UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service

State Agricultural Experiment Stations, Cooperating

2009 - 2010

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
National Small Grains Germplasm Research Facility
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October 2010

USDA Agricultural Research Service

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2009-2010 UNIFORM EASTERN SOFT RED WINTER WHEAT NURSERY
LIST OF ENTRIES AND PEDIGREES

Entry No.	Cultivar/ Designation	Pedigree	Contributor	1st Year in Nursery
1	INW0411	96204A1-12//Goldfield/92823A1-11 (formerly P97397E1-11-2-4-1-1)	Check	03-04
2	Branson	Pio2737W/891-4584A (Pike/FL302) (formerly M00-3701)	Check	03-04
3	Bess	MO11769/Madison (formerly MO981020)	Check	02-03
4	Shirley	VA94-52-25 /Coker 9835//VA96-54-234 (formerly VA03W-409)	Check	05-06
5	KY97C-0508-01-01A-1	FFR555W/VA94-52-25//2568	Van Sanford	08-09
6	IL04-8445	IL94-1653 [MOW12213/IL87-3235(Cardinal/Caldwell)] / IL97-3578 [IL90-6364(P76788G2-5-4-94//Caldwell/IL77-2656)/Pio2571]	Kolb	08-09
7	B040798	BL920520/9244BX-2-1-4	Hancock	08-09
8	W06-089	Tribute/Patton	Cisar	08-09
9	VA05W-151	Pio26R24/McCormick	Griffey	08-09
10	VA05W-168	FFR522/Tribute	Griffey	08-09
11	AR98022-19-3	Sabbe/Coker9663	Bacon	08-09
12	AR98023-5-1	Sabbe/Coker9704	Bacon	08-09
13	Taboo exp.	L930605/Ashland	Fioritto	09-10
14	Mondo exp.	Roane/IL95-3245	Fioritto	09-10
15	Okie exp.	F285N3-111/65343	Fioritto	09-10
16	W06*646	Quantum708/SW89	Cisar	09-10
17	VA07W-415	VA98W-895/GA881130LE5//VA98W-627	Griffey	09-10
18	MD00W389-08-4	Pio2643/MD71-5	Costa	09-10
19	MD02W135-08-9	Sisson/McCormick	Costa	09-10
20	MD01W270-08-12	VA98W-769/USG3209	Costa	09-10
21	T169	T143/B980582	Wilson	09-10
22	T170	T104/IL95-947	Wilson	09-10
23	T171	P92145EB…./T116	Wilson	09-10
24	MO 041687	MO 960304/MO 960815	McKendry	09-10
25	MO 050921	Ernie/MO 980521(Truman sib)	McKendry	09-10
26	MO 080104	L910097/MO 92-599	McKendry	09-10
27	Z03-3352	Patterson/W-278	Moreno	09-10
28	XY04-37	951078/W-753	Moreno	09-10
29	OH05-164-76	Pio25R18/OH686	Sneller	09-10
30	OH05-200-74	OH629/Hopewell	Sneller	09-10
31	OH05-248-38	OH685/OH686	Sneller	09-10
32	ML06-2097	Benton/M98-1569	Fogleman	09-10
33	03M1539#019	Gibson/92226E2-5-3	Fogleman	09-10
34	MH06*2820	Pio25R26/Cooper	Fogleman	09-10
35	GA011174-8A9	GA961526/GA96565	Johnson	09-10
36	IL04-24668	IL98-13404/IL97-3578	Kolb	09-10
37	IL05-4236	Truman/KY93C-1238-17-1	Kolb	09-10
38	G89267	VA91-54-219/OH413	Brown	09-10
39	G89263	T814/ABI89-4584A	Brown	09-10
40	KY00C-2567-01	SS520/25W33	Van Sanford	09-10
41	P05215A1-1-46	INW0316*2/INW0301//MO980829	Ohm	09-10
42	P05247A1-7-3	98840*2/03726//99794	Ohm	09-10
43	P05251A1-1-77	INW0412*2/03705//981312	Ohm	09-10
44	TN902	ILL F322W/BL940582//(Card/Mass)/T106	West	09-10
45	NX05M4180-6	92201D5-2-29 X 99 waxy bulk	Graybosch	09-10
46	NC05-19896	Burr/NC96BGTA6 sib//Natchez	Murphy	09-10

LOCATION NOTES

Bay, Arkansas

Cooperators:	June Hancock, David Hill, Richard Gray Syngenta / AgriPro
Planted:	November 3, 2009
Harvested:	June 13, 2010
Notes:	Planted late due to wet weather and stayed wet all season. Stands were not the best. Severe stripe rust followed by Septoria and leaf rust.

Griffin, Georgia

Cooperators:	Jerry Johnson University of Georgia
Planted:	November 1, 2009
Harvested:	June 8, 2010
Notes:	Extremely severe stripe rust early. Entry 6 poor stand; entry 19 planting problems.

Urbana, Illinois

Cooperators:	Fred Kolb, Norman Smith, Eric Brucker University of Illinois
Planted:	September 29, 2009
Harvested:	June 22, 2010
Fertilizer:	40 N preplant; 50 N topdress
Notes:	Severe leaf rust and multiple rain events that delayed harvest for about a week reduced test weights. No data from Brownstown location because plots drowned out by excessive rainfall in October after planting. FHB data are from misted nursery inoculated with grain spawn, two reps per entry. BYDV data are from two reps of hills inoculated with PAV-IL in the fall; percent stunting = ((Ht of inoc. Hill/Ht. of control hill)/Ht. of control hill) *100.

Battle Ground, Indiana

Cooperators:	Jim Peterson, Sam Brown, Katie Russler Limagrain Cereal Seeds
Planted:	October 20, 2009
Harvested:	July 5, 2010
Fertilizer:	35#N fall, 62#N March 8th, 23# April 27th -78-63, plus zinc & sulphur
Notes:	Wet fall, difficult to get planted, which is why we ended up planting at Battle Ground. Poor stand establishment. Mild winter, adequate snow cover. Unusually dry March and up to April 15th. Ideal temperatures in May, but the rain started causing Fusarium. June was third wettest on record with over 10 inches of rain. Wheat ripened early and compounded with all the rain we saw shattering.

Delphi, Indiana

Cooperators:	J. Barton Fogleman, Jennifer Vonderwell, Eugene Glover Syngenta / AgriPro
Planted:	October 19, 2009
Harvested:	June 26, 2010
Fertilizer:	100 N equivalent UAN+AS on March 18

Ferdinand, Indiana

Cooperators:	J. Barton Fogleman, Jennifer Vonderwell, Eugene Glover Syngenta / AgriPro
Planted:	November 7, 2009
Harvested:	June 21, 2010
Fertilizer:	100 N equivalent UAN+AS on March 31
Notes:	Planted late. Stands thin and very weedy.

West Lafayette, Indiana

Cooperators:	Herb Ohm Purdue University
Planted:	September 30, 2009
Harvested:	July 2, 2010
Fertilizer:	35-90-0 at seeding; 95 N on March 17
Notes:	The nursery followed oats, so seeded timely and in a good seedbed, even though it was a rainy fall season. January to mid-April was rainy and cold, so N topdress was at least 1 month later than desired. Mid-April to harvest was warmer than normal with frequent rains and nearly a record for rainfall. The warm and humid conditions favored development of Fusarium graminearum, resulting in significant fusarium head blight. Leaf rust established late in the season, and SNB and STB were present, but not severe. Powdery mildew established early in March and April, but did not spread on upper leaves due to high temperatures beginning mid-April. Wheat growth stage was 1 week later than 'normal' at mid-April, but harvest was 1 week earlier than normal - apparently the warm and continuous ample soil moisture encouraged stomates to remain open longer, resulting in rapid plant growth and grain fill to maturity. Test weights were moderately good.

West Lafayette, Indiana

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

Wichita, Kansas

Cooperators:	Jim Wilson Trio Research, Inc.
Planted:	October 1, 2009
Harvested:	July 1, 2010
Fertilizer:	60 N
Notes:	Excessive rainfall and moisture fall and early spring followed by drought stress which led to the plots being irrigated and then more rain.

Winfield, Kansas

Cooperators:	Sid Perry Westbred
Planted:	November 5, 2009
Harvested:	June 14, 2010
Notes:	Planted late due to wet weather. Stayed cold and wet all season. Tillering was reduced.

Lexington, Kentucky

Cooperators:	Dave Van Sanford, John Connelley University of Kentucky
Planted:	October 22, 2009
Harvested:	June 28, 2010
Fertilizer:	100 N in 2 applications; P and K according to soil tests
Notes:	So-so year, too much moisture early.

Schochoh, Kentucky

Cooperators:	Dave Van Sanford, John Connelley University of Kentucky
Planted:	November 4, 2009
Harvested:	June 22, 2010
Fertilizer:	100 N in 2 applications; P and K according to soil tests
Notes:	So-so year, too much moisture early.

Clarksville, Maryland

Cooperators:	Jose Costa, Aaron Cooper University of Maryland
Planted:	October 2, 2009
Harvested:	June 21, 2010
Fertilizer:	60 N spring
Notes:	Uneven presence of stripe rust. Heavy leaf rust.

Ingham County, Michigan

Cooperators:	Janet Lewis, Lee Siler, R. Laurenz, S. Hammer
	Michigan State University
Planted:	October 19, 2009
Harvested:	July 14, 2010
Fertilizer:	150# 19-19-19

St. Paul, Minnesota

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

Cleveland, Mississippi

Cooperators:	June Hancock, David Hill, Richard Gray
	Syngenta / AgriPro
Planted:	November 11, 2009
Harvested:	June 16, 2010

Columbia, Missouri

Cooperators:	Anne McKendry, David Tague
	University of Missouri
Planted:	October 7, 2009
Harvested:	July 23, 2010
Fertilizer:	120 N (40 fall, 80 spring)
Notes:	Received 5 inches of rain on the night it was planted and another 4 inches within the next week. Consequently, it was doomed from the beginning. The fall was extremely wet as was the spring and summer with heavy, frequent, rainfall events. Stands were compromised in the fall and FHB from natural infection was prevalent in the spring and summer. Yield and test weight data were not meaningful. The FHB responses may be of use.

Lincoln, Nebraska

Cooperators:	P. Stephen Baenziger
	University of Nebraska
Planted:	September 24, 2009
Harvested:	June 29, 2010
Notes:	Wheat soilborne mosaic was present in the field and may have caused more damage than the symptoms suggested.

Mead, Nebraska

Cooperators:	P. Stephen Baenziger University of Nebraska
Planted:	September 25, 2009
Harvested:	end of July
Notes:	Tough winter followed by heavy rains preceding harvest – a very ugly nursery.

Ithaca, New York

Cooperators:	Mark E. Sorrells Cornell University
Planted:	September 18, 2009
Harvested:	July 6, 2010
Fertilizer:	200# 10-20-20; 110# am. nitrate topdress

Laurel Springs, North Carolina

Cooperators:	David Marshall USDA-ARS, Plant Science Research
Notes:	Adult-plant stripe rust data. Predominant races were PSt 100 and 102; rust was severe and well-distributed. Rust spread was CG514W, which rated a 9 IT and 100% severity. 0-3 resistant; 4-6 intermediate; 7-9 susceptible.

Plymouth, North Carolina

Cooperators:	Paul Murphy North Carolina State University
Notes:	Received 12 inches of rain in the week after planting. It came up unevenly, so it was abandoned.

Raleigh, North Carolina

Cooperators:	David Livingston, Tan Tuong USDA-ARS, Plant Science Research
Notes:	Controlled environment freeze test. Ten plants per entry were planted in cone-tainers (Livingston et al. 2005, Crop Science, 45:1545-1558). Two replicates. Plants were grown for 5 weeks at 13°C; 12 hours light/dark period; 400µmole light intensity, then hardened in chamber for 3 weeks at 3°C; 12 hours light/dark period; 350µmole light intensity. After 3 weeks, plants were subzero acclimated for 3 days @ -3°C in the dark, frozen @ 1°C/hour to -16°C for 3 hours, then thawed @ 2°C/hour to 3°C. Once removed from testing chambers, plants were watered once with 0.001% (v/v) Vitavax fungicide solution -And allowed to recover for 3 weeks at 13°C in cone-tainers; 12 hours light/dark period; 400µmole light. Plant survival ratings were rated for regrowth after 4 weeks by visually assessing leaves and roots. **0** = Completely dead; **1** = 1 survived (green) shoot **or** 1 primary root; **2** = 1 or 2 survived (green)

shoots or 1 survived shoot **and** 1 or 2 primary roots; **3** = 1 or 2 survived shoots with developed roots (primary and secondary roots); **4** = 95% survived shoots with well developed roots; **5** = 100% survived with very little or no sign of freeze damage**.**

Raleigh, North Carolina

Cooperators: Christina Cowger
USDA-ARS, Plant Science Research

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

Raleigh, North Carolina

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

Notes: Marker analysis.

Dundee, Ohio

Cooperators: Benjamin Moreno, Justin Cooley, Curtis Beazer
Westbred

Planted: October 19, 2009

Harvested: July 7, 2010

Napoleon, Ohio

Cooperators: J. Barton Fogleman, Jennifer Vonderwell, Eugene Glover
Syngenta / AgriPro

Planted: October 20, 2009

Harvested: July 6, 2010

Fertilizer: 100 N equivalent UAN+AS on April 4

Notes: Earlier lines in entire field suffered from moderate scab infection. Later lines generally less affected.

Wooster, Ohio

Cooperators: Clay Sneller
Ohio State University, OARDC

Wooster, Ohio

Cooperators:	Ron Fioritto
	Sunbeam Extract
Planted:	October 12, 2009
Harvested:	July 5, 2010

Wooster, Ohio

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

Enid, Oklahoma

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

Nairn, Ontario

Cooperators:	Mark Etienne
	Hyland Seeds / Dow Agrosciences
Planted:	October 27, 2009
Harvested:	July 22, 2010
Notes:	Late planting into an open fall. Good overall winter survival. Little disease pressure in the early part of the season. FHB data in an inoculated nursery sprayed every two days -2 days prior to anthesis.

Knoxville, Tennessee

Cooperators:	Dennis West
	University of Tennessee
Planted:	October 28, 2009
Harvested:	June 17, 2010
Fertilizer:	90 N
Notes:	Very wet from planting through February. Some stand loss in low areas.

Blacksburg, Virginia

Cooperators:	Carl Griffey Virginia Tech
Planted:	September 23, 2009
Harvested:	June 19, 2010
Fertilizer:	fall 30-80-100 + 1ton lime; 120 N spring

Warsaw, Virginia

Cooperators:	Carl Griffey Virginia Tech
Planted:	October 22, 2009
Harvested:	June 10, 2010
Fertilizer:	30-80-80-5 preplant; 109 N spring

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

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

Arlington, Wisconsin

Cooperators:	Shawn Conley, Mark Martinka University of Wisconsin
Planted:	September 30, 2009
Harvested:	July 14, 2010
Fertilizer:	40# and soybean N credit
Notes:	No winterkill noted. Another trial at this location had significant Septoria and leaf rust but no ratings were able to be provided for this trial.

Oconto, Wisconsin

Cooperators:	Gordon Cisar Great Lakes Cereal Grains
Planted:	October 9, 2009
Harvested:	July 27, 2010
Notes:	Variable snow cover leading to variable winter injury. Lots of rain before and intermittently with harvest. Lodging score is the average of 6 observations – reps 1-3 before harvest and again after rain delayed harvest.


2009-10 UESRWWN
LOCATIONS
Mt. Vernon
Lind
Pullman
Walla Walla
St. Paul
Oconto
Nairn
Ithaca
Arlington
Ingham Co.
Napoleon
Wooster
Dundee
Mead
Lincoln
W. Lafayette
Delphi
Urbana
Clarksville
Warsaw
Columbia
Ferdinand
Lexington
Blacksburg
Wichita
Winfield
Schochoh
Laurel Springs
Raleigh
Enid
Knoxville
Bay
Cleveland
Griffin
Washington
Oregon
Idaho
Montana
North Dakota
Minnesota
Wisconsin
Michigan
Vermont
New York
Connecticut
Wyoming
South Dakota
Iowa
Nebraska
Pennsylvania
New Jersey
Nevada
Utah
Colorado
Illinois
Indiana
Ohio
West Virginia
Virginia
District of Columbia
California
Kansas
Missouri
Kentucky
Tennessee
North Carolina
Oklahoma
Arkansas
South Carolina
Arizona
New Mexico
Mississippi
Alabama
Georgia
Texas
Louisiana
Florida

YIELD (bu/acre)

		Bay		Griffin		Urbana		Battle Ground		Delphi		Ferdinand	
		AR	a	GA		IL	ab	IN	a	IN	a	IN	a
		Hancock	rank	Johnson	rank	Kolb	rank	Peterson	rank	Fogleman	rank	Fogleman	rank
1	INW0411	61.1	16	4.5	44	67.0	32	38.4	42	54.8	40	54.0	18
2	Branson	77.4	1	55.8	12	82.9	7	54.0	18	69.0	11	46.3	39
3	Bess	64.4	10	41.8	21	72.5	21	64.8	9	72.5	6	47.4	36
4	Shirley	54.2	27	17.6	35	86.6	4	39.4	41	62.6	26	58.2	8
5	KY97C-0508-01-01A-1	64.3	12	55.0	13	70.9	23	50.1	24	64.4	22	52.8	20
6	IL04-8445	61.2	15	4.1	45	78.5	10	55.6	15	50.2	45	52.6	23
7	B040798	70.7	4	67.2	2	76.6	11	57.1	14	64.6	21	50.8	27
8	W06-089	68.7	5	58.6	9	86.2	5	58.7	11	67.5	16	52.6	22
9	VA05W-151	71.0	3	61.0	4	96.2	1	54.9	17	75.2	4	50.1	29
10	VA05W-168	65.4	9	50.0	16	94.9	2	58.9	10	68.4	13	46.6	38
11	AR98022-19-3	62.2	13	56.3	11	72.8	20	51.2	22	60.4	30	58.8	6
12	AR98023-5-1	44.8	35	36.9	22	64.2	41	31.8	46	45.5	46	47.9	35
13	Taboo exp.	41.6	39	6.8	43	66.9	33	49.1	26	58.4	36	55.2	14
14	Mondo exp.	43.0	38	45.1	18	67.4	31	41.1	38	51.3	43	48.0	33
15	Okie exp.	46.5	33	11.7	41	68.2	28	47.2	29	60.0	32	54.8	15
16	W06*646	61.2	14	57.0	10	73.8	18	48.7	27	59.4	33	47.3	37
17	VA07W-415	36.5	44	60.1	7	73.9	16	37.8	43	60.4	31	54.5	17
18	MD00W389-08-4	59.4	17	25.4	30	65.4	37	32.0	45	58.4	34	63.1	3
19	MD02W135-08-9	40.6	41	1.5	46	62.5	42	40.6	39	66.3	19	51.2	26
20	MD01W270-08-12	34.5	46	16.3	36	67.7	30	40.5	40	70.3	9	49.8	30
21	T169	57.0	21	42.8	20	69.5	26	41.5	37	61.1	29	42.8	44
22	T170	36.3	45	13.4	39	73.9	16	55.0	16	68.9	12	46.2	40
23	T171	55.8	24	43.1	19	66.1	35	32.0	44	67.3	17	48.7	32
24	MO 041687	54.9	25	16.2	37	71.2	22	66.1	7	76.0	2	47.9	34
25	MO 050921	39.1	43	35.0	25	58.0	44	49.5	25	67.6	15	42.4	45
26	MO 080104	66.3	7	72.4	1	75.3	13	71.1	3	78.5	1	60.6	5
27	Z03-3352	57.0	20	21.6	33	64.6	38	50.8	23	70.4	8	49.3	31
28	XY04-37	64.3	11	64.8	3	68.4	27	46.5	31	63.0	25	39.7	46
29	OH05-164-76	51.4	30	35.2	24	70.5	24	58.1	12	75.2	5	53.1	19
30	OH05-200-74	41.6	40	29.6	27	52.9	46	53.0	20	75.3	3	63.5	2
31	OH05-248-38	44.7	36	28.2	28	56.9	45	46.4	32	63.1	24	64.9	1
32	ML06-2097	44.8	34	34.9	26	59.1	43	47.1	30	56.2	38	56.3	13
33	03M1539#019	54.6	26	60.7	5	65.6	36	41.5	36	50.8	44	52.0	24
34	MH06*2820	58.8	18	23.5	32	76.4	12	53.7	19	66.1	20	58.5	7
35	GA011174-8A9	58.1	19	60.6	6	74.9	14	67.0	5	66.9	18	57.8	10
36	IL04-24668	56.5	22	10.6	42	73.3	19	66.3	6	67.7	14	56.8	11
37	IL05-4236	68.6	6	25.2	31	85.1	6	75.6	2	70.5	7	61.0	4
38	G89267	52.5	28	26.1	29	66.9	33	78.0	1	69.8	10	57.8	9
39	G89263	56.5	23	52.6	14	74.3	15	70.7	4	61.1	28	51.7	25
40	KY00C-2567-01	51.9	29	19.1	34	69.7	25	48.6	28	63.3	23	45.1	42
41	P05215A1-1-46	40.5	42	13.2	40	64.4	39	65.0	8	56.4	37	43.7	43
42	P05247A1-7-3	66.0	8	48.1	17	90.5	3	46.0	33	55.2	39	50.1	28
43	P05251A1-1-77	44.1	37	35.8	23	78.6	9	44.1	34	53.5	41	52.7	21
44	TN902	50.0	31	13.5	38	68.1	29	43.8	35	58.4	35	54.6	16
45	NX05M4180-6	48.0	32	52.1	15	64.4	39	52.9	21	53.2	42	45.3	41
46	NC05-19896	75.8	2	58.7	8	82.4	8	57.5	13	61.5	27	56.5	12
LOCATION MEANS		54.9		36.3		72.1		51.7		63.4		52.2	
LSD (.05)		20.8				4.3		7.6				NS	
CV %		18.9				4.4		11				12.92	
REPS		2		1		3		2		1		2	
Harvest Plot Area (sq.ft.)		59.9		50		34		32		58		58	

YIELD (bu/acre)

		W Lafayette		Wichita		Winfield		Lexington		Schochoh		Clarksville	
		IN	ab	KS	b	KS	b	KY	ab	KY	ab	MD	ab
		Ohm	rank	Wilson	rank	Perry	rank	Van Sanford	rank	Van Sanford	rank	Costa	rank
1	INW0411	78.0	44	42.8	38	41.6	35	59.4	27	53.1	45	57.7	30
2	Branson	103.0	8	70.2	13	41.6	36	61.5	18	73.6	16	77.2	7
3	Bess	105.5	5	73.0	10	45.2	24	64.5	6	74.4	14	61.7	22
4	Shirley	104.0	7	59.1	24	47.7	17	63.4	13	77.1	8	76.6	8
5	KY97C-0508-01-01A-1	105.5	5	52.0	32	42.4	34	58.5	30	72.3	20	65.8	20
6	IL04-8445	100.3	15	73.4	6	50.3	12	56.4	37	52.3	46	80.7	2
7	B040798	96.0	19	64.2	18	52.2	8	62.9	15	65.4	35	70.6	14
8	W06-089	107.3	3	67.8	17	52.6	6	59.1	29	69.3	28	67.4	19
9	VA05W-151	111.5	1	73.3	7	55.7	2	65.7	4	72.3	21	78.0	6
10	VA05W-168	94.3	23	37.5	41	44.3	26	63.8	7	66.6	34	78.1	5
11	AR98022-19-3	87.3	39	53.8	31	47.3	18	56.7	35	79.1	6	72.9	12
12	AR98023-5-1	88.0	37	34.7	42	42.7	33	42.4	46	59.4	42	68.9	17
13	Taboo exp.	102.3	9	46.3	37	38.6	40	56.3	38	76.1	9	53.3	38
14	Mondo exp.	76.5	45	50.0	33	39.2	39	55.2	40	72.4	19	54.2	36
15	Okie exp.	101.8	11	47.1	35	39.8	38	57.8	33	68.6	30	49.7	41
16	W06*646	97.8	16	70.6	12	53.5	5	57.8	32	60.4	40	46.8	45
17	VA07W-415	89.5	35	57.6	28	41.4	37	61.6	17	74.5	13	88.3	1
18	MD00W389-08-4	90.3	33	46.9	36	45.4	23	57.0	34	73.9	15	53.5	37
19	MD02W135-08-9	92.8	29	37.6	40	33.6	45	63.7	8	73.1	18	49.7	40
20	MD01W270-08-12	90.8	32	48.0	34	43.0	32	54.6	41	64.3	37	60.5	26
21	T169	85.0	42	60.5	23	36.5	42	46.9	45	58.7	43	52.3	39
22	T170	96.8	18	57.9	27	44.2	27	63.4	14	70.7	24	56.9	32
23	T171	94.5	22	76.1	2	51.6	9	58.5	31	56.1	44	41.5	46
24	MO 041687	93.8	25	61.5	22	44.8	25	56.1	39	67.4	31	62.2	21
25	MO 050921	89.3	36	42.2	39	36.5	43	56.5	36	70.2	25	47.0	44
26	MO 080104	101.3	14	75.0	3	54.9	3	63.6	10	75.3	12	79.8	3
27	Z03-3352	101.5	13	69.4	14	48.0	16	63.5	12	79.7	5	61.7	23
28	XY04-37	94.0	24	64.2	18	51.0	10	59.6	25	75.3	11	59.2	27
29	OH05-164-76	95.0	20	58.8	26	47.1	19	61.3	19	69.8	26	55.7	33
30	OH05-200-74	88.0	37	30.0	43	35.7	44	65.7	5	85.6	1	47.0	43
31	OH05-248-38	93.5	26	54.7	30	46.8	21	53.8	42	65.2	36	57.5	31
32	ML06-2097	94.8	21	57.2	29	43.6	29	66.7	3	78.0	7	55.3	34
33	03M1539#019	82.5	43	59.1	24	43.1	31	59.6	26	75.9	10	58.3	29
34	MH06*2820	102.0	10	77.0	1	53.7	4	52.6	43	80.8	3	58.4	28
35	GA011174-8A9	92.0	31	63.7	20	43.3	30	63.7	9	71.7	22	74.3	10
36	IL04-24668	101.8	11	68.8	15	50.9	11	59.7	24	67.1	33	60.6	25
37	IL05-4236	105.8	4	74.9	4	66.3	1	68.6	2	64.2	38	75.3	9
38	G89267	97.5	17	27.9	44	43.6	28	59.2	28	80.1	4	69.1	16
39	G89263	107.8	2	68.0	16	52.5	7	70.7	1	84.5	2	67.9	18
40	KY00C-2567-01	85.5	41	14.7	46	38.5	41	60.6	21	60.9	39	54.4	35
41	P05215A1-1-46	85.8	40	73.6	5	49.3	15	52.5	44	71.5	23	61.6	24
42	P05247A1-7-3	93.0	28	71.6	11	50.1	13	60.0	22	68.7	29	73.9	11
43	P05251A1-1-77	93.3	27	73.1	8	46.9	20	60.7	20	69.4	27	71.7	13
44	TN902	90.0	34	73.1	8	50.1	14	62.1	16	59.5	41	69.9	15
45	NX05M4180-6	76.0	46	25.2	45	28.9	46	63.6	11	67.4	32	48.4	42
46	NC05-19896	92.5	30	63.0	21	46.5	22	59.8	23	73.2	17	79.1	4
LOCATION MEANS		94.7		57.5		45.7		59.7		70.1		63.3	
LSD (.05)		8.91		10.9		6.2		7.66		12.29		12.4	
CV %		6.73		9.4		7.9		6.23		8.47		9.8	
REPS		4		2		2		2		2		2	
Harvest Plot Area (sq.ft.)				36		50		40		40		47	

YIELD (bu/acre)

		Ingham Co		Cleveland		Lincoln		Mead		Ithaca		Dundee	
		MI	ab	MS		NE		NE		NY	ab	OH	a
		Lewis	rank	Hancock	rank	Baenziger	rank	Baenziger	rank	Sorrells	rank	Moreno	rank
1	INW0411	57.5	22	53.3	21	42.8	31	27.8	43	64.5	31	69.4	39
2	Branson	74.1	1	60.2	14	77.9	1	35.7	37	76.6	3	89.4	1
3	Bess	48.9	39	58.1	17	70.9	3	45.5	16	58.2	45	73.2	32
4	Shirley	73.5	2	58.2	16	51.0	23	50.4	10	78.6	2	79.9	10
5	KY97C-0508-01-01A-1	53.1	30	79.8	1	68.1	7	33.7	39	60.9	41	74.8	27
6	IL04-8445	41.7	43	49.5	24	56.8	16	44.8	17	66.5	27	78.7	17
7	B040798	62.6	11	73.9	4	70.9	2	52.7	5	70.8	19	73.2	31
8	W06-089	52.8	31	72.9	6	62.6	10	54.0	4	72.8	15	79.0	16
9	VA05W-151	67.1	3	62.8	11	66.7	9	46.3	14	76.4	5	83.9	7
10	VA05W-168	66.4	4	64.9	9	54.6	20	39.0	33	74.8	6	84.4	3
11	AR98022-19-3	49.0	38	73.5	5	53.4	21	43.3	21	65.0	30	68.9	40
12	AR98023-5-1	52.0	34	55.8	19	55.5	18	37.8	35	60.6	42	67.5	42
13	Taboo exp.	57.6	21	37.9	34	41.2	34	50.6	8	66.5	26	76.3	24
14	Mondo exp.	53.3	29	60.5	13	54.8	19	41.7	26	61.4	39	70.5	37
15	Okie exp.	54.5	26	38.3	33	50.9	24	40.3	29	62.9	36	84.3	5
16	W06*646	61.1	15	60.1	15	70.2	4	43.5	20	73.1	12	79.5	14
17	VA07W-415	49.9	36	28.7	42	35.3	41	30.8	42	73.9	8	84.3	4
18	MD00W389-08-4	64.8	5	47.3	28	39.0	38	38.9	34	60.3	43	77.5	21
19	MD02W135-08-9	58.3	18	9.3	46	28.7	45	40.8	27	57.7	46	65.9	43
20	MD01W270-08-12	64.2	7	47.6	25	41.6	32	35.6	38	66.0	28	72.7	34
21	T169	55.1	24	75.6	2	38.5	39	56.6	3	63.4	34	63.7	44
22	T170	44.6	41	40.6	30	50.1	26	42.7	24	66.5	24	72.3	35
23	T171	38.6	46	56.0	18	56.2	17	39.5	31	58.7	44	63.7	45
24	MO 041687	41.6	44	62.4	12	50.8	25	43.9	18	60.9	40	75.6	26
25	MO 050921	63.3	10	47.5	26	41.5	33	50.5	9	72.9	14	73.5	30
26	MO 080104	61.2	14	72.0	7	67.3	8	59.5	1	79.2	1	79.7	11
27	Z03-3352	63.7	8	30.0	41	57.1	15	45.9	15	73.4	10	79.6	13
28	XY04-37	58.0	20	62.9	10	69.8	5	42.7	25	73.6	9	60.5	46
29	OH05-164-76	52.6	32	32.5	39	46.4	30	39.3	32	62.0	37	76.0	25
30	OH05-200-74	59.0	16	36.4	36	51.1	22	43.6	19	72.7	16	85.5	2
31	OH05-248-38	61.4	13	23.8	44	48.5	27	51.5	6	71.5	17	72.9	33
32	ML06-2097	58.1	19	42.6	29	46.7	28	32.2	40	76.4	4	83.6	8
33	03M1539#019	62.1	12	32.8	38	34.2	42	27.5	44	69.5	21	83.9	6
34	MH06*2820	49.9	36	24.8	43	40.5	35	47.3	12	66.5	25	77.2	22
35	GA011174-8A9	55.0	25	51.8	22	59.1	14	20.6	45	65.2	29	80.4	9
36	IL04-24668	53.8	28	33.5	37	46.7	29	47.5	11	63.5	33	78.2	18
37	IL05-4236	44.4	42	53.8	20	61.7	11	58.2	2	70.9	18	79.6	12
38	G89267	63.7	8	47.3	27	32.1	44	43.1	22	74.6	7	77.7	20
39	G89263	64.6	6	39.8	31	59.7	13	51.5	7	73.1	11	77.9	19
40	KY00C-2567-01	58.7	17	50.6	23	35.3	40	36.9	36	61.5	38	74.3	28
41	P05215A1-1-46	52.1	33	30.7	40	40.2	36	40.6	28	64.4	32	73.5	29
42	P05247A1-7-3	50.0	35	75.2	3	60.2	12	43.0	23	72.9	13	67.9	41
43	P05251A1-1-77	54.1	27	12.1	45	32.6	43	46.7	13	67.1	22	70.0	38
44	TN902	56.3	23	67.6	8	40.0	37	39.7	30	63.1	35	79.5	15
45	NX05M4180-6	46.8	40	36.5	35	18.6	46	31.7	41	69.7	20	71.3	36
46	NC05-19896	40.3	45	38.7	32	68.9	6	8.6	46	66.9	23	76.7	23
LOCATION MEANS		55.9		49.3		51.0		41.8		68.0		75.8	
LSD (.05)		8.6								7.8			
CV %		7.6								6.85		11	
REPS		2		1		1		1		3		2	
Harvest Plot Area (sq.ft.)		60		62.7		32		32		41			

YIELD (bu/acre)

		Napoleon		Wooster		Wooster		Nairn		Knoxville		Blacksburg	
		OH	ab	OH	ab	OH	ab	ON	ab	TN	a	VA	ab
		Fogleman	rank	Sneller	rank	Fioritto	rank	Etienne	rank	West	rank	Griffey	rank
1	INW0411	67.8	37	52.6	43	81.4	17	52.5	29	64.2	20	72.5	46
2	Branson	71.8	22	66.4	15	92.2	3	62.4	1	67.0	16	86.7	23
3	Bess	70.1	27	67.2	12	85.0	10	56.2	9	58.3	34	86.5	26
4	Shirley	83.0	2	74.1	2	80.1	20	54.7	18	64.1	21	99.9	4
5	KY97C-0508-01-01A-1	77.7	6	70.1	4	86.1	7	59.6	3	67.3	15	84.9	32
6	IL04-8445	72.4	21	61.8	29	73.7	31	52.7	28	68.2	14	98.1	6
7	B040798	58.0	46	61.7	33	67.2	42	49.1	42	69.8	12	88.9	17
8	W06-089	75.9	11	68.8	10	79.2	21	55.9	10	65.5	19	94.7	9
9	VA05W-151	79.2	4	74.8	1	85.3	9	55.2	14	78.6	2	105.0	1
10	VA05W-168	64.9	42	69.4	8	83.2	13	52.1	30	72.4	5	89.5	16
11	AR98022-19-3	59.8	45	52.2	45	70.6	38	54.4	21	72.3	6	88.2	18
12	AR98023-5-1	65.4	39	55.5	41	67.0	43	54.1	22	53.5	40	86.7	23
13	Taboo exp.	68.8	35	58.8	37	82.3	16	53.5	24	55.1	39	79.6	40
14	Mondo exp.	69.2	32	62.4	27	77.2	26	51.3	35	58.6	33	84.3	34
15	Okie exp.	65.2	41	61.7	31	76.2	28	49.4	41	56.6	37	86.1	29
16	W06*646	71.5	23	63.9	22	85.8	8	54.6	20	76.9	3	87.9	20
17	VA07W-415	75.7	12	61.7	31	77.5	25	51.9	31	76.8	4	100.5	3
18	MD00W389-08-4	74.7	18	65.4	18	83.4	12	47.0	45	63.6	23	86.6	25
19	MD02W135-08-9	75.3	13	66.8	13	81.2	18	49.7	39	62.2	28	78.9	42
20	MD01W270-08-12	66.9	38	69.1	9	71.7	33	44.9	46	63.6	23	85.3	31
21	T169	71.1	24	57.2	38	58.4	46	50.6	38	48.7	44	82.8	36
22	T170	65.3	40	52.2	44	66.3	44	51.8	33	61.6	29	76.5	44
23	T171	67.9	36	48.6	46	67.6	41	47.9	44	50.2	43	79.1	41
24	MO 041687	70.6	26	60.0	35	71.6	35	50.9	37	59.9	32	82.7	37
25	MO 050921	77.2	7	69.9	6	89.8	5	52.8	27	44.6	45	80.5	39
26	MO 080104	76.9	8	69.5	7	93.9	1	51.8	33	66.9	17	96.8	8
27	Z03-3352	69.4	31	59.9	36	82.9	14	57.6	5	51.9	41	93.7	10
28	XY04-37	68.9	34	64.8	19	81.0	19	54.0	23	55.6	38	86.3	27
29	OH05-164-76	70.9	25	56.2	40	71.0	37	49.0	43	63.6	23	83.7	35
30	OH05-200-74	84.3	1	61.9	28	71.5	36	57.4	6	38.4	46	75.6	45
31	OH05-248-38	69.6	30	63.6	23	78.4	24	55.0	16	60.9	31	87.2	22
32	ML06-2097	78.8	5	54.9	42	86.9	6	57.4	6	50.5	42	78.1	43
33	03M1539#019	75.0	16	63.4	24	71.7	33	55.3	13	72.3	6	90.6	12
34	MH06*2820	79.4	3	64.5	20	78.7	23	55.5	11	57.6	35	84.8	33
35	GA011174-8A9	73.6	20	61.8	29	74.5	30	49.5	40	81.6	1	91.4	11
36	IL04-24668	75.2	14	65.7	17	75.8	29	51.9	31	64.0	22	88.1	19
37	IL05-4236	76.0	10	62.8	25	78.9	22	53.5	24	71.3	10	81.4	38
38	G89267	74.2	19	66.7	14	93.5	2	53.1	26	62.9	26	90.3	13
39	G89263	75.0	15	65.9	16	84.2	11	54.9	17	72.0	8	86.1	28
40	KY00C-2567-01	76.7	9	64.2	21	90.2	4	58.6	4	71.4	9	89.8	14
41	P05215A1-1-46	69.2	33	62.7	26	69.5	39	55.2	14	62.4	27	89.6	15
42	P05247A1-7-3	69.9	28	71.3	3	77.2	26	55.5	11	61.2	30	100.9	2
43	P05251A1-1-77	74.8	17	60.4	34	82.6	15	62.2	2	66.7	18	97.1	7
44	TN902	69.6	29	70.0	5	68.9	40	54.7	18	68.3	13	99.9	4
45	NX05M4180-6	63.3	43	56.7	39	66.0	45	57.3	8	56.7	36	87.5	21
46	NC05-19896	63.2	44	67.4	11	73.3	32	51.0	36	71.0	11	85.9	30
LOCATION MEANS		71.7		63.2		78.1		53.6		63.2		87.7	
LSD (.05)		8.43		8.3		9.98		3.71		13.7		6.81	
CV %		5.82		6.6		9.43		4.19		13.3		4.62	
REPS		2		3				3		3		2	
Harvest Plot Area (sq.ft.)		58		50		45		44.5		46		45	

YIELD (bu/acre)

		Warsaw		Arlington		Oconto	
		VA	ab	WI	ab	WI	a
		Griffey	rank	Martinka	rank	Cisar	rank
1	INW0411	55.9	42	75.7	30	73.8	11
2	Branson	64.2	17	86.1	7	79.6	4
3	Bess	62.3	21	87.8	5	63.4	30
4	Shirley	72.7	2	78.8	23	93.4	1
5	KY97C-0508-01-01A-1	60.0	25	78.5	24	80.9	3
6	IL04-8445	68.1	6	74.1	35	62.3	34
7	B040798	67.0	9	86.1	8	67.9	24
8	W06-089	70.0	3	81.1	17	77.5	5
9	VA05W-151	74.0	1	84.4	10	62.5	33
10	VA05W-168	67.0	9	83.3	14	76.2	6
11	AR98022-19-3	65.0	14	73.0	37	36.4	43
12	AR98023-5-1	53.0	44	72.8	38	30.3	45
13	Taboo exp.	56.0	40	76.9	28	70.8	19
14	Mondo exp.	56.3	38	69.2	44	73.7	12
15	Okie exp.	55.6	43	82.1	15	69.2	21
16	W06*646	58.9	31	80.9	18	71.8	17
17	VA07W-415	68.8	4	78.4	25	72.9	14
18	MD00W389-08-4	58.3	32	79.8	20	68.8	23
19	MD02W135-08-9	61.3	24	63.7	46	40.2	42
20	MD01W270-08-12	59.1	30	72.5	40	63.1	32
21	T169	56.3	39	70.6	43	71.5	18
22	T170	62.9	20	75.9	29	66.0	28
23	T171	48.3	46	74.5	34	61.5	36
24	MO 041687	56.0	40	74.7	32	24.1	46
25	MO 050921	57.9	34	65.6	45	60.1	38
26	MO 080104	65.3	13	81.3	16	70.7	20
27	Z03-3352	67.3	7	89.1	3	68.8	22
28	XY04-37	65.6	12	73.7	36	67.0	26
29	OH05-164-76	52.7	45	71.4	42	67.4	25
30	OH05-200-74	61.5	22	71.6	41	58.2	40
31	OH05-248-38	64.9	15	84.0	12	72.1	15
32	ML06-2097	57.3	37	77.0	27	63.3	31
33	03M1539#019	58.1	33	72.6	39	62.2	35
34	MH06*2820	59.3	28	87.0	6	64.2	29
35	GA011174-8A9	65.7	11	80.1	19	32.9	44
36	IL04-24668	59.7	27	83.7	13	72.9	13
37	IL05-4236	59.2	29	79.7	21	75.9	7
38	G89267	64.1	18	78.9	22	71.8	16
39	G89263	68.6	5	90.4	2	90.2	2
40	KY00C-2567-01	64.0	19	77.3	26	60.9	37
41	P05215A1-1-46	57.4	36	74.6	33	59.8	39
42	P05247A1-7-3	64.5	16	90.8	1	75.7	8
43	P05251A1-1-77	61.5	22	88.3	4	74.8	9
44	TN902	67.2	8	85.8	9	57.5	41
45	NX05M4180-6	57.6	35	75.0	31	66.7	27
46	NC05-19896	60.0	25	84.4	11	74.1	10
LOCATION MEANS		61.6		78.8		65.8	
LSD (.05)		5.19		9.9		13.8	
CV %		5.01		7.9		15.7	
REPS		2		3		3	
Harvest Plot Area (sq.ft.)		45		55		50	

YIELD (bu/acre)

		ENTRY MEANS ALL LOCATIONS		ENTRY MEANS IN-REGION		ENTRY MEANS CV <10%	
			rank	[a]	rank	[b]	rank
1	INW0411	56.4	43	62.4	40	64.0	43
2	Branson	70.5	3	74.3	3	77.0	3
3	Bess	65.9	12	68.8	15	71.5	15
4	Shirley	68.1	7	74.0	4	78.8	2
5	KY97C-0508-01-01A-1	66.3	11	69.4	11	71.7	14
6	IL04-8445	62.4	22	66.9	22	69.8	24
7	B040798	67.3	8	68.4	18	70.2	19
8	W06-089	69.6	4	71.9	7	74.3	7
9	VA05W-151	72.9	1	76.3	1	80.4	1
10	VA05W-168	67.1	9	72.4	6	74.9	6
11	AR98022-19-3	62.4	23	64.6	34	67.6	33
12	AR98023-5-1	54.6	45	57.7	46	63.6	44
13	Taboo exp.	58.6	35	64.8	32	68.2	30
14	Mondo exp.	58.8	33	61.7	42	65.0	41
15	Okie exp.	58.8	34	64.7	33	67.1	34
16	W06*646	65.7	13	67.6	21	69.6	25
17	VA07W-415	63.1	19	69.0	14	73.3	11
18	MD00W389-08-4	60.2	29	65.9	26	68.6	28
19	MD02W135-08-9	53.8	46	62.0	41	66.8	36
20	MD01W270-08-12	57.9	41	63.4	35	67.0	35
21	T169	58.3	40	60.2	44	62.7	45
22	T170	58.5	39	63.3	37	66.0	38
23	T171	57.4	42	58.4	45	60.6	46
24	MO 041687	59.4	31	63.1	39	65.7	40
25	MO 050921	58.5	37	63.2	38	67.9	32
26	MO 080104	72.8	2	74.5	2	76.5	4
27	Z03-3352	64.0	17	69.3	12	73.4	10
28	XY04-37	64.2	16	65.7	28	70.2	20
29	OH05-164-76	60.2	30	65.1	31	65.8	39
30	OH05-200-74	59.1	32	65.2	30	68.2	31
31	OH05-248-38	60.8	26	66.1	24	68.7	27
32	ML06-2097	60.7	27	65.7	27	69.9	23
33	03M1539#019	60.6	28	65.6	29	68.6	29
34	MH06*2820	62.9	21	68.2	19	71.1	16
35	GA011174-8A9	64.3	14	68.5	17	71.0	17
36	IL04-24668	63.0	20	68.7	16	70.0	21
37	IL05-4236	68.5	6	71.8	8	71.8	13
38	G89267	63.8	18	71.5	9	73.7	9
39	G89263	69.3	5	73.7	5	76.3	5
40	KY00C-2567-01	58.6	36	66.1	25	69.4	26
41	P05215A1-1-46	58.5	38	63.4	36	66.5	37
42	P05247A1-7-3	67.0	10	69.6	10	74.2	8
43	P05251A1-1-77	62.0	25	68.0	20	73.0	12
44	TN902	62.3	24	66.5	23	70.4	18
45	NX05M4180-6	55.1	44	61.6	43	64.2	42
46	NC05-19896	64.3	15	69.2	13	70.0	22
LOCATION MEANS		62.5		66.9		69.9	
LSD (.05)							
CV %							
REPS							
Harvest Plot Area (sq.ft.)							

TEST WEIGHT (lbs/bu)

		Bay AR Hancock	Griffin GA Johnson	Urbana IL Kolb	Battle Ground IN Peterson	W Lafayette IN Ohm	Wichita KS Wilson
1	INW0411	54.9		50.1	53.2	54.6	51.5
2	Branson	56.0	57.4	51.7	55.7	56.3	54.4
3	Bess	55.8	57.1	52.3	57.6	57.5	56.3
4	Shirley	52.1	52.5	50.5	52.1	54.7	53.1
5	KY97C-0508-01-01A-1	55.0	57.2	51.0	55.8	56.7	58.4
6	IL04-8445	58.4		54.1	56.5	58.5	58.7
7	B040798	56.4	57.1	50.1	54.1	54.6	56.7
8	W06-089	57.6	58.1	53.6	56.0	58.0	56.4
9	VA05W-151	58.3	59.1	56.7	59.1	59.5	60.6
10	VA05W-168	60.7	60.1	58.7	61.0	60.5	59.0
11	AR98022-19-3	58.6	58.0	54.5	54.6	56.6	57.1
12	AR98023-5-1	53.4	55.0	49.1	53.5	54.7	55.5
13	Taboo exp.	54.4		51.3	55.1	56.8	58.0
14	Mondo exp.	58.2	57.6	54.3	56.5	56.7	55.1
15	Okie exp.	56.3	55.2	53.1	55.1	56.4	54.6
16	W06*646	57.9	58.9	54.2	56.5	58.1	58.1
17	VA07W-415	50.3	56.7	49.2	52.9	54.9	55.8
18	MD00W389-08-4	56.6	52.2	50.1	54.6	55.9	56.3
19	MD02W135-08-9	53.5		53.8	59.5	59.3	55.0
20	MD01W270-08-12	55.7	56.1	52.1	55.7	56.7	54.1
21	T169	56.1	57.3	53.5	56.2	57.3	54.5
22	T170	53.9	53.0	52.9	55.1	57.1	56.0
23	T171	52.4	53.1	48.6	51.9	55.6	55.2
24	MO 041687	54.3	51.5	52.2	56.9	57.6	58.6
25	MO 050921	51.1	55.1	49.9	56.3	58.7	56.6
26	MO 080104	58.4	59.8	55.0	59.1	59.6	59.0
27	Z03-3352	53.3	53.7	47.9	53.5	55.5	54.1
28	XY04-37	52.3	55.8	49.4	53.0	54.5	56.7
29	OH05-164-76	51.9	55.9	50.6	55.8	56.5	56.5
30	OH05-200-74	50.2	54.3	49.6	54.3	56.2	52.1
31	OH05-248-38	51.2	53.5	48.5	54.9	55.9	53.4
32	ML06-2097	53.3	57.3	52.1	54.6	58.1	56.1
33	03M1539#019	54.5	58.1	51.3	54.7	57.1	54.4
34	MH06*2820	55.1	54.2	49.2	52.4	56.5	55.8
35	GA011174-8A9	54.5	57.5	52.5	60.1	58.1	57.3
36	IL04-24668	56.1	50.7	54.1	55.8	58.8	58.2
37	IL05-4236	56.2	57.2	54.9	57.7	58.9	59.1
38	G89267	55.3	57.6	53.6	59.1	58.1	55.5
39	G89263	55.0	58.5	52.9	58.8	59.2	55.8
40	KY00C-2567-01	55.4	54.1	51.2	55.5	57.1	56.1
41	P05215A1-1-46	53.7	51.0	52.7	55.7	56.6	56.6
42	P05247A1-7-3	56.3	57.1	54.3	56.2	57.8	57.0
43	P05251A1-1-77	53.6	53.5	52.1	56.0	57.4	56.4
44	TN902	50.9	53.0	49.1	54.1	54.6	56.5
45	NX05M4180-6	52.5	56.0	47.4	49.1	53.0	54.4
46	NC05-19896	57.4	58.1	53.4	58.5	57.3	57.0
LOCATION MEANS		54.9	55.8	51.9	55.7	57.0	56.2

TEST WEIGHT (lbs/bu)

		Winfield KS Perry	Lexington KY Van Sanford	Schochoh KY Van Sanford	Clarksville MD Costa	Ingham Co MI Lewis	Cleveland MS Hancock
1	INW0411	53.8	55.3	54.5	58.7	51.8	
2	Branson	53.7	56.0	53.5	59.3	52.9	
3	Bess	57.9	58.6	58.8	59.7	52.4	
4	Shirley	54.8	53.9	55.1	56.7	52.5	
5	KY97C-0508-01-01A-1	58.4	56.3	57.9	59.4	52.5	
6	IL04-8445	55.0	57.2	55.6	62.4	52.6	
7	B040798	57.5	56.3	55.4	58.3	52.0	54.1
8	W06-089	56.8	56.3	55.9	59.6	52.8	58.3
9	VA05W-151	59.9	58.7	58.5	63.8	54.4	58.6
10	VA05W-168	60.2	59.8	58.5	64.4	56.1	62.8
11	AR98022-19-3	56.6	56.6	58.6	60.2	52.2	55.3
12	AR98023-5-1	56.0		54.6	58.3	50.0	55.3
13	Taboo exp.	55.5	56.8	56.6	60.5	51.6	57.9
14	Mondo exp.	54.7	56.4	57.6	61.0	53.0	61.7
15	Okie exp.	57.8	56.6	56.6	59.7	52.2	56.8
16	W06*646	55.4	58.3	58.8	59.7	54.5	57.6
17	VA07W-415	59.4	55.0	55.5	61.1	49.1	47.6
18	MD00W389-08-4	54.3	56.9	58.1	62.1	54.6	56.1
19	MD02W135-08-9	56.9	57.6	57.3	61.5	53.9	
20	MD01W270-08-12	57.3	56.2	54.0	60.7	54.3	61.0
21	T169	57.9	56.5	55.9	61.6	54.1	
22	T170	56.8	56.6	58.3	57.9	50.6	
23	T171	57.6	55.1	53.0	57.0	47.5	57.2
24	MO 041687	58.5	58.4	56.5	60.0	52.4	59.2
25	MO 050921	54.0	52.9	53.7	57.8	54.2	57.2
26	MO 080104	59.7	59.3	58.9	63.3	52.6	58.9
27	Z03-3352	55.7	56.6	55.0	58.4	51.1	55.8
28	XY04-37	55.4	55.0	54.3	56.7	50.8	54.4
29	OH05-164-76	56.0	55.6	54.9	59.1	50.9	
30	OH05-200-74	55.1	57.0	57.1	56.5	52.3	
31	OH05-248-38	54.4	56.3	55.5	58.9	50.6	45.2
32	ML06-2097	55.5	56.9	55.0	58.8	51.6	58.6
33	03M1539#019	57.2	56.7	55.1	61.9	53.8	53.7
34	MH06*2820	55.5	55.4	54.5	58.4	49.6	44.9
35	GA011174-8A9	56.6	59.0	56.5	61.5	53.8	56.7
36	IL04-24668	59.4	58.6	56.7	61.7	54.5	57.3
37	IL05-4236	58.2	58.0	56.0	61.3	51.6	60.4
38	G89267	56.4	57.7	58.6	59.0	53.7	56.9
39	G89263	58.1	57.9	58.7	60.1	53.9	56.7
40	KY00C-2567-01	56.4	56.3	56.8	60.4	53.3	56.3
41	P05215A1-1-46	57.5	56.0	57.2	59.6	53.4	52.9
42	P05247A1-7-3	57.9	55.5	55.6	62.0	50.5	58.4
43	P05251A1-1-77	56.4	55.0	55.1	60.7	53.4	
44	TN902	55.9	55.9	54.0	59.9	51.4	55.2
45	NX05M4180-6	54.1	53.6	53.5	57.6	48.5	59.5
46	NC05-19896	57.7	57.6	55.5	61.6	51.9	
LOCATION MEANS		56.6	56.6	56.2	60.0	52.3	56.3

TEST WEIGHT (lbs/bu)

		Ithaca NY Sorrells	Dundee OH Moreno	Wooster OH Sneller	Wooster OH Fioritto	Nairn ON Etienne	Knoxville TN West
1	INW0411	59.8	58.4	51.4	55.6	55.8	50.5
2	Branson	60.1	59.0	53.3	55.9	55.4	53.9
3	Bess	61.2	61.1	56.6	57.1	56.6	56.1
4	Shirley	58.8	57.9	55.5	56.5	54.1	55.3
5	KY97C-0508-01-01A-1	60.9	62.5	56.9	57.4	56.2	55.3
6	IL04-8445	62.1	62.4	57.9	56.1	57.1	55.8
7	B040798	61.1	60.2	52.0	54.6	54.6	55.6
8	W06-089	60.8	60.6	57.7	57.1	56.5	57.0
9	VA05W-151	63.0	64.6	57.3	59.1	56.8	57.9
10	VA05W-168	63.1	64.2	59.8	59.6	57.1	60.2
11	AR98022-19-3	59.9	60.5	56.1	57.8	56.1	57.8
12	AR98023-5-1	59.0	58.1	52.0	54.2	54.6	55.4
13	Taboo exp.	60.3	60.4	54.9	56.7	56.6	56.4
14	Mondo exp.	60.5	61.7	57.5	57.0	56.9	57.5
15	Okie exp.	61.0	60.8	55.7	57.8	55.4	55.9
16	W06*646	61.9	62.6	56.8	56.7	56.6	57.4
17	VA07W-415	60.9	58.9	57.9	54.3	54.6	55.6
18	MD00W389-08-4	62.6	62.4	56.3	57.6	57.1	56.2
19	MD02W135-08-9	61.9	63.7	57.5	59.5	57.0	56.6
20	MD01W270-08-12	62.7	62.1	57.6	58.6	55.6	56.2
21	T169	61.3	59.7	57.2	58.3	57.3	57.4
22	T170	60.3	60.2	54.8	56.3	55.6	54.7
23	T171	61.1	56.0	52.2	56.4	54.9	53.3
24	MO 041687	62.0	61.0	56.0	56.7	56.6	52.5
25	MO 050921	59.8	60.4	59.5	59.5	56.3	54.8
26	MO 080104	61.1	61.6	59.3	59.0	57.1	58.9
27	Z03-3352	59.2	59.9	52.9	56.4	54.8	56.0
28	XY04-37	60.5	56.7	53.3	55.6	54.4	53.0
29	OH05-164-76	59.7	58.7	55.7	58.1	55.7	55.5
30	OH05-200-74	58.4	59.6	56.8	57.0	55.4	54.8
31	OH05-248-38	61.0	59.9	54.5	55.9	55.2	53.7
32	ML06-2097	59.3	60.7	54.3	58.3	55.8	52.8
33	03M1539#019	62.6	62.4	54.2	58.1	56.3	57.1
34	MH06*2820	61.5	60.8	54.2	56.1	55.3	54.4
35	GA011174-8A9	61.0	62.7	56.2	58.0	55.7	58.3
36	IL04-24668	61.3	61.3	56.2	57.9	57.3	56.5
37	IL05-4236	62.0	61.2	55.4	57.3	56.8	58.2
38	G89267	60.8	61.5	55.1	58.6	56.4	54.8
39	G89263	60.4	61.0	57.7	60.0	57.0	57.7
40	KY00C-2567-01	60.4	61.6	57.6	57.6	55.4	57.3
41	P05215A1-1-46	60.6	61.1	52.1	57.5	56.1	53.9
42	P05247A1-7-3	59.0	61.0	58.3	58.5	56.8	55.3
43	P05251A1-1-77	60.7	59.4	55.9	57.8	55.8	56.4
44	TN902	60.6	59.2	54.4	54.6	55.0	53.1
45	NX05M4180-6	60.6	57.1	53.6	52.1	53.6	52.9
46	NC05-19896	61.9	62.2	58.7	59.0	55.4	57.2
LOCATION MEANS		60.8	60.6	55.8	57.2	55.9	55.7

TEST WEIGHT (lbs/bu)

		Blacksburg VA Griffey	Warsaw VA Griffey	Arlington WI Martinka	Oconto WI Cisar	ENTRY MEANS ALL LOCATIONS	rank
1	INW0411	60.3	59.3	56.6	51.7	54.9	44
2	Branson	59.9	59.4	56.7	54.3	55.9	34
3	Bess	61.9	61.3	57.6	54.4	57.5	15
4	Shirley	59.7	59.8	56.7	50.9	54.9	42
5	KY97C-0508-01-01A-1	61.8	59.7	57.2	53.7	57.1	20
6	IL04-8445	63.6	61.3	58.7	54.7	57.9	9
7	B040798	60.8	60.3	56.4	55.2	56.1	33
8	W06-089	60.5	61.0	57.7	55.4	57.4	17
9	VA05W-151	64.3	62.3	59.5	55.0	59.4	2
10	VA05W-168	64.4	63.3	57.1	57.4	60.4	1
11	AR98022-19-3	62.1	61.6	57.4	52.9	57.3	19
12	AR98023-5-1	60.3	59.7	55.7	50.4	55.0	40
13	Taboo exp.	61.8	61.0	57.7	52.3	56.8	27
14	Mondo exp.	62.5	62.2	57.6	54.1	57.7	12
15	Okie exp.	62.0	60.8	57.8	53.4	56.9	25
16	W06*646	62.2	61.5	57.9	57.3	58.1	5
17	VA07W-415	62.0	61.1	58.0	56.3	55.8	35
18	MD00W389-08-4	62.4	60.9	58.3	54.1	57.1	22
19	MD02W135-08-9	63.6	60.8	57.6	52.8	58.0	8
20	MD01W270-08-12	62.4	60.9	58.6	55.8	57.5	16
21	T169	61.8	61.4	58.2	54.9	57.5	14
22	T170	60.2	60.3	57.6	56.2	56.4	28
23	T171	59.1	59.6	56.0	55.3	54.9	43
24	MO 041687	60.8	60.3	57.1	55.1	57.0	24
25	MO 050921	60.1	58.8	57.4	52.9	56.2	31
26	MO 080104	63.4	62.1	58.8	55.4	59.1	3
27	Z03-3352	60.4	59.3	56.5	54.5	55.5	37
28	XY04-37	60.4	57.6	56.8	50.6	54.9	45
29	OH05-164-76	60.3	60.2	56.8	54.6	56.1	32
30	OH05-200-74	59.7	59.8	54.9	51.0	55.3	38
31	OH05-248-38	61.0	61.0	55.9	52.1	54.9	41
32	ML06-2097	60.4	60.7	57.5	52.0	56.3	29
33	03M1539#019	62.3	60.6	58.4	56.0	57.1	21
34	MH06*2820	60.6	60.9	57.0	53.3	55.2	39
35	GA011174-8A9	62.7	62.4	59.1	52.6	57.9	10
36	IL04-24668	62.3	60.9	58.5	57.6	57.8	11
37	IL05-4236	62.7	61.5	58.7	57.5	58.2	4
38	G89267	60.9	60.3	57.1	56.2	57.4	18
39	G89263	60.9	60.7	58.7	57.0	58.0	7
40	KY00C-2567-01	63.0	61.3	57.7	54.4	57.1	23
41	P05215A1-1-46	61.4	59.7	57.0	55.2	56.2	30
42	P05247A1-7-3	62.3	61.2	60.1	56.2	57.6	13
43	P05251A1-1-77	62.2	61.0	58.8	56.6	56.9	26
44	TN902	61.6	60.2	57.4	54.7	55.5	36
45	NX05M4180-6	59.8	59.6	55.1	51.6	54.3	46
46	NC05-19896	62.3	61.6	59.2	56.7	58.1	6
LOCATION MEANS		61.5	60.7	57.5	54.4	56.8	

HEADING DATE (Julian Days)

		Bay AR Hancock	Griffin GA Johnson	Urbana IL Kolb	Battle Ground IN Peterson	Delphi IN Fogleman	Ferdinand IN Fogleman
1	INW0411	115.5	115	129	128.0	131.0	125.5
2	Branson	114.5	114	127	126.0	127.0	123.5
3	Bess	116.0	116	128	128.0	130.0	125.5
4	Shirley	117.0	117	131	129.0	133.0	124.5
5	KY97C-0508-01-01A-1	115.0	114	128	126.0	131.0	124.0
6	IL04-8445	115.0	119	128	127.0	130.5	123.5
7	B040798	114.0	114	127	126.5	130.0	124.0
8	W06-089	118.5	117	132	129.5	134.0	126.5
9	VA05W-151	115.0	115	126	126.0	131.0	125.0
10	VA05W-168	113.5	115	128	126.0	129.0	123.0
11	AR98022-19-3	117.5	116	132	130.0	135.0	126.5
12	AR98023-5-1	117.5	120	131	131.5	133.5	127.5
13	Taboo exp.	117.5	121	132	129.0	132.0	125.5
14	Mondo exp.	116.0	115	132	129.0	133.0	126.5
15	Okie exp.	116.5	115	131	127.5	131.0	125.5
16	W06*646	117.0	116	130	127.0	130.0	124.5
17	VA07W-415	115.0	111	128	128.0	131.5	126.0
18	MD00W389-08-4	109.5	116	128	128.5	130.0	124.5
19	MD02W135-08-9	115.5	117	129	129.0	132.0	124.5
20	MD01W270-08-12	115.0	115	128	127.0	130.0	123.5
21	T169	115.5	117	129	129.0	133.0	127.5
22	T170	116.5	117	132	128.5	132.0	127.5
23	T171	115.5	116	130	128.0	132.0	126.0
24	MO 041687	110.5	115	124	126.0	125.0	120.5
25	MO 050921	123.0	122	132	136.0	140.5	134.0
26	MO 080104	115.5	112	131	125.0	129.0	126.0
27	Z03-3352	118.0	117	132	128.0	132.0	126.5
28	XY04-37	116.0	113	128	126.0	129.5	127.0
29	OH05-164-76	116.5	117	132	128.0	131.0	125.5
30	OH05-200-74	119.0	119	132	130.5	133.0	126.5
31	OH05-248-38	116.0	117	130	128.0	130.0	125.0
32	ML06-2097	119.0	118	132	129.0	132.0	126.0
33	03M1539#019	118.0	116	130	127.0	131.0	126.0
34	MH06*2820	116.0	116	130	128.0	131.5	125.5
35	GA011174-8A9	115.5	114	126	126.0	129.0	123.5
36	IL04-24668	113.0	113	128	126.0	126.5	122.5
37	IL05-4236	113.0	114	126	125.0	126.0	121.0
38	G89267	115.5	115	129	126.0	130.0	126.0
39	G89263	118.5	116	132	128.9	134.0	128.0
40	KY00C-2567-01	113.0	115	128	129.0	131.0	125.0
41	P05215A1-1-46	115.0	115	127	124.0	125.0	123.0
42	P05247A1-7-3	116.0	116	128	124.0	127.5	125.0
43	P05251A1-1-77	118.0	116	133	129.0	132.0	127.5
44	TN902	115.5	115	130	127.0	130.7	123.0
45	NX05M4180-6	117.0	114	133	128.5	134.0	126.0
46	NC05-19896	115.5	116	129	127.5	128.3	125.5
LOCATION MEANS		115.9	115.8	129.5	127.7	130.9	125.3

HEADING DATE (Julian Days)

		W Lafayette IN	Wichita KS	Lexington KY	Clarksville MD	Ingham Co MI	Lincoln NE
		Ohm	Wilson	Van Sanford	Costa	Lewis	Baenziger
1	INW0411	126.0	117	126.6	125.0	147.6	143.0
2	Branson	125.0	117	125.1	124.0	148.1	143.0
3	Bess	127.0	118	126.0	128.0	149.8	143.0
4	Shirley	127.5	118	128.0	129.5	149.9	144.0
5	KY97C-0508-01-01A-1	125.5	119	125.3	126.5	149.8	144.0
6	IL04-8445	126.5	119	125.8	124.0	150.5	143.0
7	B040798	127.0	120	124.6	126.5	148.6	144.0
8	W06-089	129.0	120	126.8	130.0	149.9	144.0
9	VA05W-151	125.0	118	125.0	124.5	148.3	143.0
10	VA05W-168	125.5		124.4	124.0	147.9	143.0
11	AR98022-19-3	128.5	120	127.1	128.0	150.4	144.0
12	AR98023-5-1	128.5		129.3	129.5	150.0	144.0
13	Taboo exp.	128.0	119	126.0	127.5	149.7	144.0
14	Mondo exp.	127.5	118	126.5	127.0	149.8	144.0
15	Okie exp.	127.5	119	126.5	127.5	149.2	143.0
16	W06*646	127.5	118	125.6	128.0	148.4	143.0
17	VA07W-415	127.0	118	126.0	128.0	149.6	143.0
18	MD00W389-08-4	126.0	117	125.5	125.5	148.9	143.0
19	MD02W135-08-9	126.0		125.3	125.5	148.7	144.0
20	MD01W270-08-12	126.0	117	125.0	124.0	147.0	143.0
21	T169	127.0	118	127.1	126.5	150.3	143.0
22	T170	128.5	120	127.1	129.5	149.4	143.0
23	T171	127.5	119	126.0	128.5	151.5	143.0
24	MO 041687	124.0	115	123.3	122.5	147.5	139.0
25	MO 050921	135.0		133.1	134.0	153.1	
26	MO 080104	126.5	117	126.5	123.5	148.6	142.0
27	Z03-3352	129.5	121	127.0	128.5	150.1	143.0
28	XY04-37	127.0	117	125.9	128.5	149.6	143.0
29	OH05-164-76	128.5	118	126.9	127.0	149.4	143.0
30	OH05-200-74	129.5		128.5	129.5	150.5	144.0
31	OH05-248-38	127.0	119	127.0	128.0	148.8	143.0
32	ML06-2097	131.0	120	127.0	130.0	151.2	144.0
33	03M1539#019	127.0	119	125.1	126.5	148.2	144.0
34	MH06*2820	128.5	118	125.6	126.5	150.4	143.0
35	GA011174-8A9	125.5	116	126.5	123.0	147.2	140.0
36	IL04-24668	126.0	117	124.4	123.0	149.4	141.0
37	IL05-4236	125.5	120	123.3	123.0	147.8	141.0
38	G89267	127.5		125.9	127.5	148.0	142.0
39	G89263	129.5	119	128.8	130.5	150.9	145.0
40	KY00C-2567-01	126.0	117	126.9	125.5	149.3	143.0
41	P05215A1-1-46	125.0	117	125.1	124.0	148.6	141.0
42	P05247A1-7-3	125.0	117	125.3	124.0	148.7	142.0
43	P05251A1-1-77	127.5	119	128.3	128.5	153.1	142.0
44	TN902	127.5	118	124.2	125.0	147.7	143.0
45	NX05M4180-6	129.5		127.5	128.5	148.5	144.0
46	NC05-19896	126.0	117	126.3	127.0	148.8	143.0
LOCATION MEANS		127.3	118.2	126.3	126.8	149.3	143.0

HEADING DATE (Julian Days)

		Ithaca NY Sorrells	Napoleon OH Fogleman	Wooster OH Sneller	Wooster OH Fioritto	Nairn ON Etienne	Knoxville TN West
1	INW0411	145	141.5	137	139.0	146	121
2	Branson	144	139.0	136	138.7	146	120
3	Bess	145	141.5	137	139.3	146	121
4	Shirley	146	143.5	139	144.3	147	121
5	KY97C-0508-01-01A-1	144	140.0	138	138.3	146	119
6	IL04-8445	144	140.0	138	140.0	145	121
7	B040798	144	141.5	137	138.3	146	120
8	W06-089	145	142.5	139	140.3	146	122
9	VA05W-151	144	139.0	136	138.7	146	120
10	VA05W-168	144	140.5	137	138.3	145	119
11	AR98022-19-3	145	143.5	141	142.0	147	121
12	AR98023-5-1	145	143.5	140	143.3	148	121
13	Taboo exp.	143	141.5	137	140.3	146	122
14	Mondo exp.	145	142.5	139	140.3	146	121
15	Okie exp.	144	142.0	137	139.0	146	122
16	W06*646	144	141.5	137	139.0	146	122
17	VA07W-415	145	142.0	137	140.7	146	121
18	MD00W389-08-4	145	142.0	137	139.0	146	119
19	MD02W135-08-9	144	141.5	138	140.7	147	121
20	MD01W270-08-12	144	140.0	136	139.7	146	121
21	T169	144	143.0	139	144.7	148	121
22	T170	145	142.0	139	140.3	146	122
23	T171	146	142.0	138	139.0	146	122
24	MO 041687	144	138.0	134	138.3	144	116
25	MO 050921	149	150.0	144	140.7	150	127
26	MO 080104	145	140.0	137	139.3	145	121
27	Z03-3352	145	142.0	140	140.7	147	123
28	XY04-37	145	140.5	137	139.0	145	120
29	OH05-164-76	144	141.5	138	139.3	146	122
30	OH05-200-74	145	143.5	140	143.3	147	123
31	OH05-248-38	144	141.0	137	138.3	146	121
32	ML06-2097	147	143.0	140	141.3	148	123
33	03M1539#019	144	140.5	138	139.0	146	121
34	MH06*2820	145	142.0	138	139.0	146	122
35	GA011174-8A9	146	140.5	136	138.3	146	119
36	IL04-24668	144	139.0	136	139.3	145	120
37	IL05-4236	142	138.0	135	137.7	144	118
38	G89267	144	141.5	137	139.0	146	121
39	G89263	146	143.0	140	146.7	148	123
40	KY00C-2567-01	145	140.0	138	139.3	147	120
41	P05215A1-1-46	146	139.5	136	139.7	146	119
42	P05247A1-7-3	145	142.0	137	140.7	145	121
43	P05251A1-1-77	146	144.0	140	141.0	147	124
44	TN902	144	141.0	136	139.0	145	121
45	NX05M4180-6	145	141.5	140	139.3	147	123
46	NC05-19896	145	140.5	137	138.7	146	121
LOCATION MEANS		144.8	141.5	137.8	140.0	146.2	121.1

HEADING DATE (Julian Days)

		Blacksburg VA Griffey	Warsaw VA Griffey	ENTRY MEANS ALL LOCATIONS	
					rank
1	INW0411	125.0	118.0	130.1	18
2	Branson	124.5	117.5	129.0	6
3	Bess	127.5	120.5	130.7	24
4	Shirley	128.0	121.0	131.9	37
5	KY97C-0508-01-01A-1	124.0	116.5	129.7	12
6	IL04-8445	125.5	118.0	130.2	19
7	B040798	126.0	118.0	129.9	15
8	W06-089	129.0	122.0	132.2	39
9	VA05W-151	123.0	119.0	129.4	7
10	VA05W-168	124.0	117.0	129.7	11
11	AR98022-19-3	124.5	121.0	132.0	38
12	AR98023-5-1	127.0	122.0	133.3	44
13	Taboo exp.	127.5	120.5	131.4	34
14	Mondo exp.	126.5	120.0	131.2	32
15	Okie exp.	127.0	119.5	130.8	26
16	W06*646	128.0	118.5	130.6	23
17	VA07W-415	129.0	118.0	130.5	21
18	MD00W389-08-4	125.0	116.5	129.6	10
19	MD02W135-08-9	125.5	118.0	131.2	30
20	MD01W270-08-12	124.0	117.0	129.4	8
21	T169	123.0	121.5	131.4	33
22	T170	128.0	122.0	131.8	35
23	T171	127.5	121.0	131.2	31
24	MO 041687	123.0	117.5	127.4	1
25	MO 050921	130.5	127.5	136.7	46
26	MO 080104	126.0	119.0	129.7	14
27	Z03-3352	127.0	121.0	131.9	36
28	XY04-37	125.5	118.0	130.0	16
29	OH05-164-76	126.0	121.0	131.0	29
30	OH05-200-74	128.5	121.5	133.4	45
31	OH05-248-38	126.5	118.0	130.5	22
32	ML06-2097	130.0	122.0	132.7	42
33	03M1539#019	127.0	120.0	130.7	25
34	MH06*2820	127.5	118.0	130.8	27
35	GA011174-8A9	123.0	118.5	129.0	5
36	IL04-24668	123.0	118.0	128.7	3
37	IL05-4236	123.0	117.0	128.0	2
38	G89267	125.5	119.5	130.8	28
39	G89263	127.5	121.5	132.8	43
40	KY00C-2567-01	125.5	118.0	130.1	17
41	P05215A1-1-46	123.5	117.0	128.8	4
42	P05247A1-7-3	123.5	118.0	129.5	9
43	P05251A1-1-77	127.0	120.5	132.2	40
44	TN902	124.0	118.0	129.7	13
45	NX05M4180-6	127.0	121.0	132.3	41
46	NC05-19896	125.5	120.0	130.2	20
LOCATION MEANS		126.0	119.4	130.6	

HEIGHT (inches)

		Bay AR Hancock	Griffin GA Johnson	Urbana IL Kolb	Battle Ground IN Peterson	Delphi IN Fogleman	W Lafayette IN Ohm
1	INW0411	32.0	24	36	30	35.0	34.3
2	Branson	32.5	26	36	30	37.4	33.3
3	Bess	35.5	30	38	35	37.4	35.8
4	Shirley	30.0	24	35	30	33.9	32.5
5	KY97C-0508-01-01A-1	32.0	28	37	33	35.0	33.8
6	IL04-8445	32.5	24	38	33	32.3	34.3
7	B040798	33.5	31	38	35	37.0	34.8
8	W06-089	36.0	34	42	38	39.4	39.3
9	VA05W-151	32.0	28	36	33	35.4	33.3
10	VA05W-168	29.5	28	35	31	32.3	32.0
11	AR98022-19-3	35.5	35	41	37	42.5	35.8
12	AR98023-5-1	32.0	30	40	35	35.4	34.3
13	Taboo exp.	33.0	29	40	34	37.8	36.0
14	Mondo exp.	33.0	35	42	37	42.5	39.5
15	Okie exp.	32.5	28	41	37	40.2	37.8
16	W06*646	32.5	28	38	33	36.2	33.5
17	VA07W-415	31.5	35	37	35	34.6	33.8
18	MD00W389-08-4	31.5	25	35	30	31.9	30.8
19	MD02W135-08-9	28.0	26	36	32	35.8	33.8
20	MD01W270-08-12	30.0	26	36	32	36.2	33.0
21	T169	32.0	28	39	33	37.0	36.0
22	T170	35.0	25	38	36	37.4	36.0
23	T171	32.0	26	35	32	33.9	32.0
24	MO 041687	33.0	25	37	35	37.4	34.5
25	MO 050921	33.5	28	38	36	39.0	36.0
26	MO 080104	34.5	33	37	34	37.8	35.8
27	Z03-3352	36.0	28	36	35	37.0	34.8
28	XY04-37	33.5	28	37	33	37.0	34.8
29	OH05-164-76	33.5	29	37	34	34.3	35.3
30	OH05-200-74	36.0	27	41	37	39.8	36.8
31	OH05-248-38	31.5	24	35	31	35.0	33.0
32	ML06-2097	33.5	31	39	35	37.0	36.5
33	03M1539#019	33.0	33	36	35	33.9	35.8
34	MH06*2820	33.0	24	36	35	34.6	33.0
35	GA011174-8A9	30.5	31	34	34	35.8	32.0
36	IL04-24668	35.0	27	38	33	34.6	35.8
37	IL05-4236	36.0	33	39	36	36.6	36.8
38	G89267	33.5	27	37	36	35.0	34.0
39	G89263	33.0	30	37	36	38.6	34.8
40	KY00C-2567-01	35.0	28	37	37	37.4	36.8
41	P05215A1-1-46	31.0	27	36	32	31.9	33.0
42	P05247A1-7-3	30.5	24	35	31	33.1	34.0
43	P05251A1-1-77	32.5	28	36	31	33.5	33.0
44	TN902	34.5	29	37	35	35.0	35.5
45	NX05M4180-6	33.5	32	39	35	38.2	36.5
46	NC05-19896	30.5	27	36	31	31.5	33.3
LOCATION MEANS		32.8	28.4	37.4	33.9	36.1	34.7

HEIGHT (inches)

		Wichita KS Wilson	Lexington KY Van Sanford	Schochoh KY Van Sanford	Clarksville MD Costa	Ingham Co MI Lewis	Cleveland MS Hancock
1	INW0411	30	30.3	36.0	40.0	30.6	34
2	Branson	36	29.4	32.4	39.5	30.6	34
3	Bess	34	30.8	35.7	42.5	31.6	36
4	Shirley	30	30.3	30.3	36.0	29.5	32
5	KY97C-0508-01-01A-1	32	28.9	31.6	38.0	28.2	34
6	IL04-8445	32	26.6	30.3	40.0	27.4	35
7	B040798	36	33.1	34.5	43.0	33.3	38
8	W06-089	38	34.5	38.1	43.0	33.5	38
9	VA05W-151	34	30.8	32.4	40.0	30.4	36
10	VA05W-168	26	29.4	30.1	38.0	30.4	34
11	AR98022-19-3	34	35.7	38.9	47.5	33.1	41
12	AR98023-5-1	30	32.7	35.5	42.0	29.6	36
13	Taboo exp.	32	34.4	37.9	42.0	31.9	40
14	Mondo exp.	34	33.3	35.9	49.5	36.1	45
15	Okie exp.	36	34.4	35.4	42.5	33.3	39
16	W06*646	32	31.0	31.6	39.5	29.6	36
17	VA07W-415	34	31.7	33.8	44.0	28.3	37
18	MD00W389-08-4	30	28.2	29.7	38.5	30.2	33
19	MD02W135-08-9	30	29.7	31.6	40.0	30.5	35
20	MD01W270-08-12	32	30.1	31.9	40.0	30.9	34
21	T169	36	30.4	35.4	41.5	30.1	36
22	T170	31	33.2	35.3	43.0	28.9	35
23	T171	30	31.9	31.0	35.5	25.1	35
24	MO 041687	34	31.2	34.2	45.0	29.4	38
25	MO 050921	32	33.7	34.3	39.0	31.1	35
26	MO 080104	32	31.2	38.3	47.5	33.9	43
27	Z03-3352	36	29.7	34.3	39.5	31.4	36
28	XY04-37	34	29.7	33.7	37.5	31.1	37
29	OH05-164-76	32	32.7	35.0	39.0	29.8	37
30	OH05-200-74	24	33.1	39.1	44.5	32.1	37
31	OH05-248-38	32	27.9	31.1	37.0	27.4	34
32	ML06-2097	36	33.9	36.2	44.5	29.1	37
33	03M1539#019	32	31.8	35.7	40.0	30.5	31
34	MH06*2820	32	30.9	33.7	42.5	27.8	28
35	GA011174-8A9	30	30.2	32.9	40.0	30.1	36
36	IL04-24668	34	31.3	33.5	40.5	29.1	33
37	IL05-4236	34	31.3	37.4	43.5	32.0	37
38	G89267	20	29.9	32.6	40.5	30.4	35
39	G89263	34	31.9	34.1	42.0	33.6	36
40	KY00C-2567-01	26	31.1	36.0	41.5	30.3	36
41	P05215A1-1-46	32	29.2	33.6	38.5	29.2	34
42	P05247A1-7-3	30	29.7	32.4	38.5	26.9	33
43	P05251A1-1-77	34	31.8	34.6	36.5	27.2	31
44	TN902	34	31.4	35.7	42.0	33.3	38
45	NX05M4180-6	26	31.9	36.2	44.0	30.9	34
46	NC05-19896	30	27.4	28.2	37.5	25.5	32
LOCATION MEANS		31.9	31.2	34.1	41.0	30.3	35.7

HEIGHT (inches)

		Lincoln NE Baenziger	Mead NE Baenziger	Ithaca NY Sorrells	Wooster OH Sneller	Wooster OH Fioritto	Knoxville TN West
1	INW0411	38.7	33	30.2	36	35.7	32
2	Branson	39.1	33	30.2	37	39.3	32
3	Bess	41.1	35	30.8	40	38.0	34
4	Shirley	35.2	30	29.5	35	35.7	29
5	KY97C-0508-01-01A-1	38.3	31	30.2	37	39.3	30
6	IL04-8445	38.3	31	29.5	35	31.3	31
7	B040798	41.1	35	33.5	39	37.0	32
8	W06-089	45.8	37	34.1	43	41.0	35
9	VA05W-151	36.4	30	30.8	36	38.0	31
10	VA05W-168	37.9	33	30.2	35	32.3	30
11	AR98022-19-3	45.5	38	35.4	40	37.0	38
12	AR98023-5-1	38.3	33	29.5	36	35.7	33
13	Taboo exp.	40.3	38	34.1	40	41.0	32
14	Mondo exp.	43.9	41	38.1	45	39.3	42
15	Okie exp.	41.1	33	32.8	41	39.0	36
16	W06*646	38.3	31	30.8	38	33.7	33
17	VA07W-415	40.3	33	33.5	35	40.7	35
18	MD00W389-08-4	39.5	32	30.2	36	34.3	32
19	MD02W135-08-9	36.8	31	30.2	36	33.0	32
20	MD01W270-08-12	38.3	30	32.8	39	37.3	33
21	T169	36.4	33	33.5	37	34.7	36
22	T170	38.3	33	32.8	39	37.3	35
23	T171	39.1	29	28.9	34	33.0	33
24	MO 041687	39.9	35	33.5	36	37.0	37
25	MO 050921	37.5	32	31.5	38	36.0	32
26	MO 080104	41.9	34	35.4	39	40.3	37
27	Z03-3352	38.7	35	32.2	38	37.3	33
28	XY04-37	39.5	33	31.5	39	38.0	31
29	OH05-164-76	38.3	30	31.5	36	35.3	34
30	OH05-200-74	38.7	35	33.5	40	38.3	38
31	OH05-248-38	35.6	28	29.5	35	32.0	30
32	ML06-2097	41.9	34	32.8	38	39.3	36
33	03M1539#019	37.2	30	31.5	38	34.0	35
34	MH06*2820	37.2	30	31.5	38	36.7	31
35	GA011174-8A9	37.2	28	30.8	35	38.0	31
36	IL04-24668	39.1	30	31.5	36	35.7	33
37	IL05-4236	41.1	35	34.8	38	38.0	37
38	G89267	38.3	29	30.8	39	35.3	36
39	G89263	38.3	34	32.2	36	34.7	35
40	KY00C-2567-01	35.2	30	31.5	40	41.0	35
41	P05215A1-1-46	37.2	33	31.5	37	31.7	33
42	P05247A1-7-3	36.4	33	30.2	36	34.7	32
43	P05251A1-1-77	36.4	33	30.2	35	35.0	32
44	TN902	40.7	34	32.2	41	36.3	36
45	NX05M4180-6	38.7	33	33.5	40	35.3	35
46	NC05-19896	37.5	27	28.2	33	33.3	33
LOCATION MEANS		38.9	32.6	31.8	37.6	36.5	33.7

HEIGHT (inches)

		Blacksburg VA Griffey	Warsaw VA Griffey	Arlington WI Martinka	ENTRY MEANS ALL LOCATIONS	rank
1	INW0411	37.5	30.5	34.7	33.4	31
2	Branson	34.0	29.0	32.3	33.5	30
3	Bess	40.5	30.5	36.7	35.7	11
4	Shirley	34.0	29.0	30.7	31.5	45
5	KY97C-0508-01-01A-1	35.5	30.5	35.7	33.3	33
6	IL04-8445	37.0	28.5	33.7	32.4	38
7	B040798	38.0	33.0	36.7	35.8	10
8	W06-089	41.5	34.5	39.3	38.3	2
9	VA05W-151	36.0	29.5	31.0	33.3	32
10	VA05W-168	36.5	29.0	32.3	32.0	42
11	AR98022-19-3	42.5	31.0	38.3	38.2	3
12	AR98023-5-1	35.5	29.5	32.3	34.1	25
13	Taboo exp.	38.5	33.5	36.7	36.3	7
14	Mondo exp.	44.5	35.5	40.7	39.7	1
15	Okie exp.	38.5	32.5	37.3	36.6	5
16	W06*646	35.5	28.5	35.0	33.6	28
17	VA07W-415	38.5	34.0	34.3	35.2	14
18	MD00W389-08-4	34.5	30.0	34.0	32.2	40
19	MD02W135-08-9	35.0	28.5	29.3	32.4	39
20	MD01W270-08-12	37.5	29.0	36.3	33.6	27
21	T169	38.0	29.5	34.0	34.6	20
22	T170	39.0	29.5	36.3	35.0	16
23	T171	35.5	25.5	33.0	31.9	43
24	MO 041687	39.0	32.0	34.0	35.1	15
25	MO 050921	36.5	27.5	33.0	34.3	21
26	MO 080104	41.5	32.0	37.7	37.0	4
27	Z03-3352	40.0	31.0	33.7	34.9	18
28	XY04-37	36.0	31.0	34.0	34.2	22
29	OH05-164-76	39.5	29.0	35.0	34.2	24
30	OH05-200-74	41.5	31.0	35.3	36.1	8
31	OH05-248-38	35.5	28.5	34.0	31.8	44
32	ML06-2097	38.5	30.0	36.0	36.0	9
33	03M1539#019	40.0	30.5	34.7	34.2	23
34	MH06*2820	36.5	29.5	34.7	33.1	34
35	GA011174-8A9	35.0	29.5	33.3	33.1	35
36	IL04-24668	36.5	31.0	36.0	34.0	26
37	IL05-4236	40.0	30.5	38.3	36.4	6
38	G89267	38.0	31.0	34.7	33.5	29
39	G89263	37.0	30.0	36.0	35.0	17
40	KY00C-2567-01	38.5	30.5	35.0	34.7	19
41	P05215A1-1-46	37.5	27.5	32.7	32.8	37
42	P05247A1-7-3	34.5	29.5	31.7	32.2	41
43	P05251A1-1-77	38.0	28.5	32.7	32.8	36
44	TN902	37.5	30.0	35.3	35.4	12
45	NX05M4180-6	39.5	32.5	37.3	35.3	13
46	NC05-19896	35.0	28.0	33.0	31.3	46
LOCATION MEANS		37.7	30.2	34.8	34.3	

LODGING

		Battle Ground IN	W Lafayette IN	Wichita KS	Ingham Co MI	Lincoln NE	Mead NE
		Peterson	Ohm	Wilson	Lewis	Baenziger	Baenziger
		0-9	0-9	0-9	0-9	0-9	0-9
1	INW0411	0.0	3.5	2	2.1	2	2
2	Branson	4.0	4.0	3	3.9	1	1
3	Bess	3.5	5.0	3	6.1	2	2
4	Shirley	0.0	4.0	2	2.2	1	1
5	KY97C-0508-01-01A-1	3.0	4.5	2	1.5	1	1
6	IL04-8445	3.0	4.0	3	4.9	3	3
7	B040798	4.5	4.5	3	5.2	2	2
8	W06-089	5.0	4.5	2	3.5	2	2
9	VA05W-151	4.0	5.0	3	6.9	2	2
10	VA05W-168	3.5	5.0	4	4.5	1	1
11	AR98022-19-3	4.0	4.5	3	5.6	5	5
12	AR98023-5-1	2.0	4.5	1	2.5	2	2
13	Taboo exp.	1.0	5.0	3	4.2	2	2
14	Mondo exp.	3.0	3.5	3	6.9	2	2
15	Okie exp.	2.5	4.0	2	5.6	2	2
16	W06*646	2.0	5.0	2	7.4	1	1
17	VA07W-415	3.0	4.5	3	5.6	2	2
18	MD00W389-08-4	2.0	4.0	2	3.0	2	2
19	MD02W135-08-9	2.5	5.0	2	6.1	2	2
20	MD01W270-08-12	3.0	4.0	3	5.8	3	3
21	T169	2.0	4.0	2	0.6	2	2
22	T170	4.5	4.0	2	2.9	1	1
23	T171	4.0	3.0	3	2.6	2	2
24	MO 041687	3.5	6.5	4	8.4	2	2
25	MO 050921	5.0	5.5	2	2.7	2	2
26	MO 080104	3.0	5.0	2	6.8	2	2
27	Z03-3352	1.0	4.0	2	4.2	1	1
28	XY04-37	1.5	3.5	2	3.0	1	1
29	OH05-164-76	2.0	4.0	1	3.4	3	3
30	OH05-200-74	3.0	3.5	3	3.1	2	2
31	OH05-248-38	2.0	4.5	1	2.3	2	2
32	ML06-2097	2.5	4.0	3	1.2	2	2
33	03M1539#019	3.0	3.5	2	0.4	3	3
34	MH06*2820	3.5	4.0	1	3.7	1	1
35	GA011174-8A9	5.0	4.5	3	4.2	2	2
36	IL04-24668	3.5	5.0	2	6.2	1	1
37	IL05-4236	3.0	5.0	3	8.6	3	3
38	G89267	6.0	5.0	4	6.9	2	2
39	G89263	5.0	5.5	2	5.1	1	1
40	KY00C-2567-01	2.5	4.5	2	2.7	2	2
41	P05215A1-1-46	4.0	4.5	3	5.4	4	4
42	P05247A1-7-3	3.0	4.0	1	2.2	2	2
43	P05251A1-1-77	1.0	4.0	2	2.3	3	3
44	TN902	2.0	5.5	3	3.4	2	2
45	NX05M4180-6	4.5	5.5	4	6.2	4	4
46	NC05-19896	3.0	5.0	2	9.0	2	2
LOCATION MEANS		3.0	4.5	2.4	4.4	2.0	2.0
GROWTH STAGE / DATE		June 29					

LODGING

		Ithaca NY	Napoleon OH	Blacksburg VA	Warsaw VA	Arlington WI	Oconto WI
		Sorrells	Fogleman	Griffey	Griffey	Martinka	Cisar
		0-9	0-9	0-9	0-9	0-9	0-9
1	INW0411	0.0	0.0	0.0	2.0	0.9	1.2
2	Branson	0.0	0.0	0.5	3.0	0.2	3.3
3	Bess	0.7	0.0	0.5	1.5	2.3	3.2
4	Shirley	0.0	0.0	0.0	1.0	0.2	0.5
5	KY97C-0508-01-01A-1	0.0	0.0	0.0	2.0	0.5	0.8
6	IL04-8445	0.0	0.0	0.5	2.5	0.8	3.2
7	B040798	0.3	3.0	1.5	3.0	1.1	2.2
8	W06-089	0.0	0.0	4.5	2.0	0.5	1.7
9	VA05W-151	0.0	0.0	1.5	2.0	2.7	2.5
10	VA05W-168	0.0	0.0	2.0	2.0	1.2	3.2
11	AR98022-19-3	0.3	4.2	2.0	1.5	1.6	0.5
12	AR98023-5-1	0.0	0.0	0.0	0.5	0.7	0.0
13	Taboo exp.	0.7	0.0	0.5	1.5	1.5	2.3
14	Mondo exp.	0.0	0.0	0.0	1.5	0.7	0.5
15	Okie exp.	0.0	0.0	0.0	1.5	1.5	2.0
16	W06*646	0.0	0.0	1.5	2.0	1.5	2.2
17	VA07W-415	0.0	0.0	1.0	1.5	3.2	2.3
18	MD00W389-08-4	0.0	0.0	0.0	1.5	0.9	1.8
19	MD02W135-08-9	0.0	0.0	1.0	2.5	1.1	2.0
20	MD01W270-08-12	0.3	0.0	2.0	2.0	2.8	4.2
21	T169	0.0	0.0	0.0	1.5	0.4	0.0
22	T170	0.0	0.0	0.0	1.0	0.5	2.5
23	T171	0.0	0.0	0.0	2.0	1.6	1.5
24	MO 041687	0.0	0.0	0.0	3.5	3.6	2.0
25	MO 050921	0.0	0.0	0.5	1.0	0.7	1.0
26	MO 080104	0.0	0.0	0.0	1.5	1.5	0.7
27	Z03-3352	0.0	0.0	0.0	1.5	0.5	1.5
28	XY04-37	0.0	0.0	0.0	0.0	0.4	0.0
29	OH05-164-76	0.0	0.0	0.0	0.5	0.8	0.8
30	OH05-200-74	0.0	0.0	0.0	2.0	0.5	0.2
31	OH05-248-38	0.0	0.0	0.0	1.5	1.7	2.5
32	ML06-2097	0.0	0.0	0.0	1.5	0.7	1.3
33	03M1539#019	0.0	0.0	0.0	0.5	0.6	0.3
34	MH06*2820	0.0	0.0	0.0	1.0	1.1	1.0
35	GA011174-8A9	0.0	0.0	0.5	1.5	0.8	1.3
36	IL04-24668	0.0	0.0	0.0	1.5	1.7	1.8
37	IL05-4236	0.0	0.0	1.0	2.5	2.5	3.8
38	G89267	0.3	0.0	2.0	2.5	3.2	4.5
39	G89263	0.0	0.0	0.0	2.0	0.9	1.7
40	KY00C-2567-01	0.0	0.0	0.0	1.0	0.8	0.7
41	P05215A1-1-46	0.0	0.0	0.5	1.5	1.5	3.0
42	P05247A1-7-3	0.0	0.0	0.0	1.5	0.8	0.3
43	P05251A1-1-77	0.3	0.0	0.0	1.0	0.4	0.0
44	TN902	1.7	0.0	0.5	1.5	1.2	3.8
45	NX05M4180-6	0.0	0.0	3.0	2.0	2.4	6.8
46	NC05-19896	0.0	0.0	4.5	1.0	0.5	2.2
LOCATION MEANS		0.1	0.2	0.7	1.6	1.2	1.8
GROWTH STAGE / DATE							

LODGING

ENTRY MEANS
ALL LOCATIONS

			rank
1	INW0411	1.3	5
2	Branson	2.0	25
3	Bess	2.5	36
4	Shirley	1.0	1
5	KY97C-0508-01-01A-1	1.4	7
6	IL04-8445	2.3	34
7	B040798	2.7	40
8	W06-089	2.3	33
9	VA05W-151	2.6	39
10	VA05W-168	2.3	32
11	AR98022-19-3	3.1	44
12	AR98023-5-1	1.3	4
13	Taboo exp.	2.0	23
14	Mondo exp.	1.9	21
15	Okie exp.	1.9	21
16	W06*646	2.1	29
17	VA07W-415	2.3	35
18	MD00W389-08-4	1.6	15
19	MD02W135-08-9	2.2	30
20	MD01W270-08-12	2.8	41
21	T169	1.2	3
22	T170	1.6	17
23	T171	1.8	19
24	MO 041687	3.0	43
25	MO 050921	1.9	20
26	MO 080104	2.0	27
27	Z03-3352	1.4	8
28	XY04-37	1.0	2
29	OH05-164-76	1.5	14
30	OH05-200-74	1.6	16
31	OH05-248-38	1.6	18
32	ML06-2097	1.5	13
33	03M1539#019	1.4	6
34	MH06*2820	1.4	11
35	GA011174-8A9	2.1	28
36	IL04-24668	2.0	24
37	IL05-4236	3.0	42
38	G89267	3.2	45
39	G89263	2.0	26
40	KY00C-2567-01	1.5	12
41	P05215A1-1-46	2.6	38
42	P05247A1-7-3	1.4	9
43	P05251A1-1-77	1.4	10
44	TN902	2.2	31
45	NX05M4180-6	3.5	46
46	NC05-19896	2.6	37

LOCATION MEANS 2.0
GROWTH STAGE / DATE

WINTER DAMAGE

		Nairn ON Etienne % survival	Oconto WI Cisar 0-9
1	INW0411	96.3	0.0
2	Branson	95.7	0.7
3	Bess	96.0	1.7
4	Shirley	93.3	0.0
5	KY97C-0508-01-01A-1	95.3	0.7
6	IL04-8445	95.0	0.7
7	B040798	96.3	2.3
8	W06-089	95.0	1.0
9	VA05W-151	90.0	5.3
10	VA05W-168	93.3	2.0
11	AR98022-19-3	94.0	7.7
12	AR98023-5-1	93.3	7.3
13	Taboo exp.	94.7	0.0
14	Mondo exp.	92.0	1.0
15	Okie exp.	94.7	2.3
16	W06*646	96.0	1.3
17	VA07W-415	94.3	2.7
18	MD00W389-08-4	92.0	2.0
19	MD02W135-08-9	92.3	5.0
20	MD01W270-08-12	89.3	3.7
21	T169	96.7	1.7
22	T170	93.0	1.3
23	T171	92.3	1.7
24	MO 041687	94.3	4.7
25	MO 050921	95.7	5.0
26	MO 080104	96.7	1.0
27	Z03-3352	95.7	0.3
28	XY04-37	91.0	2.7
29	OH05-164-76	96.0	1.0
30	OH05-200-74	94.3	4.0
31	OH05-248-38	93.3	0.0
32	ML06-2097	95.3	0.0
33	03M1539#019	96.7	1.0
34	MH06*2820	95.7	0.0
35	GA011174-8A9	96.7	7.7
36	IL04-24668	97.7	0.0
37	IL05-4236	95.3	0.0
38	G89267	95.7	0.7
39	G89263	96.3	0.0
40	KY00C-2567-01	97.0	5.0
41	P05215A1-1-46	94.7	1.7
42	P05247A1-7-3	94.7	2.7
43	P05251A1-1-77	95.7	1.7
44	TN902	96.3	1.7
45	NX05M4180-6	95.0	0.0
46	NC05-19896	96.0	3.0
LOCATION MEANS		94.7	2.1

LEAF RUST

		Bay	Urbana	Battle Ground	Winfield	Clarksville	Blacksburg
		AR	IL	IN	KS	MD	VA
		Hancock	Kolb	Peterson	Perry	Costa	Griffey
		0-9	0-9	0-9	0-9	0-9	0-9
1	INW0411	3	8.0	7.0	4.0	8.5	7.0
2	Branson	4	9.0	1.0	5.0	5.5	7.0
3	Bess	5	8.7	4.0	7.0	8.5	7.0
4	Shirley		7.7	3.0	3.0	0.5	0.5
5	KY97C-0508-01-01A-1	3	9.0	3.0	3.0	6.0	7.0
6	IL04-8445	1	8.7	3.5	7.0	3.5	6.5
7	B040798	3	9.0	3.0	3.0	5.0	5.5
8	W06-089	1	6.0	2.5	7.0	1.0	0.5
9	VA05W-151	2	2.7	2.0	4.0	5.0	4.0
10	VA05W-168	1	1.0	1.0	4.0	0.5	1.0
11	AR98022-19-3	1	1.0	1.5	2.0	2.8	3.0
12	AR98023-5-1	4	9.0	4.0	5.0	4.3	6.0
13	Taboo exp.	1	9.0	4.0	3.0	3.5	6.5
14	Mondo exp.	4	9.0	6.0	9.0	8.5	7.0
15	Okie exp.	2	8.7	5.0	2.0	5.0	5.5
16	W06*646	5	9.0	3.0	7.0	6.5	6.5
17	VA07W-415	1	6.7	3.0	8.0	2.8	3.0
18	MD00W389-08-4	3	9.0	4.0	5.0	8.3	5.5
19	MD02W135-08-9	4	9.0	1.0	4.0	9.0	5.5
20	MD01W270-08-12	5	8.3	6.5	8.0	8.5	6.0
21	T169	4	8.7	6.0	8.0	4.8	6.0
22	T170	3	8.7	2.5	8.0	4.0	4.0
23	T171	5	9.0	4.0	7.0	8.0	7.0
24	MO 041687	5	9.0		9.0	9.0	8.0
25	MO 050921	4	9.0	8.0	8.0	6.5	6.5
26	MO 080104	5	9.0	1.0	7.0	7.0	4.5
27	Z03-3352	5	9.0	3.0	5.0	3.0	6.0
28	XY04-37	7	9.0	3.0	8.0	6.0	6.0
29	OH05-164-76	4	9.0	5.0	9.0	7.0	4.5
30	OH05-200-74	3	9.0	6.0	8.0	8.8	7.0
31	OH05-248-38	7	9.0	7.0	8.0	8.0	8.0
32	ML06-2097	7	9.0	6.0	8.0	9.0	7.5
33	03M1539#019	7	8.3	2.5	8.0	6.8	5.0
34	MH06*2820	3	9.0	1.5	7.0	6.8	7.5
35	GA011174-8A9	5	8.0	3.0	9.0	4.5	3.5
36	IL04-24668	3	9.0	1.5	8.0	9.0	6.5
37	IL05-4236	4	9.0	3.0	4.0	8.5	7.5
38	G89267	5	8.7	2.0	7.0	8.5	6.0
39	G89263	3	6.3	3.0	4.0	3.5	6.0
40	KY00C-2567-01	3	8.0	2.5	4.0	2.3	5.5
41	P05215A1-1-46	5	9.0	0.5	3.0	8.0	6.5
42	P05247A1-7-3	1	2.7	0.5	3.0	2.0	0.0
43	P05251A1-1-77	0	1.7	1.0	3.0	3.3	2.5
44	TN902		8.7	4.0	7.0	7.5	5.0
45	NX05M4180-6	2	7.7	1.0	6.0	0.5	2.5
46	NC05-19896	2	2.0	3.0	6.0	2.0	1.0
LOCATION MEANS		3.5	7.7	3.3	5.9	5.6	5.2
GROWTH STAGE / DATE				June 9			

LEAF RUST

		Warsaw VA	Oconto WI	ENTRY MEANS ALL LOCATIONS	
		Griffey	Cisar		
		0-9			rank
1	INW0411	6.0	5	6.1	32
2	Branson	5.0	5	5.2	20
3	Bess	7.0	7	6.8	38
4	Shirley	0.5	1	2.3	5
5	KY97C-0508-01-01A-1	4.5	4	4.9	17
6	IL04-8445	6.0	3	4.9	16
7	B040798	3.5	1	4.1	12
8	W06-089	1.5	1	2.6	6
9	VA05W-151	4.0	2	3.2	8
10	VA05W-168	0.5	0	1.1	1
11	AR98022-19-3	2.0	0	1.7	3
12	AR98023-5-1	6.0	6	5.5	23
13	Taboo exp.	7.0	7	5.1	18
14	Mondo exp.	7.0	8	7.3	44
15	Okie exp.	7.0	7	5.3	21
16	W06*646	8.0	2	5.9	29
17	VA07W-415	4.0	1	3.7	10
18	MD00W389-08-4	6.0	6	5.8	28
19	MD02W135-08-9	8.0	3	5.4	22
20	MD01W270-08-12	7.5	7	7.1	41
21	T169	4.0	3	5.6	24
22	T170	6.0	2	4.8	14
23	T171	9.0	7	7.0	39
24	MO 041687	8.5		8.1	46
25	MO 050921	6.0	8	7.0	39
26	MO 080104	6.0	6	5.7	25
27	Z03-3352	5.0	3	4.9	15
28	XY04-37	7.0	3	6.1	33
29	OH05-164-76	8.0	6	6.6	36
30	OH05-200-74	7.5	8	7.2	42
31	OH05-248-38	8.5	7	7.8	45
32	ML06-2097	9.0	2	7.2	43
33	03M1539#019	6.5	7	6.4	35
34	MH06*2820	7.5	7	6.2	34
35	GA011174-8A9	5.0	9	5.9	29
36	IL04-24668	6.0	3	5.8	26
37	IL05-4236	6.0		6.0	31
38	G89267	8.0	8	6.7	37
39	G89263	4.5	3	4.2	13
40	KY00C-2567-01	3.5	1	3.7	11
41	P05215A1-1-46	7.0	2	5.1	18
42	P05247A1-7-3	3.5	0	1.6	2
43	P05251A1-1-77	3.0	0	1.8	4
44	TN902	5.5	3	5.8	27
45	NX05M4180-6	4.0	3	3.3	9
46	NC05-19896	5.0	0	2.6	7
LOCATION MEANS		5.7	4.0	5.1	
GROWTH STAGE / DATE					

LEAF RUST

St. Paul
MN
Long/Kolmer

		Reactions produced by NA race* **								Postulated
		TNRJ	TCQJ	TCRK	TDBG	TJBG	MFPS	MBTS	FCNB	genes***
1	INW0411	;	3	3	;	;	;	;	;	11,26
2	Branson	3	3	3	3	3	;-3	;	;	2a
3	Bess	3	3	3	3;	3	3	3	3	-
4	Shirley	;	;	;1c2	;1c	;	;1c	;	;	+
5	KY97C-0508-01-01A-1	;	3	3	;	;	;	;	;	11,26
6	IL04-8445	3	3	3	;-3	-	3	;-3	3	-
7	B040798	;	;	3	;	;	;	;1c	;1c	11,18
8	W06-089	;-3	3	3	3	3	3	3;	3	-
9	VA05W-151	3	;	;	3	3	0;	;	;	2a,24
10	VA05W-168	3	-	;	;	;	;cn	;	;	9,24
11	AR98022-19-3	3	;	;	;	;	;	0;	0;	9,24
12	AR98023-5-1	3	3	3	;1c	;	;	;	;	11,+
13	Taboo exp.	;1c2	3	3	;	;	;	;-3	31c;	11,26
14	Mondo exp.	3	3	3	3	3	3	3	3	-
15	Okie exp.	3	3	3	;	;1c	;	3	;	11
16	W06*646	3	3	3;	;	;	;	3	;	11
17	VA07W-415	;-3	3	3;	;	;	3	;	;1c	11,26
18	MD00W389-08-4	3	3	3	;	;	;	3-;	;1c	11
19	MD02W135-08-9	-	3	-	;	;	;-	;	3	26,+
20	MD01W270-08-12	3	3	3	-	-	-	-	3	-
21	T169	3	3	3	;-3	;-3	3-;	3	;1c-3	-
22	T170	3	3	3	3	3	3	3	3	-
23	T171	;1c1	;	;	;	;	;	;	;	+
24	MO 041687	3	3	;-3	;	;	3	;	;	+
25	MO 050921	3	3	3	3,	3	-	3	,1c-3	-
26	MO 080104	3	-	3	;	;	;	;1c	;1c	2a,11
27	Z03-3352	3	3	3	3	3	3	3	3;	-
28	XY04-37	3	3	3	;	;-3	3-;	-	3;	14a
29	OH05-164-76	3	3	3	;1c	;	;-3	;1c	;	11
30	OH05-200-74	3;	3	-	;	;	3;	;	;1c2	26
31	OH05-248-38	3	3	3	;-3	3	3	3	3	-
32	ML06-2097	;1c3	3	3	;	;	3	3	3	14a
33	03M1539#019	;1c	;1c	;1c1	;1c2	;	;1c2	;1c	;	+
34	MH06*2820	3	;	3	;	;	3	;	;1c	+
35	GA011174-8A9	3;	3;	3	;	3-;	3	;	3	26
36	IL04-24668	;	3	3	;	;	3	;	3	26
37	IL05-4236	3	3;	3	;1c	;	3	3	;lc	-
38	G89267	3	;-3	;1c	;	;	;	;	;1c	9,24
39	G89263	3	;	3	;	;	;	;	;1c	11,+
40	KY00C-2567-01	;1c	;	;3	;	;	;	-	-	+
41	P05215A1-1-46	3	3	3	;1c	;	3	3	;1c	14a
42	P05247A1-7-3	;1cn	;1cn	;1cn	;	;	;1c1	;1c	;	+
43	P05251A1-1-77	;1c	;1c	;1c	;	;1c2	;1c	;1c2	;	+
44	TN902	;1c3	3;	3	;	;	;	3	;1c	26,+
45	NX05M4180-6	;	31c;	21c;	;1c2	;1c2	3	3;	;	26,+
46	NC05-19896	;1c	;	;	;	;1c	;	;	;	+

*Single genes tested: = 1,2a,2c,3,3Ka,9,10,11,14a,16,17,18,24,26,30,B
**Virulence formula:
TNRJ=1.2a.2c.3.3ka.9.10.11.14a.24.30
TCQJ+1,2a,2c,3,10,11,14a,26,B
TCRK=1,2a,2c,3,3ka,10,11,14a,18,26,30
TJBJ=1,2a,2c,3,10,14a,16,24
TJBJ=1,2a,2c,3,10,14a,16,24
MFPS=1,3,3ka,10,14a,17,24,26,30,B
MBTS=1,3,3ka,10,11,14a,17,30,B
FCNB=2c,3,3ka,17,26
***+ = Lr gene(s) present but unable to identify with these Lr virulence combinations

LEAF RUST

Blacksburg
VA
Griffey

		TNRJ	TCRK+ MFQS			
1	INW0411	0;	3			
2	Branson	3	;3			
3	Bess	3	3			
4	Shirley	0;c	;3=			
5	KY97C-0508-01-01A-1	23;	23;			
6	IL04-8445	12;	2;			
7	B040798	3	2;C	Lr GENE	TNRJ	TCRK +MFQS
8	W06-089	3	3		observed	observed
9	VA05W-151	3	3	Lr1	3-	3
10	VA05W-168	23	0;TR3	Lr2a	23	3;
11	AR98022-19-3	3	0;	Lr2c	3	2c
12	AR98023-5-1	0;1	;1	Lr3	3	;3
13	Taboo exp.	0;	3			3
14	Mondo exp.	3	3	Lr9	3	0;
15	Okie exp.	0;	3	Lr16	;1-N	12;N
16	W06*646	3	3	Lr24	23	3
17	VA07W-415	;12	3-	Lr26	;1=N	3
18	MD00W389-08-4	3	3			
19	MD02W135-08-9	0;1-	3	Lr3ka	3	3-
20	MD01W270-08-12	3	3	Lr11	3	3
21	T169	3	3	Lr17	;1	;12C
22	T170	3-	3	Lr30	3	23
23	T171	;1	2CN			
24	MO 041687	3	3	LrB	;12	can't read
25	MO 050921	3	3	Lr10	3-	3
26	MO 080104	3	3	Lr14a	3	3
27	Z03-3352	23	3	Lr18	;1	23
28	XY04-37	3	3			
29	OH05-164-76	0;tr3	3			
30	OH05-200-74	3tr0;	3			
31	OH05-248-38	3;	3			
32	ML06-2097	;1-	3			
33	03M1539#019	0;	23C			
34	MH06*2820	3	3			
35	GA011174-8A9	;12	23;			
36	IL04-24668	3	;23			
37	IL05-4236	3	3			
38	G89267	3	3			
39	G89263	3	0;3			
40	KY00C-2567-01	3	23;			
41	P05215A1-1-46	3/0;	3			
42	P05247A1-7-3	0;tr3	23;			
43	P05251A1-1-77	;12	;12			
44	TN902	0;tr3	3			
45	NX05M4180-6	;12	3			
46	NC05-19896	12;	0;1			
DATE		Dec. 1	Dec. 14			

STEM RUST

		St. Paul MN									
						Jin					
		QFCS	QFCS	QTHJ	QTHJ	MCCF	MCCF	RCRS	RCRS	RKQQ	TPMK	TTTT
		06ND76C	06ND76C	75ND717C	75ND717C	59KS19	59KS19	77ND82A	77ND82A	99KS76A-1	74MN1409	01MN84A-1-2
			rep2		rep 2		rep2		rep2			
	McNair 701	S		S		S		S		S	S	S
	Red Chief	2+3-		2+3-		S		22+		S	S	S
1	INW0411	0;		0		0;		;		;2-	;/2-	0;
2	Branson	22+		S		2		S		S	S	S
3	Bess	S		S		S/2		S		2++/;	S	S
4	Shirley	;		0;		0;		2-		2-/;	;	2-;
5	KY97C-0508-01-01A-1	0/S		-		0;		S		S	;	S
6	IL04-8445	S		S		S		2+3-		S	S	S
7	B040798	S		S		S		S		S	S	S
8	W06-089	2		2+		2		S		;11+	2+	S
9	VA05W-151	2-		2		2-		2-		2	2+	2/S
10	VA05W-168	2-	0/2-	2	2-	2	2-	2-	2-	2-	2	2
11	AR98022-19-3	S	S	S	S	S	S	S	S	S	S	S
12	AR98023-5-1	0	2-	0	2-	;1	;2-	2-	2-	S	2	2-
13	Taboo exp.	2	2-	2	2-	1	1/S	2-	2-	2	2	2-
14	Mondo exp.	S	S	S	S	S	S	S	S	S	S	S
15	Okie exp.	0	2-	2/S	2-	2-	2-	2-	2-	2	2-	2-
16	W06*646	S	S	S	S	S	S	S	S	S	S	S
17	VA07W-415	S	S	S	3;	S	32;	S	S	31;	S	S
18	MD00W389-08-4	-	0	-	0	0	0	S	S	S LIF	0;3	-
19	MD02W135-08-9	-	2-	-	2-	-	2	-	2-	0;	;2-	-
20	MD01W270-08-12	0	0	0	0	0	0	S	S	S	-	-
21	T169	0;	0	0	0	0;	0/;1	S	S	S	S	S
22	T170	2	2/S	S	S	2-	2	S	S	;2	2+	S
23	T171	2N	2	S	S	2	2N	S	S	S	2+	S
24	MO 041687	S	S	S	S	S	S	S	S	-	S	S
25	MO 050921	S	S	S	S	S	S	S	S	S	S	S
26	MO 080104	S	S	S	S	S	S	S	S	S	S	S
27	Z03-3352	S	S	S	S	S	S	S	S	S	S	S
28	XY04-37	S	S	S	S	S	S	S	S/2	S	S	S
29	OH05-164-76	0	2-	2-	2-/S	2/S	;2/S	2-	2-/S	2	2-/S	;
30	OH05-200-74	;2-	0	2	2	0;	0/2-	;1	;	;1/2	;	2
31	OH05-248-38	S	S	S/2-	S	S	S	S	S	3-;	S	S
32	ML06-2097	0	2	2-	2	2/S	2-	2-	2-	2	2	2-
33	03M1539#019	0	0	;	0;	0;	0;	0	0	;/2	;/S	;
34	MH06*2820	S	S	S	S	S	S	S	S	S	S	S
35	GA011174-8A9	S	3+;	S/;	3+;	;3/S	S;	3+;	S	;13+	S	S
36	IL04-24668	2	2	S	S	2	2N	S	S	S	2+3	S
37	IL05-4236	S	S	S	S	S	S	S	S	S	S	S
38	G89267	0	0	0	0	0	0	S	S	S	S	S
39	G89263	S	S	S	S	S/2	S	S	S	S	S	S
40	KY00C-2567-01	S	S	-	S	S	S	S	S	-	S	S
41	P05215A1-1-46	0	0	0	0	;1	0;	2-/2+	2/2+	S/2	2	S
42	P05247A1-7-3	0	0	;	0;	0;	0	;	0	;/;S	;	0;
43	P05251A1-1-77	2	2	2	0;	-	2	2/;	;2-	2/;	2	S
44	TN902	2	-	2	2	2/S	2	2-	2-	2-/S	2/S	2-/S
45	NX05M4180-6	3+;	0	3-;	0	;3	0	3;/;	;13	;/;3	S/;	S/2
46	NC05-19896	;	0	0	0	0	0	3;	0	3/;3	S	S/2

Notes and explanations:

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

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

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

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

STEM RUST

					St. Paul MN					
		TTTT	SCCSC	SCCSC	QCCSM	Jin TTKSK	TTKSK	TTKST	TTTSK	TRTT	
		01MN84A-1-2	09ID73-2	09ID73-2	75WA165-2A	04KEN156/04	04KEN156/04	06KEN19V3	07KEN24-4	06YEM34-1	Note1
		rep2		rep2							
	McNair 701		**S**		**S**	**S**	**S**	S	S	S	
	Red Chief		2+		S	2+	2+	2+3	2+3	S	
1	INW0411		0		0;	;1-	;1	0	S	;1	Sr36
2	Branson		2		2	S/;	S	S	S	S	
3	Bess		S		S	S	S	S	S	S	
4	Shirley		;		0;	;1	;1	0	S	2-	Sr36
5	KY97C-0508-01-01A-1		0		0;	0;	0	0	S	S	Sr36
6	IL04-8445		S		S	S					
7	B040798		S		S	S					
8	W06-089		2		2	S					
9	VA05W-151		2-		;2-/S	2-	2	2	2	;2-	?
10	VA05W-168	2	;2-	2-		2-	2-	2	2	2	?
11	AR98022-19-3	S	S	S		S					
12	AR98023-5-1	2-	0	0		S					
13	Taboo exp.	2-	;	2		S					
14	Mondo exp.	S	S/;	S		S					
15	Okie exp.	2-	0	2-		S					
16	W06*646	S	S	S		S					
17	VA07W-415	S	S	S		S					
18	MD00W389-08-4	S	0/S	0		-	-	0	S	-	Sr36
19	MD02W135-08-9	-	0	2		2;	2	-	0/S	2-	?
20	MD01W270-08-12	-	0	0		0	0	-	-	S	
21	T169	S	0;/S	0;		;1	2+;	0;1	S/;	S	Sr36
22	T170	S	2+	2+		S					
23	T171	S	2	2+		S					
24	MO 041687	S	S	S		S					
25	MO 050921	S	S	S		S	S	S	S	S	
26	MO 080104	S	S	S		S					
27	Z03-3352	S	S	S		S					
28	XY04-37	S	S	S		S					
29	OH05-164-76	;1/S	2-/S	2		S					
30	OH05-200-74	2	;	0;		2	2	2	2	S	1A 1R?
31	OH05-248-38	S	S	S		23; ?	-	S	S	S	
32	ML06-2097	2-	2	2		S					
33	03M1539#019	;2-	-	0		S					
34	MH06*2820	-	S	S	S	S					
35	GA011174-8A9	S	S	S	3+;	S					
36	IL04-24668	S	2+	2	2	S					
37	IL05-4236	S	S	S	S	S					
38	G89267	S	0	0	0	;1	0/S	0	S	S	Sr36
39	G89263	S	S	S	S	S					
40	KY00C-2567-01	-	S	S	S	S					
41	P05215A1-1-46	S	0	0/S	23	0;1/2+	;1+	S	2+	S	Sr24?
42	P05247A1-7-3	2-;	;	;	0	S					
43	P05251A1-1-77	S/2-	;	;	2	S					
44	TN902	2-	2	2	2/S	S/2+3	S	S	2+3	2-	
45	NX05M4180-6	S/;	S	;/S	;3	S/2	S/2	S	S	S	
46	NC05-19896	S	0;	0	;	3-1;	3-;	0	S	S	Sr36?

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

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

New virulence added in screening:

QCCSM was added in 2008/09 screening with virulence on Sr24.

SCCSC was added in 2009/10 screening with virulence on Sr9e and Sr13

STRIPE RUST

		Bay AR Hancock 0-9	Griffin GA Johnson 0-9	Wichita KS Wilson 0-9	Cleveland MS Hancock 0-9
1	INW0411	6	7	9	8
2	Branson	0	0	4	5
3	Bess	1	5	6	4
4	Shirley	7	9	9	8
5	KY97C-0508-01-01A-1	1	2	4	6
6	IL04-8445	4	9	9	8
7	B040798	0	1	6	3
8	W06-089	0	1	4	3
9	VA05W-151	2	5	4	8
10	VA05W-168	3	7	9	8
11	AR98022-19-3	0	2	8	4
12	AR98023-5-1	1	4	9	6
13	Taboo exp.	5	7	9	9
14	Mondo exp.	2	4	6	5
15	Okie exp.	5	9	9	9
16	W06*646	0	0	4	4
17	VA07W-415	5	0	9	9
18	MD00W389-08-4	5	9	9	9
19	MD02W135-08-9	7	8	9	9
20	MD01W270-08-12	6	9	4	9
21	T169	0	0	4	3
22	T170	5	9	9	9
23	T171	0	0	4	3
24	MO 041687	5	9	9	9
25	MO 050921	5	7	9	7
26	MO 080104	1	1	4	5
27	Z03-3352	4	7	8	9
28	XY04-37	1	2	4	4
29	OH05-164-76	5	7	6	9
30	OH05-200-74	3	7	9	9
31	OH05-248-38	4	9	9	9
32	ML06-2097	5	9	9	8
33	03M1539#019	4	2	9	9
34	MH06*2820	5	9	9	9
35	GA011174-8A9	2	0	9	9
36	IL04-24668	5	9	9	9
37	IL05-4236	4	5	9	9
38	G89267	5	7	9	8
39	G89263	4	5	4	5
40	KY00C-2567-01	6	9	9	9
41	P05215A1-1-46	6	9	9	9
42	P05247A1-7-3	2	0	9	4
43	P05251A1-1-77	5	4	9	6
44	TN902	7	9	9	9
45	NX05M4180-6	5	0	9	6
46	NC05-19896	0	0	4	3
LOCATION MEANS		3.4	5.1	7.4	7.0
GROWTH STAGE / DATE			April 24		

STRIPE RUST

Lincoln NE	Mead NE	Laurel Springs NC	
Baenziger	Baenziger	Marshall	
0-9	0-9	IT 0-9	% severity
7	7	8	60
3	6	0	0
5	5	3	1
6	5	9	70
4	7	3	10
7	5	9	70
2	6	0	0
2	5	0	0
5	6	8	10
6	6	8	40
3	5	3	1
3	5	3	10
6	6	8	50
3	6	3	1
6	7	9	50
3	7	0	0
6	7	0	0
6	8	9	80
7	5	9	90
7	6	8	90
4	4	0	0
5	5	8	40
2	5	0	0
8	6	8	70
4	3	7	30
2	4	2	1
5	5	8	50
3	6	3	70
4	5	8	40
5	7	4	10
7	5	8	30
7	6	9	60
8	6	0-9	0-70
8	6	8	70
5	7	0	0
8	6	8	50
6	7	5	70
8	6	7	40
3	5	4	1
5	5	9	70
6	5	8	80
4	4	0	0
5	5	8	1
7	5	9	80
5	6	0	0
2	6	0	0
5.1	5.7	5.1	33.2

STRIPE RUST

		Pullman WA Chen 6/25/10 Flowering		Mt. Vernon WA Chen 4/14/10 Stem elong.		Mt. Vernon WA Chen 5/24/10 Flowering		Walla Walla WA Chen 6/10/10 Milk		Lind WA Chen 6/17/10 Milk	
		IT*	%	IT	%	IT	%	IT	%	IT	%
1	INW0411	8	80	8	50	8	100	8	100	8	20
2	Branson	3	10	2	5	2	5	8	60	2	5
3	Bess	5	30	8	80	8	100	8	60	3	10
4	Shirley	8	80	8	50	8	100	8	90	2	5
5	KY97C-0508-01-01A-1	3	20	3	20	5	50	8	30	2	5
6	IL04-8445	8	80	8	80	8	100	8	100	8	20
7	B040798	8	60	8	60	2	30	8	100	8	40
8	W06-089	8	60	8	80	8	100	8	100	8	40
9	VA05W-151	8	80	8	80	8	100	8	100	8	60
10	VA05W-168	8	80	8	80	8	100	8	100	8	40
11	AR98022-19-3	2	10	8	60	8	100	5	30	2	5
12	AR98023-5-1	2	10	5	20	8	100	8	90	5	5
13	Taboo exp.	8	80	8	60	8	100	8	100	8	40
14	Mondo exp.	8	10	3	20	2	30	5	30	5	10
15	Okie exp.	8	80	8	60	8	100	8	100	8	20
16	W06*646	2	5	2	5	2	10	2	5	2	2
17	VA07W-415	2	10	8	40	7	90	3	10	2	2
18	MD00W389-08-4	8	60	8	40	8	100	8	100	5	10
19	MD02W135-08-9	8	60	8	60	8	100	8	100	---	---
20	MD01W270-08-12	8	80	8	80	8	100	8	100	8	10
	PS 279	**8**	**80**	**8**	**80**	**8**	**90**	**8**	**100**	**8**	**30**
21	B169	8	60	8	80	8	100	8	100	8	20
22	B170	8	60	8	50	8	100	8	100	8	10
23	B171	2	10	2	5	2	30	8	10	2	2
24	MO 041687	8	60	8	50	8	100	8	100	8	20
25	MO 050921	3	10	8	40	7	60	8	90	5	10
26	MO 080104	3	10	2	15	2	30	5	30	2	2
27	Z03-3352	5	30	8	50	8	100	8	90	---	---
28	XY04-37	2	10	2	10	8	100	3	20	2	5
29	OH05-164-76	8	60	8	40	8	70	8	100	8	20
30	OH05-200-74	8	60	8	80	5	70	8	100	8	20
31	OH05-248-38	5	70	8	80	8	100	8	100	5	10
32	ML06-2097	8	50	5	30	7	80	8	100	8	20
33	03M1539#019	5	30	3	15	2	5	8	100	8	20
34	MH06*2820	3	20	8	80	8	100	8	100	3	10
35	GA011174-8A9	2	10	2	5	2	5	2	2	2	5
36	IL04-24668	8	60	8	80	8	100	8	100	8	20
37	IL05-4236	5	60	5	40	8	100	8	100	8	20
38	G89267	8	30	8	80	8	100	8	80	8	20
39	G89263	3	10	3	15	2	30	8	80	8	5
	PS 279	**8**	**80**	**8**	**80**	**8**	**70**	**8**	**100**	**8**	**60**
40	KY00C-2567-01	8	60	8	40	7	90	8	100	2	2
41	P05215A1-1-46	5	60	8	80	8	100	8	100	5	10
42	P05247A1-7-3	8	30	2	5	2	5	8	50	8	10
43	P05251A1-1-77	8	30	8	80	8	40	8	40	5	10
44	TN902	8	60	8	60	8	100	8	90	8	60
45	NX05M4180-6	8	50	5	50	2	30	8	50	---	---
46	NC05-19896	5	20	2	5	2	5	3	20	2	2
	PS279	**8**	**80**	**8**	**60**	**8**	**50**	**8**	**100**	**8**	**80**

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

STRIPE RUST

Pullman
WA
Chen

Infection type produced by PST races*

		Seedling Test** (4 - 20 C)					Adult-plant Test** (10 - 30 C)			Possible HTAP
		PST-37	PST-45	PST-100	PST-114	PST-127	PST-100	PST-114	PST-127	Resistance
1	INW0411	1,8	2	8	8	8	8,8,8	8,8,8	8,8,8	No
2	Branson	8	8	8	8	8	3,3,3	2,2,2	3,3,3	YES
3	Bess	8	8	8	8	8	3,3,3	2,2,2	4,4,4	YES
4	Shirley	1	2	8	8	8	8.8.8	8,8,8	8,8,8	NO
5	KY97C-0508-01-01A-1	8	8	8	8	8	8.8.8	5,5,5	5,5,5	NO
6	IL04-8445	5	8	8	8	8	8.8.8	8,8,8	8,8,8	NO
7	B040798	8	8	8	8	8	5,5,6	3,3,3	7,7,7	LOW
8	W06-089	8	8	8	8	8	5,5,5	2,2,2	3,3,3	LOW
9	VA05W-151	8	8	8	8	8	8,8,8	8,8,8	8,8,8	NO
10	VA05W-168	8	8	8	8	8	8,8,8	8,8,8	8,8,8	NO
11	AR98022-19-3	8	8	8	8	8	3,3,3	2,2,2	6,6,6	LOW
12	AR98023-5-1	1	2	8	8	8	3,3,3	2,2,2	3,3,3	YES
13	Taboo exp.	1	2	8	8	8	8,8,8	8,8,8	8,8,8	NO
14	Mondo exp.	8	8	8	8	8	8,8,8	6,6,6	6,6,6	NO
15	Okie exp.	1	2	8	8	8	8,8,8	8,8,8	8,8,8	NO
16	W06*646	5	8	8	5	6	3,3,3	1,1,1	3,3,3	YES
17	VA07W-415	5	8	8	8	8	3,3,3	3,3,3	2,2,2	YES
18	MD00W389-08-4	5	8	8	8	8	8,8,8	8,8,8	8,8,8	NO
19	MD02W135-08-9	2	2	8	8	8	8,8,8	8,8,8	8,8,8	NO
20	MD01W270-08-12	8	8	8	8	8	8,8,8	8,8,8	8,8,8	NO
21	B169	8	8	8	8	8	5,5,5	4,4,4	8,8,8	NO
22	B170	8	8	8	8	8	8,8,8	8,8,8	8,8,8	NO
23	B171	8	8	8	8	8	3,3,3	1,1,1	3,3,3	YES
24	MO 041687	8	8	8	8	8	8,8,8	8,8,8	8,8,8	NO
25	MO 050921	8	8	8	8	8	8,8,8	8,8,8	4,4,4	NO
26	MO 080104	8	8	8	8	8	5,5,5	3,3,3	3,3,3	LOW
27	Z03-3352	8	8	8	8	8	7,7,7	6,6,6	5,5,5	LOW
28	XY04-37	8	8	8	8	8	1,1,1	1,1,1	1,1,1	YES
29	OH05-164-76	8	8	8	8	8	8,8,8	8,8,8	8,8,8	NO
30	OH05-200-74	8	8	8	8	8	8,8,8	8,8,8	8,8,8	NO
31	OH05-248-38	8	8	8	8	8	7,5,5	8,8,8	4,4,4	NO
32	ML06-2097	1	1	8	8	8	8,8,8	6,6,6	7,7,7	NO
33	03M1539#019	1	1	8	8	8	2,2,2	1,1,1	8,8,2	YES?
34	MH06*2820	5	8	8	8	8	8,8,8	8,8,8	8,8,8	NO
35	GA011174-8A9	5	8	8	8	7	2,2,2	1,1,1	2,2,2	YES
36	IL04-24668	8	8	8	8	8	8,8,8	8,8,8	8,8,8	NO
37	IL05-4236	8	8	8	8	8	3,3,3	3,3,3	4,4,4	YES
38	G89267	8	8	8	8	8	8,8,8	8,8,8	8,8,8	NO
39	G89263	8	8	8	8	8	7,7,7	7,7,7	8,8,8	NO
40	KY00C-2567-01	8	8	8	8	8	8,8,8	8,8,8	8,8,8	NO
41	P05215A1-1-46	8	8	8	8	8	8,8,8	8,8,8	8,8,8	NO
42	P05247A1-7-3	1	1,8(1)	7	8	8	2,2,2	1,1,1	2,2,2	YES
43	P05251A1-1-77	5	8	8	8	8	8,8,8	8,8,8	8,8,8	NO
44	TN902	1	1	8	8	8	8,8,8	8,8,8	8,8,8	NO
45	NX05M4180-6	8	5	8	8	8	3,3,3	1	3,3,5	YES
46	NC05-19896	5	8	8	7	8	1,1,1	1,1,1	1,1,1	YES
	PS279	**8**	**8**	**8**	**8**	**8**	**8,8,8**	**8,8,8**	**8,8,8**	**NO**

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

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

SEPTORIA

		Bay	Battle Ground	Ingham Co		Nairn
		AR	IN	MI		ON
		Hancock	Peterson	Lewis		Etienne
		tritici	tritici	tritici	tritici	nodorum
			0-9	0-9		
1	INW0411	3	7.0	6.7	5.7	4.2
2	Branson	4	7.0	6.2	4.0	1.3
3	Bess	4	6.0	6.2	4.3	2.7
4	Shirley	3	4.0	4.6	3.0	1.3
5	KY97C-0508-01-01A-1	3	7.0	5.2	3.7	1.3
6	IL04-8445	4	7.0	6.0	4.3	3.0
7	B040798	3	6.0	6.2	4.3	1.3
8	W06-089	3	6.0	6.2	3.0	0.7
9	VA05W-151	3	4.0	6.8	4.3	1.0
10	VA05W-168	3	5.0	6.4	3.7	2.0
11	AR98022-19-3	3	4.0	6.2	4.3	0.3
12	AR98023-5-1	3	6.0	7.2	4.0	1.3
13	Taboo exp.	3	6.0	6.4	4.7	2.0
14	Mondo exp.	3	7.0	6.5	3.3	0.3
15	Okie exp.	3	6.5	5.8	4.7	1.7
16	W06*646	3	8.0	7.4	4.0	2.0
17	VA07W-415	3	5.0	6.3	4.7	4.3
18	MD00W389-08-4	3	5.0	6.3	4.7	3.0
19	MD02W135-08-9	3	4.0	6.2	3.7	2.3
20	MD01W270-08-12	5	5.0	6.7	4.7	3.3
21	T169	3	7.0	5.9	3.7	2.3
22	T170	4	7.0	7.2	4.0	2.7
23	T171	5	8.0	7.0	3.7	5.0
24	MO 041687	4	8.0	7.9	5.3	2.3
25	MO 050921	2	6.0	5.4	3.0	0.3
26	MO 080104	3	7.0	7.5	4.3	3.7
27	Z03-3352	3	7.0	6.2	5.0	3.0
28	XY04-37	3	6.0	6.8	4.7	2.3
29	OH05-164-76	3	5.0	5.9	3.3	1.7
30	OH05-200-74	3	6.0	5.6	4.3	1.3
31	OH05-248-38	4	6.0	6.8	4.3	1.3
32	ML06-2097	3	6.0	5.8	5.0	1.3
33	03M1539#019	3	6.0	4.9	5.0	1.7
34	MH06*2820	4	7.0	7.2	4.3	4.7
35	GA011174-8A9	4	6.0	6.0	5.0	4.7
36	IL04-24668	3	7.0	7.8	5.0	3.0
37	IL05-4236	5	7.0	7.5	4.0	2.7
38	G89267	4	5.0	5.7	3.3	2.7
39	G89263	4	6.5	5.9	3.3	1.3
40	KY00C-2567-01	4	6.0	5.8	4.3	1.7
41	P05215A1-1-46	4	6.0	6.8	4.7	1.7
42	P05247A1-7-3	3	5.0	7.1	3.7	2.3
43	P05251A1-1-77	3	4.0	4.9	3.7	0.7
44	TN902	3	6.5	6.4	4.3	3.7
45	NX05M4180-6	4	6.5	7.6	5.0	2.7
46	NC05-19896	4	4.0	5.6	3.7	1.3
LOCATION MEANS		3.4	6.0	6.4	4.2	2.2
GROWTH STAGE / DATE			June 9			

SEPTORIA

		Knoxville TN West		Oconto WI Cisar	
		tritici	nodorum	tritici	nodorum
		0-9	0-9		
1	INW0411	5.7	5.7	6.3	4.0
2	Branson	7.0	5.3	4.5	3.3
3	Bess	7.0	5.7	5.5	3.3
4	Shirley	3.0	5.0	3.0	2.7
5	KY97C-0508-01-01A-1	5.7	5.0	4.5	1.3
6	IL04-8445	5.7	5.3	7.0	5.0
7	B040798	7.0	3.7	4.3	2.7
8	W06-089	4.3	4.7	3.0	2.0
9	VA05W-151	5.0	5.3	3.8	3.0
10	VA05W-168	4.3	4.3	5.3	3.7
11	AR98022-19-3	3.7	5.0	4.0	3.0
12	AR98023-5-1	6.3	6.7	3.0	4.3
13	Taboo exp.	5.7	5.7	6.8	3.3
14	Mondo exp.	7.7	6.0	5.3	1.3
15	Okie exp.	6.3	6.0	7.3	2.3
16	W06*646	7.0	4.7	6.0	2.0
17	VA07W-415	5.0	4.7	4.5	2.7
18	MD00W389-08-4	6.3	4.7	5.3	4.3
19	MD02W135-08-9	6.3	6.3	5.5	5.0
20	MD01W270-08-12	5.0	5.3	6.8	3.0
21	T169	5.0	6.3	4.5	1.3
22	T170	6.3	6.0	6.8	4.0
23	T171	8.3	7.0	6.5	6.0
24	MO 041687	9.0	5.0	6.8	4.0
25	MO 050921	4.3	4.0	2.5	2.7
26	MO 080104	6.3	5.3	6.0	4.3
27	Z03-3352	5.0	5.3	5.0	2.7
28	XY04-37	7.0	5.7	5.8	5.3
29	OH05-164-76	5.7	5.7	4.8	3.7
30	OH05-200-74	7.7	4.7	4.5	2.3
31	OH05-248-38	7.7	4.0	6.0	2.0
32	ML06-2097	7.0	6.0	6.0	4.0
33	03M1539#019	4.3	5.7	5.0	3.7
34	MH06*2820	7.7	5.0	7.5	3.0
35	GA011174-8A9	5.0	4.3	4.5	4.0
36	IL04-24668	8.3	6.0	7.5	2.0
37	IL05-4236	7.0	4.7	6.5	2.3
38	G89267	6.3	4.7	6.5	2.7
39	G89263	4.3	4.0	5.8	1.7
40	KY00C-2567-01	7.0	5.3	5.3	3.3
41	P05215A1-1-46	7.0	6.3	7.0	4.0
42	P05247A1-7-3	5.0	6.0	4.0	3.3
43	P05251A1-1-77	3.7	6.0	3.8	2.7
44	TN902	7.0	6.0	7.0	4.7
45	NX05M4180-6	4.3	6.3	6.8	3.0
46	NC05-19896	3.0	4.7	3.3	2.7
LOCATION MEANS		5.9	5.3	5.4	3.2
GROWTH STAGE / DATE					

EASTERN SEPTORIA NURSERY

2009-10 Eastern Septoria Nursery
Uniform Eastern

Kinston inoculated with wheat straw, irrigated three times in April

SNBL = SNB leaves
SNBG = SNB glumes

UE nbr	Septoria entry nbr		Early or Late	means of 2 reps Kinston (0-9) SNB	Kinston (0-9) SNB	Raleigh HD (April)
1	238	INW0411	L	6.0	3.0	21.0
2	232	Branson	L	6.5	2.0	18.5
3	231	Bess	L	4.5	2.0	20.5
4	256	Shirley	L	4.0	1.5	21.5
5	240	KY97C-0508-01-01A-1	L	4.5	1.0	20.5
6	236	IL04-8445	L	6.0	2.5	19.5
7	130	B040798	E	4.5	0.5	20.0
8	261	W06-089	L	2.5	1.0	23.0
9	258	VA05W-151	L	4.0	1.0	18.5
10	259	VA05W-168	L	4.5	2.5	16.0
11	128	AR98022-19-3	E	3.0	1.0	21.0
12	129	AR98023-5-1	E	5.5	2.5	22.5
13	257	Taboo exp.	L	4.0	1.0	21.0
14	247	Mondo exp.	L	3.0	1.5	20.5
15	252	Okie exp.	L	4.0	1.0	21.0
16	260	W06*646	L	5.0	2.0	20.0
17	264	VA07W-415	L	3.0	1.0	20.0
18	265	MD00W389-08-4	L	4.0	2.0	16.0
19	241	MD02W135-08-9	L	4.0	1.5	19.0
20	266	MD01W270-08-12	L	6.0	4.0	16.0
21	228	B169	L	4.5	2.0	16.5
22	229	B170	L	4.0	2.5	22.5
23	230	B171	L	5.5	3.5	22.0
24	244	MO 041687	L	3.5	3.5	14.5
25	245	MO 050921	L	3.0	0.5	24.0
26	246	MO 080104	L	5.0	3.0	17.5
27	263	Z03-3352	L	5.5	1.0	22.0
28	262	XY04-37	L	6.0	3.0	19.5
29	249	OH05-164-76	L	3.5	1.0	21.0
30	250	OH05-200-74	L	4.0	2.0	23.0
31	251	OH05-248-38	L	3.5	2.0	21.0
32	243	ML06-2097	L	4.5	1.0	22.5
33	227	03M1539#019	L	3.0	3.0	21.0
34	242	MH06*2820	L	6.0	2.5	21.0
35	131	GA011174-8A9	E	3.0	1.0	15.0
36	235	IL04-24668	L	5.5	2.0	17.0
37	237	IL05-4236	L	5.5	1.5	16.5
38	234	G89267	L	2.5	1.0	20.5
39	233	G89263	L	4.5	1.0	21.5
40	239	KY00C-2567-01	L	4.0	0.5	16.0
41	253	P05215A1-1-46	L	4.5	4.0	18.5
42	254	P05247A1-7-3	L	4.5	3.0	20.0
43	255	P05251A1-1-77	L	2.5	3.5	21.5
44	133	TN902	E	4.5	2.0	18.5
45	248	NX05M4180-6	L	4.0	2.0	22.5
46	132	NC05-19896	E	2.5	1.5	19.5

FUSARIUM HEAD BLIGHT (SCAB)

		Urbana IL				
				Kolb		
		Incid.	Severity	Index	Rating	Index
		(%)	(%)	(0-100)	(% FDK)	(0-100)
1	INW0411	96.7	54.4	53.2	35.0	59.3
2	Branson	98.3	50.1	49.4	63.3	69.9
3	Bess	93.3	41.0	38.1	25.0	50.3
4	Shirley	100.0	73.1	73.1	73.3	81.3
5	KY97C-0508-01-01A-1	98.3	48.6	47.6	53.3	65.4
6	IL04-8445	95.0	39.9	37.8	43.3	57.8
7	B040798	96.7	63.7	61.6	66.7	74.8
8	W06-089	98.3	71.4	70.4	60.0	74.9
9	VA05W-151	95.0	50.9	48.3	43.3	61.1
10	VA05W-168	93.3	47.8	44.6	41.7	59.0
11	AR98022-19-3	100.0	65.8	65.8	78.3	81.1
12	AR98023-5-1	96.7	76.8	74.2	86.7	86.7
13	Taboo exp.	98.3	71.3	70.0	66.7	77.5
14	Mondo exp.	95.0	51.3	48.5	48.3	63.2
15	Okie exp.	96.7	58.6	56.5	66.7	73.3
16	W06*646	98.3	56.9	56.0	43.3	63.9
17	VA07W-415	100.0	80.0	80.0	75.0	84.0
18	MD00W389-08-4	95.0	54.8	52.1	76.7	75.6
19	MD02W135-08-9	93.3	57.2	54.0	45.0	63.1
20	MD01W270-08-12	96.7	56.5	54.6	43.3	63.3
21	T169	91.7	56.1	51.3	70.0	72.4
22	T170	96.7	67.6	65.7	63.3	74.6
23	T171	100.0	67.5	67.5	63.3	75.6
24	MO 041687	98.3	55.2	54.5	36.7	60.7
25	MO 050921	88.3	40.6	36.1	26.7	49.3
26	MO 080104	86.7	26.7	23.3	20.0	42.0
27	Z03-3352	95.0	62.2	59.1	53.3	68.5
28	XY04-37	98.3	81.6	80.2	83.3	87.3
29	OH05-164-76	96.7	53.0	51.1	43.3	62.2
30	OH05-200-74	93.3	45.6	42.5	46.7	60.4
31	OH05-248-38	100.0	74.6	74.6	76.7	83.1
32	ML06-2097	95.0	60.6	58.2	70.0	74.7
33	03M1539#019	96.7	67.0	64.9	70.0	77.1
34	MH06*2820	96.7	63.0	60.9	53.3	69.2
35	GA011174-8A9	96.7	68.5	66.5	70.0	77.6
36	IL04-24668	85.0	36.7	32.1	20.0	44.5
37	IL05-4236	98.3	37.9	37.0	36.7	55.5
38	G89267	88.3	30.9	26.9	50.0	55.8
39	G89263	96.7	57.7	55.7	50.0	66.3
40	KY00C-2567-01	95.0	47.0	44.6	60.0	66.6
41	P05215A1-1-46	91.7	40.3	36.9	33.3	52.9
42	P05247A1-7-3	95.0	42.5	40.6	56.7	63.9
43	P05251A1-1-77	95.0	54.5	51.7	56.7	67.5
44	TN902	100.0	78.8	78.8	68.3	81.0
45	NX05M4180-6	100.0	74.7	74.7	86.7	87.1
46	NC05-19896	95.0	39.1	37.2	73.3	69.5
LOCATION MEANS		95.8	56.5	54.5	55.9	68.1
GROWTH STAGE / DATE		June 4 - 10				

FUSARIUM HEAD BLIGHT (SCAB)

		Battle Ground IN Peterson		Delphi IN Fogleman		W Lafayette IN Ohm
			incidence	severity	index	FDK
		0-9				%
1	INW0411	5.0	0.5	10	0.1	50
2	Branson	6.0	15.0	30	4.5	20
3	Bess	1.0	2.0	10	0.2	15
4	Shirley	6.5	15.0	55	8.3	25
5	KY97C-0508-01-01A-1	5.0	7.0	45	3.2	25
6	IL04-8445	4.0	5.0	30	1.5	15
7	B040798	8.0	65.0	85	55.3	60
8	W06-089	6.5	11.0	70	7.7	15
9	VA05W-151	6.0	15.0	65	9.8	10
10	VA05W-168	4.0	10.0	60	6.0	7
11	AR98022-19-3	6.5	35.0	85	29.8	65
12	AR98023-5-1	6.0	40.0	70	28.0	50
13	Taboo exp.	2.0	15.0	65	9.8	55
14	Mondo exp.	3.0	5.0	30	1.5	75
15	Okie exp.	4.0	10.0	60	6.0	65
16	W06*646	6.0	5.0	55	2.8	35
17	VA07W-415	3.0	45.0	85	38.3	90
18	MD00W389-08-4	2.0	15.0	80	12.0	80
19	MD02W135-08-9	3.0	5.0	20	1.0	15
20	MD01W270-08-12	4.0	25.0	65	16.3	50
21	T169	5.0	15.0	40	6.0	65
22	T170	5.0	22.0	50	11.0	20
23	T171	6.0	20.0	65	13.0	50
24	MO 041687	1.0	5.0	75	3.8	15
25	MO 050921	2.0	0.3	5	0.0	4
26	MO 080104	1.0	2.0	10	0.2	15
27	Z03-3352	5.0	12.0	80	9.6	25
28	XY04-37	2.0	15.0	70	10.5	65
29	OH05-164-76	1.5	5.0	10	0.5	25
30	OH05-200-74	3.0	10.0	15	1.5	30
31	OH05-248-38	3.0	30.0	65	19.5	50
32	ML06-2097	3.0	15.0	65	9.8	45
33	03M1539#019	4.0	15.0	70	10.5	30
34	MH06*2820	3.0	35.0	50	17.5	50
35	GA011174-8A9	3.0	10.0	60	6.0	40
36	IL04-24668	2.0	5.0	15	0.8	4
37	IL05-4236	1.0	3.0	35	1.1	15
38	G89267	2.0	3.0	30	0.9	10
39	G89263	2.0	2.0	25	0.5	10
40	KY00C-2567-01	5.0	10.0	30	3.0	25
41	P05215A1-1-46	2.0	1.0	5	0.1	50
42	P05247A1-7-3	3.0	2.0	10	0.2	40
43	P05251A1-1-77	6.0	2.0	10	0.2	40
44	TN902	3.0	35.0	60	21.0	40
45	NX05M4180-6	2.5	30.0	55	16.5	95
46	NC05-19896	1.5	15.0	15	2.3	65
LOCATION MEANS		3.7	14.5	45.5	8.9	37.9
GROWTH STAGE / DATE		June 9				

FUSARIUM HEAD BLIGHT (SCAB)

			Ingham Co MI Lewis		Columbia MO McKendry
		incidence	severity	index	
1	INW0411	84.9	24.6	20.1	4
2	Branson	85.0	51.9	45.1	22
3	Bess	52.4	19.9	9.4	3
4	Shirley	95.1	53.7	51.8	6
5	KY97C-0508-01-01A-1	90.0	50.7	45.6	29
6	IL04-8445	82.4	48.5	40.1	8
7	B040798	95.1	63.6	59.4	24
8	W06-089	74.1	45.9	34.0	6
9	VA05W-151	95.0	43.6	40.7	11
10	VA05W-168	90.1	45.6	41.7	11
11	AR98022-19-3	91.1	59.2	54.5	5
12	AR98023-5-1	95.0	73.9	70.8	11
13	Taboo exp.	85.1	53.5	45.8	20
14	Mondo exp.	74.1	26.5	19.7	5
15	Okie exp.	83.2	45.0	37.8	10
16	W06*646	92.6	36.6	33.3	24
17	VA07W-415	92.4	68.1	64.3	33
18	MD00W389-08-4	95.0	47.8	44.4	20
19	MD02W135-08-9	85.0	38.3	32.6	5
20	MD01W270-08-12	90.2	45.8	41.8	22
21	T169	67.6	52.2	34.3	3
22	T170	67.1	52.1	35.1	7
23	T171	81.6	50.4	41.9	21
24	MO 041687	87.6	42.5	37.5	16
25	MO 050921	77.4	39.9	31.2	0
26	MO 080104	64.8	11.4	7.9	3
27	Z03-3352	90.8	70.5	64.5	17
28	XY04-37	87.7	57.0	50.0	18
29	OH05-164-76	82.6	30.7	26.2	2
30	OH05-200-74	91.6	35.5	31.8	7
31	OH05-248-38	93.5	71.5	67.5	21
32	ML06-2097	88.8	47.1	42.5	6
33	03M1539#019	88.5	57.0	49.8	7
34	MH06*2820	94.9	47.4	45.8	14
35	GA011174-8A9	95.1	61.3	57.5	29
36	IL04-24668	85.0	44.2	37.7	27
37	IL05-4236	80.0	32.3	25.5	16
38	G89267	92.6	44.0	41.4	12
39	G89263	68.9	44.1	29.3	3
40	KY00C-2567-01	92.3	44.6	41.5	16
41	P05215A1-1-46	87.5	35.6	31.1	22
42	P05247A1-7-3	80.1	44.1	36.8	8
43	P05251A1-1-77	89.1	41.8	36.3	8
44	TN902	93.6	58.6	54.3	18
45	NX05M4180-6	92.5	65.5	61.5	19
46	NC05-19896	95.1	59.0	55.2	16
LOCATION MEANS		85.7	47.5	41.5	13.4
GROWTH STAGE / DATE					

FUSARIUM HEAD BLIGHT (SCAB)

Nairn
ON
Etienne

		incidence	severity	FHB	heading
		%	%	%	julian
1	INW0411	67.5	20.0	12.9	145.5
2	Branson	65.0	15.0	9.8	145.0
3	Bess	72.5	12.5	9.1	145.5
4	Shirley	75.0	25.0	18.8	148.0
5	KY97C-0508-01-01A-1	67.5	17.5	11.9	146.0
6	IL04-8445	72.5	10.0	7.3	145.0
7	B040798	60.0	17.5	10.0	147.0
8	W06-089	72.5	12.5	8.9	147.0
9	VA05W-151	45.0	25.0	12.8	152.5
10	VA05W-168	67.5	35.0	23.8	146.5
11	AR98022-19-3	32.5	22.5	6.8	151.0
12	AR98023-5-1	55.0	27.5	15.1	152.0
13	Taboo exp.	52.5	10.0	5.3	146.5
14	Mondo exp.	55.0	12.5	6.9	147.0
15	Okie exp.	80.0	12.5	9.9	146.0
16	W06*646	85.0	17.5	14.9	145.5
17	VA07W-415	70.0	25.0	18.0	148.0
18	MD00W389-08-4	82.5	25.0	20.5	145.5
19	MD02W135-08-9	77.5	25.0	19.4	146.5
20	MD01W270-08-12	77.5	15.0	11.8	145.0
21	T169	55.0	12.5	7.4	150.0
22	T170	70.0	12.5	8.8	146.5
23	T171	77.5	20.0	15.3	147.5
24	MO 041687	72.5	15.0	10.9	145.0
25	MO 050921	45.0	10.0	4.5	151.5
26	MO 080104	57.5	15.0	9.5	146.5
27	Z03-3352	80.0	20.0	15.8	146.5
28	XY04-37	90.0	17.5	15.9	147.0
29	OH05-164-76	82.5	15.0	12.0	146.0
30	OH05-200-74	75.0	17.5	13.1	148.0
31	OH05-248-38	47.5	20.0	9.5	147.5
32	ML06-2097	47.5	7.5	3.3	149.5
33	03M1539#019	85.0	30.0	25.5	146.5
34	MH06*2820	52.5	15.0	7.9	146.0
35	GA011174-8A9	70.0	20.0	14.5	145.5
36	IL04-24668	77.5	10.0	7.8	145.0
37	IL05-4236	75.0	17.5	13.4	144.5
38	G89267	62.5	25.0	14.8	147.0
39	G89263	42.5	12.5	5.8	148.0
40	KY00C-2567-01	65.0	17.5	11.4	148.5
41	P05215A1-1-46	82.5	17.5	14.5	145.0
42	P05247A1-7-3	82.5	17.5	14.3	145.5
43	P05251A1-1-77	70.0	12.5	8.8	149.0
44	TN902	85.0	32.5	27.6	145.5
45	NX05M4180-6	82.5	25.0	20.3	146.5
46	NC05-19896	77.5	17.5	13.0	145.5
LOCATION MEANS		68.3	18.2	12.6	147.0
GROWTH STAGE / DATE					

POWDERY MILDEW

		Clarksville MD	Wooster OH	Blacksburg VA	Oconto WI	ENTRY MEANS ALL LOCATIONS	
		Costa	Sneller	Griffey	Cisar		
		0-9	0-9	0-9			rank
1	INW0411	1.0	0.0	1.5	1.0	0.9	14
2	Branson	2.0	0.5	0.5	0.0	0.8	10
3	Bess	3.0	1.0	2.0	6.3	3.1	33
4	Shirley	0.0	0.0	0.0	0.3	0.1	1
5	KY97C-0508-01-01A-1	0.5	0.0	0.0	1.0	0.4	5
6	IL04-8445	3.5	2.0	1.5	6.0	3.3	34
7	B040798	0.3	0.5	2.0	4.3	1.8	23
8	W06-089	3.0	2.0	2.0	4.7	2.9	31
9	VA05W-151	3.5	2.5	3.5	1.3	2.7	29
10	VA05W-168	1.0	1.5	2.0	1.3	1.5	21
11	AR98022-19-3	3.5	1.0	3.0	3.5	2.8	30
12	AR98023-5-1	0.0	0.0	0.0	1.0	0.3	3
13	Taboo exp.	5.0	2.0	2.0	5.7	3.7	37
14	Mondo exp.	4.0	1.0	1.5	5.7	3.0	32
15	Okie exp.	4.5	1.5	3.0	6.3	3.8	39
16	W06*646	1.5	0.5	0.5	0.7	0.8	13
17	VA07W-415	0.0	0.0	0.0	2.7	0.7	8
18	MD00W389-08-4	0.0	0.0	2.5	2.0	1.1	18
19	MD02W135-08-9	0.0	0.0	0.0	0.3	0.1	1
20	MD01W270-08-12	1.0	0.0	1.0	0.0	0.5	7
21	T169	4.0	0.0	2.0	1.0	1.8	22
22	T170	8.0	5.5	9.0	8.7	7.8	46
23	T171	4.0	2.0	3.0	6.7	3.9	40
24	MO 041687	5.0	2.0	2.5	3.7	3.3	35
25	MO 050921	2.0	0.0	1.0	0.7	0.9	15
26	MO 080104	3.0	1.0	0.5	0.0	1.1	18
27	Z03-3352	1.5	1.0	3.0	4.0	2.4	28
28	XY04-37	0.5	0.0	0.5	2.7	0.9	15
29	OH05-164-76	5.0	2.0	2.0	5.7	3.7	37
30	OH05-200-74	4.0	0.5	3.0	0.0	1.9	25
31	OH05-248-38	0.0	1.0	0.0	2.0	0.8	10
32	ML06-2097	5.0	2.0	4.0	5.0	4.0	41
33	03M1539#019	4.0	3.0	2.0	5.0	3.5	36
34	MH06*2820	4.0	2.0	4.5	6.7	4.3	42
35	GA011174-8A9	3.0	0.5	3.5	0.3	1.8	24
36	IL04-24668	6.5	2.0	2.5	6.3	4.3	43
37	IL05-4236	0.0	0.5	0.5	0.0	0.3	3
38	G89267	1.5	1.0	0.5	0.0	0.8	10
39	G89263	1.5	0.0	0.5	0.7	0.7	8
40	KY00C-2567-01	2.5	0.0	1.0	0.7	1.0	17
41	P05215A1-1-46	6.0	2.0	6.0	6.3	5.1	44
42	P05247A1-7-3	0.0	0.0	0.5	1.3	0.5	6
43	P05251A1-1-77	3.0	1.0	1.5	2.7	2.0	27
44	TN902	7.0	3.5	8.5	8.7	6.9	45
45	NX05M4180-6	1.5	0.0	3.0	3.0	1.9	25
46	NC05-19896	2.5	1.5	1.5	0.0	1.4	20
LOCATION MEANS		2.7	1.1	2.1	3.0	2.2	
GROWTH STAGE / DATE							

VIRUSES

		Bay AR		Urbana IL		Winfield KS	Blacksburg VA
		Hancock		Kolb		Perry	Griffey
		WSSMV	SBMV	BYDV	BYDV inoc	WSBMV	BYDV
		0-9	0-9	0-9	% stunting	0-9	0-9
1	INW0411	1.5	2.0	3.5	12	1.0	3.5
2	Branson	1.5	1.0	2.0	2	1.0	2.0
3	Bess	2.0	3.5	3.0	4	1.0	1.0
4	Shirley	1.5	2.0	3.0	5	1.0	1.5
5	KY97C-0508-01-01A-1	1.5	3.0	4.5	10	1.0	4.5
6	IL04-8445	1.0	3.5	5.5	12	1.0	2.0
7	B040798	1.0	2.0	3.0	6	1.0	1.5
8	W06-089	2.5	3.5	4.0	5	1.0	1.5
9	VA05W-151	1.0	4.5	4.0	3	1.0	2.5
10	VA05W-168	1.0	7.0	3.5	0	4.0	2.0
11	AR98022-19-3	1.5	4.0	6.0	9	4.0	3.0
12	AR98023-5-1	1.5	5.0	5.5	7	1.0	2.0
13	Taboo exp.	1.0	1.5	3.5	3	1.0	5.0
14	Mondo exp.	1.0	6.0	4.5	7	6.0	1.0
15	Okie exp.	1.0	1.0	3.0	3	1.0	4.5
16	W06*646	1.0	2.0	4.5	6	1.0	1.0
17	VA07W-415	1.0	6.0	5.0	6	1.0	3.0
18	MD00W389-08-4	1.0	2.5	6.0	9	1.0	4.0
19	MD02W135-08-9	1.0	3.0	6.5	18	1.0	3.0
20	MD01W270-08-12	1.0	3.0	4.0	11	1.0	3.0
21	T169	2.0	4.5	6.0	16	1.0	1.5
22	T170	2.0	3.0	4.0	11	1.0	2.5
23	T171	1.0	2.0	5.0	10	1.0	3.0
24	MO 041687	1.0	8.0	4.0	4	8.0	2.5
25	MO 050921	1.0	9.0	3.5	9	9.0	1.0
26	MO 080104	1.0	2.0	5.5	10	1.0	1.5
27	Z03-3352	1.0	1.5	4.0	14	1.0	3.0
28	XY04-37	1.0	2.0	4.5	8	1.0	3.5
29	OH05-164-76	1.0	2.5	3.5	12	1.0	2.0
30	OH05-200-74	1.0	6.0	4.0	6	6.0	5.0
31	OH05-248-38	1.0	2.0	4.5	9	1.0	2.0
32	ML06-2097	1.5	1.0	3.5	0	1.0	3.0
33	03M1539#019	1.0	3.5	2.5	3	1.0	2.0
34	MH06*2820	1.0	1.0	4.5	8	1.0	4.5
35	GA011174-8A9	1.0	4.0	4.0	2	1.0	2.0
36	IL04-24668	1.0	1.0	6.0	12	1.0	2.0
37	IL05-4236	1.0	2.0	3.5	10	1.0	2.0
38	G89267	1.0	6.5	3.0	5	8.0	2.0
39	G89263	1.0	2.5	6.5	20	1.0	3.0
40	KY00C-2567-01	1.0	7.0	3.5	0	9.0	4.5
41	P05215A1-1-46	1.0	3.5	2.5	0	7.0	1.0
42	P05247A1-7-3	1.0	4.0	4.5	11	8.0	1.0
43	P05251A1-1-77	1.0	3.5	5.0	10	7.0	1.0
44	TN902	1.0	2.0	4.5	3	1.0	3.0
45	NX05M4180-6	1.0	7.0	3.5	0	8.0	1.5
46	NC05-19896	1.0	4.5	8.0	16	1.0	2.0
LOCATION MEANS		1.2	3.5	4.3	7.6	2.6	2.5
GROWTH STAGE / DATE							

HESSIAN FLY

		W. Lafayette IN Cambron		
		BIO B	BIO O	BIO L
		R - S	R - S	R- S
1	INW0411	12-1	0-19	0-14
2	Branson	14-0	0-16	0-15
3	Bess	16-3	0-14	0-18
4	Shirley	0-17	0-13	0-14
5	KY97C-0508-01-01A-1	0-15	0-11	0-12
6	IL04-8445	15-1	3-13	0-18
7	B040798	19-0	12-3	16-0
8	W06-089	18-0	16-3	0-15
9	VA05W-151	0-18	0-17	0-18
10	VA05W-168	15-1	0-14	0-17
11	AR98022-19-3	17-1	0-17	0-18
12	AR98023-5-1	17-0	0-16	18-0
13	Taboo exp.	0-18	0-17	0-18
14	Mondo exp.	19-0	0-14	0-16
15	Okie exp.	0-14	0-17	0-13
16	W06*646	15-3	0-17	0-16
17	VA07W-415	18-0	7-3	14-0
18	MD00W389-08-4	0-14	0-15	0-10
19	MD02W135-08-9	0-12	0-9	0-10
20	MD01W270-08-12	0-12	0-11	0-12
21	T169	12-2	3-14	0-16
22	T170	14-3	0-20	0-15
23	T171	0-16	0-14	0-11
24	MO 041687	0-17	0-16	0-17
25	MO 050921	0-17	0-12	0-16
26	MO 080104	16-0	0-16	0-15
27	Z03-3352	0-17	0-15	0-17
28	XY04-37	15-1	0-11	0-14
29	OH05-164-76	0-16	0-15	0-17
30	OH05-200-74	0-12	11-5	0-18
31	OH05-248-38	0-15	0-14	0-15
32	ML06-2097	0-16	0-16	0-18
33	03M1539#019	11-2	10-5	17-0
34	MH06*2820	0-18	5-6	0-16
35	GA011174-8A9	0-16	0-16	0-13
36	IL04-24668	16-1	0-18	0-18
37	IL05-4236	0-17	0-16	0-14
38	G89267	13-2	0-17	0-19
39	G89263	0-18	0-15	0-20
40	KY00C-2567-01	0-13	0-14	0-15
41	P05215A1-1-46	0-16	0-17	0-18
42	P05247A1-7-3	0-16	0-14	0-15
43	P05251A1-1-77	0-18	0-15	0-12
44	TN902	0-16	0-17	0-15
45	NX05M4180-6	0-15	0-16	0-15
46	NC05-19896	0-16	0-20	0-20

ACID SOIL TOLERANCE

			Enid OK Carver	
		0-5	0-5	0-5
1	INW0411	2	3	3
2	Branson	4	5	5
3	Bess	1	2	2
4	Shirley	2	3	4
5	KY97C-0508-01-01A-1	2	3	3
6	IL04-8445	4	3	4
7	B040798	0	1	0
8	W06-089	2	3	4
9	VA05W-151	1	0	0
10	VA05W-168	1	2	0
11	AR98022-19-3	1	1	2
12	AR98023-5-1	1	1	2
13	Taboo exp.	1	1	1
14	Mondo exp.	1	2	0
15	Okie exp.	0	1	1
16	W06*646	2	2	1
17	VA07W-415	1	2	3
18	MD00W389-08-4	2	2	2
19	MD02W135-08-9	3	3	4
20	MD01W270-08-12	2	2	1
21	T169	2	2	2
22	T170	0	2	3
23	T171	2	3	2
24	MO 041687	3	4	3
25	MO 050921	3	2	3
26	MO 080104	2	3	4
27	Z03-3352	2	2	0
28	XY04-37	2	2	2
29	OH05-164-76	1	2	2
30	OH05-200-74	1	2	1
31	OH05-248-38	1	2	1
32	ML06-2097	1	2	2
33	03M1539#019	1	2	2
34	MH06*2820	2	3	2
35	GA011174-8A9	0	1	3
36	IL04-24668	2	2	1
37	IL05-4236	1	2	0
38	G89267	3	2	0
39	G89263	0	1	1
40	KY00C-2567-01	3	3	2
41	P05215A1-1-46	2	3	2
42	P05247A1-7-3	1	2	3
43	P05251A1-1-77	4	4	5
44	TN902	0	0	0
45	NX05M4180-6	4	4	5
46	NC05-19896	1	1	3
LOCATION MEANS		1.7	2.2	2.1
GROWTH STAGE / DATE		Nov. 13	March 3	May 4

FREEZE TEST

Raleigh
NC
Livingston

		Average Surv. Rating*	Average % Survival	% Surv. Rank
1	INW0411	3.80	100	1
2	Branson	1.15	53	40
3	Bess	1.70	73	30
4	Shirley	1.40	58	38
5	KY97C-0508-01-01A-1	3.05	95	11
6	IL04-8445	2.25	83	26
7	B040798	0.85	38	46
8	W06-089	3.80	100	2
9	VA05W-151	1.60	65	33
10	VA05W-168	1.05	48	43
11	AR98022-19-3	2.90	95	12
12	AR98023-5-1	2.75	93	14
13	Taboo exp.	2.30	88	19
14	Mondo exp.	3.30	100	3
15	Okie exp.	2.40	88	20
16	W06*646	3.35	100	4
17	VA07W-415	1.60	65	34
18	MD00W389-08-4	1.50	63	37
19	MD02W135-08-9	2.30	85	23
20	MD01W270-08-12	2.55	93	15
21	T169	2.85	93	16
22	T170	3.15	95	13
23	T171	3.75	100	5
24	MO 041687	2.35	85	24
25	MO 050921	1.00	48	44
26	MO 080104	1.95	83	27
27	Z03-3352	3.35	100	6
28	XY04-37	2.15	83	28
29	OH05-164-76	2.60	90	17
30	OH05-200-74	1.50	65	35
31	OH05-248-38	3.55	100	7
32	ML06-2097	3.40	100	8
33	03M1539#019	2.15	85	25
34	MH06*2820	3.70	100	9
35	GA011174-8A9	2.00	83	29
36	IL04-24668	3.55	100	10
37	IL05-4236	2.55	88	21
38	G89267	2.50	90	18
39	G89263	1.80	73	31
40	KY00C-2567-01	1.20	55	39
41	P05215A1-1-46	1.60	65	36
42	P05247A1-7-3	1.20	50	41
43	P05251A1-1-77	1.65	68	32
44	TN902	1.15	50	42
45	NX05M4180-6	1.15	48	45
46	NC05-19896	2.55	88	22

KERNEL WEIGHT

		Nairn ON Etienne TKW grams
1	INW0411	33.7
2	Branson	37.4
3	Bess	35.2
4	Shirley	37.4
5	KY97C-0508-01-01A-1	36.9
6	IL04-8445	29.6
7	B040798	34.8
8	W06-089	33.4
9	VA05W-151	36.6
10	VA05W-168	42.2
11	AR98022-19-3	44.4
12	AR98023-5-1	43.7
13	Taboo exp.	36.7
14	Mondo exp.	38.2
15	Okie exp.	34.5
16	W06*646	33.2
17	VA07W-415	35.4
18	MD00W389-08-4	38.9
19	MD02W135-08-9	36.0
20	MD01W270-08-12	35.8
21	T169	35.6
22	T170	36.1
23	T171	32.8
24	MO 041687	37.2
25	MO 050921	33.4
26	MO 080104	33.1
27	Z03-3352	38.3
28	XY04-37	36.8
29	OH05-164-76	38.2
30	OH05-200-74	40.4
31	OH05-248-38	37.9
32	ML06-2097	40.2
33	03M1539#019	40.1
34	MH06*2820	36.2
35	GA011174-8A9	38.7
36	IL04-24668	34.6
37	IL05-4236	37.3
38	G89267	31.3
39	G89263	32.8
40	KY00C-2567-01	34.5
41	P05215A1-1-46	37.2
42	P05247A1-7-3	34.4
43	P05251A1-1-77	34.2
44	TN902	39.5
45	NX05M4180-6	34.0
46	NC05-19896	34.1
LOCATION MEANS		36.4

MARKER DATA

Raleigh
NC
Brown-Guedira

		Rht-B1b	Rht-D1b	Rht8	Ppd-D1a	Fhb1	Fhb Ernie 3B
1	INW0411	yes	no	no	yes	**yes?**	no
2	Branson	yes	no	no	yes	no	no
3	Bess	yes	no	no	no	no	no
4	Shirley	yes	no	no	yes	no	no
5	KY997C-0508-01-01A-1	het	het	no	yes	no	no
6	IL04-8445	yes	no	no	yes	no	no
7	B040798	yes	no	no	yes	no	no
8	W06-089	yes	no	no	no	no	**?**
9	VA05W-151	no	yes	no	no	no	no
10	VA05W-168	no	yes	no	yes	no	no
11	AR98022-19-3	no	no	no	no	no	no
12	AR98023-5-1	no	yes	no	no	no	no
13	Taboo exp.	yes	no	yes	het	no	no
14	Mondo exp.	no	no	no	no	no	no
15	Okie exp.	yes	no	yes	no	no	no
16	W06*646	no	yes	no	yes	no	no
17	VA07W-415	no	yes	no	yes	no	no
18	MD00W389-08-4	no	yes	no	yes	no	no
19	MD02W135-08-9	no	yes	no	no	no	no
20	MD01W270-08-12	no	yes	no	yes		no
21	B169	no	no	no	no	no	no
22	B170	yes	no	no	no	no	**yes**
23	B171	yes	no	no	yes	no	no
24	MO 041687	yes	no	no	no	no	no
25	MO 050921	yes	no	no	no	no	**yes**
26	MO 080104	no	no	no	yes	no	**?**
27	Z03-3352	yes	no	no	no	no	no
28	XY04-37	no	yes	no	yes	no	no
29	OH05-164-76	yes	no	no	yes	**het**	**yes**
30	OH05-200-74	yes	no	no	no	no	no
31	OH05-248-38	yes	no	no	yes	no	no
32	ML06-2097	yes	no	het	het	no	no
33	03M1539#019	yes	no	no	yes	no	no
34	MH06*2820	yes	no	no	yes	no	no
35	GA011174-8A9	no	yes	no	no	no	no
36	IL04-24668	yes	no	no	yes	no	no
37	IL05-4236	yes	no	no	no	no	no
38	G89267	yes	het	no	no	no	**het**
39	G89263	yes	no	no	no	no	no
40	KY00C-2567-01	no	yes	no	yes	no	no
41	P05215A1-1-46	yes	no	no	no	no	no
42	P05247A1-7-3	yes	no	no	yes	no	no
43	P05251A1-1-77	yes	no	no	no	no	no
44	TN902	no	yes	het	yes	no	no
45	NX05M4180-6	yes	no	no	yes	no	no
46	NC05-19896	no	yes	no	yes	no	**?**
		Rht-B1b= dwarfing allele (Rht1)	Rht-D1b= dwarfing allele (Rht2)		Ppd-D1a = insenstive allele		

MARKER DATA

Raleigh
NC
Brown-Guedira

		Fhb 2DL-Wuhan1/W14	Fhb Ernie 5AS	Fhb Ning7840 5AS	Sr2	Sr36	Sr24/Lr24
1	INW0411	no	no	no	no	**yes**	no
2	Branson	no	no	no	no	no	no
3	Bess	no	no	no	no	no	no
4	Shirley	no	no	no	no	het	no
5	KY997C-0508-01-01A-1	no	no	no	no	**yes**	no
6	IL04-8445	no	no	no	no	no	no
7	B040798	no	no	no	no	no	no
8	W06-089	no	no	no	no	no	no
9	VA05W-151	no	no	no	no	no	**yes**
10	VA05W-168	no	no	no	no	no	**yes**
11	AR98022-19-3	no	no	no	no	no	no
12	AR98023-5-1	no	no	no	no	no	no
13	Taboo exp.	no	no	no	no	no	no
14	Mondo exp.	no	yes	no	no	no	no
15	Okie exp.	no	no	no	no	no	no
16	W06*646	no	no	no	no	no	no
17	VA07W-415	no	no	no	no	no	no
18	MD00W389-08-4	no	no	no	no	**yes**	no
19	MD02W135-08-9	no	no	no	no	no	no
20	MD01W270-08-12	no	no	no	no	het	no
21	B169	no	no	no	no	**yes**	no
22	B170	no	no	no	no	no	no
23	B171	no	no	no	no	no	no
24	MO 041687	no	no	no	no	no	no
25	MO 050921	no	no	no	no	**yes**	no
26	MO 080104	no	no	no	no	no	no
27	Z03-3352	no	no	no	no	no	no
28	XY04-37	no	no	no	no	no	no
29	OH05-164-76	no	no	no	no	no	no
30	OH05-200-74	no	no	no	no	no	no
31	OH05-248-38	no	no	no	no	no	no
32	ML06-2097	no	no	no	no	no	no
33	03M1539#019	no	no	no	no	no	no
34	MH06*2820	no	no	no	no	no	no
35	GA011174-8A9	no	no	no	no	no	no
36	IL04-24668	no	no	no	no	no	no
37	IL05-4236	no	no	no	no	no	no
38	G89267	no	no	no	no	het	no
39	G89263	no	no	no	no	het	no
40	KY00C-2567-01	no	yes	no	no	no	no
41	P05215A1-1-46	no	no	no	no	**yes**	no
42	P05247A1-7-3	no	yes?	no	no	no	no
43	P05251A1-1-77	no	yes?	no	no	no	no
44	TN902	no	no	no	no	no	no
45	NX05M4180-6	no	yes?	no	no	no	no
46	NC05-19896	no	yes?	no	no	**yes**	no

MARKER DATA

Raleigh
NC
Brown-Guedira

		1RS	H13	H9	BVD2/3	Lr37/Yr17/Sr38	Lr34/Yr18
1	INW0411	1RS:1BL	no	no	no	no	no
2	Branson	non-1RS	no	no	no	no	no
3	Bess	non-1RS	no	no	no	no	no
4	Shirley	1RS:1BL	no	no	no	no	no
5	KY997C-0508-01-01A-1	1RS:1BL	no	no	no	no	no
6	IL04-8445	non-1RS	no	no	no	no	no
7	B040798	non-1RS	no	no	no	no	no
8	W06-089	non-1RS	no	no	no	no	no
9	VA05W-151	1RS:1AL	no	no	no	no	no
10	VA05W-168	1RS:1AL	no	no	no	no	no
11	AR98022-19-3	non-1RS	no	no	no	no	no
12	AR98023-5-1	1RS:1BL	no	no	no	no	no
13	Taboo exp.	1RS:1BL	no	no	no	no	no
14	Mondo exp.	non-1RS	no	no	no	no	no
15	Okie exp.	1RS:1BL	no	no	no	no	no
16	W06*646	1RS:1BL	no	no	no	no	no
17	VA07W-415	non-1RS	**yes**	no	no	**yes**	no
18	MD00W389-08-4	non-1RS	no	no	no	no	no
19	MD02W135-08-9	1RS:1BL,1RS:1AL	no	no	no	no	no
20	MD01W270-08-12	non-1RS	no	no	no	no	no
21	B169	non-1RS	no	no	no	no	no
22	B170	non-1RS	no	no	no	no	no
23	B171	non-1RS	no	no	no	no	no
24	MO 041687	non-1RS	no	no	no	no	no
25	MO 050921	non-1RS	no	no	no	no	no
26	MO 080104	non-1RS	no	no	no	no	no
27	Z03-3352	non-1RS	no	no	no	no	no
28	XY04-37	non-1RS	no	no	nd	no	no
29	OH05-164-76	1RS:1BL	no	no	no	no	**het**
30	OH05-200-74	1RS:1AL	no	no	no	no	no
31	OH05-248-38	non-1RS	no	no	no	no	no
32	ML06-2097	1RS:1BL	no	no	no	no	no
33	03M1539#019	1RS:1BL	no	het	no	**yes**	no
34	MH06*2820	non-1RS	no	no	no	no	no
35	GA011174-8A9	non-1RS	no	no	no	**yes**	no
36	IL04-24668	non-1RS	no	no	no	no	no
37	IL05-4236	non-1RS	no	no	no	no	no
38	G89267	non-1RS	no	no	no	no	no
39	G89263	non-1RS	no	no	no	no	no
40	KY00C-2567-01	non-1RS	no	no	no	no	no
41	P05215A1-1-46	1RS:1BL	no	no	**yes**	no	no
42	P05247A1-7-3	1RS:1BL	no	**yes**	**yes**	**yes**	no
43	P05251A1-1-77	non-1RS	no	no	**het**	no	no
44	TN902	1RS:1BL	no	no	no	**yes**	no
45	NX05M4180-6	1RS:1AL	no	no	no	**yes**	no
46	NC05-19896	non-1RS	no	no	no	**yes**	no

MARKER DATA

Raleigh
NC
Brown-Guedira

		Bx7 overexpressing	Glu-D1	Glu-A1
1	INW0411	no	2+12	Ax1 or null
2	Branson	no	2+12	Ax2*
3	Bess	no	2+12	Ax1 or null
4	Shirley	no	2+12	Ax1 or null
5	KY997C-0508-01-01A-1	**het**	5+10	Ax2*
6	IL04-8445	no	5+10	Ax2*
7	B040798	**yes**	2+12	Ax1 or null
8	W06-089	no	5+10	Ax2*
9	VA05W-151	no	5+10	Ax2*
10	VA05W-168	no	5+10	Ax2*
11	AR98022-19-3	no	5+10	Ax1 or null
12	AR98023-5-1	**yes**	2+12	Ax1 or null
13	Taboo exp.	no	2+12	Ax2*
14	Mondo exp.	no	2+12	Ax1 or null
15	Okie exp.	no	2+12	Ax2*
16	W06*646	**yes**	5+10	Ax2*
17	VA07W-415	no	2+12	Ax2*
18	MD00W389-08-4	no	5+10	Ax2*
19	MD02W135-08-9	no	2+12	Ax2*
20	MD01W270-08-12	no	2+12	Ax2*
21	B169	no	5+10	Ax1 or null
22	B170	no	nd	het
23	B171	**yes**	5+10	het
24	MO 041687	no	het	Ax1 or null
25	MO 050921	no	2+12	Ax1 or null
26	MO 080104	no	5+10	Ax2*
27	Z03-3352	no	2+12	Ax1 or null
28	XY04-37	no	5+10	Ax1 or null
29	OH05-164-76	no	5+10	het
30	OH05-200-74	no	2+12	het
31	OH05-248-38	no	2+12	Ax2*
32	ML06-2097	no	5+10	Ax2*
33	03M1539#019	no	het	Ax2*
34	MH06*2820	**yes**	2+12	Ax2*
35	GA011174-8A9	no	2+12	Ax2*
36	IL04-24668	no	5+10	Ax2*
37	IL05-4236	no	2+12	Ax1 or null
38	G89267	no	2+12	Ax2*
39	G89263	no	5+10	Ax1 or null
40	KY00C-2567-01	no	5+10	Ax2*
41	P05215A1-1-46	no	2+12	Ax1 or null
42	P05247A1-7-3	**yes**	2+12	Ax2*
43	P05251A1-1-77	no	2+12	Ax1 or null
44	TN902	no		Ax2*
45	NX05M4180-6	no	2+12	Ax1 or null
46	NC05-19896	no	2+12	Ax2*

2010 Crop
Advanced Milling and Baking Evaluation
Set 2010 A05

2010 Uniform Eastern Winter Wheat Nursery
Entries #: 1050561 – 1050606

A total of 46 samples were grown in a composite of nursery locations and were submitted by Virginia Tech, Purdue University and University of Maryland for milling and baking quality evaluations. The standard quality data was compared to the average for the cultivar checks given for this nursery, and quality scores for all entries are adjusted to this average. Of the 565 cultivars in the SWQL database of Allis-milled cultivars, the following table compares 4 checks from this trial, INW0411, Branson, Bess, Shirley, and their "historical data" from the Advanced Milling databases.

This trial had slight signs of FHB infected and weather damaged grain before air aspiration. Pre-harvest sprouting was evident in only 1 sample, KY00C-2567-01, and may have a direct effect on its lactic acid SRC value at 122.1%, the highest out of 46 samples. Flour analysis of this nursery showed that flour protein, flour yield, water SRC, and lactic acid SRC, a measurement of gluten strength, were within the expected target range for soft wheat characteristics. Sucrose SRC was below, while sodium carbonate SRC was above the target range. Test line NX05M4180-6 is full waxy (100% amylopectin) genotype. All values for this wheat are out of specifications for a soft wheat, despite having a soft endosperm. INW0411 had milling yields below previous measurements, relative to the other check cultivars. Shirley's baking performance also was below it normal performance due to coarser flour than normal (smaller softness equivalent). The other check cultivars were consistent with their expected performance. Therefore, we expect the results of the evaluations to be generally predictive of future performance of breeding lines in this trial.

2010 Uniform Eastern Winter Wheat Nursery

			From Advanced Milling Database Scoring						Predicted from Measured data					
Lab Number	Entry Number	ENTRY	Milling Quality Score		Baking Quality Score		Softness Equivalent Score		Milling Quality Score		Baking Quality Score		Softness Equivalent Score	
1050561	1	INW0411	66.0		57.2		63.9		60.9	C	67.1	C	57.9	D
1050562	2	Branson	66.8		75.2		77.0		71.3	B	84.9	A	70.2	B
1050563	3	Bess	56.2		64.0		57.5		60.6	C	82.8	A	61.6	C
1050564	4	Shirley	68.0		80.1		67.7		65.9	C	77.9	B	60.6	C
		Average	65.56		65.86		63.86		65.64		75.85		61.70	
		Adjustment bias for trial	-0.07		-9.99		2.16							

Changes in 2010 Evaluations

We have changes for group evaluations this year. Our goal is to provide more consistent and complete information on milling and baking performance of new wheat lines and cultivars. Through a generous grant funded by the state of Ohio, the Soft Wheat Quality Laboratory has access to a new diode array NIR instrument that measures whole grain spectra. As a result we will now provide whole grain protein and grain hardness with the quality information. We also are using this instrument to develop prediction models for milling yield and softness equivalent (break flour yield). Analysis of the first two years of data, in collaboration with Mary Guttieri and Clay Sneller of Ohio State University, is promising. Prediction equations for milling yield and softness equivalent using the NIR instrument have R^2 values of over 75%. Our intent is to launch the use of NIR analysis for non-destructive milling yield selection within the next 18 months.

We are using multiple checks for adjusting the quality scores in the group. Previously, a single check was used for the scoring. This caused problems for a number of the evaluations due to 1) genotype x environment interactions and 2) interactions between cultivars for cookie diameters using the old sugar-snap cookie method and the revised AACC sugar-snap cookie method. Using the average of multiple checks should make the adjustments more robust. We transitioned to a new database of check cultivar performance that uses advanced milling data and cookie bakes using the revised AACC sugar-snap cookie method. The scoring system is still indirectly based on Allis mill ratings of cultivars.

The scores given in above table under the heading 'advanced milling database scoring' derive from the average milling and baking scores given in 5 or more millings from trials with sound grain. We transitioned to the advanced milling so that we could have more of the data based the revised AACC sugar snap cookie data and have a

broader range of check cultivars from which to choose. The advanced milling database used for this adjustment will be posted on the SWQL web-site during September.

Lactic acid SRC values of gluten strength will be reported on an 'as is' basis. We have previously corrected the lactic acid SRC values to a 9% flour protein value using the formula of 7% point increase for every 1 % point increase in flour protein. After looking at many trials across many regions, we felt that this adjustment was creating more problems than it was solving. In recent years we have had many low protein trials that have resulted in very large adjustments of lactic acid that are not realistic expectations of the genetic potential of the cultivars. We also see that some genotypes can be much more responsive than model due to the presence of 5+10 allele at the *GluD1* locus with the absence of the rye translocation on the short arm of the chromosome 1B. We can provide the lactic acid values on a protein corrected basis if requested by a researcher.

Please give us feedback on the changes in the evaluations. We are open to your suggestions for continuous improvement.

Specific Information on Cultivars

The Uniform Eastern Soft Red Winter Wheat Nursery represents one of the last stages of testing by wheat breeding programs before release of a breeding line as a new cultivar. In this trial, a composite of grain samples from Virginia Tech, Purdue University and University of Maryland and are representative of the region. Samples were evaluated for milling and baking quality using methods approved by the American Association of Cereal Chemists.

Flour yield commonly is the most heritable trait evaluated by the SWQL. In this nursery, Bess had a flour yield of 68.9%. Breeding lines with flour yield similar or less than Bess may have poor milling quality. Lines with flour yield more than a percentage point less than Bess likely are unacceptable for commercial milling. The second most heritable trait evaluated by the SWQL is softness equivalent. Softness equivalent is a predictor of break flour yield. It also is a measure of flour particle size as it is estimated as the percent of break flour passing through a standard 94 mesh screen. Larger values are preferred for most soft wheat products, particularly cakes and other high sugar baked products. All of the breeding lines in the nursery were true soft genotypes as graded by the softness equivalent.

Selecting sequentially for the following traits, greater flour yield, greater softness equivalent, larger cookie diameters, and smaller values of sodium carbonate SRC identifies the following lines: W06-089, AR98023-5-1, B170, MO 050921, Z03-3352, XY04-37, IL04-24668, and G89263. These are the best quality soft wheat lines in the nursery for general use in the widest range of soft wheat products. They have value both as potential cultivars but also as breeding parents for subsequent improvement of the soft winter wheat germplasm pool.

Lactic acid SRC is a measure of the strength of the native glutenin macro-polymer in flour. Although many soft wheat products do not require excess gluten strength, most commercial food production requires some gluten strength. Therefore very weak gluten strength lines (below 85% in this evaluation) will cause problems for the manufacturers if they dominated the grain production of a region. Most soft wheat cultivars are in a middle range similar to Branson or slightly greater for gluten strength. A few genotypes in this trial were exceptionally strong for glutenin, as measured by lactic acid SRC. The strongest of these were MD02W135-08-9, B169, and MO 080104. These lines may have added value for the production of crackers, due to the extra gluten strength.

Please contact me if you have questions concerning the evaluations of this trial.

Best regards,
Edward Souza

ADVANCED NURSERY EVALUATION FOR SOFT WHEAT MILLING AND BAKING QUALITY

Lab Number	Entry	Composite: VA (Griffey), OH (Sneller), IN (Ohm)	Modified Milling Quality Score		Modified Baking Quality Score		Modified Softness Equivalent Score		Test Weight (LB/BU)	
1050561	1	INW0411	60.4	C	58.1	D	61.9	C	58.6	*
1050562	2	Branson	70.9	B	75.8	B	74.1	B	60.2	
1050563	3	Bess	60.2	C	73.7	B	65.5	C	59.8	
1050564	4	Shirley	65.5	C	68.8	C	64.6	C	58.9	
1050565	5	KY97C-0508-01-01A-1	64.5	C	73.2	B	68.1	C	59.8	
1050566	6	IL04-8445	64.8	C	73.3	B	71.5	B	61.5	
1050567	7	B040798	71.2	B	64.4	C	67.0	C	60.1	*
1050568	8	W06-089	69.2	C	80.7	A	76.8	B	61.4	
1050569	9	VA05W-151	69.6	C	61.3	C	62.6	C	62.1	
1050570	10	VA05W-168	64.6	C	62.9	C	65.2	C	62.8	
1050571	11	AR98022-19-3	52.3	D	27.1	F	57.0	D	59.8	
1050572	12	AR98023-5-1	65.8	C	68.3	C	69.4	C	60.1	
1050573	13	Taboo exp.	65.2	C	65.5	C	58.0	D	61.6	
1050574	14	Mondo exp.	64.4	C	66.4	C	60.8	C	60.4	
1050575	15	Okie exp.	64.3	C	64.3	C	64.5	C	60.6	
1050576	16	W06*646	57.2	D	56.3	D	60.4	C	61.1	Q
1050577	17	VA07W-415	67.4	C	57.4	D	62.9	C	60.7	
1050578	18	MD00W389-08-4	62.4	C	59.0	D	66.1	C	61.8	
1050579	19	MD02W135-08-9	63.5	C	61.0	C	68.3	C	61.4	*
1050580	20	MD01W270-08-12	65.7	C	65.6	C	70.6	B	60.8	
1050581	21	B169	67.3	C	49.0	E	63.6	C	61.8	
1050582	22	B170	69.5	C	72.7	B	69.5	C	60.2	
1050583	23	B171	62.0	C	65.2	C	66.7	C	60.7	
1050584	24	MO 041687	66.8	C	71.7	B	71.9	B	60.5	
1050585	25	MO 050921	69.9	C	80.2	A	71.2	B	60.2	
1050586	26	MO 080104	59.8	D	53.3	D	66.9	C	62.8	
1050587	27	Z03-3352	70.0	C	82.5	A	75.1	B	59.4	
1050588	28	XY04-37	73.4	B	76.3	B	67.8	C	59.3	
1050589	29	OH05-164-76	61.6	C	66.3	C	65.9	C	60.0	
1050590	30	OH05-200-74	62.9	C	64.7	C	72.2	B	59.5	
1050591	31	OH05-248-38	60.2	C	54.6	D	59.6	D	61.1	
1050592	32	ML06-2097	65.4	C	66.3	C	65.9	C	60.5	
1050593	33	03M1539#019	66.5	C	57.0	D	71.2	B	61.0	
1050594	34	MH06*2820	70.1	B	62.1	C	68.7	C	60.4	
1050595	35	GA011174-8A9	71.1	B	65.1	C	69.1	C	61.6	
1050596	36	IL04-24668	70.7	B	73.4	B	69.7	C	61.0	
1050597	37	IL05-4236	68.7	C	65.4	C	69.4	C	61.2	
1050598	38	G89267	63.6	C	65.8	C	71.9	B	60.1	
1050599	39	G89263	65.6	C	73.9	B	69.4	C	60.8	
1050600	40	KY00C-2567-01	67.2	C	62.8	C	67.0	C	60.8	
1050601	41	P05215A1-1-46	62.1	C	67.4	C	61.3	C	60.2	
1050602	42	P05247A1-7-3	61.9	C	50.1	D	58.7	D	61.6	
1050603	43	P05251A1-1-77	64.0	C	59.2	D	65.4	C	60.9	
1050604	44	TN902	66.5	C	68.3	C	69.2	C	59.2	
1050605	45	NX05M4180-6	42.7	E	-3.5	F	55.2	D	58.8	
1050606	46	NC05-19896	69.4	C	61.1	C	64.5	C	61.4	
		average	65.0		63.3		66.6		60.6	

ADVANCED NURSERY EVALUATION FOR SOFT WHEAT MILLING AND BAKING QUALITY

Lab Number	Entry	**Composite: VA (Griffey), OH (Sneller), IN (Ohm)**	Whole Grain Protein (%)	Whole Grain Hardness (0-100)	Flour Yield (%)	Softness Equivalent (%)	Flour Protein (%)	As Is Lactic Acid SRC (%)
1050561	1	INW0411	11.4	35.3	68.9	56.5	8.6	103.7
1050562	2	Branson	10.7	22.5	71.3	62.4	7.9	95.9
1050563	3	Bess	10.5	19.8	68.9	58.2	8.0	85.4
1050564	4	Shirley	11.8	27.1	70.1	57.8	8.6	92.8
1050565	5	KY97C-0508-01-01A-1	10.6	25.3	69.8	59.5	8.0	109.9
1050566	6	IL04-8445	10.1	23.1	69.9	61.1	7.6	113.1
1050567	7	B040798	11.2	34.3	71.4	58.9	8.7	114.1
1050568	8	W06-089	10.5	21.8	70.9	63.6	7.8	114.3
1050569	9	VA05W-151	11.5	26.4	71.0	56.9	8.5	112.8
1050570	10	VA05W-168	11.1	23.2	69.9	58.1	8.3	113.2
1050571	11	AR98022-19-3	11.0	39.6	67.0	54.2	8.5	111.1
1050572	12	AR98023-5-1	10.7	25.7	70.1	60.1	8.4	99.6
1050573	13	Taboo exp.	11.3	29.2	70.0	54.6	8.5	94.1
1050574	14	Mondo exp.	11.7	36.3	69.8	56.0	8.9	100.3
1050575	15	Okie exp.	11.4	35.0	69.8	57.8	8.4	85.0
1050576	16	W06*646	11.0	32.9	68.2	55.8	8.6	103.1
1050577	17	VA07W-415	11.4	28.5	70.5	57.0	8.6	102.9
1050578	18	MD00W389-08-4	11.1	31.7	69.4	58.5	8.4	104.3
1050579	19	MD02W135-08-9	11.2	36.3	69.6	59.6	8.3	115.8
1050580	20	MD01W270-08-12	11.6	28.2	70.1	60.7	8.8	96.7
1050581	21	B169	12.3	40.3	70.5	57.3	9.3	118.6
1050582	22	B170	10.9	20.2	71.0	60.2	8.4	97.7
1050583	23	B171	11.3	38.2	69.3	58.8	8.5	100.9
1050584	24	MO 041687	10.9	35.0	70.4	61.3	8.1	110.1
1050585	25	MO 050921	10.3	10.4	71.1	61.0	7.6	94.2
1050586	26	MO 080104	11.2	23.7	68.8	58.9	8.2	119.5
1050587	27	Z03-3352	10.6	18.3	71.1	62.8	7.6	87.5
1050588	28	XY04-37	10.8	32.8	71.9	59.4	8.0	107.2
1050589	29	OH05-164-76	10.8	33.0	69.2	58.4	7.9	104.6
1050590	30	OH05-200-74	10.3	31.5	69.5	61.5	7.8	102.5
1050591	31	OH05-248-38	10.8	29.7	68.8	55.4	8.2	101.8
1050592	32	ML06-2097	10.7	39.3	70.1	58.4	8.3	83.2
1050593	33	03M1539#019	11.3	27.4	70.3	61.0	8.1	98.3
1050594	34	MH06*2820	11.3	33.3	71.1	59.8	8.5	111.4
1050595	35	GA011174-8A9	11.1	21.0	71.3	60.0	8.1	99.3
1050596	36	IL04-24668	11.3	25.6	71.3	60.3	8.3	104.7
1050597	37	IL05-4236	10.7	25.4	70.8	60.1	7.9	93.8
1050598	38	G89267	10.2	22.3	69.6	61.3	7.6	107.5
1050599	39	G89263	10.7	25.8	70.1	60.1	8.1	112.1
1050600	40	KY00C-2567-01	11.5	28.4	70.5	59.0	8.6	122.1
1050601	41	P05215A1-1-46	11.1	31.7	69.3	56.2	8.2	79.4
1050602	42	P05247A1-7-3	11.6	34.5	69.2	55.0	8.7	95.9
1050603	43	P05251A1-1-77	11.6	28.6	69.7	58.2	8.6	108.4
1050604	44	TN902	10.4	26.7	70.3	60.0	7.7	85.3
1050605	45	NX05M4180-6	10.9	39.5	64.8	53.3	8.3	98.8
1050606	46	NC05-19896	11.5	26.6	71.0	57.7	8.6	110.2
		average	11.0	28.9	69.9	58.8	8.3	102.7

ADVANCED NURSERY EVALUATION FOR SOFT WHEAT MILLING AND BAKING QUALITY

Lab Number	Entry	**Composite: VA (Griffey), OH (Sneller), IN (Ohm)**	Sucrose SRC (%)	Cookie Diameter (cm)	Top Grade (0-9)	Water SRC (%)	Sodium Carbonate SRC (%)
1050561	1	INW0411	88.6	18.60	7	53.8	69.7
1050562	2	Branson	83.6	18.97	7	52.7	67.1
1050563	3	Bess	83.6	19.06	7	52.3	67.4
1050564	4	Shirley	84.8	19.00	5	53.5	68.8
1050565	5	KY97C-0508-01-01A-1	84.7	19.10	5	53.5	68.6
1050566	6	IL04-8445	85.5	18.96	6	53.8	69.2
1050567	7	B040798	83.9	18.46	5	52.9	70.5
1050568	8	W06-089	84.0	19.37	7	53.7	67.9
1050569	9	VA05W-151	86.9	18.62	7	53.9	67.7
1050570	10	VA05W-168	88.1	18.79	5	54.9	70.5
1050571	11	AR98022-19-3	100.2	17.47	5	59.0	77.2
1050572	12	AR98023-5-1	86.0	18.91	7	53.8	68.7
1050573	13	Taboo exp.	84.9	18.84	7	54.5	67.0
1050574	14	Mondo exp.	85.7	19.09	6	53.4	67.5
1050575	15	Okie exp.	85.8	18.66	5	55.5	69.0
1050576	16	W06*646	88.8	18.53	6	56.1	71.3
1050577	17	VA07W-415	88.5	18.49	5	54.0	69.6
1050578	18	MD00W389-08-4	90.4	18.75	5	56.2	72.5
1050579	19	MD02W135-08-9	90.2	18.80	7	56.6	72.1
1050580	20	MD01W270-08-12	87.1	18.92	6	54.2	69.3
1050581	21	B169	90.8	18.29	6	54.8	68.5
1050582	22	B170	83.3	18.94	7	53.9	67.5
1050583	23	B171	86.7	18.84	6	54.7	68.6
1050584	24	MO 041687	84.4	18.85	5	51.0	69.1
1050585	25	MO 050921	83.2	19.27	6	50.5	66.3
1050586	26	MO 080104	94.1	18.65	5	54.3	71.0
1050587	27	Z03-3352	82.5	19.31	7	49.8	66.1
1050588	28	XY04-37	83.4	19.19	4	50.6	67.8
1050589	29	OH05-164-76	87.8	18.91	4	52.9	70.1
1050590	30	OH05-200-74	87.6	18.54	5	53.6	71.2
1050591	31	OH05-248-38	89.5	18.34	4	54.9	72.0
1050592	32	ML06-2097	87.5	19.00	5	53.7	70.9
1050593	33	03M1539#019	90.2	18.32	5	54.7	73.4
1050594	34	MH06*2820	87.8	18.66	5	52.7	70.1
1050595	35	GA011174-8A9	86.0	18.51	6	52.3	68.3
1050596	36	IL04-24668	83.0	18.93	6	50.8	64.4
1050597	37	IL05-4236	84.7	18.32	7	53.1	69.0
1050598	38	G89267	88.8	18.74	7	52.6	70.1
1050599	39	G89263	85.7	19.28	4	53.3	68.3
1050600	40	KY00C-2567-01	87.4	18.75	4	53.2	67.7
1050601	41	P05215A1-1-46	85.6	18.94	7	53.1	66.1
1050602	42	P05247A1-7-3	91.6	18.40	5	56.0	71.4
1050603	43	P05251A1-1-77	87.1	18.43	5	53.5	69.8
1050604	44	TN902	87.8	18.93	5	55.1	71.6
1050605	45	NX05M4180-6	115.0	16.66	1	64.7	89.8
1050606	46	NC05-19896	87.4	18.64	5	53.8	69.1
		average	87.6	18.7	5.6	54.0	69.8

ADVANCED NURSERY EVALUATION FOR SOFT WHEAT MILLING AND BAKING QUALITY

GRAIN CONDITION

Lab Number	Entry No.		FHB (0-3)	Weathering (yes/no)	Sprouting (0-3)	Black Point (0-3)	Shriveling After Cleaning (0-3)	Color
1050561	1	INW0411	0	0	0	0	1	
1050562	2	Branson	1	0	0	0	1	
1050563	3	Bess	0	0	0	0	1	
1050564	4	Shirley	0	0	0	0	1	
1050565	5	KY97C-0508-01-01A-1	0	0	0	0	1	
1050566	6	IL04-8445	0	0	0	0	1	
1050567	7	B040798	1	0	0	0	1	
1050568	8	W06-089	0	0	0	0	1	
1050569	9	VA05W-151	0	0	0	0	1	
1050570	10	VA05W-168	0	0	0	0	1	
1050571	11	AR98022-19-3	1	0	0	0	2	
1050572	12	AR98023-5-1	1	0	0	0	1	
1050573	13	Taboo exp.	1	0	0	0	1	
1050574	14	Mondo exp.	0	0	0	0	1	
1050575	15	Okie exp.	0	0	0	0	1	
1050576	16	W06*646	0	0	0	0	1	
1050577	17	VA07W-415	1	0	0	0	1	
1050578	18	MD00W389-08-4	0	0	0	0	1	
1050579	19	MD02W135-08-9	0	0	0	0	1	
1050580	20	MD01W270-08-12	0	0	0	0	1	
1050581	21	B169	1	0	0	0	1	
1050582	22	B170	0	0	0	0	1	
1050583	23	B171	0	0	0	0	1	
1050584	24	MO 041687	0	0	0	0	1	
1050585	25	MO 050921	0	0	0	0	0	
1050586	26	MO 080104	1	0	0	0	1	
1050587	27	Z03-3352	0	0	0	0	1	
1050588	28	XY04-37	1	0	0	0	1	
1050589	29	OH05-164-76	0	0	0	0	1	
1050590	30	OH05-200-74	0	0	0	0	1	
1050591	31	OH05-248-38	0	0	0	0	1	
1050592	32	ML06-2097	0	0	0	0	1	
1050593	33	03M1539#019	0	0	0	0	1	
1050594	34	MH06*2820	1	0	0	0	1	
1050595	35	GA011174-8A9	1	0	0	0	1	
1050596	36	IL04-24668	0	0	0	0	1	
1050597	37	IL05-4236	0	0	0	0	1	
1050598	38	G89267	0	0	0	0	1	
1050599	39	G89263	0	0	0	0	1	
1050600	40	KY00C-2567-01	0	0	1	0	1	
1050601	41	P05215A1-1-46	1	0	0	0	1	
1050602	42	P05247A1-7-3	0	0	0	0	1	
1050603	43	P05251A1-1-77	0	0	0	0	1	
1050604	44	TN902	1	0	0	0	1	
1050605	45	NX05M4180-6	0	0	0	0	2	
1050606	46	NC05-19896	0	0	0	0	1	

ADVANCED NURSERY EVALUATION FOR SOFT WHEAT MILLING AND BAKING QUALITY

GRAIN CONDITION

Lab Number	Entry No.		Comments
1050561	1	INW0411	CHECK
1050562	2	Branson	CHECK
1050563	3	Bess	CHECK
1050564	4	Shirley	CHECK
1050565	5	KY97C-0508-01-01A-1	
1050566	6	IL04-8445	Some weathering, but it appears to only be on one or two of the three locations. 1/3-1/2 looks really nice.
1050567	7	B040798	
1050568	8	W06-089	Sample #: 1050605 has high Sodium Carbonate (starch damage) so check its SE
1050569	9	VA05W-151	
1050570	10	VA05W-168	
1050571	11	AR98022-19-3	
1050572	12	AR98023-5-1	
1050573	13	Taboo exp.	
1050574	14	Mondo exp.	
1050575	15	Okie exp.	
1050576	16	W06*646	
1050577	17	VA07W-415	
1050578	18	MD00W389-08-4	
1050579	19	MD02W135-08-9	
1050580	20	MD01W270-08-12	
1050581	21	B169	
1050582	22	B170	
1050583	23	B171	
1050584	24	MO 041687	
1050585	25	MO 050921	
1050586	26	MO 080104	
1050587	27	Z03-3352	
1050588	28	XY04-37	
1050589	29	OH05-164-76	
1050590	30	OH05-200-74	
1050591	31	OH05-248-38	
1050592	32	ML06-2097	
1050593	33	03M1539#019	
1050594	34	MH06*2820	
1050595	35	GA011174-8A9	
1050596	36	IL04-24668	
1050597	37	IL05-4236	
1050598	38	G89267	
1050599	39	G89263	
1050600	40	KY00C-2567-01	
1050601	41	P05215A1-1-46	
1050602	42	P05247A1-7-3	
1050603	43	P05251A1-1-77	
1050604	44	TN902	
1050605	45	NX05M4180-6	
1050606	46	NC05-19896	

GRAIN CONDITION SCALE

FHB, SPROUTING and BLACK POINT

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

SHRIVELING

0	None
1	Some
2	Moderate
3	Heavy

ADVANCED NURSERY EVALUATION FOR SOFT WHEAT MILLING AND BAKING QUALITY

Adjustments from Advanced Milling Database
Quality scores are transferred from 'Advanced Set Named Cultivar July 2010'
Select as many checks as are available

			From Advanced Milling Database Scoring					Predicted from Measured data						Data transferred from Scores Sheet																					
Lab Number	Entry Number	ENTRY	Milling Quality Score		Baking Quality Score		Softness Equivalent Score	Milling Quality Score		Baking Quality Score		Softness Equivalent Score		Test Weight (LB/BU)		Flour Yield (%)		Softness Equivalent (%)		Flour Protein (%)		As Is Lactic Acid SRC (%)		Sucrose SRC (%)		Cookie Diameter (cm)		Top Grade (0-9)		Water SRC (%)		Sodium Carbonate SRC (%)	
1050561	1	INW0411	66.0		57.2		63.9	60.9	C	67.1	C	57.9	D	58.6		68.9		56.5		8.6		103.7		88.6		18.6		7.0		53.8		69.7	
1050562	2	Branson	66.8		75.2		77.0	71.3	B	84.9	A	70.2	B	60.2		71.3		62.4		7.9		95.9		83.6		19.0		7.0		52.7		67.1	
1050563	3	Bess	56.2		64.0		57.5	60.6	C	82.8	A	61.6	C	59.8		68.9		58.2		8.0		85.4		83.6		19.1		7.0		52.3		67.4	
1050564	4	Shirley	68.0		80.1		67.7	65.9	C	77.9	B	60.6	C	58.9		70.1		57.8		8.6		92.8		84.8		19.0		5.0		53.5		68.8	
		Average	64.25		69.09		66.53	64.69		78.18		62.58		59.40		69.78		58.74		8.28		94.43		85.17		18.91		6.50		53.08		68.24	
		Adjustment bias for trial	-0.44		-9.09		3.95																											

Prediction Models for Predicted scores from actual measurements are based on regression models from 'Advanced Set Named Cultivar July 2010' SAS Worksheet
Models generated with year effect included. Year omitted in this calculation, bias calculations are assumed to estimate the year effect.

SE Score= 2.085 SE -59.889

BQ Score= -6.84+11.04*Diam-1.49*Sucrose-3.86*Flour Pro+0.598*SE

MY Score= -239.56 + 4.36*FYLD