UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service

State Agricultural Experiment Stations, Cooperating

2008 - 2009

UNIFORM EASTERN SOFT RED WINTER WHEAT NURSERY

Report

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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.

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TABLE OF CONTENTS

2008-2009 UNIFORM EASTERN SOFT RED WINTER WHEAT NURSERY
LIST OF ENTRIES AND PEDIGREES

Entry No.	Cultivar/ Designation	Pedigree	Contributor	1st Year in Nursery
1	Roane	VA71-54-147(CI17449)/C68-15//IN65309C1-18-2-3-2 (formerly VA93-54-429)	Check	95-96
2	INW0411	96204A1-12//Goldfield/92823A1-11 (formerly P97397E1-11-2-4-1-1)	Check	03-04
3	Branson	Pio2737W/891-4584A (Pike/FL302) (formerly M00-3701)	Check	03-04
4	Bess	MO11769/Madison (formerly MO981020)	Check	02-03
5	LA01*425	P2571/Y91-6B	Moreno	07-08
6	IL02-19463	Patton/Cardinal//IL96-2550	Kolb	07-08
7	B030543	VA93-54-429/LA85422	Hancock	07-08
8	KY97C-0321-02-01	Kristy/VA94-52-25//2540	Van Sanford	07-08
9	KY97C-0519-04-07	SS555W/2540//2552	Van Sanford	07-08
10	KY97C-0508-01-01A-1	FFR555W/VA94-52-25//2568	Van Sanford	08-09
11	IL04-8445	IL94-1653 [MOW12213/IL87-3235(Cardinal/Caldwell)] / IL97-3578 [IL90-6364(P76788G2-5-4-94//Caldwell/IL77-2656)/Pio2571]	Kolb	08-09
12	IL04-11003	IL96-3073 [L880437//Cardinal/IL85-3132-1(McNair1003/Caldwell)] / Roane	Kolb	08-09
13	OH04-264-58	OH645/Hopewell	Sneller	08-09
14	OH04-268-39	Hopewell/VA96-54-372	Sneller	08-09
15	OH05-248-38	OH685/OH686	Sneller	08-09
16	MD00W53-07-1	XW672/Tribute	Costa	08-09
17	MD01W233-07-1	McCormick/Choptank	Costa	08-09
18	G89209	IL84-3010/T812	Brown	08-09
19	G89201	Auburn/Tyler	Brown	08-09
20	G89222	T812/VA91-54-219	Brown	08-09
21	M05-1172	M94-1048-1/Pio2552	Fogleman	08-09
22	M05-1526	FFR502/P931765C-H21	Fogleman	08-09
23	M05*1589	GA871339/Pio2540	Fogleman	08-09
24	B040798	BL920520/9244BX-2-1-4	Hancock	08-09
25	M05-1531	LA87167-D8-10-2/P92118B4-2	Hancock	08-09
26	P99751RA1-6-3-94	P9560//KS94U396/P92162/3/INW9811*2//Fdm/201R	Ohm	08-09
27	P02444A1-23-1	P981129/P99793//INW0301/P92145	Ohm	08-09
28	P05219A1-13-16	INW0316*2/3/P9346/P91202//INW0301*2	Ohm	08-09
29	W06-089	Tribute/Patton	Cisar	08-09
30	W06-522A	Pio25R49/Patterson	Cisar	08-09
31	Z03-1281	W-725/W-591	Moreno	08-09
32	Z03-0496	Clark//W-65/Clemson	Moreno	08-09
33	GA031238-DH7-7A28	96229-3E39(sis SS8641)/USG3295	Johnson	08-09
34	Blazer exp.	IN77249/AGC107	Fioritto	08-09
35	Probe exp.	Mendon/GR915	Fioritto	08-09
36	Rumor exp.	Hopewell/Honey	Fioritto	08-09
37	VA05W-151	Pio26R24/McCormick	Griffey	08-09
38	VA05W-168	FFR522/Tribute	Griffey	08-09
39	VA05W-258	VA98W-130(Savannah/VA87-54-558//VA88-54-328/Gore)//C9835/SS520	Griffey	08-09
40	AR98022-19-3	Sabbe/Coker9663	Bacon	08-09
41	AR98023-5-1	Sabbe/Coker9704	Bacon	08-09
42	NC05-21090	Burr/NC96BGTA6 sib//Natchez	Murphy	08-09

LOCATION NOTES

Bay, Arkansas

Cooperators:	June Hancock, David Hill, Richard Gray Syngenta Seeds
Planted:	October 15, 2008
Harvested:	June 19, 2009
Notes:	From April 2 to June 16 approximately 33 inches of rain fell at the Bay station.

Stuttgart, Arkansas

Cooperators:	John Kelly, Robert Bacon University of Arkansas
Planted:	October 30, 2008
Harvested:	June 10, 2009
Notes:	Several severe storms with high winds and excessive rainfall from heading to harvest.

Griffin, Georgia

Cooperators:	Jerry Johnson, Dan Bland, James Buck, John Youmans, Steve Sutton University of Georgia
Planted:	November 1, 2008
Harvested:	June 8, 2009

Brownstown, Illinois

Cooperators:	Fred Kolb, Norman Smith, Eric Brucker University of Illinois
Planted:	October 10, 2008
Harvested:	June 26, 2009
Fertilizer:	40 N preplant, 50 N topdress
Notes:	Yields and test weights were reduced by FHB, septoria leaf blight, and glume blotch.

Urbana, Illinois

Cooperators:	Fred Kolb, Norman Smith, Eric Brucker University of Illinois
Planted:	October 10, 2008
Harvested:	June 26, 2009
Fertilizer:	40 N preplant, 50 N topdress
Notes:	FHB data are from misted, grain spawn inoculated FHB nursery, 3 reps of single 3 foot rows. ISK Index = Incidence *(0.3) + Severity *(0.3) + Kernel Rating *(0.4). BYDV stunting data are from 2 reps of hills inoculated with BYDV-PAV-IL in the fall. Stunting = ((Control Ht. - Inoc. Ht)/ Control Ht.) * 100.

Evansville, Indiana

Cooperators:	Herb Ohm
	Purdue University
Notes:	Natural infection of SNB and STB were recorded in 1m rows.

Lafayette, Indiana

Cooperators:	Ben Moreno, Justin Cooley
	Westbred LLC
Harvested:	June 28, 2009

Owensville, Indiana

Cooperators:	J. Barton Fogleman, Jennifer Vonderwell, Eugene Glover
	Syngenta Seeds
Planted:	October 23, 2008
Harvested:	June 25, 2009
Notes:	Test Weights measured on air-blasted grain with Dickey John GAC II bench tester, rather than the combine-generated values. Harvest at Owensville was interrupted by rain about 1/3 into the trials (both UEN & USN); completed on June 25, begun on June 22, 2008 -- Individual rep moistures reflected this. VISUAL SCAB - Obviously from the FDK % counts, some of these 'scabby' lines were very adept at letting their FDK kernels blow out of the back of the combine (or maybe visual scab ratings are suspect…you be the judge).

Tipton, Indiana

Cooperators:	Sam Brown, Katie Russler
	Genesis Seed Research
Planted:	October 13, 2008
Harvested:	July 5, 2009
Fertilizer:	30 N fall, 60 N on 2/24, 40 N on 3/27
Notes:	Water damage from two storms, each with two or more inches of rain which selectively cut through some plots. These fell in February and early March when there was frost in the ground. The CV is high. We felt though that the yield potential expressed by some of the lines was worth harvesting the plots.

Wabash, Indiana

Cooperators:	Ben Moreno, Justin Cooley
	Westbred LLC
Harvested:	June 23, 2009

West Lafayette, Indiana

Cooperators:	Herb Ohm Purdue University
Fertilizer:	35-90-0 fall, 95-0-0 on 3/2
Notes:	Diseases were insignificant in yield nurseries at Lafayette. Crop conditions were very good. FHB severity: mean number of diseased spikelets at 21d after inoculation at flowering of a basal floret in the 3rd spikelet from the tip of 8 spikes in a 1m row in a misted nursery at Lafayette. Natural infection at Lafayette in 2009 was minimal.

West Lafayette, Indiana

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

Independence, Kansas

Cooperators:	Sid Perry Westbred LLC
Planted:	October 27, 2008
Harvested:	June 22, 2009

Wichita, Kansas

Cooperators:	Jim Wilson Trio Research, Inc.
Notes:	Nursery was not harvested due to multiple problems.

Lexington, Kentucky

Cooperators:	Dave Van Sanford University of Kentucky
Planted:	October 23, 2008
Harvested:	June 30, 2009
Fertilizer:	P,K according to soil tests, 110 N in split applications

Logan Co., Kentucky

Cooperators:	Dave Van Sanford University of Kentucky
Notes:	Good scab ratings, but nursery was not harvested due to hail storm.

Clarksville, Maryland

Cooperators:	Jose Costa, Aaron Cooper University of Maryland
Planted:	October 3, 2008
Harvested:	June 29, 2009
Fertilizer:	7-18-36 fall, 60-0-0 spring
Notes:	SBMV (early on) and powdery mildew were present.

Ingham Co., Michigan

Cooperators:	Janet Lewis, Lee Siler, R. Laurenz, S. Hammar Michigan State University
Planted:	October 11, 2008
Harvested:	July 27, 2009
Fertilizer:	12/48/48

East Lansing, Michigan

Cooperators:	Janet Lewis, Lee Siler, R. Laurenz, S. Hammar Michigan State University
Notes:	FHB scab screening plot was inoculated and misted. Rated 21 days after anthesis. Late flowering prevented rating FHB for some entries. The majority of Rep 1 (of 2 reps) was flooded and many entries could not be rated accurately.

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.

Columbia, Missouri

Cooperators:	Anne L. McKendry, David Tague University of Missouri
Planted:	October 9, 2008
Harvested:	July 1, 2009
Fertilizer:	40-80 fall-spring N split
Notes:	The location was planted in a timely fashion in accordance with the fly-free date at Columbia (Oct. 6). The seed-bed was wet due to an extremely wet fall. The spring and summer were cooler than normal, however, persistent rainfall through the heading window resulted in a significant level of FHB natural infection, particularly in susceptible varieties. Scab was rated as the percentage of florets expressing viable scab symptoms, approximately 21d post-flowering. Data presented are means for 3 reps.

Cleveland, Mississippi

Cooperators:	June Hancock, David Hill, Richard Gray Syngenta Seeds
Planted:	November 5, 2008
Harvested:	June 11, 2009
Notes:	Eighteen to twenty-two inches of rain in the last 90 days.

Ithaca, New York

Cooperators:	Mark E. Sorrells
	Cornell University
Planted:	September 18, 2008
Harvested:	July 29, 2009
Fertilizer:	100# of 10-20-20 + 100# AmNitrate

Laurel Springs, North Carolina

Cooperators:	David Marshall, Myron Fountain
	USDA-ARS, Plant Science Research
Notes:	Adult-plant stripe rust data. Nursery was inoculated in February with "field" isolate (primarily PST100 and 101).

Plymouth, North Carolina

Cooperators:	Paul Murphy
	North Carolina State University
Fertilizer:	130 N topdress
Notes:	Good location with little disease, except for soil borne, which hammered susceptible lines.

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). 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:	Gina Brown-Guedira
	USDA-ARS, Eastern Regional Small Grains Genotyping Lab
Notes:	Marker analysis.

Lincoln, Nebraska

Cooperators:	Stephen Baenziger University of Nebraska
Notes:	Some plots were inadvertently damaged by glyphosate used to kill the alleyways.

Mead, Nebraska

Cooperators:	Stephen Baenziger University of Nebraska
Notes:	Some plots were inadvertently damaged by glyphosate used to kill the alleyways.

Napoleon, Ohio

Cooperators:	J. Barton Fogleman, Jennifer Vonderwell, Eugene Glover Syngenta Seeds
Planted:	October 11, 2008
Harvested:	July 13, 2009
Notes:	Test Weights measured on air-blasted grain with Dickey John GAC II bench tester, rather than the combine-generated values. Little or no disease.

Wooster, Ohio

Cooperators:	Clay Sneller Ohio State University, OARDC

Wooster, Ohio

Cooperators:	Ron Fioritto SunBeam Extract
Planted:	September 26, 2008
Harvested:	July 13, 2009

Wooster, Ohio

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

Enid, Oklahoma

Cooperators:	Brett Carver 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
Planted:	October 20, 2008
Harvested:	August 1, 2009
Notes:	A tough year in Ontario. Late planted trial, covered with snow from November through late winter/early spring. Two freeze-thaw cycles resulting in reduced winter survival. Diseases came in late. Cool, wet spring and summer.

Knoxville, Tennessee

Cooperators:	Dennis West University of Tennessee
Planted:	October 20, 2008
Harvested:	June 16, 2009
Fertilizer:	30-30-30 fall, 60-0-0 spring
Notes:	Excellent conditions from planting until heading. Lodging from several thunderstorms with high wind from heading to harvest.

Blacksburg, Virginia

Cooperators:	Carl Griffey Virginia Tech
Planted:	September 24, 2008
Harvested:	June 24, 2009
Fertilizer:	30-80-80, 50 N on 3/10, 50 N on 3/24
Notes:	Also provided seedling leaf rust and powdery mildew data gathered in the greenhouse.

Warsaw, Virginia

Cooperators:	Carl Griffey Virginia Tech
Planted:	October 14, 2008
Harvested:	June 21, 2009
Fertilizer:	30-80-80-5 on 10/9, 40# 24-0-0-3 on 2/9, 40# 24-0-0-3 on 3/25
Notes:	Due to a planting error entries 10, 15, 33, and 41 had only one rep of data. Agrobase was used to calculate approximate values for the missing data. Due to a planting error entry 26 had no data and was left out of the calculations for overall mean.

Mt. Vernon, Pullman, and Walla Walla, 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:	Mark Martinka University of Wisconsin
Notes:	Nursery was lost due to winter injury.

Oconto, Wisconsin

Cooperators:	Gordon Cisar Great Lakes Cereal Grains
Planted:	September 29, 2008
Harvested:	July 31, 2009
Notes:	Long season, late harvest. Lots of snow cover, but with differential winter injury.


2008 - 2009 UESRWWN
TESTING LOCATIONS
Mt. Vernon
Pullman
Walla Walla
Washington
Oregon
Idaho
Montana
North Dakota
Minnesota
South Dakota
Wyoming
Nebraska
Nevada
Utah
Colorado
California
Kansas
Oklahoma
Arizona
New Mexico
Texas
Iowa
Missouri
Arkansas
Louisiana
Wisconsin
Illinois
Michigan
Indiana
Ohio
Kentucky
Tennessee
Mississippi
Alabama
Georgia
Florida
South Carolina
North Carolina
Virginia
West Virginia
Pennsylvania
New York
Vermont
Maine
Connecticut
New Jersey
Maryland
Delaware
District of Columbia
St. Paul
Oconto
Nairn
Ithaca
E Lansing
Ingham Co.
Napoleon
Wooster
Mead
Lincoln
Lafayette
Wabash
Tipton
Urbana
Clarksville
Warsaw
Columbia
Brownstown
Owensville
Evansville
Lexington
Blacksburg
Plymouth
Logan Co
Laurel Springs
Raleigh
Knoxville
Independence
Enid
Bay
Stuttgart
Cleveland
Griffin

YIELD (bu/acre)

		Bay		Stuttgart		Griffin		Brownstown		Urbana		Tipton	
		AR	a	AR	a	GA		IL	a	IL	ab	IN	a
		Hancock	rank	Bacon	rank	Johnson	rank	Kolb	rank	Kolb	rank	Brown	rank
1	Roane	29.4	41	41.1	32	59.7	13	58.3	27	78.5	30	106.7	33
2	INW0411	45.1	25	44.7	24	49.7	24	41.0	42	74.3	35	125.6	16
3	Branson	41.4	35	55.4	12	38.1	39	62.0	16	87.9	15	144.9	2
4	Bess	47.6	20	64.1	3	59.1	14	66.5	6	81.8	28	133.1	10
5	LA01*425	46.2	23	56.9	9	62.1	7	70.2	3	94.3	5	111.8	30
6	IL02-19463	44.4	28	57.3	8	71.4	3	62.9	13	85.6	18	140.4	4
7	B030543	41.4	34	39.5	33	38.7	38	66.2	7	89.6	9	136.0	6
8	KY97C-0321-02-01	50.2	13	38.4	36	47.2	27	52.0	38	84.7	21	126.5	15
9	KY97C-0519-04-07	35.2	39	32.4	40	44.3	32	62.7	14	92.4	7	114.0	27
10	KY97C-0508-01-01A-1	54.0	6	44.7	24	68.3	4	60.7	19	86.2	17	129.6	11
11	IL04-8445	52.3	9	47.1	22	61.7	9	63.7	11	100.1	2	144.2	3
12	IL04-11003	47.7	19	31.6	41	46.7	28	58.5	25	89.2	11	86.1	39
13	OH04-264-58	41.0	36	42.3	28	42.8	35	57.1	28	83.4	25	100.3	36
14	OH04-268-39	33.2	40	34.4	39	29.0	41	53.5	37	70.0	40	112.9	28
15	OH05-248-38	43.4	29	55.4	12	49.0	26	60.2	20	88.3	14	123.0	19
16	MD00W53-07-1	49.4	16	54.2	14	61.3	10	65.6	9	71.5	39	120.4	21
17	MD01W233-07-1	61.0	1	41.9	29	59.9	12	57.0	29	77.8	31	77.4	42
18	G89209	48.8	17	56.9	9	49.1	25	79.2	1	93.0	6	102.4	35
19	G89201	49.4	15	54.2	14	46.0	29	60.0	21	89.2	11	117.4	24
20	G89222	40.1	37	41.9	29	51.3	21	56.2	31	88.9	13	120.1	22
21	M05-1172	42.0	33	47.9	20	44.6	31	62.2	15	86.7	16	133.4	8
22	M05-1526	45.3	24	41.9	29	52.6	19	61.2	18	96.5	3	139.4	5
23	M05*1589	46.5	22	28.1	42	51.4	20	69.3	4	85.1	20	108.4	31
24	B040798	56.2	4	48.6	19	63.6	6	63.4	12	82.2	27	107.6	32
25	M05-1531	43.0	30	37.2	37	58.8	15	66.9	5	83.3	26	129.4	12
26	P99751RA1-6-3-94	25.5	42	63.7	4	38.9	37	59.2	24	77.3	32	80.4	41
27	P02444A1-23-1	44.6	27	46.7	23	44.9	30	58.4	26	83.5	24	118.9	23
28	P05219A1-13-16	50.4	12	62.9	5	37.7	40	55.3	32	89.4	10	134.5	7
29	W06-089	52.2	10	37.2	37	50.2	23	53.9	34	90.1	8	156.9	1
30	W06-522A	51.0	11	52.2	16	80.7	1	50.8	39	71.9	37	112.6	29
31	Z03-1281	42.4	32	49.0	17	53.0	17	64.9	10	101.6	1	121.2	20
32	Z03-0496	57.1	3	65.3	2	51.0	22	65.9	8	84.0	23	133.4	8
33	GA031238-DH7-7A28	47.3	21	49.0	17	72.5	2	50.1	40	68.6	41	95.0	38
34	Blazer exp.	50.0	14	38.8	34	40.1	36	53.7	35	76.6	33	115.9	26
35	Probe exp.	42.9	31	44.7	24	23.7	42	61.3	17	75.2	34	117.4	25
36	Rumor exp.	44.7	26	47.5	21	44.0	33	53.6	36	79.9	29	123.2	18
37	VA05W-151	60.8	2	58.1	7	61.9	8	71.7	2	95.5	4	128.0	14
38	VA05W-168	52.9	8	66.0	1	43.9	34	56.5	30	85.5	19	128.4	13
39	VA05W-258	38.5	38	38.8	34	58.7	16	60.0	21	84.7	21	124.9	17
40	AR98022-19-3	53.9	7	59.7	6	53.0	17	55.1	33	64.0	42	97.7	37
41	AR98023-5-1	48.8	18	56.9	9	60.6	11	47.6	41	71.8	38	105.3	34
42	NC05-21090	56.0	5	44.3	27	65.6	5	59.3	23	73.8	36	85.3	40
LOCATION MEANS		46.5		48.1		52.1		59.9		83.7		118.3	
LSD (.05)		14.2		10.7				11.6		8		18.9	
CV %		15.2		13.7				11.9		5.9		12.2	
REPS		2		3		1		3		3		2	
Harvest Plot area (sq.ft.)		64.7		70		50		34		34		32	

YIELD (bu/acre)

		Lafayette		Owensville		Wabash		W. Lafayette		Independence		Lexington	
		IN	a	IN	a	IN	ab	IN	ab	KS		KY	ab
		Moreno	rank	Fogleman	rank	Moreno	rank	Ohm	rank	Perry	rank	Van Sanford	rank
1	Roane	96.6	22	54.5	20	90.9	11	94.8	12	40.1	3	65.4	8
2	INW0411	96.6	21	61.7	5	82.6	26	74.8	42	37.5	8	62.5	17
3	Branson	101.2	8	63.1	4	87.2	18	94.3	13	38.4	6	71.9	2
4	Bess	96.5	23	47.1	34	83.7	24	88.8	22	32.4	24	66.9	7
5	LA01*425	99.5	11	47.9	33	94.0	7	97.3	10	32.7	21	47.5	37
6	IL02-19463	94.1	29	52.6	26	69.6	41	88.0	23	27.7	34	54.8	30
7	B030543	98.1	14	46.7	36	95.3	6	101.8	5	34.5	19	53.0	33
8	KY97C-0321-02-01	110.8	1	50.5	29	86.6	20	83.5	31	37.1	11	54.3	31
9	KY97C-0519-04-07	103.6	3	51.6	28	67.5	42	81.3	35	32.7	22	68.6	5
10	KY97C-0508-01-01A-1	102.7	4	55.0	16	83.9	23	81.0	36	25.2	37	62.2	18
11	IL04-8445	107.7	2	43.5	39	96.4	5	109.8	1	29.5	31	64.8	12
12	IL04-11003	94.7	27	43.8	38	86.8	19	90.5	19	33.2	20	62.1	20
13	OH04-264-58	94.7	28	55.9	12	88.3	16	80.0	39	26.9	36	47.5	36
14	OH04-268-39	96.8	19	55.5	14	88.6	14	88.0	23	22.0	42	63.5	14
15	OH05-248-38	98.6	13	58.9	7	89.1	13	85.8	28	36.9	13	69.7	3
16	MD00W53-07-1	86.1	39	50.3	30	78.0	34	91.3	17	29.9	29	62.1	19
17	MD01W233-07-1	89.2	36	53.2	23	70.3	40	80.0	39	28.4	33	44.3	40
18	G89209	97.9	15	52.9	25	93.4	9	98.5	9	40.2	2	64.8	11
19	G89201	88.7	37	54.6	19	75.8	36	106.5	2	39.3	5	68.6	4
20	G89222	97.6	16	42.8	40	98.7	3	102.8	3	35.3	17	56.5	28
21	M05-1172	100.7	10	49.0	32	88.0	17	83.8	30	29.8	30	68.1	6
22	M05-1526	98.9	12	66.9	2	97.7	4	99.3	8	34.7	18	62.6	15
23	M05*1589	92.8	32	55.8	13	90.0	12	91.8	14	35.4	16	62.5	16
24	B040798	91.1	35	56.8	10	78.6	32	80.5	37	31.3	26	60.2	26
25	M05-1531	101.2	9	66.1	3	100.5	1	86.5	27	40.6	1	61.0	23
26	P99751RA1-6-3-94	92.9	31	71.2	1	73.6	39	83.5	31	31.9	25	61.5	21
27	P02444A1-23-1	94.8	26	58.1	9	81.2	27	91.8	14	23.9	38	38.4	42
28	P05219A1-13-16	97.1	17	54.3	21	74.5	37	96.5	11	32.6	23	61.3	22
29	W06-089	96.0	25	54.1	22	93.3	10	101.5	6	37.3	10	60.2	25
30	W06-522A	88.4	38	40.3	42	88.3	15	83.3	33	22.4	41	46.6	38
31	Z03-1281	101.8	7	58.7	8	98.7	2	88.0	23	36.9	12	55.1	29
32	Z03-0496	102.6	5	56.7	11	93.7	8	78.5	41	31.2	27	65.1	10
33	GA031238-DH7-7A28	82.1	42	47.0	35	73.9	38	85.8	28	27.6	35	45.9	39
34	Blazer exp.	93.1	30	53.2	24	85.4	21	90.5	19	22.6	40	53.8	32
35	Probe exp.	96.1	24	54.6	18	80.9	28	83.0	34	28.7	32	48.5	34
36	Rumor exp.	92.2	33	54.8	17	77.6	35	86.8	26	36.6	14	41.5	41
37	VA05W-151	102.3	6	55.4	15	83.0	25	102.3	4	37.3	9	64.6	13
38	VA05W-168	97.1	18	46.5	37	84.6	22	100.3	7	37.8	7	74.2	1
39	VA05W-258	96.6	20	49.4	31	79.4	30	91.5	16	31.2	28	65.2	9
40	AR98022-19-3	84.0	40	42.4	41	80.6	29	89.0	21	22.7	39	60.7	24
41	AR98023-5-1	83.7	41	51.8	27	78.6	32	80.5	37	35.8	15	58.7	27
42	NC05-21090	92.1	34	61.3	6	79.0	31	91.3	17	39.9	4	48.2	35
LOCATION MEANS		95.9		53.5		84.9		90.1		32.6		58.9	
LSD (.05)				NS		9.95		11.4		6.96		11.4	
CV %				16		8.9		9		10.9		8.3	
REPS		1		2		2		4		2		2	
Harvest Plot area (sq.ft.)				58				35		50		40	

YIELD (bu/acre)

		Clarksville		Ingham Co.		Columbia		Cleveland		Ithaca		Plymouth	
		MD	ab	MI	ab	MO	ab	MIS		NY	a	NC	ab
		Costa	rank	Lewis	rank	McKendry	rank	Hancock	rank	Sorrells	rank	Murphy	rank
1	Roane	68.9	35	75.2	34	71.2	3	53.2	16	85.0	17	90.3	1
2	INW0411	74.4	22	71.3	41	56.9	34	48.6	25	75.4	36	87.4	2
3	Branson	83.4	5	87.7	6	68.3	6	52.1	17	73.3	40	84.5	3
4	Bess	83.0	6	81.5	20	64.8	14	50.0	21	75.9	35	83.5	4
5	LA01*425	74.0	24	87.3	7	64.6	15	44.0	33	73.5	39	82.6	5
6	IL02-19463	77.3	12	74.1	35	59.6	26	54.4	13	76.3	34	81.1	6
7	B030543	62.8	41	81.9	19	73.5	2	58.2	6	98.2	1	80.2	7
8	KY97C-0321-02-01	84.8	3	89.7	4	57.5	33	48.4	26	89.5	9	79.4	8
9	KY97C-0519-04-07	76.9	14	76.3	32	50.0	41	30.2	41	92.6	7	78.5	9
10	KY97C-0508-01-01A-1	80.3	8	83.6	14	66.2	11	46.0	29	77.6	31	78.4	10
11	IL04-8445	84.3	4	76.6	31	68.0	7	43.9	34	95.5	4	77.9	11
12	IL04-11003	79.4	9	88.5	5	61.8	20	45.5	31	90.9	8	77.8	12
13	OH04-264-58	68.6	37	78.4	28	60.4	22	32.3	40	79.7	25	76.8	13
14	OH04-268-39	51.4	42	85.4	10	50.3	40	19.3	42	87.3	13	76.5	14
15	OH05-248-38	75.0	19	83.9	13	61.8	20	39.7	37	75.2	37	76.5	15
16	MD00W53-07-1	70.5	29	79.4	24	55.8	35	47.8	28	72.9	41	75.2	16
17	MD01W233-07-1	70.5	30	73.2	38	59.3	27	48.9	24	77.8	30	74.9	17
18	G89209	69.7	33	73.5	37	65.2	12	45.3	32	68.8	42	74.9	18
19	G89201	67.2	40	83.3	15	69.3	4	49.3	22	76.8	33	74.7	19
20	G89222	77.3	11	79.0	26	69.2	5	42.7	35	92.9	6	74.5	20
21	M05-1172	75.1	18	91.6	2	58.3	31	41.8	36	89.0	10	74.3	21
22	M05-1526	77.4	10	79.1	25	63.2	19	55.2	11	86.3	16	74.3	22
23	M05*1589	71.0	28	92.2	1	54.0	38	33.0	39	86.3	15	73.1	23
24	B040798	76.8	15	84.0	12	54.0	38	57.0	7	80.5	22	72.8	24
25	M05-1531	76.7	16	78.1	29	65.2	12	55.7	10	88.6	12	72.4	25
26	P99751RA1-6-3-94	69.3	34	67.0	42	55.7	36	36.8	38	83.0	18	72.3	26
27	P02444A1-23-1	77.0	13	83.3	15	63.4	18	56.0	9	80.4	24	71.9	27
28	P05219A1-13-16	74.0	23	76.3	32	82.3	1	56.9	8	79.6	26	69.9	28
29	W06-089	70.4	31	81.2	21	58.6	29	59.1	5	87.1	14	69.1	31
30	W06-522A	71.7	27	73.8	36	47.8	42	50.6	20	80.4	23	69.8	29
31	Z03-1281	75.3	17	90.8	3	66.4	10	51.8	18	97.9	2	69.0	32
32	Z03-0496	68.2	39	72.0	40	60.4	22	53.5	15	82.3	19	69.3	30
33	GA031238-DH7-7A28	72.9	25	72.7	39	55.1	37	63.2	2	75.0	38	68.2	33
34	Blazer exp.	74.8	20	78.7	27	64.3	16	50.7	19	88.9	11	66.7	34
35	Probe exp.	72.8	26	82.8	18	58.2	32	48.0	27	93.3	5	66.2	35
36	Rumor exp.	86.9	1	82.9	17	60.2	24	49.0	23	78.4	28	65.7	36
37	VA05W-151	85.9	2	85.7	9	67.8	8	70.5	1	82.2	20	63.5	37
38	VA05W-168	68.2	38	85.3	11	58.4	30	62.8	3	78.0	29	60.0	38
39	VA05W-258	80.3	7	80.8	22	63.5	17	54.9	12	95.7	3	59.5	39
40	AR98022-19-3	74.7	21	77.3	30	59.1	28	54.0	14	78.7	27	56.5	40
41	AR98023-5-1	68.9	35	87.1	8	59.8	25	45.6	30	82.1	21	55.2	41
42	NC05-21090	70.3	32	79.9	23	67.1	9	61.6	4	77.0	32	51.7	42
LOCATION MEANS		74.2		80.8		61.8		49.2		83.0		72.8	
LSD (.05)		13		14.2		7.4				14.9		13.4	
CV %		8.6		7.6		7.3				10.7		8.8	
REPS		2		2		3		1		3		2	
Harvest Plot area (sq.ft.)		42		60		52.5		63.4		41		55	

YIELD (bu/acre)

		Lincoln NE		Mead NE		Napoleon OH	ab	Wooster OH	a	Wooster OH	a	Nairn ON	ab
		Baenziger	rank	Baenziger	rank	Fogleman	rank	Sneller	rank	Fioritto	rank	Etienne	rank
1	Roane	88.0	25	58.4	19	113.2	23	77.1	25	80.7	21	69.6	17
2	INW0411	78.3	33	42.6	37	103.8	37	79.6	18	66.7	40	59.2	41
3	Branson	88.4	24	49.0	31	122.5	5	92.5	4	77.0	30	69.4	18
4	Bess	92.3	19	46.2	34	108.0	33	62.4	39	80.4	24	67.5	26
5	LA01*425	101.9	7	47.3	33	116.8	14	88.7	8	94.2	4	80.7	1
6	IL02-19463	98.2	12	47.3	32	108.9	30	69.8	33	80.6	22	57.9	42
7	B030543	83.5	29	45.0	35	109.6	27	77.3	23	84.5	14	66.6	27
8	KY97C-0321-02-01	104.1	4	29.0	42	109.0	29	95.7	3	88.5	9	75.8	4
9	KY97C-0519-04-07	95.2	13	41.0	38	118.7	8	97.8	1	97.2	2	77.1	3
10	KY97C-0508-01-01A-1	88.7	23	34.7	40	117.2	10	97.0	2	89.5	8	66.5	29
11	IL04-8445	93.7	14	74.3	7	124.0	4	86.2	9	83.7	16	67.6	25
12	IL04-11003	103.0	6	56.7	21	110.6	25	81.6	13	83.2	17	71.1	12
13	OH04-264-58	77.7	34	35.0	39	117.0	12	76.0	27	87.1	13	71.2	11
14	OH04-268-39	53.7	42	51.7	26	111.4	24	79.8	17	87.7	11	70.3	15
15	OH05-248-38	93.5	15	50.5	30	113.3	22	91.9	5	91.0	6	64.5	33
16	MD00W53-07-1	89.8	21	66.1	14	95.9	41	58.8	40	81.9	20	66.3	30
17	MD01W233-07-1	80.1	32	51.7	26	100.1	40	65.6	36	63.0	42	64.1	34
18	G89209	92.5	18	69.9	12	116.6	15	66.5	35	78.4	28	66.6	27
19	G89201	100.6	8	76.1	4	115.2	17	65.0	37	80.0	25	68.8	21
20	G89222	92.7	17	71.7	8	117.0	13	82.9	10	87.3	12	69.1	19
21	M05-1172	90.0	20	74.8	6	117.2	11	69.0	34	87.8	10	69.1	19
22	M05-1526	111.8	2	77.7	3	114.0	20	70.3	32	75.0	32	71.5	9
23	M05*1589	110.7	3	69.9	12	114.6	19	77.5	21	80.6	22	73.6	7
24	B040798	113.7	1	50.9	29	115.2	18	80.8	16	79.2	26	80.1	2
25	M05-1531	104.1	5	64.3	16	120.4	6	71.1	31	90.1	7	72.1	8
26	P99751RA1-6-3-94	80.2	31	51.9	25	110.3	26	73.5	28	82.7	18	62.4	36
27	P02444A1-23-1	55.5	41	57.2	20	118.4	9	76.8	26	78.8	27	65.3	32
28	P05219A1-13-16	82.6	30	55.3	23	101.5	39	77.2	24	66.7	39	62.2	39
29	W06-089	99.7	9	70.5	9	115.9	16	82.3	11	73.5	36	74.3	5
30	W06-522A	59.7	40	70.1	11	105.1	35	73.2	29	74.0	34	70.3	15
31	Z03-1281	89.4	22	75.3	5	126.5	1	78.2	19	98.7	1	67.9	23
32	Z03-0496	75.6	36	65.2	15	124.7	3	50.1	41	82.5	19	62.4	36
33	GA031238-DH7-7A28	86.1	26	58.8	18	93.2	42	77.5	21	65.8	41	61.6	40
34	Blazer exp.	92.8	16	61.0	17	109.6	28	82.0	12	78.1	29	63.0	35
35	Probe exp.	98.6	11	85.3	1	106.2	34	81.0	15	91.7	5	70.9	13
36	Rumor exp.	83.7	28	70.3	10	118.9	7	90.7	6	74.8	33	70.6	14
37	VA05W-151	99.6	10	82.7	2	124.9	2	89.7	7	95.4	3	74.0	6
38	VA05W-168	61.2	39	53.4	24	108.8	32	72.2	30	72.9	37	67.9	23
39	VA05W-258	85.8	27	51.0	28	113.4	21	81.1	14	84.1	15	68.5	22
40	AR98022-19-3	77.0	35	55.5	22	103.3	38	27.8	42	70.3	38	71.3	10
41	AR98023-5-1	65.0	38	44.4	36	108.8	31	78.1	20	76.4	31	65.6	31
42	NC05-21090	71.3	37	34.2	41	104.5	36	64.8	38	73.7	35	62.3	38
LOCATION MEANS		87.8		57.7		112.5		76.6		81.3		68.5	
LSD (.05)						11.7		15.9		14.09		4.3	
CV %						5.2		12.7		12.54		3.8	
REPS		1		1		2		3		3		3	
Harvest Plot area (sq.ft.)		32		32		58		50		45		44.55	

YIELD (bu/acre)

		Knoxville TN West	a rank	Blacksburg VA Griffey	ab rank	Warsaw VA Griffey	ab rank	Oconto WI Cisar	a rank
1	Roane	60.7	40	84.5	12	61.1	38	90.2	31
2	INW0411	79.1	19	68.2	39	58.1	41	90.6	30
3	Branson	104.1	1	94.5	1	83.9	7	104.9	8
4	Bess	84.6	12	85.0	9	66.8	30	88.2	37
5	LA01*425	86.5	11	84.1	14	81.1	8	97.8	17
6	IL02-19463	100.2	3	80.2	23	71.6	20	88.3	36
7	B030543	69.6	32	86.0	8	76.2	13	103.0	12
8	KY97C-0321-02-01	69.1	33	92.5	3	91.1	1	105.6	7
9	KY97C-0519-04-07	94.0	6	91.6	4	76.4	11	98.2	16
10	KY97C-0508-01-01A-1	88.4	8	93.7	2	86.6	5	104.2	10
11	IL04-8445	98.1	4	91.0	5	87.3	4	108.2	1
12	IL04-11003	83.9	14	83.8	15	63.2	34	93.8	23
13	OH04-264-58	57.3	41	69.8	35	62.0	37	94.7	20
14	OH04-268-39	61.2	38	81.9	18	76.2	14	101.9	13
15	OH05-248-38	96.4	5	81.9	18	70.0	23	85.3	41
16	MD00W53-07-1	80.8	18	73.6	31	74.1	17	94.2	22
17	MD01W233-07-1	71.7	27	75.5	29	76.3	12	105.9	5
18	G89209	70.5	29	68.7	38	70.3	22	91.4	29
19	G89201	64.8	36	83.3	17	68.5	27	89.4	35
20	G89222	70.4	31	72.5	32	74.9	16	99.6	14
21	M05-1172	70.5	29	84.9	10	73.8	18	93.7	24
22	M05-1526	81.1	16	86.8	7	67.1	29	91.7	28
23	M05*1589	67.6	35	66.8	40	62.7	35	89.8	32
24	B040798	72.0	26	76.5	27	79.2	9	89.5	34
25	M05-1531	74.2	23	77.3	24	71.5	21	94.4	21
26	P99751RA1-6-3-94	78.8	20	81.8	21			83.3	42
27	P02444A1-23-1	74.7	22	77.2	25	62.6	36	95.2	19
28	P05219A1-13-16	75.7	21	74.5	30	64.8	33	91.9	27
29	W06-089	71.6	28	84.6	11	75.3	15	106.5	4
30	W06-522A	73.0	24	69.5	37	58.7	39	87.6	38
31	Z03-1281	86.9	9	76.9	26	65.9	32	97.7	18
32	Z03-0496	84.4	13	81.8	20	68.2	28	105.8	6
33	GA031238-DH7-7A28	60.9	39	57.1	42	69.9	25	93.0	26
34	Blazer exp.	81.0	17	65.5	41	58.3	40	86.5	39
35	Probe exp.	72.5	25	75.5	28	69.2	26	89.8	32
36	Rumor exp.	83.9	14	80.4	22	72.7	19	93.6	25
37	VA05W-151	102.1	2	84.5	13	90.9	2	107.8	2
38	VA05W-168	89.3	7	83.4	16	85.0	6	103.8	11
39	VA05W-258	86.8	10	88.2	6	88.4	3	104.6	9
40	AR98022-19-3	63.6	37	72.0	33	70.0	24	86.2	40
41	AR98023-5-1	69.1	33	69.6	36	66.2	31	106.9	3
42	NC05-21090	54.8	42	71.7	34	78.8	10	99.6	15
LOCATION MEANS		77.8		79.2		72.5		96.1	
LSD (.05)		14.5		10.3		7.7		14.1	
CV %		11.5		7.8		6.3		10.5	
REPS		3		2		2 *		3	
Harvest Plot area (sq.ft.)		43.75		45		45		50	

YIELD (bu/acre)

		ENTRY MEANS ALL LOCATIONS	rank	ENTRY MEANS IN-REGION [a]	rank	ENTRY MEANS CV <10% [b]	rank
1	Roane	73.0	26	75.8	27	80.3	16
2	INW0411	69.1	33	73.0	36	72.8	38
3	Branson	79.3	3	85.0	3	86.3	2
4	Bess	74.6	17	78.6	19	80.1	19
5	LA01*425	77.3	6	81.6	6	83.7	4
6	IL02-19463	74.1	22	77.2	20	75.7	30
7	B030543	74.9	15	79.9	11	81.4	10
8	KY97C-0321-02-01	76.1	10	81.1	7	82.4	6
9	KY97C-0519-04-07	74.2	21	79.8	12	79.6	21
10	KY97C-0508-01-01A-1	76.9	8	82.1	4	82.1	7
11	IL04-8445	81.5	2	86.0	1	87.3	1
12	IL04-11003	73.1	24	76.5	26	80.4	15
13	OH04-264-58	68.0	38	73.5	34	75.3	31
14	OH04-268-39	67.6	40	74.7	31	76.1	29
15	OH05-248-38	75.3	11	79.9	10	80.0	20
16	MD00W53-07-1	71.5	30	74.3	33	74.5	32
17	MD01W233-07-1	67.8	39	70.9	40	72.2	40
18	G89209	73.8	23	76.9	23	79.6	22
19	G89201	74.4	20	77.0	22	80.9	13
20	G89222	75.2	12	78.8	18	81.7	9
21	M05-1172	74.9	14	79.0	16	80.9	12
22	M05-1526	77.8	5	80.3	8	82.4	5
23	M05*1589	72.9	27	75.7	29	78.1	24
24	B040798	74.4	19	76.8	24	78.3	23
25	M05-1531	76.8	9	79.4	13	80.4	14
26	P99751RA1-6-3-94	68.5	37	73.1	35	74.1	34
27	P02444A1-23-1	70.7	31	75.7	28	76.1	28
28	P05219A1-13-16	72.8	28	77.1	21	77.3	26
29	W06-089	77.2	7	80.3	9	81.2	11
30	W06-522A	68.7	35	71.3	39	71.4	41
31	Z03-1281	78.1	4	81.7	5	81.8	8
32	Z03-0496	74.7	16	78.9	17	77.4	25
33	GA031238-DH7-7A28	67.0	41	68.1	42	68.7	42
34	Blazer exp.	70.6	32	74.3	32	73.9	35
35	Probe exp.	72.1	29	75.4	30	74.1	33
36	Rumor exp.	73.0	25	76.6	25	77.0	27
37	VA05W-151	83.1	1	85.9	2	85.2	3
38	VA05W-168	74.4	18	79.4	14	80.1	18
39	VA05W-258	75.2	13	79.3	15	80.3	17
40	AR98022-19-3	66.4	42	69.5	41	73.2	36
41	AR98023-5-1	68.9	34	72.9	37	72.6	39
42	NC05-21090	68.5	36	71.6	38	73.2	37
LOCATION MEANS		73.4		77.3		78.3	
LSD (.05)							
CV %							
REPS							
Harvest Plot area (sq.ft.)							

TEST WEIGHT (lbs/bu)

		Bay AR Hancock	Stuttgart AR Bacon	Griffin GA Johnson	Brownstown IL Kolb	Urbana IL Kolb
1	Roane	52.5	50.0	54.1	52.2	59.6
2	INW0411	52.2	44.7	49.0	51.0	54.4
3	Branson	51.4	46.3	45.3	50.6	57.4
4	Bess	54.5	51.3	53.7	53.3	58.6
5	LA01*425	50.7	49.3	51.6	53.2	57.7
6	IL02-19463	53.3	48.0	54.1	54.6	59.0
7	B030543	54.7	48.1	54.3	56.0	56.9
8	KY97C-0321-02-01	50.9	44.5	47.8	45.6	56.0
9	KY97C-0519-04-07	51.8	42.2	48.5	49.0	54.9
10	KY97C-0508-01-01A-1	52.4	48.2	53.1	52.9	57.5
11	IL04-8445	55.7	46.2	53.7	54.2	57.9
12	IL04-11003	55.2	46.4	49.3	53.1	57.5
13	OH04-264-58	52.3	47.5	48.1	50.3	55.1
14	OH04-268-39	52.5	48.0	44.0	53.9	53.5
15	OH05-248-38	52.9	50.0	47.0	48.9	56.1
16	MD00W53-07-1	54.2	47.7	51.7	52.2	59.0
17	MD01W233-07-1	54.5	49.7	55.8	53.6	59.6
18	G89209	52.1	49.2	50.0	50.8	58.3
19	G89201	51.2	46.7	47.5	54.0	57.7
20	G89222	49.6	44.2	47.4	52.4	55.8
21	M05-1172	52.7	45.9	51.2	44.7	54.8
22	M05-1526	49.9	48.0	50.8	48.5	56.9
23	M05*1589	53.8	48.3	51.2	55.2	57.3
24	B040798	53.5	45.2	52.6	50.1	56.5
25	M05-1531	49.7	49.3	51.5	46.1	55.2
26	P99751RA1-6-3-94	55.3	50.9	49.6	53.8	55.1
27	P02444A1-23-1	52.1	47.8	50.5	43.6	51.2
28	P05219A1-13-16	53.3	50.8	51.3	51.4	56.5
29	W06-089	55.1	47.8	50.5	53.5	57.6
30	W06-522A	54.3	45.0	54.2	47.4	54.1
31	Z03-1281	50.4	48.2	49.0	49.0	56.7
32	Z03-0496	55.5	52.1	52.3	51.9	57.1
33	GA031238-DH7-7A28	55.2	47.6	56.0	50.0	58.5
34	Blazer exp.	53.8	48.8	48.8	50.0	54.1
35	Probe exp.	55.7	49.4	46.2	53.7	58.2
36	Rumor exp.	52.7	45.1	49.9	50.8	56.4
37	VA05W-151	55.7	47.4	55.5	54.1	61.4
38	VA05W-168	57.3	50.3	55.8	56.3	61.5
39	VA05W-258	49.5	44.6	50.3	50.4	56.5
40	AR98022-19-3	55.6	52.5	53.6	53.5	55.2
41	AR98023-5-1	54.5	48.2	52.0	48.7	55.8
42	NC05-21090	54.1	48.8	54.2	49.0	58.3
LOCATION MEANS		53.2	47.9	51.0	51.3	56.8

TEST WEIGHT (lbs/bu)

		Tipton IN Brown	Lafayette IN Moreno	Owensville IN Fogleman	Wabash IN Moreno	W Lafayette IN Ohm
1	Roane	61.0	64.3	55.8	61.2	62.4
2	INW0411	56.8	60.9	48.2	57.8	58.4
3	Branson	57.4	62.2	50.8	58.2	60.4
4	Bess	59.0	63.0	46.1	59.4	60.1
5	LA01*425	58.4	63.3	54.7	60.3	61.2
6	IL02-19463	59.5	64.6	53.8	61.0	63.0
7	B030543	60.8	63.9	44.5	59.3	61.5
8	KY97C-0321-02-01	58.1	62.4	50.6	56.2	57.6
9	KY97C-0519-04-07	58.8	58.9	53.3	55.2	55.5
10	KY97C-0508-01-01A-1	59.5	63.8	52.1	60.3	60.5
11	IL04-8445	57.8	63.5	51.5	59.7	62.5
12	IL04-11003	57.8	64.1	54.2	59.9	60.7
13	OH04-264-58	58.4	61.8	45.2	57.9	57.5
14	OH04-268-39	57.6	62.1	55.1	57.6	55.1
15	OH05-248-38	57.3	60.2	52.6	58.8	59.9
16	MD00W53-07-1	60.2	60.9	49.7	61.9	61.1
17	MD01W233-07-1	60.5	63.0	45.6	60.2	59.8
18	G89209	58.9	64.0	54.5	60.5	62.0
19	G89201	58.6	63.1	52.6	59.1	60.7
20	G89222	56.2	63.2	50.1	58.9	59.8
21	M05-1172	58.1	61.3	52.7	57.7	57.2
22	M05-1526	58.6	63.5	52.1	59.9	58.5
23	M05*1589	59.7	62.9	47.8	59.9	61.5
24	B040798	57.9	62.2	53.4	58.5	58.8
25	M05-1531	58.4	62.7	51.0	59.8	57.8
26	P99751RA1-6-3-94	58.2	63.5	55.2	58.8	60.8
27	P02444A1-23-1	57.8	60.9	51.5	57.4	59.9
28	P05219A1-13-16	57.6	62.1	53.2	58.6	60.3
29	W06-089	59.8	61.5	54.9	59.4	61.5
30	W06-522A	57.6	60.6	49.1	55.0	59.0
31	Z03-1281	57.3	61.6	52.1	58.5	59.0
32	Z03-0496	59.0	64.2	47.5	60.2	59.8
33	GA031238-DH7-7A28	61.6	65.6	51.9	60.0	60.4
34	Blazer exp.	59.0	62.9	51.9	58.1	59.5
35	Probe exp.	60.3	64.4	48.9	58.8	60.8
36	Rumor exp.	57.1	61.6	51.9	58.7	59.6
37	VA05W-151	61.9	64.9	53.4	61.4	62.5
38	VA05W-168	62.2	65.0	47.0	62.5	63.9
39	VA05W-258	58.4	62.2	50.6	57.7	59.1
40	AR98022-19-3	59.5	63.4	47.5	59.3	60.3
41	AR98023-5-1	59.5	59.6	50.1	58.0	56.4
42	NC05-21090	62.1	63.5	54.6	60.3	60.9
LOCATION MEANS		58.9	62.7	51.2	59.1	59.9

TEST WEIGHT (lbs/bu)

		Independence KS Perry	Lexington KY Van Sanford	Clarksville MD Costa	Ingham Co. MI Lewis	Columbia MO McKendry
1	Roane	59.6	58.3	59.9	56.6	57.5
2	INW0411	56.2	54.9	55.5	54.7	53.8
3	Branson	56.3	55.2	56.4	54.3	55.1
4	Bess	57.9	56.9	57.4	57.4	57.5
5	LA01*425	56.6	56.3	56.6	55.6	56.8
6	IL02-19463	52.1	56.7	57.5	56.2	57.7
7	B030543	57.6	58.8	57.9	56.4	58.0
8	KY97C-0321-02-01	54.3	50.1	55.6	53.9	54.9
9	KY97C-0519-04-07	54.1	54.4	55.6	53.0	54.6
10	KY97C-0508-01-01A-1	55.8	56.3	57.5	56.0	57.3
11	IL04-8445	56.9	56.8	59.4	56.3	58.0
12	IL04-11003	56.7	57.2	59.2	57.1	57.8
13	OH04-264-58	53.4	52.2	55.1	52.9	53.6
14	OH04-268-39	55.9	55.0	55.4	54.8	54.3
15	OH05-248-38	56.2	53.9	56.7	54.3	54.3
16	MD00W53-07-1	56.6	57.3	57.7	55.4	56.8
17	MD01W233-07-1	58.6	57.6	58.3	55.6	56.1
18	G89209	57.1	57.1	55.2	52.9	56.8
19	G89201	57.8	55.4	56.8	53.4	56.6
20	G89222	55.7	52.8	54.8	53.4	54.9
21	M05-1172	54.8	55.4	56.3	54.3	54.1
22	M05-1526	54.4	56.0	57.0	54.6	55.8
23	M05*1589	59.2	56.1	58.9	55.2	57.1
24	B040798	55.8	54.0	54.4	55.1	55.2
25	M05-1531	56.0	55.8	56.5	54.4	55.8
26	P99751RA1-6-3-94	57.1	56.7	58.1	55.5	56.8
27	P02444A1-23-1	53.2	53.0	55.7	53.6	55.1
28	P05219A1-13-16	56.0	55.7	56.3	54.9	56.4
29	W06-089	59.4	57.9	56.7	58.3	57.3
30	W06-522A	56.0	54.8	53.2	55.2	54.0
31	Z03-1281	54.6	54.3	53.7	53.5	55.6
32	Z03-0496	56.7	55.9	57.0	55.5	57.0
33	GA031238-DH7-7A28	59.0	54.0	59.7	55.5	56.7
34	Blazer exp.	57.1	55.1	56.5	54.1	55.9
35	Probe exp.	58.4	55.7	57.5	55.3	55.2
36	Rumor exp.	56.1	54.5	57.2	55.3	55.9
37	VA05W-151	58.2	56.9	59.7	57.1	57.5
38	VA05W-168	60.0	58.3	60.1	57.6	58.8
39	VA05W-258	56.1	52.8	57.0	56.7	54.8
40	AR98022-19-3	55.0	57.0	57.1	56.6	57.0
41	AR98023-5-1	56.6	54.1	56.0	55.2	55.6
42	NC05-21090	59.2	56.9	58.1	55.7	58.1
LOCATION MEANS		56.5	55.5	56.9	55.2	56.1

TEST WEIGHT (lbs/bu)

		Cleveland MS Hancock	Ithaca NY Sorrells	Plymouth NC Murphy	Napoleon OH Fogleman	Wooster OH Sneller
1	Roane	55.3	61.6	58.3	61.3	62.2
2	INW0411	51.4	58.6	58.2	60.4	59.9
3	Branson	52.0	58.0	56.6	61.1	60.8
4	Bess	52.0	59.8	57.5	61.8	61.8
5	LA01*425	48.4	59.8	57.8	59.2	61.8
6	IL02-19463	54.1	60.1	59.4	63.6	62.2
7	B030543	55.0	61.6	56.6	62.6	62.6
8	KY97C-0321-02-01	50.5	58.9	58.8	57.3	60.5
9	KY97C-0519-04-07	42.3	58.7	57.5	57.3	59.7
10	KY97C-0508-01-01A-1	48.4	60.0	58.9	60.4	61.8
11	IL04-8445	48.1	61.5	59.8	63.9	63.2
12	IL04-11003	51.4	60.1	59.8	61.0	62.4
13	OH04-264-58	45.6	57.1	58.0	59.5	59.0
14	OH04-268-39	32.0	59.7	58.3	55.6	58.7
15	OH05-248-38	49.0	59.8	58.2	59.6	61.0
16	MD00W53-07-1	54.7	62.0	57.8	60.1	61.9
17	MD01W233-07-1	51.1	62.6	58.0	63.0	62.9
18	G89209	50.2	59.9	58.0	54.3	60.6
19	G89201	50.8	60.0	60.3	57.7	59.6
20	G89222	48.4	59.0	60.0	59.2	60.9
21	M05-1172	51.1	58.5	57.8	53.5	60.9
22	M05-1526	51.4	60.5	56.9	61.2	61.1
23	M05*1589	46.8	59.3	56.9	62.2	61.6
24	B040798	52.0	58.3	59.1	59.1	59.5
25	M05-1531	52.3	60.5	55.8	61.8	60.8
26	P99751RA1-6-3-94	52.0	61.1	58.4	62.2	61.0
27	P02444A1-23-1	51.4	57.8	58.0	60.7	60.3
28	P05219A1-13-16	51.7	58.4	58.7	58.8	60.0
29	W06-089	53.5	60.1	57.5	60.4	62.9
30	W06-522A	52.9	60.2	57.9	59.9	60.0
31	Z03-1281	51.7	59.2	59.6	58.9	60.9
32	Z03-0496	51.7	60.9	58.9	62.6	61.6
33	GA031238-DH7-7A28	54.7	62.6	57.5	61.0	62.9
34	Blazer exp.	52.6	60.0	57.9	51.3	61.4
35	Probe exp.	51.4	59.8	59.0	61.2	61.7
36	Rumor exp.	51.7	59.7	59.3	53.6	60.8
37	VA05W-151	57.1	63.1	59.1	60.8	64.1
38	VA05W-168	56.5	61.9	56.9	64.2	63.5
39	VA05W-258	53.2	59.9	57.2	58.9	59.7
40	AR98022-19-3	53.2	59.6	59.2	61.0	59.9
41	AR98023-5-1	51.1	58.2	57.8	59.0	59.5
42	NC05-21090	55.0	60.9	58.0	58.9	62.3
LOCATION MEANS		51.1	60.0	58.2	59.8	61.2

TEST WEIGHT (lbs/bu)

		Wooster OH Fioritto	Nairn ON Etienne	Knoxville TN West	Blacksburg VA Griffey	Warsaw VA Griffey
1	Roane	63.3	63.1	55.5	59.3	59.0
2	INW0411	59.3	60.5	52.0	57.1	55.0
3	Branson	60.0	60.7	52.4	57.9	56.8
4	Bess	61.0	61.8	54.2	59.1	57.3
5	LA01*425	61.7	61.9	52.8	58.3	56.4
6	IL02-19463	60.0	61.0	54.3	58.6	58.1
7	B030543	62.3	62.4	55.2	60.4	59.3
8	KY97C-0321-02-01	60.3	59.1	50.5	57.5	54.5
9	KY97C-0519-04-07	59.0	59.6	53.2	56.6	52.9
10	KY97C-0508-01-01A-1	62.3	61.6	54.8	59.2	57.4
11	IL04-8445	62.3	62.4	56.4	59.8	59.1
12	IL04-11003	62.3	61.9	54.5	59.7	58.3
13	OH04-264-58	61.0	60.4	48.7	54.0	54.3
14	OH04-268-39	60.3	61.2	53.9	58.1	54.6
15	OH05-248-38	61.0	60.5	55.6	56.7	54.7
16	MD00W53-07-1	62.3	61.5	55.9	59.6	58.6
17	MD01W233-07-1	63.7	63.5	53.6	59.4	58.0
18	G89209	60.7	61.6	49.9	54.0	55.7
19	G89201	60.3	61.2	48.2	56.3	54.6
20	G89222	61.0	60.1	51.4	55.7	55.1
21	M05-1172	59.0	60.7	54.0	56.3	54.8
22	M05-1526	60.0	61.2	52.6	58.2	56.6
23	M05*1589	60.7	62.3	54.1	58.1	56.7
24	B040798	61.0	61.3	53.5	56.2	55.3
25	M05-1531	61.3	61.8	52.9	58.0	57.0
26	P99751RA1-6-3-94	62.0	61.5	54.2	60.1	
27	P02444A1-23-1	59.0	59.1	51.1	56.1	54.7
28	P05219A1-13-16	59.7	61.1	53.5	56.6	55.2
29	W06-089	62.0	62.9	53.3	58.4	57.3
30	W06-522A	60.7	61.2	52.5	54.6	56.4
31	Z03-1281	60.3	59.9	52.7	55.8	54.5
32	Z03-0496	59.7	61.5	55.6	58.8	56.8
33	GA031238-DH7-7A28	63.7	62.8	57.3	57.0	58.7
34	Blazer exp.	61.3	60.6	54.4	57.2	56.8
35	Probe exp.	60.0	61.5	54.0	58.6	54.9
36	Rumor exp.	59.0	60.9	55.3	57.7	57.8
37	VA05W-151	64.3	63.8	57.7	61.8	58.9
38	VA05W-168	62.7	63.4	57.5	61.7	59.8
39	VA05W-258	61.0	60.3	53.0	56.3	57.1
40	AR98022-19-3	60.3	62.1	54.3	57.9	56.9
41	AR98023-5-1	61.7	60.3	51.0	55.7	55.0
42	NC05-21090	62.7	62.8	53.7	59.1	57.8
LOCATION MEANS		61.1	61.4	53.6	57.8	56.5

TEST WEIGHT (lbs/bu)

		Oconto WI	ENTRY MEANS ALL LOCATIONS	
		Cisar		rank
1	Roane	59.3	58.6	3
2	INW0411	57.7	55.3	35
3	Branson	57.0	55.8	31
4	Bess	58.4	57.3	14
5	LA01*425	59.3	56.9	19
6	IL02-19463	57.7	57.7	9
7	B030543	59.3	57.9	6
8	KY97C-0321-02-01	57.3	54.8	40
9	KY97C-0519-04-07	56.8	54.4	42
10	KY97C-0508-01-01A-1	59.0	57.2	16
11	IL04-8445	59.5	57.9	5
12	IL04-11003	58.5	57.5	11
13	OH04-264-58	57.4	54.5	41
14	OH04-268-39	58.2	54.8	39
15	OH05-248-38	58.6	55.9	29
16	MD00W53-07-1	57.8	57.5	12
17	MD01W233-07-1	60.0	57.8	7
18	G89209	58.2	56.2	22
19	G89201	57.4	56.1	25
20	G89222	57.3	55.3	36
21	M05-1172	57.2	55.2	37
22	M05-1526	56.6	56.2	23
23	M05*1589	57.8	56.9	18
24	B040798	57.7	56.0	28
25	M05-1531	57.0	56.1	24
26	P99751RA1-6-3-94	58.2	57.4	13
27	P02444A1-23-1	56.4	54.9	38
28	P05219A1-13-16	57.8	56.4	21
29	W06-089	59.9	57.7	10
30	W06-522A	58.0	55.5	34
31	Z03-1281	57.5	55.6	33
32	Z03-0496	58.2	57.2	15
33	GA031238-DH7-7A28	57.9	58.0	4
34	Blazer exp.	58.3	56.0	26
35	Probe exp.	58.4	56.9	20
36	Rumor exp.	58.8	56.0	27
37	VA05W-151	59.7	59.2	2
38	VA05W-168	59.9	59.4	1
39	VA05W-258	57.4	55.8	30
40	AR98022-19-3	58.6	57.2	17
41	AR98023-5-1	58.1	55.7	32
42	NC05-21090	58.4	57.8	8
LOCATION MEANS		58.2	56.6	

HEADING DATE (Julian Days)

		Bay AR Hancock	Stuttgart AR Bacon	Griffin GA Johnson	Urbana IL Kolb	Owensville IN Fogleman
1	Roane	114.0	106		139	ML
2	INW0411	110.0	106	112	133	
3	Branson	109.0	106		133	
4	Bess	111.5	106	105	136	L
5	LA01*425	113.5	104		134	
6	IL02-19463	106.0	100	107	131	
7	B030543	113.5	104	115	138	
8	KY97C-0321-02-01	115.5	110		136	
9	KY97C-0519-04-07	116.0	104		138	ML
10	KY97C-0508-01-01A-1	110.0	104	112	134	
11	IL04-8445	110.5	110	111	134	
12	IL04-11003	115.5	110	113	136	ML
13	OH04-264-58	115.0	104		140	
14	OH04-268-39	124.0	110		142	VL
15	OH05-248-38	112.0	104	116	136	
16	MD00W53-07-1	109.5	104	111	134	
17	MD01W233-07-1	114.5	104	105	139	VL
18	G89209	110.5	110	112	135	
19	G89201	113.5	110		136	
20	G89222	114.5	110	116	138	ML
21	M05-1172	113.5	104	116	136	ML
22	M05-1526	110.5	104	113	134	
23	M05*1589	115.0	106	114	137	
24	B040798	111.0	106	114	135	
25	M05-1531	110.5	106	112	134	
26	P99751RA1-6-3-94	115.5	106	116	137	
27	P02444A1-23-1	110.0	106	114	136	
28	P05219A1-13-16	111.0	106	108	134	
29	W06-089	116.0	112		135	ML
30	W06-522A	109.5	104	103	139	L
31	Z03-1281	108.5	104	114	134	
32	Z03-0496	110.0	104	112	132	
33	GA031238-DH7-7A28	109.5	104	104	137	L
34	Blazer exp.	115.0	104		136	
35	Probe exp.	115.0	106		138	
36	Rumor exp.	112.5	104	113	135	
37	VA05W-151	109.5	100	101	135	
38	VA05W-168	109.0	104	108	134	L
39	VA05W-258	111.0	106	103	137	
40	AR98022-19-3	115.0	110	114	139	ML
41	AR98023-5-1	115.0	110	110	140	L
42	NC05-21090	109.5	110	112	135	
LOCATION MEANS		112.4	106.0	110.8	136.0	

HEADING DATE (Julian Days)

		Tipton IN Brown	Lafayette IN Moreno	Lexington KY Van Sanford	Clarksville MD Costa	Ingham Co. MI Lewis
1	Roane	142.0	140	130.5	135.0	157.2
2	INW0411	139.5	132	126.5	132.0	153.9
3	Branson	138.0	132	126.0	132.0	154.3
4	Bess	140.0	136	128.0	134.0	155.7
5	LA01*425	140.0	136	126.5	134.0	156.3
6	IL02-19463	137.0	131	150.0	130.5	153.8
7	B030543	142.5	140	129.5	136.0	157.9
8	KY97C-0321-02-01	142.0	136	130.5	134.0	158.0
9	KY97C-0519-04-07	141.0	138	133.0	135.0	158.3
10	KY97C-0508-01-01A-1	140.0	134	127.5	132.5	155.6
11	IL04-8445	138.5	132	126.5	132.5	154.2
12	IL04-11003	140.0	138	131.5	134.0	154.0
13	OH04-264-58	144.0	140	131.0	136.0	158.2
14	OH04-268-39	146.0	142	137.0	137.5	159.2
15	OH05-248-38	141.0	138	128.5	133.5	154.7
16	MD00W53-07-1	141.0	132	128.0	132.0	153.8
17	MD01W233-07-1	144.0	141	134.0	137.0	155.9
18	G89209	141.0	136	127.5	132.5	154.5
19	G89201	142.5	138	128.0	134.0	155.2
20	G89222	144.0	138	131.5	134.0	160.5
21	M05-1172	141.0	134	127.0	133.0	155.4
22	M05-1526	141.0	134	125.5	133.0	154.4
23	M05*1589	145.0	134	128.0	134.0	157.3
24	B040798	145.0	134	125.5	133.0	155.7
25	M05-1531	141.0	132	126.0	132.0	153.2
26	P99751RA1-6-3-94	144.0	138	131.0	136.0	154.8
27	P02444A1-23-1	142.0	134	127.0	133.5	154.2
28	P05219A1-13-16	141.5	132	130.0	133.0	153.4
29	W06-089	141.0	140	132.0	135.5	156.5
30	W06-522A	141.0	140	132.0	136.0	158.0
31	Z03-1281	140.0	132	127.0	132.0	153.7
32	Z03-0496	138.0	131	125.5	132.0	154.0
33	GA031238-DH7-7A28	144.0	140	132.0	136.0	156.5
34	Blazer exp.	141.0	136	131.0	134.0	155.3
35	Probe exp.	144.0	138	130.5	135.5	157.1
36	Rumor exp.	143.0	134	128.0	133.0	155.6
37	VA05W-151	142.0	138	128.5	132.0	153.6
38	VA05W-168	139.5	134	127.5	133.5	154.9
39	VA05W-258	144.0	136	129.5	134.0	156.4
40	AR98022-19-3	142.0	140	131.0	134.5	155.8
41	AR98023-5-1	143.0	141	134.5	137.5	156.0
42	NC05-21090	141.0	138	129.0	134.0	155.7
LOCATION MEANS		141.6	136.2	129.8	133.9	155.7

HEADING DATE (Julian Days)

		Columbia MO McKendry	Cleveland MS Hancock	Ithaca NY Sorrells	Lincoln NE Baenziger	Mead NE Baenziger
1	Roane	133.3	113	148.3	140	145
2	INW0411	130.0	111	146.3	141	145
3	Branson	129.7	111	146.3	140	145
4	Bess	133.0	111	147.3	141	146
5	LA01*425	132.3	111	147.7	141	146
6	IL02-19463	127.3	106	142.3	139	144
7	B030543	134.7	111	149.0	141	145
8	KY97C-0321-02-01	135.7	113	148.7	142	145
9	KY97C-0519-04-07	136.0	113	151.0	142	145
10	KY97C-0508-01-01A-1	132.3	108	147.0	142	145
11	IL04-8445	132.3	111	147.3	140	144
12	IL04-11003	134.3	111	147.0	140	144
13	OH04-264-58	136.7	111	149.3	142	146
14	OH04-268-39	140.3	115	151.0	144	148
15	OH05-248-38	133.0	111	147.3	141	145
16	MD00W53-07-1	130.7	111	144.3	140	145
17	MD01W233-07-1	136.0	113	148.7	142	146
18	G89209	133.7	111	147.3	139	144
19	G89201	133.7	111	147.7	141	144
20	G89222	135.3	113	148.0	140	145
21	M05-1172	133.3	111	147.0	141	145
22	M05-1526	132.3	111	145.7	140	145
23	M05*1589	134.7	113	148.0	141	146
24	B040798	134.3	111	147.0	141	147
25	M05-1531	131.7	111	145.3	140	145
26	P99751RA1-6-3-94	135.7	113	149.0	141	145
27	P02444A1-23-1	133.3	111	147.0	142	144
28	P05219A1-13-16	133.7	111	146.3	140	145
29	W06-089	135.0	113	148.3	141	145
30	W06-522A	135.3	109	147.3	144	148
31	Z03-1281	131.3	111	147.3	141	145
32	Z03-0496	130.7	111	144.3	142	145
33	GA031238-DH7-7A28	136.0	104	149.3	143	148
34	Blazer exp.	134.7	113	148.0	140	146
35	Probe exp.	135.3	113	149.0	142	145
36	Rumor exp.	133.3	111	147.0	141	145
37	VA05W-151	135.3	105	145.7	141	145
38	VA05W-168	132.7	104	146.0	142	146
39	VA05W-258	135.0	109	148.0	141	146
40	AR98022-19-3	135.0	113	147.7	142	147
41	AR98023-5-1	135.7	111	149.0	143	149
42	NC05-21090	132.7	111	147.0	141	149
LOCATION MEANS		133.7	110.9	147.4	141.1	145.5

HEADING DATE (Julian Days)

		Napoleon OH Fogleman	Wooster OH Sneller	Wooster OH Fioritto	Nairn ON Etioenne	Knoxville TN West
1	Roane	144.5	142	143.0	157	121
2	INW0411	142.5	139	140.0	155	120
3	Branson	140.5	139	138.7	155	119
4	Bess	142.0	141	141.0	157	119
5	LA01*425	143.0	141	141.7	155	120
6	IL02-19463	138.0	137	135.0	152	118
7	B030543	146.0	143	144.0	160	121
8	KY97C-0321-02-01	147.0	141	143.0	159	123
9	KY97C-0519-04-07	147.0	142	144.0	159	123
10	KY97C-0508-01-01A-1	144.0	139	140.3	157	120
11	IL04-8445	140.5	140	141.3	156	120
12	IL04-11003	144.0	141	142.7	156	121
13	OH04-264-58	147.0	143	144.3	159	123
14	OH04-268-39	148.5	145	146.7	161	127
15	OH05-248-38	145.0	141	140.7	156	120
16	MD00W53-07-1	142.5	138	140.0	156	118
17	MD01W233-07-1	146.5	143	144.0	159	122
18	G89209	143.0	141	141.0	155	119
19	G89201	144.5	141	141.7	157	120
20	G89222	145.5	142	143.0	157	121
21	M05-1172	143.5	140	140.7	158	121
22	M05-1526	140.5	138	140.3	155	119
23	M05*1589	145.5	141	143.0	157	120
24	B040798	144.5	140	139.7	158	119
25	M05-1531	143.0	138	139.3	155	120
26	P99751RA1-6-3-94	145.5	142	142.3	158	121
27	P02444A1-23-1	144.0	141	141.3	155	119
28	P05219A1-13-16	144.5	140	141.0	156	119
29	W06-089	144.5	143	143.0	157	124
30	W06-522A	146.5	142	141.0	158	118
31	Z03-1281	143.0	138	139.0	156	119
32	Z03-0496	142.5	137	136.0	155	119
33	GA031238-DH7-7A28	148.0	144	143.0	160	119
34	Blazer exp.	146.0	141	143.3	156	121
35	Probe exp.	146.0	142	142.0	159	122
36	Rumor exp.	144.0	141	143.0	155	120
37	VA05W-151	143.0	140	140.7	155	118
38	VA05W-168	140.5	139	141.7	156	119
39	VA05W-258	146.5	142	143.0	157	118
40	AR98022-19-3	145.5	143	144.0	158	119
41	AR98023-5-1	147.5	144	145.0	160	120
42	NC05-21090	144.0	141	142.0	158	119
LOCATION MEANS		144.3	140.9	141.7	156.9	120.2

HEADING DATE (Julian Days)

		Blacksburg VA Griffey	Warsaw VA Griffey	Oconto WI Cisar	ENTRY MEANS ALL LOCATIONS	rank
1	Roane	124.5	119.0	164.3	136.1	34
2	INW0411	123.5	118.5	162.3	132.7	8
3	Branson	124.5	117.5	162.3	133.3	13
4	Bess	125.5	119.0	162.3	133.5	14
5	LA01*425	126.5	118.5	162.3	134.8	25
6	IL02-19463	121.0	116.5	159.0	131.0	1
7	B030543	126.0	119.0	165.0	135.5	29
8	KY97C-0321-02-01	126.0	119.0	164.7	136.6	37
9	KY97C-0519-04-07	127.5	119.5	165.3	137.0	40
10	KY97C-0508-01-01A-1	123.5	118.0	163.0	133.1	11
11	IL04-8445	124.0	118.5	163.0	133.1	10
12	IL04-11003	125.0	118.0	160.7	134.4	23
13	OH04-264-58	125.5	122.0	167.0	137.3	41
14	OH04-268-39	130.5	123.0	165.7	140.2	42
15	OH05-248-38	123.0	119.0	163.0	134.0	20
16	MD00W53-07-1	121.5	116.5	161.3	132.3	3
17	MD01W233-07-1	128.0	119.0	165.7	135.8	33
18	G89209	124.0	118.5	162.7	133.6	15
19	G89201	124.0	119.0	162.7	135.4	28
20	G89222	124.5	119.0	164.0	135.6	30
21	M05-1172	124.5	119.0	162.7	133.9	19
22	M05-1526	124.5	119.0	160.0	132.7	9
23	M05*1589	124.5	119.0	163.3	134.8	27
24	B040798	124.5	118.0	162.7	133.9	18
25	M05-1531	124.5	118.0	160.0	132.6	7
26	P99751RA1-6-3-94	126.0		165.0	136.3	35
27	P02444A1-23-1	124.5	118.0	164.7	133.7	16
28	P05219A1-13-16	123.5	118.5	161.7	133.1	12
29	W06-089	129.0	120.0	163.0	136.8	39
30	W06-522A	124.5	118.0	164.3	134.5	24
31	Z03-1281	121.5	118.5	161.0	132.6	6
32	Z03-0496	122.0	117.0	160.7	131.9	2
33	GA031238-DH7-7A28	125.5	118.0	165.3	134.8	26
34	Blazer exp.	126.5	119.5	163.0	135.7	32
35	Probe exp.	125.5	120.5	164.3	136.7	38
36	Rumor exp.	124.5	118.5	162.3	133.8	17
37	VA05W-151	123.5	117.0	162.0	132.3	4
38	VA05W-168	123.5	116.5	161.0	132.4	5
39	VA05W-258	127.0	118.5	165.7	134.3	21
40	AR98022-19-3	125.0	119.0	164.7	135.6	31
41	AR98023-5-1	126.0	119.1	164.7	136.4	36
42	NC05-21090	124.0	117.5	164.3	134.3	22
LOCATION MEANS		124.8	118.6	163.2	134.5	

HEIGHT (inches)

		Bay AR Hancock	Stuttgart AR Bacon	Griffin GA Johnson	Brownstown IL Kolb	Urbana IL Kolb
1	Roane	38.5	27	34	31	36
2	INW0411	41.5	30	37	31	38
3	Branson	39.0	31	35	32	39
4	Bess	41.5	34	39	36	42
5	LA01*425	40.0	33	37	35	41
6	IL02-19463	40.0	27	38	34	41
7	B030543	40.0	26	33	33	39
8	KY97C-0321-02-01	42.0	32	38	33	37
9	KY97C-0519-04-07	41.0	31	35	34	38
10	KY97C-0508-01-01A-1	42.0	32	36	35	39
11	IL04-8445	39.5	32	37	35	39
12	IL04-11003	41.0	31	38	35	39
13	OH04-264-58	38.5	30	35	32	37
14	OH04-268-39	41.5	35	37	38	41
15	OH05-248-38	37.0	31	36	32	35
16	MD00W53-07-1	37.5	31	35	34	37
17	MD01W233-07-1	38.0	32	36	31	35
18	G89209	42.5	36	39	41	43
19	G89201	44.5	36	36	36	42
20	G89222	40.0	31	36	32	38
21	M05-1172	40.0	30	36	33	38
22	M05-1526	43.5	34	41	35	42
23	M05*1589	41.0	32	36	35	39
24	B040798	45.0	33	39	39	41
25	M05-1531	41.0	32	41	36	40
26	P99751RA1-6-3-94	38.0	33	36	33	37
27	P02444A1-23-1	41.0	34	35	33	39
28	P05219A1-13-16	38.0	33	33	30	33
29	W06-089	44.5	39	41	37	44
30	W06-522A	40.5	35	38	34	40
31	Z03-1281	41.0	35	39	34	39
32	Z03-0496	40.5	30	35	33	37
33	GA031238-DH7-7A28	39.0	31	36	35	38
34	Blazer exp.	40.0	35	38	34	39
35	Probe exp.	42.5	30	36	35	40
36	Rumor exp.	39.0	34	36	34	39
37	VA05W-151	39.0	30	36	33	38
38	VA05W-168	40.0	30	31	31	37
39	VA05W-258	41.0	34	37	36	41
40	AR98022-19-3	44.5	37	39	38	41
41	AR98023-5-1	41.0	36	37	35	38
42	NC05-21090	39.0	30	34	35	37
LOCATION MEANS		40.6	32.3	36.6	34.2	38.9

HEIGHT (inches)

		Owensville IN Fogleman	Tipton IN Brown	Lafayette IN Moreno	W Lafayette IN Ohm	Lexington KY Van Sanford
1	Roane	30.9	33	35	31.0	37.0
2	INW0411	31.9	34	39	31.0	38.5
3	Branson	34.1	37	38	31.5	37.0
4	Bess	32.7	37	39	35.5	39.5
5	LA01*425	34.6	37	39	34.5	39.5
6	IL02-19463	34.4	39	37	34.5	40.0
7	B030543	31.1	35	36	33.0	36.5
8	KY97C-0321-02-01	32.7	33	39	31.0	37.5
9	KY97C-0519-04-07	30.5	33	36	31.0	36.0
10	KY97C-0508-01-01A-1	32.7	35	41	33.0	38.5
11	IL04-8445	30.3	33	38	33.0	38.5
12	IL04-11003	30.5	33	38	32.5	38.5
13	OH04-264-58	31.5	33	39	31.0	35.5
14	OH04-268-39	39.4	36	44	36.0	42.5
15	OH05-248-38	31.1	32	33	29.5	37.0
16	MD00W53-07-1	30.7	33	36	33.5	38.5
17	MD01W233-07-1	32.3	31	37	31.0	35.0
18	G89209	36.6	42	40	36.5	43.5
19	G89201	35.8	42	39	38.0	43.0
20	G89222	29.5	32	36	34.5	37.0
21	M05-1172	28.7	32	37	34.5	40.5
22	M05-1526	35.2	35	40	37.0	39.5
23	M05*1589	31.9	35	38	35.5	38.0
24	B040798	37.4	35	42	36.0	42.0
25	M05-1531	34.3	36	40	34.5	41.0
26	P99751RA1-6-3-94	32.7	33	39	33.0	39.0
27	P02444A1-23-1	33.5	33	40	33.5	41.5
28	P05219A1-13-16	32.3	31	33	31.5	34.0
29	W06-089	37.0	40	42	40.5	42.0
30	W06-522A	31.3	42	40	36.0	37.5
31	Z03-1281	32.7	42	39	33.0	38.0
32	Z03-0496	30.5	42	37	31.0	37.5
33	GA031238-DH7-7A28	32.5	33	34	33.0	36.5
34	Blazer exp.	35.4	37	38	33.5	38.0
35	Probe exp.	35.2	40	41	34.0	41.0
36	Rumor exp.	33.1	35	37	31.0	37.5
37	VA05W-151	34.6	35	37	32.0	36.5
38	VA05W-168	31.7	34	36	31.0	34.5
39	VA05W-258	32.9	39	39	33.5	40.0
40	AR98022-19-3	34.4	39	40	37.5	43.5
41	AR98023-5-1	32.9	36	39	32.5	38.5
42	NC05-21090	29.5	34	35	31.5	36.5
LOCATION MEANS		32.9	35.7	38.1	33.5	38.6

HEIGHT (inches)

		Clarksville MD Costa	Ingham Co. MI Lewis	Columbia MO McKendry	Cleveland MS Hancock	Ithaca NY Sorrells
1	Roane	37.5	33.0	33	36	33.5
2	INW0411	42.0	32.5	39	39	32.8
3	Branson	37.0	34.1	39	38	34.1
4	Bess	42.5	38.0	38	43	36.7
5	LA01*425	37.5	34.0	37	38	34.8
6	IL02-19463	37.0	36.4	36	38	36.1
7	B030543	36.0	34.5	35	37	33.5
8	KY97C-0321-02-01	39.0	34.0	37	38	34.1
9	KY97C-0519-04-07	39.5	34.0	35	40	33.5
10	KY97C-0508-01-01A-1	40.0	32.6	36	39	34.8
11	IL04-8445	38.0	31.6	38	39	32.8
12	IL04-11003	41.0	32.4	37	41	34.8
13	OH04-264-58	37.5	33.9	36	37	34.1
14	OH04-268-39	41.5	38.6	37	43	38.7
15	OH05-248-38	36.0	31.6	35	36	33.5
16	MD00W53-07-1	40.0	37.0	37	38	34.8
17	MD01W233-07-1	39.5	32.9	38	36	33.5
18	G89209	44.0	37.2	40	41	40.7
19	G89201	46.5	37.5	42	40	39.4
20	G89222	39.5	34.3	38	39	35.4
21	M05-1172	41.5	35.5	38	38	35.4
22	M05-1526	42.5	38.5	38	41	35.4
23	M05*1589	40.0	36.5	37	39	36.1
24	B040798	43.0	37.6	38	41	38.7
25	M05-1531	39.5	34.5	37	40	36.1
26	P99751RA1-6-3-94	38.0	34.0	36	38	32.2
27	P02444A1-23-1	38.5	35.9	38	39	35.4
28	P05219A1-13-16	35.5	30.6	36	37	29.5
29	W06-089	41.0	40.5	42	41	39.4
30	W06-522A	39.0	38.4	38	40	36.1
31	Z03-1281	38.5	35.1	37	39	34.8
32	Z03-0496	37.5	31.2	36	37	32.2
33	GA031238-DH7-7A28	38.0	32.9	39	35	31.5
34	Blazer exp.	41.5	34.4	36	35	36.7
35	Probe exp.	43.0	38.6	35	38	38.7
36	Rumor exp.	39.5	35.1	36	41	32.8
37	VA05W-151	38.5	33.4	37	34	32.8
38	VA05W-168	34.0	34.9	40	36	32.2
39	VA05W-258	42.0	42.6	38	38	38.7
40	AR98022-19-3	43.0	41.5	42	43	38.7
41	AR98023-5-1	38.5	35.7	39	41	34.1
42	NC05-21090	36.0	32.7	36	38	31.5
LOCATION MEANS		39.5	35.2	37.4	38.7	35.0

HEIGHT (inches)

		Lincoln NE Baenziger	Mead NE Baenziger	Napoleon OH Fogleman	Wooster OH Sneller	Wooster OH Fioritto
1	Roane	30	27	34.3	36	31.3
2	INW0411	34	30	36.0	37	32.7
3	Branson	32	28	34.8	35	32.3
4	Bess	34	27	38.4	39	35.3
5	LA01*425	31	28	36.0	37	35.3
6	IL02-19463	34	29	37.2	39	36.0
7	B030543	31	26	36.6	36	33.7
8	KY97C-0321-02-01	31	28	35.6	36	32.3
9	KY97C-0519-04-07	32	29	34.3	37	32.3
10	KY97C-0508-01-01A-1	30	28	36.0	37	34.0
11	IL04-8445	32	32	36.2	37	33.0
12	IL04-11003	35	29	37.2	39	31.7
13	OH04-264-58	29	28	35.6	35	33.3
14	OH04-268-39	35	31	42.3	41	37.3
15	OH05-248-38	33	29	37.0	36	33.3
16	MD00W53-07-1	32	28	38.8	38	34.3
17	MD01W233-07-1	30	28	37.8	37	31.0
18	G89209	37	35	42.1	39	37.0
19	G89201	36	37	40.2	39	36.0
20	G89222	30	29	35.4	37	31.3
21	M05-1172	31	29	35.4	37	35.3
22	M05-1526	34	30	39.4	39	36.7
23	M05*1589	34	28	36.6	39	32.3
24	B040798	36	32	41.1	40	36.0
25	M05-1531	33	29	38.8	39	35.3
26	P99751RA1-6-3-94	27	27	36.4	36	32.3
27	P02444A1-23-1	28	28	40.4	39	34.0
28	P05219A1-13-16	29	25	32.3	35	31.0
29	W06-089	37	33	43.1	41	38.0
30	W06-522A	31	29	39.4	38	34.7
31	Z03-1281	30	31	37.4	37	34.3
32	Z03-0496	26	27	35.2	37	33.3
33	GA031238-DH7-7A28	29	28	35.2	36	33.0
34	Blazer exp.	32	29	37.4	38	30.7
35	Probe exp.	33	33	39.2	40	35.3
36	Rumor exp.	31	27	37.8	35	35.3
37	VA05W-151	31	28	37.0	35	34.3
38	VA05W-168	25	25	35.0	35	32.3
39	VA05W-258	33	30	39.8	39	35.0
40	AR98022-19-3	35	30	44.1	41	35.3
41	AR98023-5-1	26	28	36.6	35	33.3
42	NC05-21090	28	24	35.6	35	33.0
LOCATION MEANS		31.6	29.0	37.5	37.5	33.9

HEIGHT (inches)

		Nairon ON Etienne	Blacksburg VA Griffey	Warsaw VA Griffey	ENTRY MEANS ALL LOCATIONS	rank
1	Roane	27.2	40.0	33.0	33.3	39
2	INW0411	27.6	40.5	32.5	35.1	23
3	Branson	29.5	38.5	32.5	34.7	28
4	Bess	29.3	41.0	32.5	37.0	10
5	LA01*425	29.7	39.5	34.0	35.8	16
6	IL02-19463	29.5	41.0	33.5	36.0	13
7	B030543	29.1	41.0	31.5	34.1	33
8	KY97C-0321-02-01	28.7	40.5	32.5	34.9	27
9	KY97C-0519-04-07	29.5	39.5	32.5	34.5	31
10	KY97C-0508-01-01A-1	29.9	40.0	34.5	35.5	20
11	IL04-8445	27.0	39.5	31.5	34.9	26
12	IL04-11003	31.9	38.5	34.0	35.6	19
13	OH04-264-58	28.0	40.5	31.5	34.0	36
14	OH04-268-39	34.4	44.5	37.5	38.8	5
15	OH05-248-38	26.8	38.5	30.5	33.5	38
16	MD00W53-07-1	28.3	38.5	33.0	35.0	25
17	MD01W233-07-1	29.1	39.0	31.0	34.0	37
18	G89209	33.7	43.5	37.0	39.4	2
19	G89201	34.1	41.0	35.0	39.0	4
20	G89222	29.3	40.5	33.5	34.7	29
21	M05-1172	28.3	40.0	33.5	35.1	22
22	M05-1526	29.5	42.0	35.0	37.5	7
23	M05*1589	28.7	38.5	32.5	35.6	18
24	B040798	33.7	42.0	34.5	38.4	6
25	M05-1531	28.1	40.5	32.0	36.5	12
26	P99751RA1-6-3-94	28.1	41.0		34.5	30
27	P02444A1-23-1	28.9	42.5	35.0	35.9	14
28	P05219A1-13-16	26.0	35.5	30.0	32.2	42
29	W06-089	34.3	43.0	35.0	39.8	1
30	W06-522A	31.9	41.5	34.0	36.7	11
31	Z03-1281	27.0	39.0	31.5	35.8	15
32	Z03-0496	24.8	39.5	32.5	34.0	35
33	GA031238-DH7-7A28	28.1	38.0	31.5	34.1	34
34	Blazer exp.	28.7	41.5	33.5	35.8	17
35	Probe exp.	30.3	41.5	34.0	37.1	8
36	Rumor exp.	27.4	39.5	32.5	35.0	24
37	VA05W-151	27.2	39.5	31.5	34.4	32
38	VA05W-168	26.0	37.5	30.0	33.0	41
39	VA05W-258	29.5	41.0	33.5	37.1	9
40	AR98022-19-3	35.0	43.5	36.0	39.2	3
41	AR98023-5-1	28.3	41.0	32.5	35.4	21
42	NC05-21090	25.0	38.5	30.0	33.3	40
LOCATION MEANS		29.2	40.3	33.0	35.6	

LODGING

		Stuttgart AR Bacon 0-9	Griffin GA Johnson 0-9	Urbana IL Kolb 0-9	Lafayette IN Moreno 0-9	W Lafayette IN Ohm straw score 0-9
1	Roane	7.0	1.0	1.7	6.0	4.0
2	INW0411	0.0	0.0	1.7	1.0	2.5
3	Branson	0.0	1.0	1.7	1.0	4.0
4	Bess	0.0	1.0	3.0	1.0	4.5
5	LA01*425	0.0	0.0	2.3	1.0	3.5
6	IL02-19463	3.0	1.0	1.7	5.0	3.5
7	B030543	2.0	2.0	2.3	1.0	3.5
8	KY97C-0321-02-01	5.0	1.0	1.7	1.0	2.5
9	KY97C-0519-04-07	0.0	2.0	1.7	1.0	3.0
10	KY97C-0508-01-01A-1	0.0	1.0	2.0	1.0	3.5
11	IL04-8445	0.0	1.0	2.0	1.0	3.5
12	IL04-11003	0.0	2.0	2.0	1.0	3.0
13	OH04-264-58	2.0	0.0	2.0	1.0	3.0
14	OH04-268-39	0.0	1.0	2.0	1.0	4.0
15	OH05-248-38	0.0	1.0	2.3	1.0	3.0
16	MD00W53-07-1	6.0	3.0	2.3	5.0	4.0
17	MD01W233-07-1	2.0	0.0	2.7	1.0	3.5
18	G89209	4.0	2.0	2.0	1.0	4.0
19	G89201	4.0	1.0	2.0	1.0	4.5
20	G89222	6.0	6.0	2.7	1.0	5.0
21	M05-1172	1.0	1.0	2.3	1.0	4.0
22	M05-1526	3.0	2.0	3.0	1.0	4.0
23	M05*1589	5.0	4.0	2.7	4.0	4.0
24	B040798	0.0	2.0	2.7	4.0	4.5
25	M05-1531	2.0	1.0	3.0	1.0	3.5
26	P99751RA1-6-3-94	0.0	6.0	1.0	1.0	2.5
27	P02444A1-23-1	1.0	2.0	1.7	1.0	3.0
28	P05219A1-13-16	0.0	2.0	1.0	1.0	2.0
29	W06-089	2.0	7.0	2.3	1.0	5.0
30	W06-522A	2.0	2.0	2.7	1.0	4.0
31	Z03-1281	3.0	4.0	1.7	1.0	3.0
32	Z03-0496	3.0	1.0	1.7	1.0	2.5
33	GA031238-DH7-7A28	2.0	2.0	2.7	1.0	3.5
34	Blazer exp.	1.0	3.0	2.7	1.0	3.5
35	Probe exp.	3.0	8.0	3.0	1.0	4.0
36	Rumor exp.	4.0	3.0	1.7	1.0	2.5
37	VA05W-151	5.0	3.0	2.0	1.0	3.5
38	VA05W-168	2.0	4.0	2.0	1.0	3.5
39	VA05W-258	1.0	2.0	2.3	1.0	3.5
40	AR98022-19-3	0.0	7.0	2.7	1.0	4.5
41	AR98023-5-1	0.0	3.0	1.7	1.0	3.0
42	NC05-21090	5.0	4.0	1.7	1.0	4.0
LOCATION MEANS		2.0	2.4	2.1	1.5	3.6

LODGING

		Columbia MO McKendry 0-9	Cleveland MS Hancock 0-9	Wooster OH Sneller 0-9	Knoxville TN West 0-9	Blacksburg VA Griffey 0-9
1	Roane	2.3	1.0	0.7	6.0	2.5
2	INW0411	0.0	0.0	0.0	3.0	0.0
3	Branson	2.0	0.0	0.7	1.7	0.0
4	Bess	2.3	0.0	0.7	5.7	2.5
5	LA01*425	0.3	0.0	0.0	4.3	0.0
6	IL02-19463	2.7	0.0	0.3	5.3	2.5
7	B030543	2.7	1.0	0.3	6.3	0.0
8	KY97C-0321-02-01	0.0	0.0	1.3	5.3	1.0
9	KY97C-0519-04-07	0.0	0.0	1.3	2.3	0.0
10	KY97C-0508-01-01A-1	1.3	0.0	1.0	4.0	0.0
11	IL04-8445	1.0	0.0	0.0	3.3	2.5
12	IL04-11003	1.0	1.0	0.7	5.7	0.0
13	OH04-264-58	0.3	2.0	0.7	3.3	2.0
14	OH04-268-39	1.0	0.0	2.0	7.3	6.0
15	OH05-248-38	0.3	0.0	0.3	0.7	0.0
16	MD00W53-07-1	1.3	0.0	1.3	3.7	3.0
17	MD01W233-07-1	1.3	0.0	0.7	4.7	4.0
18	G89209	2.0	0.0	2.7	4.3	3.0
19	G89201	2.3	2.0	2.7	4.3	0.0
20	G89222	2.0	1.0	2.7	3.7	1.5
21	M05-1172	1.0	0.0	2.0	5.0	2.0
22	M05-1526	2.0	1.0	2.0	3.7	3.5
23	M05*1589	0.3	2.0	5.0	6.7	3.5
24	B040798	2.3	0.0	5.7	5.7	2.0
25	M05-1531	3.0	0.0	2.7	5.3	0.5
26	P99751RA1-6-3-94	0.0	0.0	0.7	4.0	0.0
27	P02444A1-23-1	1.0	0.0	0.3	5.3	0.0
28	P05219A1-13-16	1.0	0.0	0.0	2.0	0.0
29	W06-089	1.7	0.0	0.3	5.0	0.5
30	W06-522A	1.0	0.0	0.3	4.0	0.0
31	Z03-1281	1.3	0.0	0.0	6.3	4.0
32	Z03-0496	0.0	0.0	0.0	3.3	0.5
33	GA031238-DH7-7A28	0.3	0.0	0.7	5.7	4.0
34	Blazer exp.	0.7	0.0	0.0	2.3	1.5
35	Probe exp.	2.3	1.0	1.7	4.7	6.5
36	Rumor exp.	2.0	1.0	0.3	3.7	0.0
37	VA05W-151	0.7	1.0	1.3	5.0	5.0
38	VA05W-168	2.3	0.0	2.3	3.0	3.5
39	VA05W-258	2.3	0.0	3.3	5.7	3.5
40	AR98022-19-3	2.7	1.0	5.0	6.0	1.5
41	AR98023-5-1	0.0	1.0	0.0	4.3	0.0
42	NC05-21090	1.0	0.0	4.3	6.3	4.5
LOCATION MEANS		1.3	0.4	1.4	4.5	1.8

LODGING

		Warsaw VA Griffey 0-9
1	Roane	3.0
2	INW0411	1.0
3	Branson	2.5
4	Bess	3.5
5	LA01*425	2.0
6	IL02-19463	1.5
7	B030543	1.0
8	KY97C-0321-02-01	5.0
9	KY97C-0519-04-07	7.0
10	KY97C-0508-01-01A-1	0.5
11	IL04-8445	3.5
12	IL04-11003	2.5
13	OH04-264-58	1.0
14	OH04-268-39	6.0
15	OH05-248-38	4.5
16	MD00W53-07-1	4.0
17	MD01W233-07-1	4.5
18	G89209	3.0
19	G89201	3.5
20	G89222	5.0
21	M05-1172	4.5
22	M05-1526	0.5
23	M05*1589	4.0
24	B040798	3.5
25	M05-1531	4.0
26	P99751RA1-6-3-94	
27	P02444A1-23-1	1.0
28	P05219A1-13-16	0.0
29	W06-089	3.0
30	W06-522A	1.0
31	Z03-1281	1.0
32	Z03-0496	0.5
33	GA031238-DH7-7A28	5.5
34	Blazer exp.	2.0
35	Probe exp.	6.0
36	Rumor exp.	2.0
37	VA05W-151	5.0
38	VA05W-168	3.0
39	VA05W-258	3.0
40	AR98022-19-3	3.5
41	AR98023-5-1	2.5
42	NC05-21090	3.0
LOCATION MEANS		3.0

WINTER DAMAGE

		Tipton IN Brown hardiness 0-9	Columbia MO McKendry winterkill 0-9	Ithaca NY Sorrells winterkill 0-9	Nairn ON Etienne survival %	Oconto WI Cisar winterkill 0-9
1	Roane	1.3	4	0.0	77	1.3
2	INW0411	2.5	5	0.0	74	1.0
3	Branson	1.8	5	1.7	82	1.0
4	Bess	2.0	4	3.3	76	0.7
5	LA01*425	2.5	4	0.0	79	3.3
6	IL02-19463	2.5	6	0.0	71	0.7
7	B030543	2.8	6	0.0	73	1.0
8	KY97C-0321-02-01	3.5	2	0.0	69	2.3
9	KY97C-0519-04-07	3.5	4	0.0	75	1.3
10	KY97C-0508-01-01A-1	3.3	5	1.7	63	1.0
11	IL04-8445	2.0	5	0.0	74	0.0
12	IL04-11003	2.3	5	0.0	74	0.0
13	OH04-264-58	3.3	2	1.7	60	3.7
14	OH04-268-39	2.8	3	0.0	69	1.7
15	OH05-248-38	2.3	5	0.0	82	0.3
16	MD00W53-07-1	2.8	5	0.0	80	0.0
17	MD01W233-07-1	6.0	5	1.7	72	2.0
18	G89209	2.5	4	0.0	78	1.0
19	G89201	2.8	6	0.0	78	1.7
20	G89222	3.0	5	3.3	79	1.3
21	M05-1172	3.0	3	0.0	81	0.3
22	M05-1526	1.8	4	0.0	72	0.3
23	M05*1589	2.5	2	0.0	78	0.3
24	B040798	3.8	4	0.0	78	1.3
25	M05-1531	2.5	4	0.0	80	0.0
26	P99751RA1-6-3-94	3.0	4	0.0	72	0.0
27	P02444A1-23-1	2.5	3	0.0	76	0.7
28	P05219A1-13-16	3.3	3	3.3	65	1.3
29	W06-089	2.8	3	0.0	70	0.0
30	W06-522A	3.3	2	0.0	67	0.3
31	Z03-1281	4.0	3	0.0	77	1.0
32	Z03-0496	2.5	3	0.0	73	2.3
33	GA031238-DH7-7A28	4.3	4	4.7	68	3.3
34	Blazer exp.	4.0	5	1.7	76	0.0
35	Probe exp.	3.0	4	0.0	75	0.3
36	Rumor exp.	3.5	4	0.0	74	2.0
37	VA05W-151	3.8	3	0.0	73	1.3
38	VA05W-168	4.0	5	0.0	72	1.0
39	VA05W-258	4.0	5	1.7	70	2.0
40	AR98022-19-3	2.3	5	0.0	76	2.3
41	AR98023-5-1	3.5	4	0.0	68	2.7
42	NC05-21090	5.8	5	1.7	65	4.7
LOCATION MEANS		3.0	4.1	0.6	73.6	1.3

LEAF RUST

		Bay AR Hancock 0-9	Tipton IN Brown 0-9	Lafayette IN Moreno	Ingham Co. MI Lewis	Lincoln NE Baenziger
1	Roane		1.0	3	0.0	2
2	INW0411	2	2.5	1	1.5	3
3	Branson	2	6.0	5	1.5	4
4	Bess	6	8.0	6	3.5	6
5	LA01*425	5	8.0	6	1.0	6
6	IL02-19463		8.0	3	1.0	2,5
7	B030543		2.5	2	0.0	6
8	KY97C-0321-02-01	2	1.0	2	0.0	2
9	KY97C-0519-04-07	5	4.0	4	1.5	5
10	KY97C-0508-01-01A-1		6.0	7	1.6	5
11	IL04-8445	5	3.0	5	0.0	6
12	IL04-11003	6	3.0	3	2.5	7
13	OH04-264-58	2	2.5	2	0.0	5,7
14	OH04-268-39	1	2.0	3	0.0	2
15	OH05-248-38	4	8.5	7	1.5	7
16	MD00W53-07-1	3	2.0	1	0.0	2
17	MD01W233-07-1	2	2.0	1	1.0	7
18	G89209		2.5	4	0.0	9
19	G89201	4	2.0	4	0.0	8
20	G89222	4	3.0	3	0.9	7
21	M05-1172		8.0	4	2.0	6
22	M05-1526		3.0	3	0.0	3
23	M05*1589		8.0	5	1.0	4
24	B040798		2.5	5	1.0	3
25	M05-1531	5	4.0	4	0.0	5
26	P99751RA1-6-3-94	8	9.0	7	4.0	7
27	P02444A1-23-1	7	3.0	4	2.5	8
28	P05219A1-13-16	4	1.0	1	1.5	3
29	W06-089	4	2.0	1	0.0	6
30	W06-522A	4	2.0	3	2.0	5
31	Z03-1281		9.0	7	3.6	9
32	Z03-0496	5	2.5	2	0.0	5
33	GA031238-DH7-7A28	2	1.0	1	0.0	2
34	Blazer exp.	7	5.0	4	2.5	5
35	Probe exp.	8	7.0	6	2.1	6
36	Rumor exp.	7	3.5	4	1.1	5
37	VA05W-151	3	2.0	1	0.9	5
38	VA05W-168	2	1.0	1	1.0	6
39	VA05W-258		2.0	1	2.0	7
40	AR98022-19-3	1	1.0	1	1.0	2
41	AR98023-5-1	4	2.0	1	0.9	4
42	NC05-21090	8	1.0	1	0.0	6
LOCATION MEANS			3.7	3.3	1.1	
GROWTH STAGE / DATE			June 14		10.5.4	

LEAF RUST

		Mead NE Baenziger	Nairn ON Etienne 0-9	Warsaw VA Griffey	Oconto WI Cisar
1	Roane	1	0.0	4.0	7.0
2	INW0411	1	1.3	4.5	3.5
3	Branson	1	0.8	3.0	5.5
4	Bess	2	2.0	3.0	5.0
5	LA01*425	4	0.8	2.0	7.0
6	IL02-19463	1	1.3	3.0	6.0
7	B030543	6	0.5	2.5	0.5
8	KY97C-0321-02-01	3	0.3	0.0	0.0
9	KY97C-0519-04-07	5	1.8	5.0	4.0
10	KY97C-0508-01-01A-1	5	0.5	3.5	4.0
11	IL04-8445	6	0.8	2.5	2.5
12	IL04-11003	6	1.3	4.0	4.5
13	OH04-264-58	6	0.0	1.0	0.0
14	OH04-268-39	3	0.5	0.0	0.5
15	OH05-248-38	7	5.0	5.5	8.5
16	MD00W53-07-1	3	0.0	0.0	0.0
17	MD01W233-07-1	4	0.3	2.0	0.0
18	G89209	5	1.0	2.0	1.5
19	G89201	6	0.8	1.0	0.5
20	G89222	6	0.3	4.0	2.0
21	M05-1172	5	2.0	6.5	7.5
22	M05-1526	5	0.5	2.5	7.0
23	M05*1589	5	0.5	5.5	6.5
24	B040798	4	0.8	3.0	0.0
25	M05-1531	5	0.8	3.0	6.0
26	P99751RA1-6-3-94	4	5.5		9.0
27	P02444A1-23-1	5	2.5	4.5	5.0
28	P05219A1-13-16	2	0.0	0.0	0.0
29	W06-089	5	0.3	0.0	0.0
30	W06-522A	3	0.5	3.0	3.5
31	Z03-1281	2	2.5	4.5	8.5
32	Z03-0496	2	3.0	3.0	3.0
33	GA031238-DH7-7A28	1	0.0	0.5	0.0
34	Blazer exp.	1	3.0	5.0	7.5
35	Probe exp.	2	2.5	6.5	9.0
36	Rumor exp.	2	2.0	2.5	3.0
37	VA05W-151	2	0.5	5.0	0.0
38	VA05W-168	2	0.5	1.5	0.0
39	VA05W-258	1	0.3	2.0	4.5
40	AR98022-19-3	1	0.3	0.0	0.0
41	AR98023-5-1	1	2.5	3.5	5.0
42	NC05-21090	1	0.0	2.5	2.0
LOCATION MEANS		3.4	1.2	2.9	3.6
GROWTH STAGE / DATE					

LEAF RUST

St. Paul
MN
Long/Kolmer

		Reactions produced by NA race* **									Postulated
		MCRJ	MFPS	MLDS	MBTS	TBRK	TNRJ	TLBF	TFRJ	TJBJ	genes***
1	Roane	3	;	;	3	3	3	;	3	;	11
2	INW0411	3	;1c2	;	;	;1c	;1cn	;	3	;	11,26
3	Branson	;	;	;	;	3	3	3	3	3	2a
4	Bess	3	3	3	3	3	3	3	-	-	-
5	LA01*425	;	;	;	;	3	3	;1c	3	3	2a,10
6	IL02-19463	;	;	;	-	3	3	3	3	3	2a
7	B030543	3	3	3	3	3	3	3	3	3	-
8	KY97C-0321-02-01	3	0;	;	;	;1c	;1c	;	3	;	11,26
9	KY97C-0519-04-07	;	0;	;	;	0;	3	;	3	;	11,24
10	KY97C-0508-01-01A-1	0;	0;	;	;	;	;	;	;	;	+
11	IL04-8445	3	3	3	3	3	3	3	-	3;	-
12	IL04-11003	3	3	3	;	3	3	3	;	-	+
13	OH04-264-58	3	3	3	3	3	3	3	3	3-1c;	-
14	OH04-268-39	3	;1c	;	3	3;	31c	;	3	;	11
15	OH05-248-38	3	3	3	3	3	3	3	3	3	-
16	MD00W53-07-1	;	;	;	;	;	3	;	;	;	9,24
17	MD01W233-07-1	;	2c;	;	;	3	3	;1c	3	3	2a,10
18	G89209	3	3	3	3	3	3	3	3	3	-
19	G89201	3	3	3	3	3	3	3	3	3	-
20	G89222	3	3	3	3	3	3	3	3	3	-
21	M05-1172	;	;1	;1c2	3	3	3	3	3	;	+
22	M05-1526	3	3	;	3	;1c1	;1c	;	3	;	+
23	M05*1589	3	;	-	3	3	3	;	3	;	11
24	B040798	;	;	-	-	3	;1c	;	;	;	11,18
25	M05-1531	3	3	;1c	3	;1c2	;1c1	;	3	;	+
26	P99751RA1-6-3-94	;	;1c	;	;	;1c2	;1c	;	;	;	+
27	P02444A1-23-1	3-;	3-;	3-;	;	;1c	;1c2	;1c2	;1c2	;	+
28	P05219A1-13-16	;1c2	;1c2	;	;	;	;1c	;	-	;	+
29	W06-089	3	3	3	3	3	3	3	3	3	-
30	W06-522A	;1c2	;1c	;	;	;1c	3	3	;1c	-	2a,9
31	Z03-1281	3	3	3	3	3	3	3	3	3	-
32	Z03-0496	3	;1c2	;	;	;1c	;1c	;	3	;	11,26
33	GA031238-DH7-7A28	;1c	;1c	;	;	;1c	;1c	;	;	;	+
34	Blazer exp.	;-3	;1c	;	;	-	3	;3	;	;	9,24
35	Probe exp.	3	;1c	;1c	;	;1c2	;1c2	;	3	;	11,26
36	Rumor exp.	3	;1c	;1c	;	;1c	3-;	;	3	;	11,26
37	VA05W-151	;	3	;1c	;	;	3	;1c	;2c2	3	24
38	VA05W-168	;	;	;	;1c	0;	3	;	;	;	9,24
39	VA05W-258	;	;	3-;	;	0;	3	3	;-3	;	9
40	AR98022-19-3	;	;	;	;	0;	3	;	;	;	9,24
41	AR98023-5-1	;	;	;	;	3	;1c2	;	3	;	+
42	NC05-21090	3	3	3	3	3	3	3	3	3-;	-

*Single genes tested: = 1,2a,2c,3,3Ka,9,10,11,14a,16,17,18,24,26,30,B

**Virulence formula:

MCRJ=1,3,3ka,10,11,14a,26,30
MFPS=1,3,3ka,10,14a,17,24,26,30,B
MLDS=1,3,9,10,14a,17,B
MBTS=1,3,3ka,10,11,14a,17,30,B
TBRK=1,2a,2c,3,3ka,10,11,14a,18,26,30
TNRJ=1.2a.2c.3.3ka.9.10.11.14a.24.30
TLBJ=1,2a,2c,3,9,10,14a
TFRJ=1,2a,2c,3,3ka,10,11,14a,24,26,20
TJBJ=1,2a,2c,3,10,14a,16,24

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

LEAF RUST

Blacksburg
VA
Griffey

		GH-LR 2008-09 TCRK+ MFQS 0-3	GH-LR 2008-09 TNRJ 0-3
1	Roane	3	3
2	INW0411	23;	0;/3
3	Branson	3	3
4	Bess	3	3
5	LA01*425	3;	3
6	IL02-19463	3;	3
7	B030543	3	3;
8	KY97C-0321-02-01	23	3
9	KY97C-0519-04-07	3	23-
10	KY97C-0508-01-01A-1	23	3-
11	IL04-8445	23	3
12	IL04-11003	3	3
13	OH04-264-58	3	23
14	OH04-268-39	3	3
15	OH05-248-38	3	3
16	MD00W53-07-1	0;	3
17	MD01W233-07-1	3;	23;
18	G89209	3	3
19	G89201	3	3
20	G89222	3	3
21	M05-1172	3	3
22	M05-1526	3	0;
23	M05*1589	3	3
24	B040798	3;	3
25	M05-1531	23	0;
26	P99751RA1-6-3-94	2;	0;
27	P02444A1-23-1	3;	23cn
28	P05219A1-13-16	3	0;/3
29	W06-089	23	3
30	W06-522A	3	3
31	Z03-1281	3;	3;
32	Z03-0496	23;	0;
33	GA031238-DH7-7A28	;1	;1
34	Blazer exp.	3	3
35	Probe exp.	3	3
36	Rumor exp.	3	3
37	VA05W-151	3;	3
38	VA05W-168	0;	3
39	VA05W-258	0;	3
40	AR98022-19-3	0;	0;
41	AR98023-5-1	;12-	3
42	NC05-21090	2;	23;

Diff #	Gene	Race TNRJ 0-3	Races TCRK + MFQS 0-3
1	LR 1	n/a	3
2	LR 2a	3-	3-
3	LR 2c	3	3;
4	LR 3	3-	3
5	LR 9	3-	0;
6	LR 16	;1-	12=cn
7	LR 24	3-	23
8	LR 26	;1-	3-
9	LR 3ka	3	3
10	LR 11	3	3
11	LR 17	;1=	;1-cn
12	LR 30	3	3
13	LR B	1-	3
14	LR 10	3	3
15	LR 14a	3	3
16	LR 18	3	3
17	LR 21	3-	;1-
18	LR 28	3	3

STEM RUST

St. Paul
MN
Jin

		QFCS	QTHJ	MCCF	RCRS	RKQQ	TPMK	TTTT	Bulk	
		06ND76C	75ND717C	59KS19	77ND82A	99KS76A-1	74MN1409	01MN84A-1-2		
1	Roane	S	S	S	S	S	S	S		1
2	INW0411	0;	0	0	0	2-	2	0;		2
3	Branson	2	S	2	S	S	S	S		3
4	Bess	S	S	S	S	S/2+	S	S		4
5	LA01*425	;3	;14	;4	S	4;	S	S		5
6	IL02-19463	2+	S	2+	S	S	2+	S		6
7	B030543	0	0;	0;	S	S	3;	S		7
8	KY97C-0321-02-01	0	0	0	0	0	0;	0		8
9	KY97C-0519-04-07	0	0	0	0	0	0	0		9
10	KY97C-0508-01-01A-1	0	0	0	0	0	0	0		10
11	IL04-8445	S	S	S	S	S	S	S		11
12	IL04-11003	2	S	2	S	S	2++	S		12
13	OH04-264-58	S	S	S	S	S	S	S		13
14	OH04-268-39	;1 C	S	0	;	S	;	S		14
15	OH05-248-38	S	S	S	S	S	S	S		15
16	MD00W53-07-1	2	2	2	2	2	2+	2		16
17	MD01W233-07-1	2	2	2	2	-	2+	2		17
18	G89209	2	S	2++	S	;2	S	S		18
19	G89201	2/S	S	2++	S	;3-	S	S		19
20	G89222	S	S	S	S	;11+/2	S	S		20
21	M05-1172	S	S	S	S	2+	S	S		21
22	M05-1526	2 LR?	2	;2-	;1	2	2-	;1		22
23	M05*1589	S	2+	3/;	S	2+	S/2+	S		23
24	B040798	S	S	S	S	S	S	S		24
25	M05-1531	2	2	;2	;1	2	2-	;2-		25
26	P99751RA1-6-3-94	0;/2	2	2-	2-	2-	2-	;1		26
27	P02444A1-23-1	0	0/x	0;2	0;	;	S	;3		27
28	P05219A1-13-16	0	0	0	2+	2/S	S	S/;		28
29	W06-089	2	S	2	S	;1	2+	S		29
30	W06-522A	2	S	2	S	2	2+	S		30
31	Z03-1281	0	S	;2-	S	2+	esc.	S		31
32	Z03-0496	0	-	2-	;2-	2	2	0; C		32
33	GA031238-DH7-7A28	0	0;	0	;3	0;	;3+	S		33
34	Blazer exp.	0	0	0/S	S/1	S/1	S	S		34
35	Probe exp.	0	S	S	S	S	S	S		35
36	Rumor exp.	0	0	0;	S	S	S	S		36
37	VA05W-151	2 LIF	2	2	2+	2	2+	S		37
38	VA05W-168	0/2 LIF	2	2-	2	;2-	2	S		38
39	VA05W-258	S	S	S	S	S	S	S		39
40	AR98022-19-3	S	S	S	S	S	S	S		40
41	AR98023-5-1	0	2	2-	2	2	2+	2		41
42	NC05-21090	0	0	0	S	;1-	0;3 LIF	S		42

Notes and explanations:
Bulk: a composite of US races: QFCS, QTHJ, RCRS, RKQQ, TPMK, TTTT

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.

Gene postulation was 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.

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) and TRTT (a race with 1A.1R virulence, not in the TTKS lineage)

QCCL and QCCSM were added in 2008/09 screening, both have virulence on Sr24.
RFCS was detected in 2008. It has a similar virulence to QFCS except high on Sr7b.

STEM RUST

St. Paul
MN
Jin

	RFCS	QCCL	QCCSM	TTKSK	TTKSK	TTKSK	TTKST	TTTSK	TRTT
	08TX31-1	07WA140-17-1	75WA165-2A	04KEN156/04	04KEN156/04	04KEN156/04	06KEN19V3	07KEN24-4	06YEMS4-1
				rep 1	rep 2	rep 3			
Roane	S	S	S	S	S		S	S	S
INW0411	0	0	0;/S	0	0		0	S	2-/S
Branson	2	0	2	S	S		S	S	S
Bess	S	;1	S	S	S		S	S	S
LA01*425	S	0	;	S	S				
IL02-19463	2+	;	S	S	S				
B030543	0	0	0;	0;	0/S		0;/S	S	S
KY97C-0321-02-01	-	-	-	-	-				
KY97C-0519-04-07	-	-	-	-	-				
KY97C-0508-01-01A-1	-	-	-	-	-				
IL04-8445	S	2+	S	S	S				
IL04-11003	2	0	2+	S	S				
OH04-264-58	S	0	S	S	S				
OH04-268-39	;	0/S	;	S	S				
OH05-248-38	S	0	S	S	S				
MD00W53-07-1	2	0	2	2-	2		2	;2-	2
MD01W233-07-1	2-	0	2	2-	2-		2	2	2
G89209	2	0	2+	S	S				
G89201	;2	0	2+	S	S				
G89222	S	0	S	S	S				
M05-1172	S	0	S	S	S				
M05-1526	2-	0	2-	S	S				
M05*1589	2+	0	2+	S	S				
B040798	S	0	S/2+	S	S				
M05-1531	2-	0	2-	S	S				
P99751RA1-6-3-94	;2	0	2	S	S				
P02444A1-23-1	0	0	;3	S	S				
P05219A1-13-16	0	0	;/;3-	22+	22+/0		2;	S	S/2-
W06-089	2-	0	2	S	S				
W06-522A	2-	0	2	S	S				
Z03-1281	2-	0	2	S LIF	S		S	S	S
Z03-0496	0	0	2	S	S				
GA031238-DH7-7A28	0	0	0	0	0		0	S	S
Blazer exp.	S	0	S	S	S				
Probe exp.	S	0	S	-	S		S	S	S
Rumor exp.	0/S	0	;1+/S	0	;2-/S		;23-	S	S
VA05W-151	2-	2-	2	2	2-/0		2	2-	2-
VA05W-168	2-	0	2/S	2-	2		2	2-	2-
VA05W-258	S	S	S	S	S				
AR98022-19-3	S	S	S	S	S				
AR98023-5-1	2	;	2/S	S	S				
NC05-21090	0	0	0	0	0		0	S	S

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

race	Avirulence	Virulence
MCCF	6 8a 9b 9d 9e 11 24 30 31 36 38 1A.1R	5 7b 9a 9g 10 17 Tmp McN
QCCL	6 7b 8a 9b 9d 9e 10 11 30 31 36 38 Tmp 1A.1R McN	5 9a 9g 17 21 24
QCCSM	6 7b 8a 9b 9e 11 30 31 36 38 Tmp 1A.1R	5 9a 9d 9g 10 17 21 24 McN
QFCS	6 7b 9b 9e 11 24 30 31 36 38 Tmp 1A.1R	5 8a 9a 9d 9g 10 17 21 McN
QTHJ	7b 9a 9e 24 30 31 36 Tmp 1A.1R	5 6 8a 9b 9d 9g 10 11 17 21 38 McN
RFCS	6 9b 9e 11 24 30 31 36 38 Tmp 1A.1R	5 7b 8a 9a 9d 9g 10 17 21 McN
RCRS	6 8a 9e 11 24 30 31 Tmp 1A.1R	5 7b 9a 9b 9d 9g 10 17 21 38 McN
RKQQ	9e 10 11 17 24 30 31 38 Tmp 1A.1R	5 6 7b 8a 9a 9b 9d 9g 21 McN
TPMK	6 9a 9b 24 30 31 38 1A.1R	5 7b 8a 9a 9d 9e 9g 10 11 17 21 36 Tmp McN
TTTT	24 31 1A.1R	5 6 7b 8a 9a 9b 9d 9e 9g 10 11 17 21 30 36 38 McN
TTKSK	24 36 Tmp 1A.1R	5 6 7b 8a 9a 9b 9d 9e 9g 10 11 17 21 30 31 38 McN
TTKST	36 Tmp 1A.1R	5 6 7b 8a 9a 9b 9d 9e 9g 10 11 17 21 24 30 31 38 McN
TTTSK	24 Tmp 1A.1R	5 6 7b 8a 9a 9b 9d 9e 9g 10 11 17 21 30 31 36 38 McN
TTRT	8a 24 31	5 6 7b 9a 9b 9d 9e 9g 10 11 17 21 30 36 38 McN 1A.1R

STEM RUST

		Lincoln NE Baenziger
1	Roane	
2	INW0411	
3	Branson	
4	Bess	
5	LA01*425	
6	IL02-19463	
7	B030543	
8	KY97C-0321-02-01	
9	KY97C-0519-04-07	
10	KY97C-0508-01-01A-1	
11	IL04-8445	s
12	IL04-11003	
13	OH04-264-58	s
14	OH04-268-39	
15	OH05-248-38	
16	MD00W53-07-1	
17	MD01W233-07-1	
18	G89209	
19	G89201	
20	G89222	
21	M05-1172	
22	M05-1526	
23	M05*1589	
24	B040798	
25	M05-1531	
26	P99751RA1-6-3-94	
27	P02444A1-23-1	
28	P05219A1-13-16	
29	W06-089	
30	W06-522A	
31	Z03-1281	
32	Z03-0496	
33	GA031238-DH7-7A28	
34	Blazer exp.	
35	Probe exp.	
36	Rumor exp.	
37	VA05W-151	
38	VA05W-168	
39	VA05W-258	s
40	AR98022-19-3	s
41	AR98023-5-1	
42	NC05-21090	

STRIPE RUST

		Laurel Springs NC Marshall		Pullman WA Chen	
		IT	%	IT	%
1	Roane	4	30	5	30
2	INW0411	9	70	8	90
3	Branson	0	0	2	5
4	Bess	7	40	3	10
5	LA01*425	0	0	3	5
6	IL02-19463	4	20	3	10
7	B030543	2	10	2	5
8	KY97C-0321-02-01	8	80	5	30
9	KY97C-0519-04-07	9	80	8	30
10	KY97C-0508-01-01A-1	3	40	2	5
11	IL04-8445	9	90	8	30
12	IL04-11003	9	90	8	90
13	OH04-264-58	9	100	8	50
14	OH04-268-39	1	10	2	5
15	OH05-248-38	9	90	8	30
16	MD00W53-07-1	2	10	8	20
17	MD01W233-07-1	3	20	8	20
18	G89209	2	10	3	20
19	G89201	1	5	3	10
20	G89222	1	5	8	30
21	M05-1172	0	0	5	20
22	M05-1526	6	20	8	100
23	M05*1589	7	50	8	60
24	B040798	2	1	3	30
25	M05-1531	6	40	8	100
26	P99751RA1-6-3-94	9	80	8	100
27	P02444A1-23-1	0	0	3	5
28	P05219A1-13-16	3	1	5	50
29	W06-089	0	0	3	30
30	W06-522A	1	5	3	30
31	Z03-1281	7	40	7	30
32	Z03-0496	1	5	3	10
33	GA031238-DH7-7A28	0	0	2	1
34	Blazer exp.	7	60	8	100
35	Probe exp.	6	20	8	90
36	Rumor exp.	8	90	8	100
37	VA05W-151	6	50	8	100
38	VA05W-168	3	60	8	100
39	VA05W-258	9	90	8	100
40	AR98022-19-3	7	50	3	30
41	AR98023-5-1	6	60	8	50
42	NC05-21090	3	60	2	1
LOCATION MEANS		4.5	37.7	5.5	42.0
GROWTH STAGE / DATE				late milk / July 1	

STRIPE RUST

		Mt. Vernon WA Chen				Walla Walla WA Chen	
		IT	%	IT	%	IT	%
1	Roane	8	10	5	30	8	80
2	INW0411	5	10	8	30	8	60
3	Branson	2	2	2	5	3	30
4	Bess	8	10	5	30	8	80
5	LA01*425	8	15	8	30	8	40
6	IL02-19463	8	5	8	30	8	40
7	B030543	2	5	3	20	8	30
8	KY97C-0321-02-01	5	10	5	30	8	60
9	KY97C-0519-04-07	8	20	8	30	8	40
10	KY97C-0508-01-01A-1	5	10	5	30	8	30
11	IL04-8445	8	20	5	30	8	40
12	IL04-11003	8	30	8	80	8	60
13	OH04-264-58	8	10	5	30	8	60
14	OH04-268-39	3	10	2	5	8	30
15	OH05-248-38	8	15	5	30	8	30
16	MD00W53-07-1	8	20	5	30	5	30
17	MD01W233-07-1	5	10	3	30	5	20
18	G89209	8	20	8	30	3	30
19	G89201	8	20	8	50	3	30
20	G89222	8	10	5	30	3	20
21	M05-1172	5	10	2	20	8	40
22	M05-1526	2	5	8	30	8	50
23	M05*1589	8	20	5	50	8	50
24	B040798	8	20	2	5	5	30
25	M05-1531	3	5	8	50	8	80
26	P99751RA1-6-3-94	8	20	8	50	8	40
27	P02444A1-23-1	8	10	5	30	8	40
28	P05219A1-13-16	8	40	5	30	8	60
29	W06-089	8	20	5	30	8	40
30	W06-522A	3	10	2	10	8	40
31	Z03-1281	5	15	3	30	8	40
32	Z03-0496	5	5	5	20	8	30
33	GA031238-DH7-7A28	2	5	2	5	2	2
34	Blazer exp.	8	10	8	30	8	40
35	Probe exp.	5	10	3	30	8	30
36	Rumor exp.	8	60	5	30	8	60
37	VA05W-151	8	80	8	60	8	30
38	VA05W-168	8	50	8	80	8	20
39	VA05W-258	8	50	8	80	8	60
40	AR98022-19-3	8	50	8	40	8	20
41	AR98023-5-1	8	10	5	30	8	40
42	NC05-21090	2	5	2	10	2	2
LOCATION MEANS		6.4	18.4	5.4	32.4	7.0	40.1
GROWTH STAGE / DATE		stem elong./ April 22		flowering / June 4		milk / June 20	

SEPTORIA

		Bay AR Hancock tritici	Brownstown IL Kolb tritici	Tipton IN Brown tritici	Lafayette IN Moreno tritici
1	Roane	5	5.0	5.0	6
2	INW0411	3	7.0	7.0	4
3	Branson	4	6.7	6.0	6
4	Bess	3	5.7	6.0	6
5	LA01*425	3	3.7	7.0	4
6	IL02-19463	3	8.0	6.0	7
7	B030543	4	5.0	3.0	4
8	KY97C-0321-02-01	3	6.3	4.5	5
9	KY97C-0519-04-07	4	6.0	5.0	6
10	KY97C-0508-01-01A-1	4	5.3	6.0	7
11	IL04-8445	3	6.7	5.0	4
12	IL04-11003	3	7.0	7.0	6
13	OH04-264-58	5	7.0	5.0	7
14	OH04-268-39	4	3.0	5.0	4
15	OH05-248-38	3	5.0	5.0	6
16	MD00W53-07-1	2	3.7	2.0	6
17	MD01W233-07-1	4	5.0	3.0	4
18	G89209	4	8.0	6.0	5
19	G89201	5	8.0	5.0	5
20	G89222	5	6.3	5.0	5
21	M05-1172	3	5.3	5.0	6
22	M05-1526	4	5.7	4.0	5
23	M05*1589	5	5.3	6.5	6
24	B040798	3	6.3	5.5	7
25	M05-1531	3	6.0	5.0	5
26	P99751RA1-6-3-94	3	4.7	6.0	6
27	P02444A1-23-1	3	6.0	5.5	4
28	P05219A1-13-16	3	3.0	4.0	3
29	W06-089	2	3.7	5.0	2
30	W06-522A	3	5.3	5.5	4
31	Z03-1281	4	6.7	7.0	6
32	Z03-0496	4	7.0	5.0	6
33	GA031238-DH7-7A28	4	3.7	3.5	2
34	Blazer exp.	3	3.3	4.5	4
35	Probe exp.	3	5.3	5.0	6
36	Rumor exp.	4	5.3	4.0	6
37	VA05W-151	4	3.7	3.5	2
38	VA05W-168	3	4.0	3.5	3
39	VA05W-258	5	6.7	6.0	5
40	AR98022-19-3	2	4.7	4.0	5
41	AR98023-5-1	3	6.3	4.0	4
42	NC05-21090	2	3.0	4.0	3
LOCATION MEANS		3.5	5.5	5.0	4.9
GROWTH STAGE / DATE				June 8	

SEPTORIA

		Evansville IN Ohm		Ingham Co. MI Lewis	Nairn ON Etienne		Oconto WI Cisar
		SNB + STB leaves 0-9	SNB glumes 0-9	tritici	tritici	nodorum	tritici
1	Roane	6	7	3.0	3.8	0.3	4.0
2	INW0411	8	8	4.5	4.7	2.5	4.3
3	Branson	9	7	2.5	4.3	0.8	4.3
4	Bess	7	7	2.0	4.3	0.3	4.7
5	LA01*425	4	3	3.5	3.5	0.3	5.3
6	IL02-19463	9	5	4.5	4.0	0.0	6.0
7	B030543	6	3	1.6	2.7	0.5	3.3
8	KY97C-0321-02-01	7	4	4.5	4.8	0.8	3.7
9	KY97C-0519-04-07	5	2	2.5	4.7	0.3	4.3
10	KY97C-0508-01-01A-1	6	3	5.5	4.3	0.5	3.7
11	IL04-8445	9	5	1.5	4.0	0.8	3.3
12	IL04-11003	8	4	2.5	4.3	1.3	5.0
13	OH04-264-58	8	5	2.5	4.0	0.0	4.3
14	OH04-268-39	5	2	2.5	3.8	0.5	4.0
15	OH05-248-38	7	7	1.5	4.5	0.5	6.7
16	MD00W53-07-1	6	5	2.5	2.0	0.5	3.3
17	MD01W233-07-1	5	3	3.0	2.8	1.3	2.3
18	G89209	9	6	7.0	5.2	2.0	5.3
19	G89201	9	5	7.0	4.3	2.3	5.3
20	G89222	6	4	2.5	4.2	1.8	5.7
21	M05-1172	5	3	3.0	5.5	0.3	7.3
22	M05-1526	8	5	2.0	3.8	0.8	6.3
23	M05*1589	5	3	2.5	5.2	0.3	5.0
24	B040798	8	4	4.0	3.8	0.0	4.0
25	M05-1531	7	6	1.6	4.3	0.8	5.7
26	P99751RA1-6-3-94	5	4	4.0	4.7	1.0	6.3
27	P02444A1-23-1	6	6	2.5	3.5	2.0	4.0
28	P05219A1-13-16	6	6	3.5	2.0	2.0	3.7
29	W06-089	5	1	1.0	2.8	0.3	2.3
30	W06-522A	8	6	2.0	3.8	0.5	4.3
31	Z03-1281	7	5	4.5	5.7	1.0	6.0
32	Z03-0496	8	8	4.0	4.8	1.0	5.0
33	GA031238-DH7-7A28	4	3	4.1	2.0	1.0	2.3
34	Blazer exp.	6	2	3.0	3.5	0.3	5.0
35	Probe exp.	7	3	3.5	3.7	0.3	6.3
36	Rumor exp.	6	3	4.5	3.7	0.3	5.0
37	VA05W-151	6	5	4.5	3.2	0.3	2.0
38	VA05W-168	7	4	2.9	3.0	0.0	3.0
39	VA05W-258	7	4	2.0	3.8	0.3	3.3
40	AR98022-19-3	8	3	4.0	3.8	1.5	4.7
41	AR98023-5-1	5	3	5.5	5.2	0.5	4.3
42	NC05-21090	4	5	2.5	2.5	0.8	2.3
LOCATION MEANS		6.6	4.5	3.3	3.9	0.8	4.5
GROWTH STAGE / DATE							

FUSARIUM HEAD BLIGHT (SCAB)

		Urbana IL				
		Scab Incid. %	Scab Severity %	Kolb FHB Index 0-100	Kernel Rating % FDK	ISK Index 0-100
1	Roane	85	34	29	40	52
2	INW0411	82	35	28	53	56
3	Branson	95	63	60	58	71
4	Bess	53	35	18	20	35
5	LA01*425	85	49	41	55	62
6	IL02-19463	67	46	31	27	44
7	B030543	90	50	45	33	55
8	KY97C-0321-02-01	98	81	79	87	88
9	KY97C-0519-04-07	97	64	62	82	81
10	KY97C-0508-01-01A-1	88	55	49	67	70
11	IL04-8445	85	50	43	40	57
12	IL04-11003	85	38	32	37	52
13	OH04-264-58	97	52	51	70	73
14	OH04-268-39	87	45	39	43	57
15	OH05-248-38	98	65	64	77	80
16	MD00W53-07-1	83	49	42	47	58
17	MD01W233-07-1	85	43	36	37	53
18	G89209	73	46	34	53	57
19	G89201	82	51	43	30	52
20	G89222	90	58	53	50	64
21	M05-1172	90	54	49	50	63
22	M05-1526	75	43	32	37	50
23	M05*1589	78	53	42	43	57
24	B040798	93	63	59	83	80
25	M05-1531	87	43	37	63	64
26	P99751RA1-6-3-94	75	28	21	40	47
27	P02444A1-23-1	77	37	28	37	49
28	P05219A1-13-16	97	54	53	60	69
29	W06-089	56	62	37	37	50
30	W06-522A	95	62	61	85	81
31	Z03-1281	97	63	61	70	76
32	Z03-0496	97	50	49	63	69
33	GA031238-DH7-7A28	100	86	86	87	90
34	Blazer exp.	83	51	46	73	70
35	Probe exp.	80	53	43	40	56
36	Rumor exp.	93	63	59	80	79
37	VA05W-151	90	57	52	48	64
38	VA05W-168	88	54	47	42	59
39	VA05W-258	100	65	65	70	77
40	AR98022-19-3	95	79	75	80	84
41	AR98023-5-1	100	96	96	96	97
42	NC05-21090	95	46	44	53	64
LOCATION MEANS		86.8	54.0	48.0	55.8	64.6
GROWTH STAGE / DATE				June 12-19		

FUSARIUM HEAD BLIGHT (SCAB)

		Owensville IN Fogleman		W Lafayette IN Ohm	Lexington KY Van Sanford	Logan Co. KY Van Sanford
		FHB SCAB % FDK	*VISUAL SCAB 0-9	severity	0-9	0-9
1	Roane	22	3.7	1	1.0	5.0
2	INW0411	50	6.0	1	3.0	2.0
3	Branson	28	5.5	7	3.0	7.0
4	Bess	13	3.5	2	2.0	2.5
5	LA01*425	24	4.0	6	2.5	6.0
6	IL02-19463	16	6.3	4	4.0	6.5
7	B030543	50	4.0	2	2.0	4.5
8	KY97C-0321-02-01	50	6.0	2	3.0	7.5
9	KY97C-0519-04-07	34	4.0	8	2.0	7.0
10	KY97C-0508-01-01A-1	26	5.0	3	2.5	5.5
11	IL04-8445	22	4.3	4	2.0	6.0
12	IL04-11003	29	4.0	4	0.0	5.0
13	OH04-264-58	17	4.0	3	1.5	6.5
14	OH04-268-39	23	2.0	7	0.0	1.0
15	OH05-248-38	4	6.0	12	2.5	
16	MD00W53-07-1	32	4.3	9	0.5	5.5
17	MD01W233-07-1	62	3.0	11	0.0	2.0
18	G89209	19	6.0	9	2.5	7.0
19	G89201	17	5.3	4	2.0	6.0
20	G89222	28	3.7	4	3.0	4.0
21	M05-1172	41	3.7	6	2.0	6.0
22	M05-1526	21	3.3	2	1.5	4.0
23	M05*1589	14	4.0	5	2.0	6.5
24	B040798	9	5.7	7	3.0	7.0
25	M05-1531	24	3.3	4	2.0	3.0
26	P99751RA1-6-3-94	13	3.3	0	1.0	1.5
27	P02444A1-23-1	21	5.0	4	2.5	2.5
28	P05219A1-13-16	12	6.0	3	3.0	5.0
29	W06-089	23	4.0	8	0.0	3.5
30	W06-522A	44	5.7	10	2.5	6.0
31	Z03-1281	13	6.0	12	2.5	6.5
32	Z03-0496	48	6.5	7	4.0	4.0
33	GA031238-DH7-7A28	63	5.2	9	3.0	5.0
34	Blazer exp.	30	5.0	4	2.0	6.5
35	Probe exp.	23	5.2	5	1.5	4.0
36	Rumor exp.	42	6.9	10	2.5	5.0
37	VA05W-151	38	4.8	9	2.0	6.0
38	VA05W-168	63	5.7	6	2.0	5.5
39	VA05W-258	23	5.0	8	3.0	6.5
40	AR98022-19-3	10	4.3	10	0.5	6.0
41	AR98023-5-1	34	5.0	10	0.5	5.0
42	NC05-21090	19	4.0	3	1.5	5.5
LOCATION MEANS		28.3	4.7	5.9	2.0	5.0
GROWTH STAGE / DATE			June 1			

FUSARIUM HEAD BLIGHT (SCAB)

			E Lansing MI Lewis		Columbia MO McKendry	Oconto WI Cisar
		Incidence %	Severity %	Index %	Natural infection % florets	
1	Roane	90	28	25	1	1.0
2	INW0411	70	8	5	5	4.7
3	Branson	83	48	39	5	1.0
4	Bess	43	11	4	1	1.3
5	LA01*425	80	30	23	4	0.3
6	IL02-19463				3	0.7
7	B030543	80	19	15	2	2.0
8	KY97C-0321-02-01	90	50	44	5	2.7
9	KY97C-0519-04-07	80	21	17	2	1.0
10	KY97C-0508-01-01A-1	88	29	27	3	0.7
11	IL04-8445	50	22	11	1	2.7
12	IL04-11003	45	0	0	2	1.0
13	OH04-264-58	100	27	26	2	0.3
14	OH04-268-39	75	46	34	1	1.0
15	OH05-248-38	70	41	31	6	0.0
16	MD00W53-07-1	75	19	13	1	1.3
17	MD01W233-07-1	90	23	22	3	3.7
18	G89209	45	18	8	2	1.7
19	G89201	48	20	9	2	2.7
20	G89222	85	27	23	2	1.0
21	M05-1172	75	32	23	2	2.0
22	M05-1526	55	21	17	2	2.3
23	M05*1589	75	21	14	1	1.0
24	B040798				15	2.7
25	M05-1531	50	19	15	1	2.3
26	P99751RA1-6-3-94	73	18	12	1	5.0
27	P02444A1-23-1	53	10	5	1	2.7
28	P05219A1-13-16	95	30	28	1	4.7
29	W06-089	63	33	20	3	0.0
30	W06-522A	75	42	31	8	2.7
31	Z03-1281	75	49	35	4	2.3
32	Z03-0496	50	21	16	1	5.7
33	GA031238-DH7-7A28				9	5.0
34	Blazer exp.	90	30	26	6	3.7
35	Probe exp.	80	28	22	3	0.0
36	Rumor exp.	83	41	35	3	1.7
37	VA05W-151	70	30	24	3	3.0
38	VA05W-168	80	23	19	3	1.7
39	VA05W-258	100	37	36	11	1.7
40	AR98022-19-3	66	26	15	7	2.0
41	AR98023-5-1	75	56	41	5	3.3
42	NC05-21090	65	22	14	1	4.0
LOCATION MEANS		72.6	27.6	21.1	3.4	2.1
GROWTH STAGE / DATE			21 days after anthesis			

POWDERY MILDEW

		Griffin GA Johnson	Clarksville MD Costa	Ingham Co. MI Lewis	Wooster OH Sneller	Blacksburg VA Griffey
1	Roane	2.0	4.0	4.5	2.0	2.5
2	INW0411	0.0	1.5	0.0	0.0	0.5
3	Branson	1.0	1.5	0.0	1.0	0.0
4	Bess	4.0	5.5	0.0	2.0	1.5
5	LA01*425	0.0	0.0	0.0	0.0	0.0
6	IL02-19463	2.0	5.5	0.0	1.0	2.5
7	B030543	0.0	6.0	0.0	2.0	0.5
8	KY97C-0321-02-01	0.0	0.0	0.0	0.0	0.0
9	KY97C-0519-04-07	1.0	2.0	0.0	0.0	0.0
10	KY97C-0508-01-01A-1	0.0	0.0	0.0	0.0	0.0
11	IL04-8445	0.0	4.0	0.0	1.0	1.5
12	IL04-11003	4.0	4.5	1.0	3.0	0.5
13	OH04-264-58	4.0	6.5	1.0	2.0	2.0
14	OH04-268-39	2.0	0.0	0.0	0.0	0.0
15	OH05-248-38	0.0	0.0	0.0	0.0	0.0
16	MD00W53-07-1	0.0	2.0	0.0	0.0	0.0
17	MD01W233-07-1	0.0	0.0	0.0	0.0	0.0
18	G89209	5.0	8.0	0.0	3.0	5.0
19	G89201	2.0	8.0	2.0	3.0	3.0
20	G89222	1.0	0.0	0.0	0.0	0.0
21	M05-1172	0.0	7.0	0.0	3.0	0.0
22	M05-1526	3.0	6.5	0.0	3.0	3.0
23	M05*1589	0.0	5.5	0.0	1.0	1.5
24	B040798	0.0	0.0	0.0	1.0	0.5
25	M05-1531	1.0	7.0	1.5	4.0	0.5
26	P99751RA1-6-3-94	0.0	5.0	0.0	0.0	0.5
27	P02444A1-23-1	1.0	6.5	2.0	2.0	3.5
28	P05219A1-13-16	1.0	7.5	0.0	1.0	0.5
29	W06-089	0.0	4.0	0.0	0.0	0.0
30	W06-522A	0.0	0.0	0.0	0.0	0.5
31	Z03-1281	0.0	0.5	0.0	0.0	0.0
32	Z03-0496	0.0	4.5	0.0	0.0	0.0
33	GA031238-DH7-7A28	0.0	0.0	0.0	0.0	0.0
34	Blazer exp.	1.0	6.0	2.0	1.0	2.0
35	Probe exp.	0.0	0.0	0.0	0.0	0.0
36	Rumor exp.	1.0	3.0	1.0	0.0	0.0
37	VA05W-151	0.0	0.5	0.0	0.0	0.0
38	VA05W-168	0.0	0.0	0.0	0.0	0.0
39	VA05W-258	2.0	2.0	0.0	0.0	1.0
40	AR98022-19-3	0.0	3.5	0.0	1.0	2.5
41	AR98023-5-1	0.0	0.0	0.0	0.0	0.0
42	NC05-21090	0.0	0.0	0.0	0.0	0.0
LOCATION MEANS		0.9	3.0	0.4	0.9	0.8
GROWTH STAGE / DATE				10.5.4		May 22

POWDERY MILDEW

		Warsaw VA Griffey	Oconto WI Cisar
1	Roane	5.0	5.5
2	INW0411	6.0	0.0
3	Branson	3.0	4.5
4	Bess	5.5	3.0
5	LA01*425	0.0	1.0
6	IL02-19463	7.5	5.0
7	B030543	5.5	6.0
8	KY97C-0321-02-01	4.0	0.0
9	KY97C-0519-04-07	5.0	2.5
10	KY97C-0508-01-01A-1	0.0	0.0
11	IL04-8445	6.0	1.5
12	IL04-11003	5.5	3.0
13	OH04-264-58	7.0	5.5
14	OH04-268-39	1.0	1.5
15	OH05-248-38	1.0	1.0
16	MD00W53-07-1	7.5	0.0
17	MD01W233-07-1	0.5	0.0
18	G89209	8.0	7.5
19	G89201	7.0	7.0
20	G89222	2.0	1.5
21	M05-1172	5.5	6.5
22	M05-1526	5.0	4.0
23	M05*1589	6.0	3.5
24	B040798	0.5	3.0
25	M05-1531	7.0	6.5
26	P99751RA1-6-3-94		2.5
27	P02444A1-23-1	6.5	5.5
28	P05219A1-13-16	8.0	2.5
29	W06-089	5.5	3.5
30	W06-522A	1.5	0.5
31	Z03-1281	2.5	1.0
32	Z03-0496	5.5	2.5
33	GA031238-DH7-7A28	0.0	5.0
34	Blazer exp.	5.0	3.0
35	Probe exp.	2.0	0.0
36	Rumor exp.	6.0	0.0
37	VA05W-151	6.0	0.5
38	VA05W-168	2.0	0.0
39	VA05W-258	5.0	0.0
40	AR98022-19-3	4.0	2.0
41	AR98023-5-1	2.0	0.5
42	NC05-21090	0.0	0.5
LOCATION MEANS		4.2	2.6
GROWTH STAGE / DATE		May 12	

POWDERY MILDEW

		Blacksburg VA Griffey GH-PM 2008-09 Isolate Bulk 0-4
1	Roane	4
2	INW0411	34
3	Branson	34
4	Bess	4
5	LA01*425	12tr3
6	IL02-19463	34
7	B030543	4
8	KY97C-0321-02-01	0;
9	KY97C-0519-04-07	23
10	KY97C-0508-01-01A-1	0;tr3
11	IL04-8445	34
12	IL04-11003	4
13	OH04-264-58	4
14	OH04-268-39	3
15	OH05-248-38	12
16	MD00W53-07-1	0;
17	MD01W233-07-1	0;
18	G89209	3
19	G89201	4
20	G89222	23
21	M05-1172	4
22	M05-1526	0;tr3
23	M05*1589	4
24	B040798	3
25	M05-1531	0;
26	P99751RA1-6-3-94	0;
27	P02444A1-23-1	34
28	P05219A1-13-16	34
29	W06-089	4
30	W06-522A	3
31	Z03-1281	4
32	Z03-0496	23
33	GA031238-DH7-7A28	3
34	Blazer exp.	34
35	Probe exp.	12
36	Rumor exp.	2
37	VA05W-151	0;tr3
38	VA05W-168	0;tr3
39	VA05W-258	1
40	AR98022-19-3	3
41	AR98023-5-1	23
42	NC05-21090	4

entry	Line	Pm gene	Habit	source	Pm Isolate Composite 0-4	Rxn Type
1	CI 14114	1a	W	Pmdiff 08 K_h plot 1	0;	R
2	Weihenstephan I	1c	S	Pmdiff 08 K_h plot 2	4	S
3	CI 14118	2	W	Pmdiff 08 K_h plot 3	4	S
4	CI 14120	3a	W	Pmdiff 08 K_h plot 4	4	S
5	CI 14121	3b	W	Pmdiff 08 K_h plot 5	4	S
6	CI 14122	3c	W	Pmdiff 08 K_h plot 6	4	S
7	Ralle	3d	S	Pmdiff 08 K_h plot 7	12-	MR
9	W176	3e	S	Pmdiff 08 K_h plot 8	4	S
10	CI 15888	3f	W	Pmdiff 08 K_h plot 9	4	S
11	Aristide	3g	W	Pmdiff 08 K_h plot 10	4	S
12	CI 14124	4a	W	Pmdiff 08 K_h plot 11	4	S
13	Ronos	4b	W	Pmdiff 08 K_h plot 12	4	S
14	CI 14125	5a	W	Pmdiff 08 K_h plot 13	4	S
15	Kormoran	5b	W	Pmdiff 08 K_h plot 14	4	S
16	I5	5d	W&S	Pmdiff 08 K_h plot 15	;12cn	MR
17	Coker 747	6	W	Pmdiff 08 K_h plot 16	34	S
18	Transec	7	S	Pmdiff 08 K_h plot 17	3	MS
19	Kavkaz	8	W	Pmdiff 08 K_h plot 18	3	MS
20	N14	9	W	Pmdiff 08 K_h plot 19	4	S
21	Wembley	12	S	Pmdiff 08 K_h plot 20	1=	R
22	Pm13	13	S	08GH	0;	R
23	Pm16	16	W	Pmdiff 08 K_h plot 22	;1=	R
24	Amigo	17	W	Pmdiff 08 K_h plot 23	1=	R
25	DH2	21	S	Pmdiff 08 K_h plot 25	0;	R
26	NC96BGTA5	25	W	Pmdiff 08 K_h plot 26	;1=	R
27	NC97BGTD7	34	W	Pmdiff 08 K_h plot 27	23-	I
28	NC96BGTD3	35	W	Pmdiff 08 K_h plot 28	23-	I
29	NC99BGTAG11	37	W	Pmdiff 08 K_h plot 29	0;	R
30	CI 15520	unknown	W	Pmdiff 08 K_h plot 30	34-	S
31	CI 17339	unknown	W	Pmdiff 08 K_h plot 31	4	S
32	NC96BGTA4	unknown	W	Pmdiff 08 K_h plot 32	23-	I
33	NC96BGTA6	unknown	W	Pmdiff 08 K_h plot 33	12	MR
34	NC96BGTD2	unknown	W	Pmdiff 08 K_h plot 34	12+	MR
35	NC96NGTD1	unknown	W	Pmdiff 08 K_h plot 35	23	I
36	NC97BGTAB10	unknown	W	Pmdiff 08 K_h plot 36	12	MR
37	NC97BGTAB9	unknown	W	Pmdiff 08 K_h plot 37	34	S
38	NC97BGTD8	unknown	W	Pmdiff 08 K_h plot 38	2	IMR
39	NC06BGTAG12	unknown	W	Pmdiff 08 K_h plot 39	0;	R
40	NC06BGTAG13	unknown	W	Pmdiff 08 K_h plot 40	0;cn	R

VIRUSES

		Urbana IL	Owensville IN	Clarksville MD	Plymouth NC	Nairn ON	Blacksburg VA
		Kolb	Fogleman	Costa	Murphy	Etienne	Griffey
		BYDV	WSSMV	SBMV	Soil Borne	BYDV	BYDV
		% stunting	0-9	0-9		0-9	
1	Roane	31	6.0	5.0	3.0	0.3	0.0
2	INW0411	33	2.4	1.0	4.0	0.7	0.5
3	Branson	19	5.0	2.0	2.0	0.3	0.0
4	Bess	17	6.7	5.0	2.5	0.5	0.0
5	LA01*425	26	5.7	1.0	2.5	0.5	0.0
6	IL02-19463	25	4.5	3.0	3.5	0.7	0.0
7	B030543	23	7.5	6.5	3.5	0.5	0.0
8	KY97C-0321-02-01	24	0.5	0.5	2.5	1.2	0.0
9	KY97C-0519-04-07	16	0.0	0.0	3.0	0.1	0.0
10	KY97C-0508-01-01A-1	26	0.5	0.0	3.5	0.9	0.0
11	IL04-8445	25	4.5	1.5	3.5	0.5	0.0
12	IL04-11003	21	5.0	1.0	4.0	0.5	0.0
13	OH04-264-58	12	1.0	2.0	3.5	0.2	0.0
14	OH04-268-39	19	4.5	3.0	3.0	0.4	0.0
15	OH05-248-38	14	7.5	4.0	2.0	0.3	0.0
16	MD00W53-07-1	14	6.2	2.0	4.0	0.5	0.0
17	MD01W233-07-1	13	7.5	6.0	3.0	1.4	0.0
18	G89209	22	3.4	1.5	2.5	0.2	0.0
19	G89201	18	3.0	1.5	3.5	0.3	0.0
20	G89222	20	5.8	1.5	4.0	0.6	0.0
21	M05-1172	16	1.5	1.5	2.5	0.3	0.0
22	M05-1526	22	1.5	1.0	2.5	0.5	0.5
23	M05*1589	27	2.9	2.5	3.0	0.1	0.0
24	B040798	14	1.5	1.0	3.0	0.0	0.0
25	M05-1531	26	2.4	0.5	3.5	0.9	0.5
26	P99751RA1-6-3-94	20	2.3	2.0	2.5	0.7	0.0
27	P02444A1-23-1	29	1.5	4.0	2.0	0.1	0.5
28	P05219A1-13-16	49	3.2	1.5	5.0	0.1	0.0
29	W06-089	26	7.7	2.5	3.5	0.5	0.0
30	W06-522A	28	7.5	3.5	3.0	0.6	0.0
31	Z03-1281	22	0.7	1.0	2.5	0.7	0.0
32	Z03-0496	31	3.2	4.5	4.0	1.1	0.5
33	GA031238-DH7-7A28	51	6.7	4.0	2.0	0.7	0.5
34	Blazer exp.	20	0.5	2.5	3.5	1.0	1.0
35	Probe exp.	15	0.5	0.0	3.0	0.3	0.0
36	Rumor exp.	20	5.7	3.5	4.0	0.3	0.0
37	VA05W-151	15	4.2	0.5	4.0	0.3	1.0
38	VA05W-168	22	4.5	7.5	4.5	0.5	0.0
39	VA05W-258	18	4.3	0.5	4.5	0.5	1.0
40	AR98022-19-3	31	7.3	3.5	6.0	1.1	0.5
41	AR98023-5-1	20	7.0	5.0	3.5	0.9	0.0
42	NC05-21090	38	5.3	1.5	5.5	0.5	0.0
LOCATION MEANS		23.2	4.0	2.4	3.3	0.5	0.2
GROWTH STAGE / DATE			May 12				

HESSIAN FLY

W. Lafayette
IN
Cambron

		BIO C	BIO D	BIO O	BIO L
		R-S	R-S	R-S	R-S
1	Roane	9-4	0-12	0-15	0-17
2	INW0411	7-0	0-10	0-13	0-17
3	Branson	0-8	0-12	14-1	0-15
4	Bess	0-7	0-13	0-17	0-18
5	LA01*425	0-12	0-12	0-12	0-18
6	IL02-19463	0-7	0-13	16-2	0-18
7	B030543	0-19	0-11	0-18	0-23
8	KY97C-0321-02-01	0-17	0-11	0-9	0-15
9	KY97C-0519-04-07	0-17	0-12	0-13	0-13
10	KY97C-0508-01-01A-1	0-17	0-13	0-15	0-15
11	IL04-8445	0-12	0-12	12-0	0-17
12	IL04-11003	8-3	12-1	5-12	0-15
13	OH04-264-58	0-15	0-12	14-1	0-20
14	OH04-268-39	4-13	0-12	0-15	0-18
15	OH05-248-38	0-10	0-12	11-3	0-17
16	MD00W53-07-1	0-13	0-13	4-10	0-17
17	MD01W233-07-1	0-9	0-11	0-15	0-19
18	G89209	0-17	0-12	15-2	0-21
19	G89201	0-14	0-11	20-0	0-18
20	G89222	0-15	0-11	7-9	0-21
21	M05-1172	0-16	0-13	0-10	0-21
22	M05-1526	11-2	0-15	0-14	0-20
23	M05*1589	0-15	0-12	11-3	0-18
24	B040798	0-14	12-0	11-6	20-0
25	M05-1531	12-2	11-2	0-18	0-19
26	P99751RA1-6-3-94	0-15	13-0	9-5	14-1
27	P02444A1-23-1	0-12	0-12	0-14	0-19
28	P05219A1-13-16	9-2	14-1	0-16	0-15
29	W06-089	0-9	0-11	10-2	6-6
30	W06-522A	10-0	12-0	11-0	15-0
31	Z03-1281	0-16	0-13	0-14	0-16
32	Z03-0496	10-0	0-12	11-5	0-14
33	GA031238-DH7-7A28	13-0	0-14	15-2	0-14
34	Blazer exp.	0-11	0-13	0-17	0-12
35	Probe exp.	0-15	0-11	17-0	0-21
36	Rumor exp.	0-16	0-12	0-18	0-15
37	VA05W-151	0-14	0-11	16-1	0-18
38	VA05W-168	0-15	0-13	0-19	0-17
39	VA05W-258	15-0	0-16	15-2	0-17
40	AR98022-19-3	0-13	0-14	0-19	0-17
41	AR98023-5-1	0-16	0-11	13-3	19-0
42	NC05-21090	3-14	0-12	0-14	0-18

ACID SOIL TOLERANCE

			Enid OK Carver	
1	Roane	1	2	2
2	INW0411	3	3	3
3	Branson	4	5	4
4	Bess	2	4	3
5	LA01*425	3	4	4
6	IL02-19463	2	2	1
7	B030543	1	2	1
8	KY97C-0321-02-01	2	1	2
9	KY97C-0519-04-07	1	1	2
10	KY97C-0508-01-01A-1	1	0	0
11	IL04-8445	4	4	4
12	IL04-11003	2	2	2
13	OH04-264-58	1	2	0
14	OH04-268-39	4	4	4
15	OH05-248-38	1	3	2
16	MD00W53-07-1	2	1	1
17	MD01W233-07-1	1	1	1
18	G89209	1	3	2
19	G89201	1	3	2
20	G89222	1	3	2
21	M05-1172	1	2	1
22	M05-1526	5	5	5
23	M05*1589	3	3	2
24	B040798	1	1	1
25	M05-1531	5	5	5
26	P99751RA1-6-3-94	4	4	4
27	P02444A1-23-1	1	1	1
28	P05219A1-13-16	4	4	5
29	W06-089	1	2	1
30	W06-522A	3	2	2
31	Z03-1281	2	3	2
32	Z03-0496	2	2	2
33	GA031238-DH7-7A28	2	1	1
34	Blazer exp.	2	2	1
35	Probe exp.	3	4	3
36	Rumor exp.	1	0	1
37	VA05W-151	3	3	1
38	VA05W-168	0	1	1
39	VA05W-258	0	0	0
40	AR98022-19-3	1	1	0
41	AR98023-5-1	1	2	0
42	NC05-21090	1	1	1
LOCATION MEANS		2.0	2.4	2.0
DATE		Nov. 3	Feb. 6	Mar. 17

BLACK CHAFF

		Bay AR Hancock 0-9
1	Roane	1
2	INW0411	3
3	Branson	1
4	Bess	1
5	LA01*425	2
6	IL02-19463	1
7	B030543	2
8	KY97C-0321-02-01	1
9	KY97C-0519-04-07	2
10	KY97C-0508-01-01A-1	3
11	IL04-8445	2
12	IL04-11003	4
13	OH04-264-58	3
14	OH04-268-39	2
15	OH05-248-38	2
16	MD00W53-07-1	2
17	MD01W233-07-1	2
18	G89209	2
19	G89201	2
20	G89222	3
21	M05-1172	2
22	M05-1526	2
23	M05*1589	1
24	B040798	1
25	M05-1531	2
26	P99751RA1-6-3-94	1
27	P02444A1-23-1	1
28	P05219A1-13-16	3
29	W06-089	1
30	W06-522A	1
31	Z03-1281	1
32	Z03-0496	2
33	GA031238-DH7-7A28	4
34	Blazer exp.	2
35	Probe exp.	3
36	Rumor exp.	1
37	VA05W-151	1
38	VA05W-168	1
39	VA05W-258	1
40	AR98022-19-3	3
41	AR98023-5-1	1
42	NC05-21090	2
LOCATION MEANS		1.9

FREEZE TEST

		Raleigh NC Livingston Survival Rating
1	Roane	1.7
2	INW0411	2.8
3	Branson	1.3
4	Bess	1.0
5	LA01*425	2.7
6	IL02-19463	2.2
7	B030543	2.9
8	KY97C-0321-02-01	0.9
9	KY97C-0519-04-07	3.2
10	KY97C-0508-01-01A-1	3.7
11	IL04-8445	2.7
12	IL04-11003	1.9
13	OH04-264-58	1.4
14	OH04-268-39	4.0
15	OH05-248-38	2.7
16	MD00W53-07-1	2.7
17	MD01W233-07-1	3.4
18	G89209	1.6
19	G89201	2.2
20	G89222	3.2
21	M05-1172	1.5
22	M05-1526	2.4
23	M05*1589	0.5
24	B040798	1.0
25	M05-1531	1.4
26	P99751RA1-6-3-94	1.4
27	P02444A1-23-1	1.9
28	P05219A1-13-16	2.0
29	W06-089	2.3
30	W06-522A	1.3
31	Z03-1281	2.1
32	Z03-0496	2.3
33	GA031238-DH7-7A28	3.2
34	Blazer exp.	0.7
35	Probe exp.	3.2
36	Rumor exp.	1.2
37	VA05W-151	1.3
38	VA05W-168	1.9
39	VA05W-258	1.7
40	AR98022-19-3	3.1
41	AR98023-5-1	2.9
42	NC05-21090	2.6
LOCATION MEANS		2.1

MARKER DATA

Raleigh
NC

Brown-Guedira

		Rht1	Rht2	Rht8	Ppd-D1a	Fhb1	Ernie 3BSc	2DL-Wuhan1
1	Roane	mix	mix	no	yes	no	yes	no
2	INW0411	yes	no	no	yes	yes?	no	no
3	Branson	yes	no	no	yes	no	?	no
4	Bess	yes	no	no	no	no	no	no
5	LA01*425	yes	no	no	yes	no	yes	no
6	IL02-19463	yes	no	no	yes	no	no	no
7	B030543	no	yes	no	yes	no	no	no
8	KY97C-0321-02-01	no	yes	no	yes	no	no	no
9	KY97C-0519-04-07	no	yes	no	yes	no	no	no
10	KY97C-0508-01-01A-1	no	yes	no	yes	no	no	no
11	IL04-8445	yes	no	no	yes	no	?	no
12	IL04-11003	yes	no	no	no	no	no	no
13	OH04-264-58	mix	no	no	yes	no	?	no
14	OH04-268-39	yes	no	no	no	no	no	no
15	OH05-248-38	yes	no	no	yes	no	?	no
16	MD00W53-07-1	no	yes	no	no	yes	?	no
17	MD01W233-07-1	no	yes	no	no	no	no	no
18	G89209	yes	no	no	no	no	yes	no
19	G89201	yes	no	no	no	no	yes	no
20	G89222	no	yes	no	no	no	no	no
21	M05-1172	no	yes	no	yes	no	hetero	no
22	M05-1526	yes	no	no	no	no	?	no
23	M05*1589	no	yes	no	yes	no	?	no
24	B040798	yes	no	no	yes	no	no	no
25	M05-1531	yes	no	no	no	no	yes	no
26	P99751RA1-6-3-94	yes	no	no	yes	no	no	no
27	P02444A1-23-1	yes	no	no	yes	yes	no	no
28	P05219A1-13-16	yes	no	no	no	no	no	no
29	W06-089	yes	no	no	no	no	?	no
30	W06-522A	no	yes	no	yes	no	yes	no
31	Z03-1281	no	yes	no	yes	no	?	no
32	Z03-0496	mix	mix	no	yes	no	no	no
33	GA031238-DH7-7A28	no	yes	no	yes	no	no	no
34	Blazer exp.		mix	yes	no	no	no	no
35	Probe exp.	no	yes	no	no	no	no	no
36	Rumor exp.	no	yes	yes	no	no	no	no
37	VA05W-151	no	yes	no	no	no	no	no
38	VA05W-168	no	yes	no	hetero	no	no	no
39	VA05W-258	no	yes	no	yes	yes	no	no
40	AR98022-19-3	yes	no	no	no	no	no	no
41	AR98023-5-1	NA	NA	no	no	no	no	no
42	NC05-21090	no	yes	no	yes	no	?	no

MARKER DATA

Raleigh
NC
Brown-Guedira

		Ernie 5AS	Ning7840 5AS	Ernie 4B	Ernie 2B	Sr36	Sr24/Lr24
1	Roane	hetero	no	no	no	no	no
2	INW0411	no	yes?	no	yes	yes	no
3	Branson	no	no	no	no	no	no
4	Bess	no?	no	yes?	no	no	no
5	LA01*425	no	no	no	no	no	no
6	IL02-19463	no	no	no	no	no	no
7	B030543	no	no	no	yes	yes	no
8	KY97C-0321-02-01	no	no	no	no	no	no
9	KY97C-0519-04-07	no	no	no	no	no	no
10	KY97C-0508-01-01A-1	no	no	no	no	no	no
11	IL04-8445	no	no	yes?	no	no	no
12	IL04-11003	no	no	yes?	no	no	no
13	OH04-264-58	no	no	no	no	no	no
14	OH04-268-39	no	no	no	no	no	no
15	OH05-248-38	no	no	no	no	no	no
16	MD00W53-07-1	no	no	no	no	no	yes
17	MD01W233-07-1	no	no	no	no	no	yes
18	G89209	no	no	no	no	no	no
19	G89201	no	no	no	no	no	no
20	G89222	no	no	no	no	no	no
21	M05-1172	no	no	no	no	no	no
22	M05-1526	yes	no	no	no	no	no
23	M05*1589	no	no	no	no	no	no
24	B040798	no	no	no	no	no	no
25	M05-1531	yes	no	no	hetero	hetero	no
26	P99751RA1-6-3-94	?	yes?	no	no	no	no
27	P02444A1-23-1	no	no	no	no	no	no
28	P05219A1-13-16	no	no	no	yes	yes	no
29	W06-089	no	no	no	no	no	no
30	W06-522A	no	no	no	no	no	no
31	Z03-1281	no	no	no	no	no	no
32	Z03-0496	yes	no	no	no	no	no
33	GA031238-DH7-7A28	no	no	no	yes	yes	no
34	Blazer exp.	no	no	no	yes	yes	no
35	Probe exp.	no	no	no	no	no	no
36	Rumor exp.	no	no	no	yes	yes	no
37	VA05W-151	no	no	no	no	no	yes
38	VA05W-168	no	no	no	no	no	yes
39	VA05W-258	no	no	no	no	no	no
40	AR98022-19-3	no	no	no	no	no	no
41	AR98023-5-1	no	no	no	no	no	no
42	NC05-21090	no	no	no	yes	yes	no

MARKER DATA

Raleigh
NC
Brown-Guedira

		1RS translocation	H13	H9	Lr37/Yr17/Sr38	BVD2/3	Lr34/Yr18
1	Roane	no	no	no	no	no	no
2	INW0411	1RS:1BL	no	no	no	no	no
3	Branson	no	no	no	no	no	no
4	Bess	no	no	no	no	no	no
5	LA01*425	no	no	no	yes	no	no
6	IL02-19463	no	no	no	no	no	no
7	B030543	no	no	no	no	no	no
8	KY97C-0321-02-01	no	no	no	no	no	no
9	KY97C-0519-04-07	no	no	no	no	no	no
10	KY97C-0508-01-01A-1	no	no	no	no	no	no
11	IL04-8445	no	no	no	no	no	no
12	IL04-11003	no	no	no	no	no	no
13	OH04-264-58	no	no	no	no	no	no
14	OH04-268-39	no	no	no	no	no	no
15	OH05-248-38	no	no	no	no	no	hetero?
16	MD00W53-07-1	1RS:1AL	no	no	no	no	no
17	MD01W233-07-1	no	no	no	no	no	no
18	G89209	no	no	no	no	no	no
19	G89201	no	no	no	no	no	no
20	G89222	no	no	no	no	no	no
21	M05-1172	no	no	no	no	no	no
22	M05-1526	1RS:1BL	no	no	no	no	no
23	M05*1589	no	no	no	no	no	no
24	B040798	no	no	no	no	no	no
25	M05-1531	1RS:1BL	no	no	no	no	no
26	P99751RA1-6-3-94	no	no	no	no	no	no
27	P02444A1-23-1	no	no	no	yes	no	no
28	P05219A1-13-16	1RS:1BL	no	no	no	yes	no
29	W06-089	no	no	no	no	no	no
30	W06-522A	no	no	no	no	no	no
31	Z03-1281	no	no	no	no	no	no
32	Z03-0496	1RS:1BL	no	no	no	no	no
33	GA031238-DH7-7A28	no	no	no	yes	no	no
34	Blazer exp.	no	no	no	no	no	no
35	Probe exp.	no	no	no	no	no	no
36	Rumor exp.	no	no	no	no	no	no
37	VA05W-151	no	no		no	no	no
38	VA05W-168	no	no		no	no	no
39	VA05W-258	no	no	no	no	no	no
40	AR98022-19-3	no	no		no	no	no
41	AR98023-5-1	1RS:1BL	no	no	no	no	no
42	NC05-21090	no	no	no	yes	no	no

MARKER DATA

Raleigh
NC

Brown-Guedira

		Bx7 overexpressing	Glu-D1
1	Roane	no	hetero
2	INW0411	no	hetero
3	Branson	no	2+12
4	Bess	no	2+12
5	LA01*425	yes	hetero
6	IL02-19463	no	2+12
7	B030543	no	2+12
8	KY97C-0321-02-01	no	2+12
9	KY97C-0519-04-07	no	2+12
10	KY97C-0508-01-01A-1	yes	5+10
11	IL04-8445	no	5+10
12	IL04-11003	no	5+10
13	OH04-264-58	hetero	hetero
14	OH04-268-39	no	2+12
15	OH05-248-38	no	2+12
16	MD00W53-07-1	no	2+12
17	MD01W233-07-1	no	2+12
18	G89209	no	5+10
19	G89201	no	5+10
20	G89222	no	2+12
21	M05-1172	yes	2+12
22	M05-1526	no	2+12
23	M05*1589	no	2+12
24	B040798	yes	2+12
25	M05-1531	no	2+12
26	P99751RA1-6-3-94	no	5+10
27	P02444A1-23-1	yes	2+12
28	P05219A1-13-16	yes	5+10
29	W06-089	no	5+10
30	W06-522A	no	5+10
31	Z03-1281	no	5+10
32	Z03-0496	no	2+12
33	GA031238-DH7-7A28	no	2+12
34	Blazer exp.	no	2+12
35	Probe exp.	no	2+12
36	Rumor exp.	no	5+10
37	VA05W-151	no	2+12
38	VA05W-168	no	5+10
39	VA05W-258	no	hetero
40	AR98022-19-3	no	5+10
41	AR98023-5-1	yes	2+12
42	NC05-21090	no	2+12

2009 Crop
Advanced Milling and Baking Evaluation
Set 2009 A03

Entries # 920799 - 920840

A total of 42 samples were composited by the Soft Wheat Quality Laboratory (SWQL) from samples produced at Ohio State University in Wooster, Ohio, Agripro in Indiana, and University of Illinois, in Urbana, IL. The standard quality data was compared to the "historical average" for the cultivar Branson, and quality scores for all entries are adjusted to this average. Of the 831 cultivars in the SWQL database of Allis-milled cultivars, Branson ranks 503rd for Milling Score based on data from 1 milling. The following table compares the checks, Branson, Roane, and INW 0411, with their "historical data" from the Advanced Milling databases. We have coded in blue text the values for the checks that are within two standard deviations of the mean of the previous observations in the micro database for that cultivar. Values in black are outside of the normal range observed for the check cultivar.

The samples showed signs of FHB infected kernels but pre-harvest sprouting was not obviously present in this nursery. Weathering was detected but did not play a major factor within this nursery when compared with historical values for the checks. In this set, the test weights of the check standards were higher than average and had a decreased softness equivalent percentage. They also had lower than average gluten strength, based on the lactic acid SRC values. Sucrose SRC, in general, was lower than normal, causing an increase in cookie diameter. Branson, Roane, and INW 0411 was consistent with the historical data from the advanced milling data set as it was within two standard deviations of the mean of its Micro-milling database average. The values for flour quality measures among the checks were consistent with expectations from previous evaluations and the relative rankings of the cultivar. Therefore, we expect the results of the evaluations to be predictive of future performance of these breeding lines.

ENTRY	MILLING	BAKING	SOFT.	TEST	ADJ.	SOFT.	FLOUR	LACTIC	SUCROSE	COOKIE	TOP
	QUALITY	QUALITY	EQUIV.	WT.	YIELD	EQUIV.	PROT.	ACID	SRC	DIAM.	GRADE
	SCORE	SCORE	SCORE	LB/BU	%	%	%	SRC %	%	CM.	
Nursery Average	57.81	43.68	60.04	61.76	70.05	56.45	8.63	105.17	96.21	18.54	5.69
Allis Database - Branson	64.36	55	74.57	60.2	76.39		8.24	95.7		17.45	
Branson	**64.36**	**55**	**74.57**	**61.29**	**71.35**	**61.54**	**8.29**	**109.47**	**88.71**	**18.88**	**7**
Branson - Average	67.08	67.94	80.99	60.78	71.11	63.24	8.27	112.08	89.51	18.57	5.47
Branson - Standard Deviation	6.24	13.16	4.5	2.15	0.78	2.57	0.55	9.1	7.14	0.63	1.22
Roane	**51.8**	**30.48**	**63.92**	**63.75**	**68.85**	**57.81**	**8.53**	**113.82**	**97.84**	**18.14**	6
Roane - Average	59.82	40.32	72.54	63.75	69.09	59.43	8.64	116.23	99.06	17.51	3.26
Roane - Standard Deviation	6.14	14.51	5.65	2.74	1.27	2.36	0.67	9.89	6.41	0.57	1.33
INW 0411	**59.88**	**39.74**	**57.58**	**60.61**	**70.46**	**55.59**	**8.91**	**95.24**	**97.69**	**18.42**	**6**
INW 0411 - Average	66.78	48.93	64.87	59.8	69.63	56.74	8.91	100.84	92.33	17.72	4
INW 0411 - Standard Deviation	6.36	15.96	8.3	2.67	1.19	3.25	0.9	6.92	4.13	0.42	1.2

Conditional formatting set:

BOLD = values less than two standard deviations from the mean of the database average

Black = values greater than two standard deviations from the mean of the database average

Comments from Ed Souza

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 three locations representative of the region were evaluated for milling and baking quality using methods approved by the American Association of Cereal Chemists.

Flour yield is commonly the most heritable trait evaluated by the SWQL. In this nursery, Roane had a flour yield of 68.8%. Breeding lines with flour yield similar or less than Roane, should be viewed as having poor milling quality. Lines with flour yield more than a percentage point less than Roane are likely 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. For commercial use, Bess is typically a low softness equivalent genotype and had a softness equivalent of 51.6%. Cultivars with softness equivalents similar or less than Bess may not be acceptable for use in cake flours.

Selecting sequentially for the following traits, greater flour yield, greater softness equivalent, smaller values of sucrose SRC, and larger cookie diameter identifies the following lines: KY97C-0519-04-07, IL04-11003, G89209, G89201, B040798, W06-089, and W06-522A. 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) would cause problems for the manufacturers if they dominated the grain production of a region. Currently most soft wheat cultivars are in a middle range between Bess and Branson 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 KY97C-0508-01-01A-1 and OH04-264-58. These lines may have added value for the production of crackers, due to the extra gluten strength. OH04-264-58 in previous studies has been shown to carry, the strongest high molecular weight glutenin alleles at the *Glu-1B* and *Glu-1D* loci, the *Glu-1D*$_{al}$ and *Glu-1D*$_{d}$, respectively (the Bx-7 overexpressed allele and the 5+10 allele).

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 NO.			MILLING QUALITY SCORE		BAKING QUALITY SCORE		SOFT. EQUIV. SCORE		MICRO T.W. LB/BU		FLOUR YIELD %	
	Standard = Branson		64.36	C	55.00	D	74.57	B	61.29		71.35	
920799	1	Roane	51.8	D	30.5	F	63.9	C	63.7		68.8	Q
920800	2	INW0411	59.9	D	39.7	F	57.6	D	60.6		70.5	*
920801	3	Branson	64.4	C	55.0	D	74.6	B	61.3		71.4	
920802	4	Bess	55.0	D	36.9	F	46.1	E	62.6		69.5	Q
920803	5	LA01*425	56.7	D	49.6	E	65.2	C	63.2		69.8	*
920804	6	IL02-19463	57.4	D	34.8	F	63.1	C	62.7		70.0	*
920805	7	B030543	63.8	C	60.8	C	55.9	D	63.1		71.2	
920806	8	KY97C-0321-02-01	64.5	C	42.1	E	60.4	C	61.1		71.4	
920807	9	KY97C-0519-04-07	62.7	C	46.9	E	67.7	C	60.5		71.0	
920808	10	KY97C-0508-01-01A-1	52.7	D	50.7	D	63.1	C	62.3		69.0	Q
920809	11	IL04-8445	51.9	D	43.9	E	63.1	C	62.8		68.9	Q
920810	12	IL04-11003	69.9	C	47.1	E	66.2	C	63.2		72.5	
920811	13	OH04-264-58	62.5	C	24.5	F	64.5	C	59.6	*	71.0	
920812	14	OH04-268-39	57.1	D	53.8	D	70.9	B	61.5		69.9	*
920813	15	OH05-248-38	55.8	D	25.4	F	49.6	E	62.1		69.6	Q
920814	16	MD00W53-07-1	41.0	E	21.6	F	30.3	F	62.6		66.7	Q
920815	17	MD01W233-07-1	57.2	D	17.7	F	47.4	E	63.0		69.9	*
920816	18	G89209	67.8	C	58.5	D	68.4	C	62.3		72.0	
920817	19	G89201	62.2	C	48.1	E	71.3	B	61.2		70.9	
920818	20	G89222	47.3	E	45.8	E	60.9	C	61.0		67.9	Q
920819	21	M05-1172	65.7	C	50.2	D	62.8	C	59.8	*	71.6	
920820	22	M05-1526	57.9	D	49.6	E	55.4	D	61.2		70.1	*
920821	23	M05*1589	53.8	D	38.0	F	67.5	C	60.9		69.3	Q
920822	24	B040798	69.8	C	61.8	C	72.2	B	60.0	*	72.4	
920823	25	M05-1531	59.4	D	44.1	E	57.4	D	61.5		70.4	*
920824	26	P99751RA1-6-3-94	46.7	E	43.0	E	54.3	D	61.6		67.8	Q
920825	27	P02444A1-23-1	55.0	D	47.2	E	58.0	D	60.2		69.5	Q
920826	28	P05219A1-13-16	60.3	C	43.8	E	58.0	D	61.0		70.5	*
920827	29	W06-089	60.2	C	65.1	C	66.6	C	62.4		70.5	*
920828	30	W06-522A	59.9	D	55.9	D	65.9	C	60.5		70.5	*
920829	31	Z03-1281	67.8	C	30.1	F	77.0	B	60.7		72.0	
920830	32	Z03-0496	46.2	E	35.8	F	59.0	D	60.8		67.7	Q
920831	33	GA031238-DH7-7A28	60.6	C	29.9	F	47.8	E	63.0		70.6	
920832	34	Blazer exp.	58.2	D	68.7	C	54.3	D	61.8		70.1	*
920833	35	Probe exp.	52.7	D	60.3	C	69.1	C	62.2		69.0	Q
920834	36	Rumor exp.	63.7	C	57.9	D	66.3	C	60.2		71.2	
920835	37	VA05W-151	59.6	D	38.5	F	48.4	E	64.7		70.4	*
920836	38	VA05W-168	57.7	D	45.5	E	55.2	D	63.6		70.0	*
920837	39	VA05W-258	50.8	D	8.8	F	56.7	D	60.8		68.6	Q
920838	40	AR98022-19-3	47.4	E	33.8	F	37.8	F	62.3		68.0	Q
920839	41	AR98023-5-1	57.6	D	57.2	D	60.5	C	61.5		70.0	*
920840	42	NC05-21090	55.4	D	36.1	F	61.1	C	62.8		69.6	Q
average			57.81		43.68		60.04		61.76		70.05	

ADVANCED NURSERY EVALUATION FOR SOFT WHEAT MILLING AND BAKING QUALITY

		SOFT. EQUIV. %		FLOUR PROT. %		LACTIC ACID SRC	SUCROSE SRC %	COOKIE DIAM. CM.		TOP GR.
Standard = Branson		61.54		8.29		109.47	88.71	18.88		7.00
1	Roane	57.8	*	8.53		113.8	97.8	18.14	Q	6
2	INW0411	55.6	*	8.91		95.2	97.7	18.42	*	6
3	Branson	61.5		8.29		109.5	88.7	18.88		7
4	Bess	51.6	Q	9.12	*	96.7	96.8	18.33	Q	6
5	LA01*425	58.2		8.36		100.0	95.8	18.71		5
6	IL02-19463	57.5	*	9.27	*	111.8	97.7	18.27	Q	4
7	B030543	55.0	*	8.30		99.4	93.5	19.05		7
8	KY97C-0321-02-01	56.6	*	8.43		109.6	93.9	18.49	*	5
9	KY97C-0519-04-07	59.1		7.83		109.4	91.5	18.63		5
10	KY97C-0508-01-01A-1	57.5	*	8.48		123.0	95.2	18.75		6
11	IL04-8445	57.5	*	7.99		118.5	99.7	18.54	*	6
12	IL04-11003	58.6		8.17		115.2	90.8	18.64		7
13	OH04-264-58	58.0	*	8.26		131.7	103.1	17.96	Q	5
14	OH04-268-39	60.3		8.32		112.9	94.6	18.84		7
15	OH05-248-38	52.8	Q	8.57		101.1	96.0	17.99	Q	5
16	MD00W53-07-1	46.0	Q	10.03	Q	92.8	103.9	17.87	Q	4
17	MD01W233-07-1	52.0	Q	9.36	*	98.5	95.1	17.76	Q	6
18	G89209	59.4		8.30		98.3	91.9	18.98		6
19	G89201	60.4		9.44	*	92.4	91.1	18.67		7
20	G89222	56.8	*	8.16		94.8	98.3	18.60	*	6
21	M05-1172	57.4	*	8.10		108.9	95.1	18.73		7
22	M05-1526	54.8	Q	9.13	*	87.5	98.5	18.71		5
23	M05*1589	59.1		8.08		107.0	94.8	18.36	Q	7
24	B040798	60.7		8.54		110.8	90.3	19.08		5
25	M05-1531	55.5	*	9.25	*	93.1	94.2	18.55	*	4
26	P99751RA1-6-3-94	54.4	Q	9.17	*	101.4	98.1	18.52	*	4
27	P02444A1-23-1	55.7	*	8.45		99.6	96.3	18.64		6
28	P05219A1-13-16	55.7	*	8.41		86.9	98.7	18.54	*	7
29	W06-089	58.7		8.14		111.1	92.3	19.18		6
30	W06-522A	58.5		8.15		114.3	91.3	18.90		4
31	Z03-1281	62.4		8.07		113.0	93.0	18.13	Q	6
32	Z03-0496	56.1	*	8.64		98.3	102.5	18.30	Q	4
33	GA031238-DH7-7A28	52.2	Q	9.30	*	118.2	98.5	18.12	Q	4
34	Blazer exp.	54.4	Q	8.72		95.0	92.1	19.29		7
35	Probe exp.	59.6		8.97	*	100.0	95.9	19.04		6
36	Rumor exp.	58.6		8.39		119.1	98.1	18.96		5
37	VA05W-151	52.4	Q	8.82		114.7	102.9	18.38	*	7
38	VA05W-168	54.7	Q	8.79		98.0	100.0	18.59	*	6
39	VA05W-258	55.3	*	8.64		118.5	104.6	17.49	Q	5
40	AR98022-19-3	48.7	Q	9.51	*	103.3	98.1	18.24	Q	5
41	AR98023-5-1	56.6	*	8.63		80.4	95.6	18.94		6
42	NC05-21090	56.8	*	8.65		113.4	98.2	18.31	Q	7
		56.45		8.63		105.17	96.21	18.54		5.69

ADVANCED NURSERY EVALUATION FOR SOFT WHEAT MILLING AND BAKING QUALITY

GRAIN CONDITION

	Standard = Branson	FHB (0-3)	WEATHERING (Yes/No)	SPROUTING (0-3)	BLACK POINT (0-3)	SHRIVELING AFTER CLEANING (0-3)	COLOR
1	Roane	1	n	0	0	0	red
2	INW0411	1	y	0	0	1	red
3	Branson	1	y	0	0	0	red
4	Bess	1	y	0	0	0	red
5	LA01*425	1	y	0	0	0	red
6	IL02-19463	1	y	0	0	0	red
7	B030543	0	y	1	0	0	red
8	KY97C-0321-02-01	1	y	0	0	1	red
9	KY97C-0519-04-07	1	y	1	0	1	red
10	KY97C-0508-01-01A-1	1	y	0	1	0	red
11	IL04-8445	1	y	0	0	0	red
12	IL04-11003	1	n	0	1	0	red
13	OH04-264-58	1	y	0	0	1	red
14	OH04-268-39	1	y	0	0	1	red
15	OH05-248-38	1	y	0	0	1	red
16	MD00W53-07-1	0	n	0	2	2	red
17	MD01W233-07-1	0	n	0	2	1	red
18	G89209	0	y	0	0	1	red
19	G89201	0	n	0	1	0	red
20	G89222	0	y	0	0	0	red
21	M05-1172	1	y	0	0	1	red
22	M05-1526	0	y	0	0	1	red
23	M05*1589	1	n	0	0	0	red
24	B040798	1	y	0	0	0	red
25	M05-1531	0	y	0	0	1	red
26	P99751RA1-6-3-94	0	y	0	0	1	red
27	P02444A1-23-1	0	y	0	0	1	red
28	P05219A1-13-16	0	y	0	0	1	red
29	W06-089	0	y	0	1	1	red
30	W06-522A	0	y	0	0	1	red
31	Z03-1281	1	y	0	0	1	red
32	Z03-0496	0	y	0	0	2	red
33	GA031238-DH7-7A28	1	y	0	1	2	red
34	Blazer exp.	1	y	0	0	1	red
35	Probe exp.	0	y	0	0	0	red
36	Rumor exp.	0	y	0	0	1	red
37	VA05W-151	1	n	0	1	1	red
38	VA05W-168	0	n	0	1	1	red
39	VA05W-258	1	y	0	0	0	red
40	AR98022-19-3	0	y	0	0	2	red
41	AR98023-5-1	1	y	0	0	1	red
42	NC05-21090	1	y	0	0	1	red

ADVANCED NURSERY EVALUATION FOR SOFT WHEAT MILLING AND BAKING QUALITY

		COMMENTS
Standard = Branson		
1	Roane	most FHB from IL
2	INW0411	
3	Branson	most FHB from IL
4	Bess	
5	LA01*425	
6	IL02-19463	most FHB from IL
7	B030543	sprout from IL
8	KY97C-0321-02-01	most FHB from IL
9	KY97C-0519-04-07	
10	KY97C-0508-01-01A-1	most FHB from IL; most BL pt from Agripro
11	IL04-8445	
12	IL04-11003	
13	OH04-264-58	
14	OH04-268-39	most FHB from IL
15	OH05-248-38	most FHB from IL
16	MD00W53-07-1	BL pt in all 3 groups
17	MD01W233-07-1	BL pt in all 3 groups
18	G89209	
19	G89201	
20	G89222	
21	M05-1172	most FHB from IL
22	M05-1526	
23	M05*1589	
24	B040798	
25	M05-1531	
26	P99751RA1-6-3-94	
27	P02444A1-23-1	
28	P05219A1-13-16	
29	W06-089	most BL pt from Agripro
30	W06-522A	
31	Z03-1281	most FHB from IL
32	Z03-0496	missing sample from AgriPro
33	GA031238-DH7-7A28	
34	Blazer exp.	most FHB from IL
35	Probe exp.	
36	Rumor exp.	
37	VA05W-151	most FHB from IL
38	VA05W-168	
39	VA05W-258	
40	AR98022-19-3	
41	AR98023-5-1	
42	NC05-21090	

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

	STD. DATA		AVG. DATA
MILLING QUALITY SCORE	64.36	C	57.81
BAKING QUALITY SCORE	55.00	D	43.68
SE SCORE	74.57	B	60.04

	STD. DATA	AVG. DATA	ADJ. L.S.D.	*	NOTATION BEGINS Q
TEST WEIGHT	61.29	61.76	1.18	60.11	58.92
FLOUR YIELD	71.35	70.05	0.77	70.59	69.82
SOFTNESS EQUIV.	61.54	56.45	3.31	58.23	54.92
FLOUR PROTEIN	8.29	8.63	0.67	8.97	9.64
SUCROSE SRC	88.71	96.21			
LACTIC ACID RETENTION	109.47	105.17			
COOKIE DIAMETER	18.88	18.54	0.25	18.62	18.37

	A	B	C	D	E	F	TOTAL
MILLING SCORE	0	0	15	22	5	0	
BAKING SCORE	0	0	5	8	13	16	42
SOFTNESS EQUIV. SCORE	0	5	19	11	5	2	

ADVANCED NURSERY EVALUATION
FOR SOFT WHEAT MILLING AND BAKING QUALITY
2009 Crop

HISTORICAL

ENTRY	MILLING QUALITY SCORE	BAKING QUALITY SCORE	SOFT. EQUIV. SCORE	TEST WT. LB/BU	ADJ. YIELD %	SOFT. EQUIV. %	FLOUR PROT. %	LACTIC ACID SRC	SUCROSE SRC %	COOKIE DIAM. CM.	TOP GR.
Nusery Average	57.81	43.68	60.04	61.76	70.05	56.45	8.63	105.17	96.21	18.54	5.69
Allis Database - Branson	64.36	55.00	74.57	60.20	76.39		8.24	95.70		17.45	
Branson	**64.36**	**55.00**	**74.57**	**61.29**	**71.35**	**61.54**	**8.29**	**109.47**	**88.71**	**18.88**	**7.00**
Branson - Average	67.08	67.94	80.99	60.78	71.11	63.24	8.27	112.08	89.51	18.57	5.47
Branonn - Standard Deviation	6.24	13.16	4.50	2.15	0.78	2.57	0.55	9.10	7.14	0.63	1.22
Roane	**51.80**	**30.48**	**63.92**	**63.75**	**68.85**	**57.81**	**8.53**	**113.82**	**97.84**	**18.14**	6.00
Roane - Average	59.82	40.32	72.54	63.75	69.09	59.43	8.64	116.23	99.06	17.51	3.26
Roane - Standard Deviation	6.14	14.51	5.65	2.74	1.27	2.36	0.67	9.89	6.41	0.57	1.33
INW 0411	**59.88**	**39.74**	**57.58**	**60.61**	**70.46**	**55.59**	**8.91**	**95.24**	**97.69**	**18.42**	**6.00**
INW 0411 - Average	66.78	48.93	64.87	59.80	69.63	56.74	8.91	100.84	92.33	17.72	4.00
INW 0411 - Standard Deviation	6.36	15.96	8.30	2.67	1.19	3.25	0.90	6.92	4.13	0.42	1.20

Conditional formatting set:

BOLD = values less than two standard deviations from the mean of the database average

Black = values greater than two standard deviations from the mean of the database average