	1.5	0.5	1.7	81	0.0
23	ES12-1049	1.0	1.8	1.4	85	0.0
24	ES12-1307	1.0	2.8	1.8	80	0.0
25	AR05094-4-1	4.0	0.0	1.0	89	0.0
26	AR05079-2-1	2.0	0.5	1.7	81	0.0
27	KY05C-1369-14-6-3	2.0	1.8	2.0	78	0.0
28	KY05C-1051-37-18-5	1.8	2.0	1.3	86	0.0
29	IL02-19463-7	2.3	0.0	0.6	93	0.0
30	IL10-19464	2.3	0.8	0.4	95	0.0
31	IL10-21934	2.8	0.3	0.7	92	0.0
LOCATION MEANS		2.7	1.4	1.3	86	0.1
GROWTH STAGE / DATE		April 26				

LEAF RUST

		Champaign	Nairn	Warsaw
		IL	ON	VA
		Murche	Etienne	Griffey
		0-9	0-9	0-9
1	Branson	1.9	1.5	1.5
2	Bess	6.4	5.5	3.5
3	Shirley	1.2	1.0	0.0
4	MO080104	6.0	3.0	2.5
5	0762A1-2-8	1.4	1.0	1.0
6	NC10-23663	0.7	1.5	0.0
7	OH07-263-3	2.3	1.5	3.0
8	TN1505	2.0	1.5	1.0
9	VA11W-106	1.2	1.0	0.5
10	VA11W-182	1.2	1.5	0.0
11	VA12W-248	1.0	1.0	0.5
12	OH07-206-69	9.0	3.5	4.5
13	OH08-180-48	2.1	2.0	1.0
14	053A1-2-5-3-5-3	2.6	2.5	1.5
15	11405A1-4	3.6	2.5	0.5
16	MD09W272-8-4-13-3	2.0	1.5	0.0
17	MDC07026-F2-19-13-1	1.1	1.0	0.0
18	MDC07026-F2-19-13-4	0.8	1.5	0.0
19	F2024R	2.0	1.5	1.0
20	F2029R	2.1	2.3	2.0
21	MO 110201	6.6	4.5	1.5
22	MO 121058	2.1	2.5	0.5
23	ES12-1049	3.9	1.5	1.5
24	ES12-1307	5.3	3.5	1.5
25	AR05094-4-1	2.2	1.5	1.0
26	AR05079-2-1	3.4	1.5	1.5
27	KY05C-1369-14-6-3	5.2	7.0	2.5
28	KY05C-1051-37-18-5	3.9	1.5	1.5
29	IL02-19463-7	2.3	1.0	2.5
30	IL10-19464	7.3	4.0	4.0
31	IL10-21934	2.3	2.5	0.5
LOCATION MEANS		3.1	2.2	1.4

LEAF RUST (SEEDLING)

St. Paul, MN

Kolmer

		Lr gene postulated	TNBJ	TNRJ	MCTNB	TBBGJ	KFBGJ
1	Branson	Lr2a	3+	3+	0;	3+	3+
2	Bess	---	3+	3+	3+	32+;	3+
3	Shirley	Lr18, (Lr26)	;	;	0;	;	;
4	MO080104	Lr11	;1	3+	3+	;1-	;2-
5	0762A1-2-8	Lr11, Lr17	;1-	;3+	3+	;	;
6	NC10-23663	Lr9 (Lr26)	;	;	;	;1-	;
7	OH07-263-3	Lr10, Lr14a, (Lr26)	;12- 3	;	;1-	3+;	3+
8	TN1505	Lr18, (Lr26)	;	;	;	;	0;
9	VA11W-106	Lr18	;	;	;1-	0;	;
10	VA11W-182	Lr18	;	;	0;	;2-	;
11	VA12W-248	Lr18	;	;	;1-	;	;12-
12	OH07-206-69	---	3+2+;	3+	3+	32+;	3+
13	OH08-180-48	Lr11	;1	3+	3+	;	;
14	053A1-2-5-3-5-3	? (Lr26)	3+2+	;	2+3	---	---
15	11405A1-4	Lr26	;123	3/;1+	3+	;1/3+	3+
16	MD09W272-8-4-13-3	Lr1, Lr24, Lr26	;123	;1-	;	;	;2-
17	MDC07026-F2-19-13-1	Lr24	;	;	;	;	;1-
18	MDC07026-F2-19-13-4	Lr24	;	;	;	;	;1-
19	F2024R	Lr11, Lr17, (Lr26)	;1-	3+;/	3+	;	;
20	F2029R	Lr26	;	;	2+	;	22+
21	MO 110201	---	3+	---	3+	3+	3+
22	MO 121058	Lr14a	;12-	2+3	3+	;12-	2+3
23	ES12-1049	Lr14a	3+;	3+	3+	3+;	3+
24	ES12-1307	---	3+	3+	3+	3+	3+
25	AR05094-4-1	Lr1	3+	3+	3+	3+	0;
26	AR05079-2-1	?	;123	2+3	2+	;	32+;
27	KY05C-1369-14-6-3	Lr1	23	32+	3+	3+	;
28	KY05C-1051-37-18-5	Lr14a	;	3+	3+	;12-	3
29	IL02-19463-7	Lr1, Lr2a	3+	3+	;	;23	0
30	IL10-19464	---	3+	3+	3+	--	---
31	IL10-21934	---	3+	3+	3+	3+	---

(Lr26) = gene present according to marker data

? = unable to postulate Lr gene based on infection type data

+ = additional gene(s) present

--- = no Lr gene postulated

LEAF RUST (SEEDLING)

St. Paul, MN

Kolmer

		MBDSD	TFBJQ	MJBJG	TCRKG	PBLRG	TBBGS
1	Branson	0;	3+	0;	3+	;1	3+
2	Bess	3+	3+	3+	3+	3+	3+
3	Shirley	0;	;	0;	3+2+	0	0;
4	MO080104	;12-	;2	;2	3+2+	;22+	;3
5	0762A1-2-8	;2-	;1-	;	;1	0;	;
6	NC10-23663	;	;	;2+	;	;1-	;
7	OH07-263-3	;1/3+	3+	3+;	3+	3+	3
8	TN1505	;1-	;	;	3+	;1-	;3
9	VA11W-106	;1-	;	;	22+;	;	;
10	VA11W-182	0;	;	0;	32+	;2=	;
11	VA12W-248	;	;2-	;	23	;12-	;
12	OH07-206-69	3+	3+	3+	3+	3+;	;3
13	OH08-180-48	;	;	;	3+	;12-	;
14	053A1-2-5-3-5-3	;	;1	;1-	2+3	---	;2
15	11405A1-4	;	3+	;	3+	;1-	3+;
16	MD09W272-8-4-13-3	0;	3+	;12-	;	;	;
17	MDC07026-F2-19-13-1	0;	;2-	;	;	---	;
18	MDC07026-F2-19-13-4	0;	;1+	;1-	;	;3+	0;
19	F2024R	;1-	---	;	2	;1	;
20	F2029R	;1-	3+	;	;1	;1-	;
21	MO 110201	3+	3+	---	3+	3+	3+
22	MO 121058	2+3	32+;	;23	3+	---	;23
23	ES12-1049	3+	3+	32+	3+;	32+;	;3
24	ES12-1307	3+	3+	3+	3+	32+;	---
25	AR05094-4-1	3+	3+	3+	3+	3+	3+
26	AR05079-2-1	;12+	2+3+;	3+	32+;	3+	32;
27	KY05C-1369-14-6-3	2+3	3+	3+	22+	32+	23
28	KY05C-1051-37-18-5	2+3	3+	22+	3+	;22+	;
29	IL02-19463-7	;	3+	0;	3+	;1	3;/3+
30	IL10-19464	3+	3+	3+	3+	---	3+
31	IL10-21934	3+	3+	3+	3+	3+	32+

LEAF RUST (SEEDLING)

Blacksburg
VA
Griffey

		TCRK+MFQS	TNRJ	GENE	TCRK + MFQS	TNRJ
		0-3	0-3		0-3	0-3
1	Branson	;3	3	Lr1	3	3
2	Bess	3	3	Lr2a	3;	3
3	Shirley	;1	0;	Lr2c	;3	3
4	MO080104	3	3	Lr3	N/A	3
5	0762A1-2-8	1NTr3	23-;			
6	NC10-23663	1-NTr3	1-;/Tr3	Lr9	0;/3	3
7	OH07-263-3	3	3/0;	Lr16	12-N	1-CN
8	TN1505	3-	23;	Lr24	3	3
9	VA11W-106	23	2;	Lr26	3	;1-
10	VA11W-182	;23	12-			
11	VA12W-248	23	12;/23	Lr3ka	12	3
12	OH07-206-69	3	3	Lr11	3+	3
13	OH08-180-48	3;	12;Tr3	Lr17	12-;	12CN
14	053A1-2-5-3-5-3	3	;1Tr3	Lr30	2;	3
15	11405A1-4	23;	3/Tr;1			
16	MD09W272-8-4-13-3	3-	2;	LrB	12/23	21CN
17	MDC07026-F2-19-13-1	2;	12;	Lr10	3	3
18	MDC07026-F2-19-13-4	23-;	1;	Lr14a	3	3
19	F2024R	3	;1=	Lr18	23	23C
20	F2029R	3	3/;1=			
21	MO 110201	3	3	Lr21	;1N	1N
22	MO 121058	3	23-;	Lr28	3	23
23	ES12-1049	3	3	Lr41		
24	ES12-1307	3	3	Lr42		
25	AR05094-4-1	3	3			
26	AR05079-2-1	3	3-	Lr3bg	12	1CN
27	KY05C-1369-14-6-3	3	3	Lr14b	3	3
28	KY05C-1051-37-18-5	3	3	Lr20	3	3
29	IL02-19463-7	;3	3	Lr23	1;/23;	23-CN
30	IL10-19464	3	3			
31	IL10-21934	3	3			

STEM RUST

		Marianna
		AR
		Mason
		0-9
1	Branson	0.0
2	Bess	0.7
3	Shirley	1.5
4	MO080104	0.0
5	0762A1-2-8	0.7
6	NC10-23663	0.2
7	OH07-263-3	1.5
8	TN1505	0.7
9	VA11W-106	0.0
10	VA11W-182	0.2
11	VA12W-248	3.0
12	OH07-206-69	0.7
13	OH08-180-48	0.7
14	053A1-2-5-3-5-3	0.7
15	11405A1-4	1.5
16	MD09W272-8-4-13-3	0.0
17	MDC07026-F2-19-13-1	0.0
18	MDC07026-F2-19-13-4	0.0
19	F2024R	0.0
20	F2029R	0.0
21	MO 110201	0.0
22	MO 121058	0.7
23	ES12-1049	0.7
24	ES12-1307	0.2
25	AR05094-4-1	0.7
26	AR05079-2-1	0.0
27	KY05C-1369-14-6-3	1.5
28	KY05C-1051-37-18-5	0.2
29	IL02-19463-7	3.0
30	IL10-19464	1.5
31	IL10-21934	3.0
LOCATION MEANS		0.8

STEM RUST (KENYA)

Njoro
Kenya

		1st reading	2nd reading	growth stage	Yr
1	Branson	70S	5M	FLOWERING	MR
2	Bess	60S	5MSS	FLOWERING	MS
3	Shirley	0	0	FLOWERING	S
4	MO080104	30S	0	HEADING	MS
5	0762A1-2-8	20S	0	BOOT	MSMR
6	NC10-23663	0	0	WATERY RIPE	S
7	OH07-263-3	60SMS	5M	FLOWERING	S
8	TN1505	0	0	FLOWERING	MRMS
9	VA11W-106	40S	5M	HEADING	MR
10	VA11W-182	30S	0	HEADING	MR
11	VA12W-248	70S	5MSS	WATERY RIPE	S
12	OH07-206-69	80S	0	WATERY RIPE	S
13	OH08-180-48	60S	trMR	HEADING	MS
14	053A1-2-5-3-5-3	S	0	TILLERING	MR
15	11405A1-4	40S	5MSS	WATERY RIPE	MS
16	MD09W272-8-4-13-3	30SMS	5MS	WATERY RIPE	S
17	MDC07026-F2-19-13-1	40SMS	0	BOOT	S
18	MDC07026-F2-19-13-4	S	0	BOOT	S
19	F2024R	40S	5MS	BOOT	S
20	F2029R	S	0	TILLERING	MR
21	MO 110201	60S	5M	HEADING	MSS
22	MO 121058	80S	5MSS	WATERY RIPE	MS
23	ES12-1049	0?	0	TILLERING	MSMR
24	ES12-1307	0	0	FLOWERING	S
25	AR05094-4-1	60S	10MS	FLOWERING	MS
26	AR05079-2-1	10MSS	trMR	WATERY RIPE	MS
27	KY05C-1369-14-6-3	70SMS	10MSS	FLOWERING	S
28	KY05C-1051-37-18-5	S	0	TILLERING	MS
29	IL02-19463-7	S	0	TILLERING	MS
30	IL10-19464	70S	5MSS	WATERY RIPE	S
31	IL10-21934	70S	5MS	WATERY RIPE	S

DATE

10/7/15

10/14/15

STEM RUST

		St. Paul, MN - Yue Jin		QFCSC	QTHJC	MCCFC	RCRSC	RKQCC	TPMKC	TTTTF	GFMNC	QCCSM	TKTTF	TRTTF	TTKSK	TTKSK	TTKST	TTTSK	TTKTT	Notes 1	Field stem rust nursery	Field additional disease note	Winterkill note
repeat	14/15	Nursery	Line	06ND76C	75ND717C	59KS19	77ND82A	99KS76A-1	74MN1409	11MN84A-1	12WA147-2	75WA165-2	13ETH18-1	06YEM34-1	04KEN156/0	04KEN156/0	06KEN19V3	07KEN24-4	14KEN58-1	Gene postulation	St Paul, X-14		
52	88	Local ck 1	McNair 701	4	4	4	3	4	4	4	4	4	3+	3+	3+	3+	3+	3+	3+		80S		
53	89	Local ck 2	Red Chief	2+3	2+3	4	3	2+3	4	4	2+3	2+3	2+	3+	2+	2+3	3	2+3	2+3		80S		
54	90	UESR 1	Branson	2/4	32	2-	3	3	23	4	2	2	3+	3+	3+	3	3+	3	3+		60SMS		
55	91	UESR 2	Bess	3	3	3/2	3	3	4	4	4	4	3+	3+	3+	0;	1	3+	3+	*	70SMS	*Sr36, planting error? Reversed	
56	92	UESR 3	Shirley	0;	0	0	;	2-;	0	2-	0;	0	2-	0	3+	3+	3+	0;			TMRR		
57	93	UESR 4	MO080104	4/2	4	4/2	4	4	4	4	4	4	3+	3+	3+	3+	3+	3+	3+		70S		
58	94	UESR 5	0762A1-2-8	0;	-	0	0;	;/31;	31	0;	0	0	3	3+	3LIF	0	0	3+	3+	Sr36	20SMS		
59	95	UESR 6	NC10-23663	0;	0	0	32	3	32	3/;	3	0;	0	3+	0	0	0	3+	0	Sr36	30SMS		
60	96	UESR 7	OH07-263-3	2-/4	3	2-/3	3/2-	4/2-	4/2-	2-	-	4/2-	0/3	3+	0/3	3	3	3+	3+		60S		
61	97	UESR 8	TN1505	0	0;	0	2-	2-/3	2-/3-	2-/43	2-	0/0;	3	2	0	0	0;	2/3+	0	Sr36+	TMSS	some BIN	
	98	UESR 9	VA11W-106	2+3-	3-	3	3	3-1	4	4	3	4	3+	3+	3						80MSS		
	99	UESR 10	VA11W-182	2+3-	0/3	2+3-/0	3	4	4	4	4	0/4	3+	3+	3						60S		
	100	UESR 11	VA12W-248	3/2-	3/2	3/2-	3	3-1/2-	4/2-	4	4	4/2-	3+	3+/2-	3+						60S		
	101	UESR 12	OH07-206-69	3	3	3	3	4	4	3	4	4	3+	3+	3						60SMS		
62	102	UESR 13	OH08-180-48	3	3/0	3/0	3	3	4	4	3/2-	31	3+	3+	3/0	3+	3	3	3		70S		
63	103	UESR 14	053A1-2-5-3-5-3	2-	2-	2-	2-;	2-;	2-	2-	2-	2-	2-	2-	0	3	3	3	2+		15MR		
	104	UESR 15	11405A1-4	1;	;/3-	2+3-	-	;	31/0/2-	1/31/4/2	31/4/0	;	2-/3+	2-/3+	3						30MSS/60S		
64	105	UESR 16	MD09W272-8-4-13-3	;	;	;	2-	;	2-;	2-	;	13-	2-	2-	1	1-	2+3	2-;	2+3		5MR		
65	106	UESR 17	MDC07026-F2-19-13-1	-	;	;	2-	;	2-;	2-	;	13	2-	2-	;	1	2+3	2-;	2+3		5MR		
66	107	UESR 18	MDC07026-F2-19-13-4	1-;	;	;	2-;	;	2-;	2-	;	-	2-	2-	1	1	2+3	2-;	2+3		5RMR		
	108	UESR 19	F2024R	2-;	2-	2-;	2-	;	2-	2-	2-;	2-	2-	2-	3+						50MRMS		
	109	UESR 20	F2029R	2-/3	2-/3	3/2-	2-	;	2-	2-	2-;	2-	2-/3+	2-/3+	3+						70S/30MR		
	110	UESR 21	MO 110201	31;	1	;/13-	3	;	4	4	13-;	13-	3+	3+	3+						20S		
67	111	UESR 22	MO 121058	3	3	3	3	3	3	3	3/2-	4	3+	3+	3LIF	3	3	3+	3		70S		
68	112	UESR 23	ES12-1049	0	0	0	3-	3	-	4	3	-	3+	3+	0	0	0;	3+	0	Sr36	20MSS	BIN	
69	113	UESR 24	ES12-1307	0	0	0/3	3	3	3	3	3	0	3+	3+	0	0	0	3+	0	Sr36	20MSS	BIN	
	114	UESR 25	AR05094-4-1	4/2	4	4	3	1;	4	4	4	4	3+	3+	3+						70S		
	115	UESR 26	AR05079-2-1	0/3	0/3	0/3	3	3	4	4	3	4/0	3+	3+	3						40S		
	116	UESR 27	KY05C-1369-14-6-3	4	4	3	3	1;/2-;	4	4	4	3/2	3+	3+	3+						70S		
	117	UESR 28	KY05C-1051-37-18-5	4	4	4	4	4	4	4	4	4	3+	3+	3+						70S		
	118	UESR 29	IL02-19463-7	2/4	4	-	4	3	23?	4	2-	2-	3+	3+	3+						60SMS	BIN	
	119	UESR 30	IL10-19464	2	3	2-	3	3-1	2-	4	2-	2-	3+	3+	3+						50MSS		
	120	UESR 31	IL10-21934	0/2-	3	2-	-	3	23?	4	2-	2-	3+	3+	3+						50MSS		
	121	Local ck 1	McNair 701	-	4	-	-	4	-	4	-	-	3+	3+	3+						80S		
70	122	Local ck 2	Red Chief	2	2	4	2+3	22+	4	4	2+	2+	3+	3+	2+3	2+	2+	2+	2+		80S		

STEM RUST

[illegible]

STRIPE RUST

		Fayetteville	Urbana	Champaign	Battle Ground	Lafayette
		AR	IL	IL	IN	IN
		Mason	Kolb	Murche	Brown	Obert
		0-9	1-5	0-9	0-9	0-9
1	Branson	0.2	1.7	1.0	0.0	0.5
2	Bess	3.0	1.3	2.3	3.5	1.5
3	Shirley	3.0	1.7	4.3	8.0	4.5
4	MO080104	0.7	1.7	1.0	0.0	1.0
5	0762A1-2-8	0.0	1.7	1.0	3.0	1.0
6	NC10-23663	1.5	1.3	1.3	4.0	3.0
7	OH07-263-3	5.0	2.0	3.3	4.5	2.5
8	TN1505	3.0	2.0	1.0	2.0	1.5
9	VA11W-106	0.2	1.3	1.0	0.0	0.5
10	VA11W-182	1.5	1.0	1.0	2.0	1.0
11	VA12W-248	7.0	2.0	1.7	6.0	2.5
12	OH07-206-69	3.0	1.3	1.7	3.5	1.5
13	OH08-180-48	3.0	2.0	1.3	2.0	1.5
14	053A1-2-5-3-5-3	5.0	1.3	3.3	4.0	2.0
15	11405A1-4	3.0	1.7	2.3	5.0	3.0
16	MD09W272-8-4-13-3	0.0	1.7	1.0	0.0	0.5
17	MDC07026-F2-19-13-1	0.0	1.0	1.0	1.0	1.0
18	MDC07026-F2-19-13-4	0.0	1.0	1.0	0.0	0.5
19	F2024R	0.2	2.0	1.0	4.0	1.0
20	F2029R	0.0	1.7	1.0	2.0	2.5
21	MO 110201	0.0	1.3	1.3	1.5	1.0
22	MO 121058	0.0	2.0	1.0	0.0	2.0
23	ES12-1049	3.0	1.3	1.0	0.5	0.5
24	ES12-1307	1.5	1.0	1.3	1.0	0.5
25	AR05094-4-1	0.7	2.0	1.0	2.0	1.0
26	AR05079-2-1	1.5	1.0	1.0	0.0	0.5
27	KY05C-1369-14-6-3	5.0	2.0	3.3	7.5	1.0
28	KY05C-1051-37-18-5	3.0	1.0	1.3	2.0	0.5
29	IL02-19463-7	5.0	2.3	4.0	6.0	4.5
30	IL10-19464	3.0	2.3	1.7	3.5	2.0
31	IL10-21934	5.0	2.0	3.0	2.5	2.5
LOCATION MEANS		2.2	1.6	1.7	2.6	1.6
GROWTH STAGE / DATE					June 6	

STRIPE RUST

		Columbia MO McKendry % canopy	Laurel Springs NC Marshall
1	Branson	1	1
2	Bess	6	4
3	Shirley	13	7
4	MO080104	2	4
5	0762A1-2-8	1	1
6	NC10-23663	6	1
7	OH07-263-3	20	8
8	TN1505	7	7
9	VA11W-106	1	1
10	VA11W-182	5	2
11	VA12W-248	9	7
12	OH07-206-69	6	7
13	OH08-180-48	6	3
14	053A1-2-5-3-5-3	7	4
15	11405A1-4	10	6
16	MD09W272-8-4-13-3	2	1
17	MDC07026-F2-19-13-1	1	0
18	MDC07026-F2-19-13-4	1	0
19	F2024R	2	1
20	F2029R	1	1
21	MO 110201	2	0
22	MO 121058	2	0
23	ES12-1049	6	8
24	ES12-1307	4	6
25	AR05094-4-1	2	3
26	AR05079-2-1	38	2
27	KY05C-1369-14-6-3	10	6
28	KY05C-1051-37-18-5	5	6
29	IL02-19463-7	62	3
30	IL10-19464	14	2
31	IL10-21934	15	3
LOCATION MEANS		8.6	3.4
GROWTH STAGE / DATE			

STRIPE RUST

		Central Ferry WA Campbell			
		0-9	1-100	0-9	1-100
1	Branson	5.0	30	8.0	70
2	Bess	5.0	20	8.0	85
3	Shirley	6.5	25	8.0	97
4	MO080104	6.5	30	8.0	85
5	0762A1-2-8	2.0	15	5.0	30
6	NC10-23663	6.5	25	8.0	85
7	OH07-263-3	8.0	25	8.0	93
8	TN1505	6.5	25	8.0	93
9	VA11W-106	2.0	20	8.0	30
10	VA11W-182	3.5	25	8.0	78
11	VA12W-248	8.0	35	8.0	90
12	OH07-206-69	6.5	25	8.0	85
13	OH08-180-48	6.5	30	8.0	93
14	053A1-2-5-3-5-3	8.0	25	8.0	95
15	11405A1-4	6.5	20	8.0	80
16	MD09W272-8-4-13-3	2.0	15	6.5	25
17	MDC07026-F2-19-13-1	3.5	16	6.5	30
18	MDC07026-F2-19-13-4	5.0	15	6.5	35
19	F2024R	5.0	11	8.0	35
20	F2029R	2.0	16	6.5	45
21	MO 110201	6.5	30	8.0	68
22	MO 121058	3.5	20	8.0	45
23	ES12-1049	8.0	40	8.0	85
24	ES12-1307	6.5	25	8.0	95
25	AR05094-4-1	6.5	30	8.0	95
26	AR05079-2-1	8.0	30	8.0	85
27	KY05C-1369-14-6-3	6.5	35	8.0	97
28	KY05C-1051-37-18-5	6.5	35	8.0	93
29	IL02-19463-7	6.5	25	8.0	97
30	IL10-19464	8.0	35	8.0	95
31	IL10-21934	8.0	35	8.0	97
LOCATION MEANS		5.8	25.4	7.7	74.4
GROWTH STAGE / DATE		April 29	April 29	May 22	May 22

STRIPE RUST

		Pullman WA Campbell	
		0-9	1-100
1	Branson	5.0	33
2	Bess	8.0	68
3	Shirley	8.0	70
4	MO080104	5.0	35
5	0762A1-2-8		
6	NC10-23663	6.5	38
7	OH07-263-3	8.0	83
8	TN1505	6.5	28
9	VA11W-106	5.0	28
10	VA11W-182	8.0	58
11	VA12W-248	8.0	75
12	OH07-206-69	8.0	70
13	OH08-180-48	8.0	75
14	053A1-2-5-3-5-3	8.0	80
15	11405A1-4	8.0	53
16	MD09W272-8-4-13-3	5.0	15
17	MDC07026-F2-19-13-1	8.0	55
18	MDC07026-F2-19-13-4	6.5	33
19	F2024R		
20	F2029R	5.0	28
21	MO 110201	8.0	35
22	MO 121058	5.0	20
23	ES12-1049	8.0	63
24	ES12-1307	8.0	53
25	AR05094-4-1	6.5	48
26	AR05079-2-1	8.0	53
27	KY05C-1369-14-6-3	8.0	68
28	KY05C-1051-37-18-5	8.0	50
29	IL02-19463-7	8.0	75
30	IL10-19464	8.0	68
31	IL10-21934	8.0	65
LOCATION MEANS		7.2	52.2
GROWTH STAGE / DATE		June 19	June 19

STRIPE RUST

TABLE XMC1515F. STRIPE RUST INFECTION TYPE (I^a) AND SEVERITY (%) ON CULTIVARS AND LINES IN THE WINTER EASTERN WHEAT^a NURSERY (EXP15) 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 2015 UNDER NATURAL INFECTION

NOTE: THE LIND (LOC 07) SITE DID NOT PRODUCE DATA AS STRIPE RUST WAS TOO LOW.

Cultivar/ Designation	Pedigree	Entry No.	Contributor	1st year in nurs.	2015 PLOT	LOC 04 ^b	LOC 05 ^{b,c}		LOC 06 ^b	Field summary ^d	Overall rating ^e	Possible HTAP resistance ^f
						6/23	4/15	5/28	6/4			
						S. dough	Stem elong.	Flower	Milk			
						IT %	IT %	IT %	IT %			
1	Branson	Pio2737W/891-4584A (Pike/FL302) (f)	Check	03-04	1	3 5	8 50	3 25	5 20	MR	3	Moderate
2	Bess	MO11769/Madison (formerly MO98102)	Check	02-03	2	8 10	8 70	6 50	8 80	S	8	Moderate
3	Shirley	VA94-52-25 /Coker 9835//VA96-54-234	Check	05-06	3	8 30	8 60	8 80	8 90	S	9	No
4	MO080104	L910097/MO 92-599	Check	09-10	4	2 5	7 60	4 50	5 30	MR-MS	5	Moderate
5	0762A1-2-8	981129A1-45-3/99793RE2-3//INW0301	Anderson/Linville	13-14	5	2 2	- -	- -	5 35	MR	4	High
6	NC10-23663	P2691/TC14Spear289B//NC00-16203	Murphy	13-14	6	8 10	8 60	7 40	8 80	S	8	Low
7	OH07-263-3	OH748/Bravo	Sneller	13-14	7	8 50	8 70	8 100	8 75	S	8	No
8	TN1505	961395-3E25//[(Becker/FL302)/OH599]	West	14-15	8	8 10	8 70	7 60	8 75	S	8	Low
9	VA11W-106	P25R47/Jamestown	Griffey	14-15	9	2 2	3 15	2 15	5 15	MR	3	Moderate
10	VA11W-182	Branson/Shirley	Griffey	14-15	10	8 10	8 80	3 20	5 30	MR-MS	5	No
11	VA12W-248	KY97C-0574-01/USG3555/USG3295	Griffey	14-15	11	8 50	8 70	5 40	8 90	S	9	No
12	OH07-206-69	P92226E2-5-3/OH751	Sneller	14-15	12	8 30	8 60	8 80	8 50	MS	7	Low
13	OH08-180-48	Douglas/McCormick	Sneller	14-15	13	8 50	8 70	3 40	5 50	MS	7	Low
14	053A1-2-5-3-5-3	7D(E)//INW0412/98134G4-1W//Truman	Anderson/Linville	14-15	14	8 20	8 60	8 80	8 80	S	8	No
15	11405A1-4	07469A1-10-1-18-2/3/Bess//07117B1-2	Anderson/Linville	14-15	15	5 20	8 50	3 30	8 50	MS	7	No
16	MD09W272-8-4-13-3	VA02W713//SS8641/25R42	Cooper	14-15	16	5 10	5 20	2 30	8 30	MS	6	Moderate
17	MDC07026-F2-19-13-1	SS8641//McCormick*2/Ning7840	Cooper	14-15	17	2 1	6 40	4 50	8 20	MR-MS	5	No
18	MDC07026-F2-19-13-4	SS8641//McCormick*2/Ning7840	Cooper	14-15	18	2 5	5 40	4 30	8 25	MS	6	No
19	F2024R	D8006W/P25R37	Olson	14-15	19	2 2	5 20	2 20	5 25	MR	4	Moderate
20	F2029R	P25R37/E1007W	Olson	14-15	20	2 2	5 10	3 20	5 15	MR	3	Moderate
PS279	SUSCEPTIBLE			CHECK	21	8 90	8 80	8 100	8 70	S	9	No
21	MO 110201	981020//P92201D5-2/980725	McKendry	14-15	22	8 10	8 60	6 30	5 30	MR-MS	5	No
22	MO 121058	011126*2/PL 25R47	McKendry	14-15	23	2 5	5 10	3 20	5 15	MR	3	High
23	ES12-1049	VA99W-200/BW239	Obert	14-15	24	5 10	8 70	8 100	8 80	S	9	Moderate
24	ES12-1307	SR30-530/BW402	Obert	14-15	25	8 1	8 70	8 100	8 50	S	9	Low
25	AR05094-4-1	Terral TV 8450/Beretta	Mason	14-15	26	5 5	7 50	7 50	8 50	MS	7	Low
26	AR05079-2-1	P961341A3-1-2/AR93035-4-1	Mason	14-15	27	2 2	6 40	8 50	5 15	MS	7	Low
27	KY05C-1369-14-6-3	KY93C-0004-22-1/VA01W-476//KY98C	Van Sanford	14-15	28	8 10	8 60	8 60	8 70	S	8	No
28	KY05C-1051-37-18-5	97397J1-4-1-4-7/Freedom	Van Sanford	14-15	29	2 2	7 60	3 40	5 50	MR-MS	5	No
29	IL02-19463-7	Patton/Cardinal//IL96-2550	Kolb	14-15	30	2 5	8 60	8 100	8 100	S	9	No
30	IL10-19464	Bess//L00-8530//L00-8530	Kolb	14-15	31	2 2	8 60	8 60	8 95	S	9	No
31	IL10-21934	IL97-1828//L03-18438//L00-8633	Kolb	14-15	32	8 10	8 60	8 60	8 100	S	9	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 or connected with "-" for entries containing plants with continuous ITs.

^b All locations were under natural infection.

^c Entries with a high IT in the first note, but a low IT in the second note at Mt. Vernon (LOC 06) may indicate that they have high-temperature, adult-plant (HTAP) resistance.

^d R = resistant, MR = moderately resistant, MS = moderately susceptible, and S = susceptible.

^e 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.

^f 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 XMC1515GH. STRIPE RUST INFECTION TYPE (IT) ON SEEDLINGS AND ADULT-PLANTS OF CULTIVARS AND LINES IN THE EASTERN WHEAT NURSERY (EXP15) 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)

Cultivar/ Designation	Pedigree	Entry No.	Contributor	1st year in nurs.	2015 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)			
						PSTv-4	PSTv-14	PSTv-37	PSTv-40	PSTv-51	PSTv-14	PSTv-37	PSTv-40	
1	Branson	Pio2737W/891-4	Check	03-04	1	8	8	8	8	8	2,2,2	3,3,3	3,3,4	Moderate
2	Bess	MO11769/Madison	Check	02-03	2	8	8	8	8	8	3,3,3	3,3,3	3,3,3	Moderate
3	Shirley	VA94-52-25 /Coker	Check	05-06	3	8	8	8	8	8	8,8,8	8,8,8	8,8,8	No
4	MO080104	L910097/MO 92-3	Check	09-10	4	8	8	8	8	8	3,3,3	3,3,3	2,2,2	Moderate
5	0762A1-2-8	981129A1-45-3/9	Anderson/Linville	13-14	5	8	8	8	8	8	2,2,3	1,1,5	2,2,2	High
6	NC10-23663	P2691/TC14Spears	Murphy	13-14	6	8	8	8	8	8	5,5,5	5,5,6	8,8,3	Low
7	OH07-263-3	OH748/Bravo	Sneller	13-14	7	8	8	8	8	8	8,8,8	8,8,8	8,8,8	No
8	TN1505	961395-3E25/[(Bess)	West	14-15	8	8	8	8	8	8	5,5,5	5,5,5	2,5,8	Low
9	VA11W-106	P25R47/Jamestown	Griffey	14-15	9	8	8	8	8	8	3,3,3	3,3,3	3,5,8	Moderate
10	VA11W-182	Branson/Shirley	Griffey	14-15	10	8	8	8	8	8	8,8,8	8,8,8	8,8,8	No
11	VA12W-248	KY97C-0574-01/1	Griffey	14-15	11	8	8	8	8	8	8,8,8	8,8,8	8,8,8	No
12	OH07-206-69	P92226E2-5-3/Ober	Sneller	14-15	12	8	8	8	8	8	5,5,5	5,5,5	2,2,2	Low
13	OH08-180-48	Douglas/McCormick	Sneller	14-15	13	8	8	8	8	8	5,5,5	5,5,5	5,5,5	Low
14	053A1-2-5-3-5-3	7D(E)//INW0412/	Anderson/Linville	14-15	14	8	8	8	8	8	8,8,8	8,8,8	8,8,8	No
15	11405A1-4	07469A1-10-1-18	Anderson/Linville	14-15	15	8	8	8	8	8	8,8,8	8,8,8	8,8,8	No
16	MD09W272-8-4-13-3	VA02W713/SS8641	Cooper	14-15	16	8	8	8	8	8	3,3,3	2,2,2	2,3,3	Moderate
17	MDC07026-F2-19-13-1	SS8641//McCormick	Cooper	14-15	17	8	8	8	8	8	8,8,8	8,8,8	2,8,8	No
18	MDC07026-F2-19-13-4	SS8641//McCormick	Cooper	14-15	18	8	8	8	8	8	8,8,8	8,8,8	8,8,8	No
19	F2024R	D8006W/P25R37	Olson	14-15	19	8	8	8	8	8	3,3,3	3,4,4	2,2,2	Moderate
20	F2029R	P25R37/E1007W	Olson	14-15	20	8	8	8	8	8	3,3,3	3,3,3	2,3,3	Moderate
PS279	SUSCEPTIBLE			CHECK	21	8	8	8	8	8	8,8,8	8,8,8	8,8,8	No
21	MO 110201	981020//P922010	McKendry	14-15	22	8	8	8	8	8	8,8,8	8,8,8	7,7,5	No
22	MO 121058	011126*2/PL 25F	McKendry	14-15	23	8	8	8	8	8	2,2,3	3,3,3	2,2,2	High
23	ES12-1049	VA99W-200/BW2	Obert	14-15	24	8	8	8	8	8	3,3,5	3,5,5	2,2,2	Moderate
24	ES12-1307	SR30-530/BW40	Obert	14-15	25	8	8	8	8	8	2,2,2	5,5,5	2,2,2	Low
25	AR05094-4-1	Terral TV 8450/B	Mason	14-15	26	8	8	8	8	8	5,5,5	5,5,5	2,2,2	Low
26	AR05079-2-1	P961341A3-1-2/A	Mason	14-15	27	8	8	8	8	8	5,5,5	3,5,5	2,5,5	Low
27	KY05C-1369-14-6-3	KY93C-0004-22-	Van Sanford	14-15	28	8	8	8	8	8	8,8,8	8,8,8	8,8,8	No
28	KY05C-1051-37-18-5	97397J1-4-1-4-7/	Van Sanford	14-15	29	8	8	8	8	8	8,8,8	8,8,8	8,8,8	No
29	IL02-19463-7	Patton/Cardinal//	Kolb	14-15	30	8	8	8	8	8	8,8,8	8,8,8	8,8,8	No
30	IL10-19464	Bess/IL00-8530//	Kolb	14-15	31	8	8	8	8	8	5,5,5	8,8,8	5,5,5	No
31	IL10-21934	IL97-1828/IL03-1	Kolb	14-15	32	8	8	8	8	8	5,8,8	8,8,8	5,5,5	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.

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**

^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°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, 16°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.

^c 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

		Battle Ground Ingham Co.		Raleigh	Nairn	
		IN	MI	NC	ON	
		Brown	Olson	Marshall	Etienne	
		tritici	tritici		tritici	nodorum
		0-9	0-9		0-9	0-9
1	Branson	0.5	5.2	5	2.5	1.0
2	Bess	3.0	5.8	6	3.5	2.0
3	Shirley	3.0	7.5	4	2.5	1.5
4	MO080104	2.5	6.2	4	2.0	1.0
5	0762A1-2-8	2.0	4.9	4	3.0	1.5
6	NC10-23663	3.5	5.9	6	2.5	2.5
7	OH07-263-3	3.5	6.0	4	3.0	1.5
8	TN1505	3.0	4.4	4	1.5	2.0
9	VA11W-106	0.5	6.5	4	4.5	1.5
10	VA11W-182	1.0	7.8	2	1.5	1.0
11	VA12W-248	3.0	5.8	6	4.0	1.0
12	OH07-206-69	3.5	5.5	3	3.0	2.0
13	OH08-180-48	3.0	5.8	3	2.5	1.0
14	053A1-2-5-3-5-3	4.5	6.3	6	3.5	1.5
15	11405A1-4	4.5	6.4	6	5.5	4.5
16	MD09W272-8-4-13-3	1.5	5.7	5	1.5	1.0
17	MDC07026-F2-19-13-1	2.0	6.0	3	4.5	0.5
18	MDC07026-F2-19-13-4	0.5	5.3	2	3.0	1.0
19	F2024R	3.5	5.8	6	2.5	3.0
20	F2029R	3.0	5.5	6	2.0	1.5
21	MO 110201	2.5	5.2	4	3.0	0.0
22	MO 121058	2.5	5.9	4	3.0	1.5
23	ES12-1049	0.5	4.2	5	1.5	1.5
24	ES12-1307	3.0	4.8	5	3.5	1.5
25	AR05094-4-1	3.0	5.3	5	2.5	1.5
26	AR05079-2-1	2.0	5.5	4	3.5	1.0
27	KY05C-1369-14-6-3	4.5	7.2	7	6.0	0.5
28	KY05C-1051-37-18-5	2.5	4.4	4	2.5	1.5
29	IL02-19463-7	4.0	5.6	6	7.0	1.5
30	IL10-19464	4.5	7.1	8	5.5	0.5
31	IL10-21934	3.0	6.0	7	4.5	1.5
LOCATION MEANS		2.7	5.8	4.8	3.3	1.5
GROWTH STAGE / DATE		June 6				

SEPTORIA

2014-15 Eastern Septoria Nursery

Uniform Eastern entries

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

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

Entry nbr	UE #	Designation	Mkt Class	Maturity	Leaves	Glumes
1	Sept check	AGS 2000	SRW	E	7.5	2.0
2	Sept check	AGS 2060	SRW	E	4.5	2.5
3	Sept check	Neuse	SRW	E	3.5	1.0
4	Sept check	USG 3209	SRW	E	7.0	6.0
5	Sept check, UE #1	Branson	SRW	E	5.0	3.5
6	Sept check, UE #3	Shirley	SRW	L	3.0	2.5
7	Sept check	Jensen	SRW	L	3.0	1.0
8	Sept check	Kaskaskia	SRW	L	6.5	4.0
9	Sept check	Malabar	SRW	L	4.0	1.0
224	2	Bess	SRW	L	6.0	4.5
225	4	MO080104	SRW	L	6.0	5.0
226	5	0762A1-2-8	SRW	L	4.5	5.5
227	6	NC10-23663	SRW	E	6.0	4.5
228	7	OH07-263-3	SRW	L	4.5	4.5
229	8	TN1505	SRW	E	4.5	3.5
230	9	VA11W-106	SRW	L	4.0	2.0
231	10	VA11W-182	SRW	L	2.5	4.0
232	11	VA12W-248	SRW	L	5.5	3.0
233	12	OH07-206-69	SRW	L	4.0	4.5
234	13	OH08-180-48	SRW	L	4.0	1.5
235	14	053A1-2-5-3-5-3	SRW	L	7.0	3.0
236	15	11405A1-4	SRW	L	4.0	5.0
237	16	MD09W272-8-4-13-3	SRW	L	5.5	4.5
238	17	MDC07026-F2-19-13-1	SRW	L	2.5	2.0
239	18	MDC07026-F2-19-13-4	SRW	L	3.0	2.0
240	19	F2024R	SRW	L	6.0	4.0
241	20	F2029R	SRW	L	4.5	3.5
242	21	MO 110201	SRW	L	3.0	2.5
243	22	MO 121058	SRW	L	4.5	2.5
244	23	ES12-1049	SRW	L	5.5	4.5
245	24	ES12-1307	SRW	L	4.0	3.5
246	25	AR05094-4-1	SRW	E	5.0	4.0
247	26	AR05079-2-1	SRW	E	3.5	0.5
248	27	KY05C-1369-14-6-3	SRW	L	7.0	4.5
249	28	KY05C-1051-37-18-5	SRW	L	3.5	1.5
250	29	IL02-19463-7	SRW	L	4.5	5.0
251	30	IL10-19464	SRW	L	7.0	4.0
252	31	IL10-21934	SRW	L	7.5	7.0

FUSARIUM HEAD BLIGHT (SCAB)

		Fayetteville	Newport		Urbana	
		AR	jAR		IL	
		Mason	Mason	INCIDENCE	Kolb SEVERITY	FDK
		0-9	0-9	(%)	(%)	(%)
1	Branson	2.5	2.5	97	83	12
2	Bess	3.5	2.0	63	33	4
3	Shirley	9.0	9.0	90	72	30
4	MO080104	1.0	2.5	73	31	12
5	0762A1-2-8	1.5	0.5	73	17	15
6	NC10-23663	7.0	8.5	87	88	25
7	OH07-263-3	6.5	6.0	70	36	8
8	TN1505	8.0	7.5	72	46	18
9	VA11W-106	4.0	1.0	70	59	10
10	VA11W-182	5.5	3.0	78	54	12
11	VA12W-248	8.5	9.0	73	58	12
12	OH07-206-69	6.5	3.0	67	58	9
13	OH08-180-48	9.0	8.0	58	37	13
14	053A1-2-5-3-5-3	9.0	8.0	72	46	7
15	11405A1-4	5.5	7.0	78	32	20
16	MD09W272-8-4-13-3	1.5	4.5	55	9	27
17	MDC07026-F2-19-13-1	2.0	1.0	60	26	7
18	MDC07026-F2-19-13-4	2.0	0.5	67	37	7
19	F2024R	3.5	1.0	50	21	27
20	F2029R	3.5	2.5	65	21	15
21	MO 110201	2.5	1.0	43	16	13
22	MO 121058	3.0	2.5	75	57	18
23	ES12-1049	6.0	8.0	82	60	17
24	ES12-1307	7.0	8.0	80	62	13
25	AR05094-4-1	7.0	4.0	75	70	25
26	AR05079-2-1	4.0	2.0	52	27	12
27	KY05C-1369-14-6-3	8.0	8.5	82	38	10
28	KY05C-1051-37-18-5	3.5	5.5	68	39	12
29	IL02-19463-7	8.5	7.5	12	11	4
30	IL10-19464	5.5	3.0	62	39	8
31	IL10-21934	7.0	5.5	45	23	5
LOCATION MEANS		5.2	4.6	67.5	42.1	13.7
GROWTH STAGE / DATE				June 10-12		

FUSARIUM HEAD BLIGHT (SCAB)

		Urbana IL Kolb			
		Fhbndx (0-100)	ISKndx (0-100)	ISKndx Rank	DON ppm
1	Branson	80	58	29	2.0
2	Bess	22	31	7	1.3
3	Shirley	66	61	30	4.8
4	MO080104	24	36	15	1.2
5	0762A1-2-8	13	33	10	1.0
6	NC10-23663	76	62	31	5.2
7	OH07-263-3	25	35	14	2.0
8	TN1505	33	43	21	3.0
9	VA11W-106	41	43	22	3.7
10	VA11W-182	42	44	24	4.6
11	VA12W-248	42	44	23	4.7
12	OH07-206-69	39	41	19	1.9
13	OH08-180-48	23	34	12	2.0
14	053A1-2-5-3-5-3	33	38	17	1.6
15	11405A1-4	25	41	20	1.1
16	MD09W272-8-4-13-3	6	30	6	0.9
17	MDC07026-F2-19-13-1	16	28	4	0.8
18	MDC07026-F2-19-13-4	25	34	13	0.7
19	F2024R	11	32	9	3.1
20	F2029R	14	32	8	2.0
21	MO 110201	7	23	3	1.4
22	MO 121058	43	47	25	2.7
23	ES12-1049	50	49	27	2.3
24	ES12-1307	50	48	26	3.1
25	AR05094-4-1	53	54	28	3.7
26	AR05079-2-1	14	29	5	2.7
27	KY05C-1369-14-6-3	32	40	18	0.9
28	KY05C-1051-37-18-5	26	37	16	4.0
29	IL02-19463-7	1	8	1	0.6
30	IL10-19464	24	34	11	1.2
31	IL10-21934	13	22	2	1.1
LOCATION MEANS		31.2	38.4	16.0	2.3
GROWTH STAGE / DATE					

FUSARIUM HEAD BLIGHT (SCAB)

		Urbana IL Kolb Greenhouse severity %	Champaign IL Murche 0-9
1	Branson	62	5.8
2	Bess	21	2.6
3	Shirley	32	6.4
4	MO080104	11	2.0
5	0762A1-2-8	7	2.3
6	NC10-23663	90	8.2
7	OH07-263-3	57	2.4
8	TN1505	36	2.2
9	VA11W-106	41	3.2
10	VA11W-182	15	2.1
11	VA12W-248	27	5.6
12	OH07-206-69	97	4.3
13	OH08-180-48	11	2.9
14	053A1-2-5-3-5-3	17	2.6
15	11405A1-4	11	3.6
16	MD09W272-8-4-13-3	25	3.0
17	MDC07026-F2-19-13-1	60	2.2
18	MDC07026-F2-19-13-4		1.8
19	F2024R	7	2.3
20	F2029R		2.3
21	MO 110201	73	2.5
22	MO 121058	40	2.9
23	ES12-1049	56	4.8
24	ES12-1307	36	3.6
25	AR05094-4-1	18	6.2
26	AR05079-2-1	59	3.1
27	KY05C-1369-14-6-3	25	2.4
28	KY05C-1051-37-18-5		2.9
29	IL02-19463-7		2.7
30	IL10-19464	7	2.8
31	IL10-21934	33	2.4
LOCATION MEANS		36.1	3.4
GROWTH STAGE / DATE			

FUSARIUM HEAD BLIGHT (SCAB)

		Ingham Co.				
		MI				
		Olson				
		Severity	Incidence	Index	Severity	Incidence
		inoculated	inoculated	inoculated	natural inoc.	natural inoc.
1	Branson	39	78	31	33	70
2	Bess	25	90	22	35	68
3	Shirley	35	90	32	23	54
4	MO080104	10	45	5	40	48
5	0762A1-2-8	18	98	18	18	58
6	NC10-23663	42	98	41	34	83
7	OH07-263-3	18	85	15	-	-
8	TN1505	17	70	12	34	40
9	VA11W-106	28	90	25	30	35
10	VA11W-182	24	78	19	24	45
11	VA12W-248	26	65	17	31	60
12	OH07-206-69	20	78	16	34	58
13	OH08-180-48	16	88	14	11	20
14	053A1-2-5-3-5-3	16	90	15	11	55
15	11405A1-4	25	48	12	31	78
16	MD09W272-8-4-13-3	30	80	26	34	45
17	MDC07026-F2-19-13-1	18	83	15	9	48
18	MDC07026-F2-19-13-4	15	70	11	9	53
19	F2024R	21	85	18	8	33
20	F2029R	31	88	27	25	48
21	MO 110201	23	78	17	51	40
22	MO 121058	19	98	19	21	48
23	ES12-1049	14	85	12	23	55
24	ES12-1307	13	95	13	12	53
25	AR05094-4-1	30	93	27	31	58
26	AR05079-2-1	27	73	20	24	48
27	KY05C-1369-14-6-3	13	48	6	11	50
28	KY05C-1051-37-18-5	15	60	9	19	33
29	IL02-19463-7	41	73	30	19	48
30	IL10-19464	22	75	19	32	50
31	IL10-21934	16	50	7	28	53
LOCATION MEANS		22.8	78.0	18.3	24.8	50.9
GROWTH STAGE / DATE						

FUSARIUM HEAD BLIGHT (SCAB)

		Columbia				
		MO				
		McKendry				
		INC	SEV	FHBI	FDK	ISK
		%	%	%	%	0-100
1	Branson	90	36	33	50	58
2	Bess	70	11	9	50	44
3	Shirley	100	28	28	55	60
4	MO080104	60	6	4	15	26
5	0762A1-2-8	80	9	7	50	47
6	NC10-23663	75	23	16	95	67
7	OH07-263-3	90	16	14	40	48
8	TN1505	90	19	17	75	63
9	VA11W-106	75	17	12	95	65
10	VA11W-182	85	19	16	95	69
11	VA12W-248	95	16	15	90	69
12	OH07-206-69	70	7	5	95	61
13	OH08-180-48	80	25	19	30	44
14	053A1-2-5-3-5-3	70	13	9	30	37
15	11405A1-4	80	13	10	40	44
16	MD09W272-8-4-13-3	75	12	9	25	36
17	MDC07026-F2-19-13-1	70	10	7	30	36
18	MDC07026-F2-19-13-4	80	11	9	70	55
19	F2024R	85	18	16	80	63
20	F2029R	90	16	15	85	66
21	MO 110201	80	12	10	40	44
22	MO 121058	85	20	18	30	44
23	ES12-1049	95	28	27	30	49
24	ES12-1307	85	17	15	55	53
25	AR05094-4-1	85	14	12	65	56
26	AR05079-2-1	60	8	5	15	26
27	KY05C-1369-14-6-3	80	22	18	25	41
28	KY05C-1051-37-18-5	95	15	15	35	47
29	IL02-19463-7	75	11	9	5	28
30	IL10-19464	75	10	7	35	40
31	IL10-21934	80	8	7	40	43
LOCATION MEANS		80.8	15.8	13.3	50.6	49.2
GROWTH STAGE / DATE						

FUSARIUM HEAD BLIGHT (SCAB)

		Columbia MO McKendry Greenhouse		Nairn ON Etienne	
		INC %	SEV %	FHBI % (%INC*%SEV)/100	
1	Branson	45	40	45	18
2	Bess	9	38	15	6
3	Shirley	42	75	40	30
4	MO080104	10	35	10	4
5	0762A1-2-8	9	43	13	6
6	NC10-23663	66	83	70	57
7	OH07-263-3	32	45	25	11
8	TN1505	14	35	30	11
9	VA11W-106	11	53	30	16
10	VA11W-182	16	40	30	12
11	VA12W-248	28	53	35	19
12	OH07-206-69	34	50	50	25
13	OH08-180-48	13	43	43	18
14	053A1-2-5-3-5-3	10	38	13	5
15	11405A1-4	36	40	15	6
16	MD09W272-8-4-13-3	13	38	18	7
17	MDC07026-F2-19-13-1	15	40	15	6
18	MDC07026-F2-19-13-4	16	33	13	4
19	F2024R	7	43	23	10
20	F2029R	10	40	18	7
21	MO 110201	16	35	18	6
22	MO 121058	10	45	43	19
23	ES12-1049	11	38	20	8
24	ES12-1307	16	35	13	4
25	AR05094-4-1	15	40	18	7
26	AR05079-2-1	10	43	25	11
27	KY05C-1369-14-6-3	24	35	13	4
28	KY05C-1051-37-18-5	25	50	23	12
29	IL02-19463-7	40	35	13	4
30	IL10-19464	21	35	15	5
31	IL10-21934	21	35	25	9
LOCATION MEANS		20.8	42.7	24.8	11.7
GROWTH STAGE / DATE					

POWDERY MILDEW

		Nairn ON Etienne 0-9	Warsaw VA Griffey 0-9
1	Branson	0.5	1.5
2	Bess	3.0	5.0
3	Shirley	1.0	0.0
4	MO080104	0.0	1.5
5	0762A1-2-8	3.0	3.0
6	NC10-23663	0.5	0.0
7	OH07-263-3	1.5	1.5
8	TN1505	2.0	0.0
9	VA11W-106	2.0	0.0
10	VA11W-182	0.0	0.5
11	VA12W-248	0.5	0.5
12	OH07-206-69	0.0	0.0
13	OH08-180-48	2.0	2.0
14	053A1-2-5-3-5-3	2.5	2.0
15	11405A1-4	4.5	7.0
16	MD09W272-8-4-13-3	0.0	2.0
17	MDC07026-F2-19-13-1	0.5	0.5
18	MDC07026-F2-19-13-4	1.0	0.0
19	F2024R	0.0	1.0
20	F2029R	2.8	1.5
21	MO 110201	2.0	5.5
22	MO 121058	2.5	1.0
23	ES12-1049	1.5	0.5
24	ES12-1307	0.0	0.5
25	AR05094-4-1	0.0	3.0
26	AR05079-2-1	1.0	1.0
27	KY05C-1369-14-6-3	0.5	1.0
28	KY05C-1051-37-18-5	1.5	2.5
29	IL02-19463-7	4.0	7.0
30	IL10-19464	4.0	4.5
31	IL10-21934	2.5	5.0
LOCATION MEANS		1.5	2.0

BARLEY YELLOW DWARF

		Lafayette	Blacksburg
		IN	VA
		Obert	Griffey
		0-9	0-9
1	Branson	3.0	0.5
2	Bess	3.0	1.5
3	Shirley	1.5	1.0
4	MO080104	2.5	1.5
5	0762A1-2-8	2.0	0.5
6	NC10-23663	3.0	1.0
7	OH07-263-3	1.5	0.0
8	TN1505	1.5	1.5
9	VA11W-106	2.5	0.5
10	VA11W-182	0.0	1.0
11	VA12W-248	1.5	1.0
12	OH07-206-69	2.5	1.0
13	OH08-180-48	4.5	1.0
14	053A1-2-5-3-5-3	2.0	0.0
15	11405A1-4	3.0	1.0
16	MD09W272-8-4-13-3	3.0	2.0
17	MDC07026-F2-19-13-1	3.5	1.0
18	MDC07026-F2-19-13-4	2.5	1.0
19	F2024R	4.5	1.5
20	F2029R	0.0	1.0
21	MO 110201	3.0	0.0
22	MO 121058	4.0	1.0
23	ES12-1049	2.0	1.0
24	ES12-1307	3.5	1.5
25	AR05094-4-1	5.0	1.0
26	AR05079-2-1	2.0	1.5
27	KY05C-1369-14-6-3	4.0	1.0
28	KY05C-1051-37-18-5	2.0	1.0
29	IL02-19463-7	2.5	0.5
30	IL10-19464	3.0	0.0
31	IL10-21934	3.0	0.5
LOCATION MEANS		2.6	0.9

LEAF BLIGHTS

		Champaign	Clarksville	Knoxville
		IL	MD	TN
		Murche	Wight	West
		Xanthomonas	leaf diseases	tan spot / spot blotch
		0-9	0-9	0-9
1	Branson	2.1	5.0	5.0
2	Bess	2.7	4.3	4.3
3	Shirley	5.1	3.3	3.3
4	MO080104	2.9	4.0	4.0
5	0762A1-2-8	2.6	3.3	3.3
6	NC10-23663	2.1	3.0	3.0
7	OH07-263-3	3.7	3.7	3.7
8	TN1505	2.0	4.3	4.3
9	VA11W-106	2.0	3.7	3.7
10	VA11W-182	2.0	3.3	3.3
11	VA12W-248	2.2	4.3	4.3
12	OH07-206-69	2.0	4.3	4.3
13	OH08-180-48	2.3	3.0	3.0
14	053A1-2-5-3-5-3	3.4	3.7	3.7
15	11405A1-4	3.7	3.3	3.3
16	MD09W272-8-4-13-3	2.6	5.7	5.7
17	MDC07026-F2-19-13-1	2.4	3.3	3.3
18	MDC07026-F2-19-13-4	3.0	3.7	3.7
19	F2024R	3.6	4.0	4.0
20	F2029R	2.7	3.3	3.3
21	MO 110201	2.1	3.0	3.0
22	MO 121058	2.0	3.0	3.0
23	ES12-1049	2.4	4.0	4.0
24	ES12-1307	2.4	4.3	4.3
25	AR05094-4-1	3.1	2.3	2.3
26	AR05079-2-1	1.9	2.3	2.3
27	KY05C-1369-14-6-3	5.0	6.3	6.3
28	KY05C-1051-37-18-5	2.0	2.7	2.7
29	IL02-19463-7	3.0	4.0	4.0
30	IL10-19464	2.6	5.7	5.7
31	IL10-21934	2.3	4.7	4.7
LOCATION MEANS		2.7	3.8	3.8

HESSIAN FLY

W Lafayette
IN
Cambron

		HF Bio B	HF Bio C	HF Bio D	HF Bio O	HF Bio L
		R-S	R-S	R-S	R-S	R-S
1	Branson	13-3	1-18	0-18	0-17	0-20
2	Bess	0-18	0-20	0-17	0-19	0-16
3	Shirley	0-15	9-11	0-16	0-15	0-15
4	MO080104	15-1	8-11	10-7	0-15	0-15
5	0762A1-2-8	0-12	0-12	0-14	0-10	0-14
6	NC10-23663	0-15	12-3	0-21	0-12	0-18
7	OH07-263-3	0-15	0-17	0-17	0-14	0-17
8	TN1505	0-19	0-16	0-17	0-15	0-15
9	VA11W-106	0-15	0-16	0-15	0-12	0-12
10	VA11W-182	0-15	3-12	0-16	0-17	0-14
11	VA12W-248	0-16	0-18	0-19	0-15	0-16
12	OH07-206-69	0-15	0-17	0-17	0-13	0-14
13	OH08-180-48	12-2	0-16	0-16	0-14	0-17
14	053A1-2-5-3-5-3	0-14	2-11	0-18	0-13	0-18
15	11405A1-4	0-15	0-10	0-14	0-13	0-14
16	MD09W272-8-4-13-3	0-19	0-19	0-18	2-13	0-18
17	MDC07026-F2-19-13-1	0-16	5-9	0-21	0-14	0-22
18	MDC07026-F2-19-13-4	0-15	2-17	0-23	0-17	0-19
19	F2024R	0-13	0-19	0-17	8-6	0-20
20	F2029R	0-17	0-16	0-18	11-4	0-18
21	MO 110201	0-16	0-15	0-19	0-14	0-20
22	MO 121058	0-15	0-17	0-19	0-15	0-19
23	ES12-1049	0-13	0-18	0-15	2-14	0-18
24	ES12-1307	0-17	17-1	0-19	6-7	0-17
25	AR05094-4-1	0-15	0-19	0-18	10-6	0-14
26	AR05079-2-1	0-15	15-0	0-16	17-0	0-19
27	KY05C-1369-14-6-3	0-17	0-18	0-14	0-16	0-16
28	KY05C-1051-37-18-5	0-14	0-22	0-19	0-20	0-15
29	IL02-19463-7	13-4	0-18	0-17	10-6	0-12
30	IL10-19464	0-15	2-14	0-10	0-11	0-10
31	IL10-21934	0-17	2-16	0-13	0-15	0-18

FREEZE TEST

Raleigh
NC
Livingston/Tuong

		Average % Survival	Average Freeze Damage Rating
1	Branson	48	0.9
2	Bess	28	0.6
3	Shirley	93	3.4
4	MO080104	80	2.9
5	0762A1-2-8	45	1.1
6	NC10-23663	28	0.7
7	OH07-263-3	38	0.9
8	TN1505	90	3.4
9	VA11W-106	68	1.3
10	VA11W-182	75	2.0
11	VA12W-248	58	1.4
12	OH07-206-69	70	1.4
13	OH08-180-48	73	1.5
14	053A1-2-5-3-5-3	63	1.8
15	11405A1-4	58	1.1
16	MD09W272-8-4-13-3	28	0.6
17	MDC07026-F2-19-13-1	33	0.8
18	MDC07026-F2-19-13-4	38	0.9
19	F2024R	10	0.3
20	F2029R	23	0.7
21	MO 110201	33	0.7
22	MO 121058	38	0.7
23	ES12-1049	45	0.8
24	ES12-1307	53	1.0
25	AR05094-4-1	23	0.4
26	AR05079-2-1	28	0.4
27	KY05C-1369-14-6-3	43	0.9
28	KY05C-1051-37-18-5	40	0.7
29	IL02-19463-7	83	2.7
30	IL10-19464	75	1.9
31	IL10-21934	85	2.7
LSD		11.4	0.3

ACID SOIL TOLERANCE

Enid OK Carver		0-5	0-5	0-5
1	Branson	5	5	5
2	Bess	1	1	0
3	Shirley	1	1	1
4	MO080104	2	2	1
5	0762A1-2-8	1	1	1
6	NC10-23663	2	2	2
7	OH07-263-3	1	1	1
8	TN1505	5	5	5
9	VA11W-106	1	2	0
10	VA11W-182	5	5	5
11	VA12W-248	2	2	2
12	OH07-206-69	1	1	1
13	OH08-180-48	2	3	3
14	053A1-2-5-3-5-3	4	4	4
15	11405A1-4	4	4	4
16	MD09W272-8-4-13-3	3	4	4
17	MDC07026-F2-19-13-1	2	1	2
18	MDC07026-F2-19-13-4	1	1	2
19	F2024R	2	2	1
20	F2029R	2	2	0
21	MO 110201	0	0	0
22	MO 121058	1	1	1
23	ES12-1049	3	3	3
24	ES12-1307	1	1	1
25	AR05094-4-1	1	1	1
26	AR05079-2-1	4	4	4
27	KY05C-1369-14-6-3	1	1	2
28	KY05C-1051-37-18-5	1	3	2
29	IL02-19463-7	2	2	1
30	IL10-19464	0	1	1
31	IL10-21934	1	1	1
DATE		March 30	April 10	May 27

ADVANCED NURSERY EVALUATION
FOR SOFT WHEAT MILLING AND BAKING QUALITY
2015 CROP

Samples analyzed were from a single location: Warsaw, VA

Quality Data

***Entry in RED is the check used for this evaluation**

***For highlighted entries, please see the notes in line 44**

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)
1551241	1	Branson	58.5	10.6	-2.0	2.6	34.9	71.4	67.1	8.8	135.1	68.1	18.1	3
1551242	2	Bess	58.7	10.8	1.9	2.5	32.4	69.6	61.8	9.1	124.4	67.8	18.3	3
1551243	3	Shirley	57.6	10.7	-1.5	2.7	35.5	70.8	60.6	9.0	100.3	67.3	19.2	3
1551244	4	MO080104	60.6	10.9	16.3	2.7	32.4	68.6	60.9	8.5	134.3	70.0	17.8	2
1551245	5	0762A1-2-8	56.9	10.6	6.2	2.9	35.7	68.8	60.2	9.1	122.3	66.4	18.8	3
1551246	6	NC10-23663	59.9	10.8	1.3	2.6	31.0	68.5	62.1	8.9	127.2	72.7	19.0	3
1551247	7	OH07-263-3	59.0	10.4	-1.5	2.7	34.5	72.1	62.5	8.9	109.4	64.7	17.9	4
1551248	8	TN1505	58.9	11.6	14.8	2.8	34.6	70.0	58.0	9.9	143.5	71.7	17.8	2
1551249	9	VA11W-106	59.0	10.8	5.7	2.6	31.6	69.1	65.7	9.0	130.5	72.2	18.8	3
1551250	10	VA11W-182	55.9	10.7	-3.5	2.5	30.4	70.4	68.0	8.9	118.8	69.4	18.7	3
1551251	11	VA12W-248	59.8	10.7	8.9	2.8	36.6	70.7	61.3	9.0	122.1	68.5	18.9	2
1551252	12	OH07-206-69	56.2	10.7	-1.7	2.8	37.4	71.1	66.4	9.0	116.5	68.1	18.9	3
1551253	13	OH08-180-48	56.9	10.9	8.3	2.7	31.4	70.7	63.0	9.4	129.4	63.8	18.2	4
1551254	14	053A1-2-5-3-5-3	57.6	12.3	8.6	2.8	33.8	69.5	59.9	10.1	95.2	66.6	18.0	4
1551255	15	11405A1-4	57.5	10.3	3.7	2.7	33.4	69.7	64.4	8.8	126.2	70.9	18.5	3
1551256	16	MD09W272-8-4-13-3	60.1	12.8	29.4	2.6	29.5	67.2	54.3	10.9	121.5	70.3	18.1	3
1551257	17	MDC07026-F2-19-13-1	60.0	10.4	14.6	2.6	30.0	71.2	61.6	8.7	124.5	66.8	18.9	4
1551258	18	MDC07026-F2-19-13-4	59.4	10.2	14.7	2.6	30.2	70.9	62.6	8.4	122.3	66.1	19.0	5
1551259	19	F2024R	59.0	10.8	9.3	2.6	34.2	67.8	67.1	9.1	118.4	79.0	17.3	2
1551260	20	F2029R	57.6	11.7	9.0	2.7	34.4	69.4	62.2	9.6	120.5	69.9	18.4	3
1551261	21	MO 110201	59.3	10.2	3.9	2.6	30.8	70.0	64.5	8.7	109.8	67.2	19.3	3
1551262	22	MO 121058	57.7	11.1	-1.7	2.7	35.5	72.3	62.6	9.2	117.8	67.7	18.5	3
1551263	23	ES12-1049	60.5	11.6	16.9	2.7	33.3	68.6	55.2	9.8	137.8	65.9	18.1	3
1551264	24	ES12-1307	60.6	11.2	15.3	2.8	35.1	69.7	55.8	9.4	129.7	65.7	17.7	3
1551265	25	AR05094-4-1	58.1	10.4	-4.4	2.6	30.6	72.1	70.1	8.8	139.0	68.1	18.6	4
1551266	26	AR05079-2-1	59.4	10.5	38.2	2.9	37.5	71.8	48.9	8.7	86.1	72.2	18.1	4
1551267	27	KY05C-1369-14-6-3	61.8	12.0	16.7	2.8	34.1	70.2	56.0	10.9	141.0	68.0	17.8	3
1551268	28	KY05C-1051-37-18-5	60.8	11.1	13.4	2.6	30.2	69.1	64.1	9.7	134.9	73.8	17.7	2
1551269	29	IL02-19463-7	59.1	11.9	-6.0	2.7	30.7	69.4	64.8	9.7	134.6	67.5	18.4	3
1551270	30	IL10-19464	61.1	10.9	2.7	2.8	37.5	71.3	58.0	9.6	126.8	63.9	19.2	4
1551271	31	IL10-21934	60.8	10.7	6.3	2.7	34.1	69.4	57.3	9.0	127.5	64.2	18.1	4
		Average	59.0	11.0	7.9	2.7	33.3	70.0	61.5	9.2	123.5	68.5	18.4	3.2
		Standard Deviation	1.5	0.6	9.9	0.1	2.4	1.3	4.6	0.6	13.0	3.3	0.5	0.7

Notes:

= favorable quality trait value

= marginal quality trait value

* Entry #21 had a cookie diameter measurement of 19.3 cm. This was the only entry that reported a grade of "A" for cookie diameter.

* Entries with milling yield of 72% or greater are #22, #25, and #7.

* The values of SKCS kernel hardness (38.2) and softness equivalent (48.9) for Entry #26 are non-typical for SRW wheat.

Number of Standard Deviations Away from the Check

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)	Total T-Score	Total T-Score Rank
1551241	1	Branson	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.00	5
1551242	2	Bess	0.1	0.3	0.4	-1.3	-1.0	-1.4	-1.2	0.5	-0.8	-0.1	0.4	0.0	-0.73	18
1551243	3	Shirley	-0.6	0.1	0.0	0.4	0.2	-0.4	-1.4	0.4	-2.7	-0.2	2.1	0.0	-0.43	12
1551244	4	MO080104	1.4	0.5	1.9	1.1	-1.0	-2.2	-1.4	-0.5	-0.1	0.6	-0.5	-1.4	-1.16	28
1551245	5	0762A1-2-8	-1.1	0.0	0.8	2.4	0.3	-2.0	-1.5	0.5	-1.0	-0.5	1.5	0.0	-1.15	27
1551246	6	NC10-23663	1.0	0.3	0.3	-0.3	-1.6	-2.3	-1.1	0.2	-0.6	1.4	1.9	0.0	-1.24	29
1551247	7	OH07-263-3	0.4	-0.4	0.1	0.5	-0.1	0.5	-1.0	0.2	-2.0	-1.0	-0.3	1.4	0.32	2
1551248	8	TN1505	0.3	1.6	1.7	1.5	-0.1	-1.1	-2.0	1.9	0.6	1.1	-0.6	-1.4	-1.09	25
1551249	9	VA11W-106	0.3	0.3	0.8	-0.4	-1.4	-1.8	-0.3	0.4	-0.3	1.3	1.4	0.0	-1.03	21
1551250	10	VA11W-182	-1.7	0.2	-0.2	-1.6	-1.9	-0.7	0.2	0.1	-1.3	0.4	1.3	0.0	-0.59	16
1551251	11	VA12W-248	0.9	0.2	1.1	1.3	0.7	-0.5	-1.3	0.3	-1.0	0.1	1.6	-1.4	-0.40	10
1551252	12	OH07-206-69	-1.5	0.1	0.0	1.8	1.0	-0.2	-0.1	0.3	-1.4	0.0	1.6	0.0	-0.35	8
1551253	13	OH08-180-48	-1.1	0.5	1.0	0.7	-1.4	-0.5	-0.9	0.9	-0.4	-1.3	0.3	1.4	-0.35	9
1551254	14	053A1-2-5-3-5-3	-0.6	2.6	1.1	1.2	-0.5	-1.4	-1.6	2.1	-3.1	-0.4	-0.2	1.4	-0.92	19
1551255	15	11405A1-4	-0.7	-0.5	0.6	0.5	-0.6	-1.3	-0.6	0.0	-0.7	0.9	0.9	0.0	-0.95	20
1551256	16	MD09W272-8-4-13-3	1.1	3.5	3.2	-0.2	-2.2	-3.2	-2.8	3.5	-1.0	0.7	0.0	0.0	-2.01	31
1551257	17	MDC07026-F2-19-13-1	1.0	-0.4	1.7	-0.6	-2.0	-0.1	-1.2	-0.1	-0.8	-0.4	1.7	1.4	-0.17	6
1551258	18	MDC07026-F2-19-13-4	0.6	-0.6	1.7	-0.1	-2.0	-0.4	-1.0	-0.7	-1.0	-0.6	1.8	2.7	-0.26	7
1551259	19	F2024R	0.4	0.4	1.1	-0.3	-0.3	-2.8	0.0	0.6	-1.3	3.3	-1.4	-1.4	-1.84	30
1551260	20	F2029R	-0.6	1.7	1.1	0.3	-0.2	-1.5	-1.1	1.3	-1.1	0.6	0.6	0.0	-1.07	23
1551261	21	MO 110201	0.5	-0.6	0.6	-0.8	-1.7	-1.0	-0.6	-0.2	-1.9	-0.3	2.4	0.0	-0.42	11
1551262	22	MO 121058	-0.5	0.7	0.0	0.2	0.3	0.7	-1.0	0.7	-1.3	-0.1	0.8	0.0	0.09	4
1551263	23	ES12-1049	1.3	1.6	1.9	0.7	-0.7	-2.2	-2.6	1.6	0.2	-0.7	0.1	0.0	-1.11	26
1551264	24	ES12-1307	1.4	1.0	1.7	1.4	0.1	-1.3	-2.5	1.0	-0.4	-0.7	-0.6	0.0	-0.71	17
1551265	25	AR05094-4-1	-0.3	-0.4	-0.2	-0.1	-1.8	0.6	0.7	0.0	0.3	0.0	1.0	1.4	0.32	1
1551266	26	AR05079-2-1	0.6	-0.1	4.1	2.6	1.1	0.3	-4.0	-0.2	-3.8	1.3	0.2	1.4	-1.04	22
1551267	27	KY05C-1369-14-6-3	2.2	2.2	1.9	1.6	-0.3	-0.9	-2.4	3.4	0.5	0.0	-0.5	0.0	-0.58	15
1551268	28	KY05C-1051-37-18-5	1.6	0.7	1.6	-0.1	-1.9	-1.8	-0.6	1.5	0.0	1.7	-0.7	-1.4	-1.08	24
1551269	29	IL02-19463-7	0.4	2.0	-0.4	0.2	-1.7	-1.5	-0.5	1.5	0.0	-0.2	0.6	0.0	-0.54	13
1551270	30	IL10-19464	1.7	0.4	0.5	1.5	1.1	-0.1	-2.0	1.3	-0.6	-1.3	2.2	1.4	0.14	3
1551271	31	IL10-21934	1.5	0.1	0.8	0.8	-0.3	-1.5	-2.1	0.4	-0.6	-1.2	0.2	1.4	-0.54	14

Notes:

* Total T-Score = Sum of (0.15 x Test Weight), (-0.1 x SKCS Kernel Hardness), (0.4 x Flour Yield), (0.15 x Softness Equivalent) and (-0.2 x Sodium Carbonate SRC)

* T-Score is number of standard deviation away from the check.

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
1551241	1	Branson	71.4	5	A	18.1	23	D
1551242	2	Bess	69.6	19	C	18.3	17	D
1551243	3	Shirley	70.8	10	B	19.2	3	B
1551244	4	MO080104	68.6	28	C	17.8	26	F
1551245	5	0762A1-2-8	68.8	26	C	18.8	9	C
1551246	6	NC10-23663	68.5	29	C	19.0	4	B
1551247	7	OH07-263-3	72.1	3	A	17.9	25	F
1551248	8	TN1505	70.0	16	B	17.8	28	F
1551249	9	VA11W-106	69.1	24	C	18.8	10	C
1551250	10	VA11W-182	70.4	13	B	18.7	11	C
1551251	11	VA12W-248	70.7	12	B	18.9	8	B
1551252	12	OH07-206-69	71.1	8	A	18.9	7	B
1551253	13	OH08-180-48	70.7	11	B	18.2	18	D
1551254	14	053A1-2-5-3-5-3	69.5	20	C	18.0	24	D
1551255	15	11405A1-4	69.7	18	C	18.5	13	C
1551256	16	MD09W272-8-4-13-3	67.2	31	D	18.1	22	D
1551257	17	MDC07026-F2-19-13-1	71.2	7	A	18.9	6	B
1551258	18	MDC07026-F2-19-13-4	70.9	9	B	19.0	5	B
1551259	19	F2024R	67.8	30	D	17.3	31	F
1551260	20	F2029R	69.4	21	C	18.4	15	C
1551261	21	MO 110201	70.0	15	B	19.3	1	A
1551262	22	MO 121058	72.3	1	A	18.5	14	C
1551263	23	ES12-1049	68.6	27	C	18.1	21	D
1551264	24	ES12-1307	69.7	17	C	17.7	29	F
1551265	25	AR05094-4-1	72.1	2	A	18.6	12	C
1551266	26	AR05079-2-1	71.8	4	A	18.1	20	D
1551267	27	KY05C-1369-14-6-3	70.2	14	B	17.8	27	F
1551268	28	KY05C-1051-37-18-5	69.1	25	C	17.7	30	F
1551269	29	IL02-19463-7	69.4	22	C	18.4	16	D
1551270	30	IL10-19464	71.3	6	A	19.2	2	B
1551271	31	IL10-21934	69.4	23	C	18.1	19	D

Adjusted Flour Yield Grade (Based on Samples Between 2009 and 2014)

Grade	Range	Percent
A	>70.90	15
B	9.79 to 70.9	20
C	8.33 to 69.7	30
D	6.97 to 68.3	20
F	<66.97	15

Cookie Diameter (Based on Samples Between 2009 and 2014)

Grade	Range	Percent
A	>19.29	15
B	8.86 to 19.2	20
C	8.36 to 18.8	30
D	7.95 to 18.3	20
F	<17.95	15