SOUTHERN UNIFORM WINTER WHEAT SCAB NURSERY

2007 NURSERY REPORT

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This is a progress report of cooperative investigations underway and funded by the U. S. Wheat and Barley Scab Initiative, State Agricultural Experiment Stations, private companies and the United States Department of Agriculture, Agricultural Research Service. This report contains preliminary data that have not been sufficiently confirmed to justify general release; interpretations may be modified with additional experimentation. Confirmed results will be published through established channels. The report is a tool for the use of the cooperators and their official staff and those persons having direct interest in the development of agricultural research programs. This report is not intended for publication and should not be referred to in literature citations or quoted in publicity or advertising. Use of the data may be granted for certain purposes upon written request to the authors.

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This Report is available on the Web at;
http://scabusa.org/research_var.html#nusery

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LOCATION NOTES

Bay, Arkansas

- Cooperators: June Hancock,
  Agripro-Syngenta Seeds Inc.
  Abandoned after sub-zero temperatures April6th to April 9th, 2007.

Fayetteville and Kibler, Arkansas

- Cooperators: Gene Milus
- University of Arkansas
- Fayetteville location abandoned after Easter weekend freeze.

Urbana, Illinois

Cooperators: Fred Kolb and Eric Brucker.

- University of Illinois
- Reps: 3 RCB. Plot size: 1 row x 3'. Seed date: 9/27/06. Harvest date: 7/02/07
- Fertilizer: 40 lb N/ac. preplant. P and K okay; no spring topdress.
- Field inoculation method: 325 lbs / ac corn spawn split applied on 4/10, 4/24, and 5/3.
- Precipitation during grain fill: Misted four times per day for 60 minutes each during flowering.
- Freezing temperatures over Easter weekend and many lines were omitted.

Lexington, Kentucky

- Cooperators: Nicki Mundell and Dave Van Sanford
  University of Kentucky
- Reps: 2 RCB. Plot size: Two 4' rows. Seed date: 10/24/06. Harvest date: 6/27/07
- Fertilizer: P, K, according to soil tests, 110 lb N split application
- Field inoculation method: scabby corn
- Precipitation during grain fill: 2.42 in plus mist irrigation.
- Avg temperature during grain fill: 72^{o}F.

Blacksburg, Virginia

- Cooperators: Carl A. Griffey, Patty Gundrum and Jody Fanelli.
  Virginia Tech
- Reps: 3. Plot size: 4 x 5 ft (20 ft^2). Seed date: 10/15/06. Harvest date: 7/02/07
- Fertilizer: Fall-Lime 1.0 ton/ac, 30 N / 60 P / 80 K lb/ac - Spring N 100 lb/ac
- Field inoculation method: conidial suspension (5 x 10^4 spores / ml) sprayed at anthesis.
- Greenhouse inoculation method: point inoculation (5 x 10^4 spores / ml).

Kinston, North Carolina

- Cooperators: Rene Navarro, Paul Murphy, Christina Cowger,
  North Carolina State University
- Reps: 2 RCB. Plot size: 4 rows x 3.5' long. Seed date: 10/24/2006. Harvest date: 6/5/2007.
- Fertilizer: 130 lbs N split application. P and K as per soil test.
- Field Inoculation method: Conidial suspension (3 x 10^4 spores/ml) sprayed on plots at anthesis. Scabby corn distributed three weeks prior to anthesis.
- Precipitation during grain fill: Misted three times per day for 3 weeks beginning at anthesis.
- Greenhouse: point inoculation with 10 μL at 50,000 spores per ml.
- Avg temp. during grain fill: 65F
- Freezing temperatures over Easter weekend occurred when one-third of Nursery was headed. No data reported for entries headed at that time.

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Columbia, Missouri

- Cooperator: Anne L. McKendry, Julie Solomon and David Tague.
  University of Missouri
  Fertilizer: 40 Fall/80 Spring N; 40 lb/acre P; 60 lb/acre K.
- Reps: 3 RCB. Plot size: 4 rows x 5' plots. Seed date: 10/06/05. Harvest date: 6/28/06
- Field inoculation method: Sprayed at 75% heading with a suspension of *Fusarium graminearum* macroconidia concentrated to 50,000 spores/mL
- Precipitation during grain fill: Overhead mist irrigation
- March was the 3rd warmest on record and temperatures from March 21st through April 3rd were 14 - 16 degrees above normal. On April 4, 5, 6, 7, and 8 low temperatures were 27, 29, 29, 23, and 19 degrees and freeze damage affected the wheat. Entries 21 and 22 did not recover and thus, no data taken. Heading period was delayed and with less variance between the different entries due to the freeze damage.

Salisbury,Maryland.

- Cooperator: Jose Costa, and Aaron Cooper.
  University of Maryland.
- Reps: 2 RCB. Plot size: 1 rows x 4' long. Seed date: 10/23/06. Harvest date: 6/14/07.
- Fertilizer: 120 lbs N. P and K as per soil test.
- Field inoculation method: Scabby corn grain infected with Fusarium scattered three weeks before anthesis.
- Precipitation during grain fill: Misted daily.

Winnsboro, Louisiana.

- Cooperator: Harrison, Padgett, Growth, Arceneaux, Purvis and Strickland.
  Louisiana State University.
- Reps: 2 RCB. Plot size: 2 X 14" x 4' rows
- Field inoculation method: scabby corn applied at flag and boot.
- Misted daily from boot through grainfill

Griffin, Georgia

- Cooperator: Jerry Johnson.
- University of Georgia.
  Abandoned after sub-zero temperatures April6th to April 9th, 2007.

Szeged, Hungary.

Cooperator: Akos Mesterhazy.
Cereal Research Institute.

- Fertilizer: NPK
- Field inoculation method: Four separate isolates sprayed on each plot and inoculated heads enclosed in plastic bags.

Fundulea, Romania.
Cooperator: Marianna Ittu.
National Agricultural Research Development Institute.

- Seed date: 10/13/06. Harvest date: 7/03/07.
- Fertilizer: 110 kg N
- Three replications. Plot size: 0.5 sq.m.
- Field inoculation method: Syringe (point) inoculation at anthesis with four *F. graminearum* and *F. culmorum* isolates. Twenty - 25 heads inoculated per replication per isolate.
- Field scoring: Percent of damaged spikelets at 10 and 20 days post inoculation.
- Precipitation during grain fill: 31 mm . (variable for the same period over 43 yrs=67 mm).
- Temperature during grain fill: Sum of grads =756.9° C
- Postharvest: Relative weight of heads, % of control (RWH, %) ; Relative weight of kernels from inoculated heads, % of control(RWK,%);FDK, %;
- **SEVERE HIGH TEMPERATURES AND DROUGHT DURING THE SPRING AND THE GRAIN FILLING PERIOD**

Gene Milus in his Arkansas, USA FHB nursery prior to having his research plans dashed, like many in the region, from four nights of sub-zero temperatures at Easter weekend, 2007

FHB symptoms in susceptible check 'Coker 9835' (left) and resistant check 'Bess' (right) in inoculated field nursery, Szeged, Hungary

Recently emerged head rows in an FHB screening nursery, Plymouth NC, Fall 2008.

View original, color versions of photographs at: http://www.scabusa.org/research_vdhr.html#vdhr-updates

Entry List and Pedigrees, 2007 Nursery

ENTRY NO	CULTIVAR/ DESIGNATION	PEDIGREE	CONTRIBUTOR	IN NURSERY SINCE
1	ERNIE	*Pike /3/ Stoddard / Blueboy // Stoddard D1707*	CHECK(RES)	1999-00
2	COKER 9835	*CK68-19 // CK61-19*3 / IN4946A4-18-2-10-2 /4/ Bb /3/ CK65-20*5 / W17-TRANS // TIFT /5/ P 2550*	CHECK(SUS)	2000-01
3	BESS		CHECK(RES)	2006-07
4	AR 97002-10-2	*AR 369-4-2 / NING 8026*	Bacon	2005-06
5	AR 97007-4-1	*AR 482A-11-2 / Super Zlatna*	Bacon	2005-06
6	AR 97124-4-2	*P88288C1-6-1-2 / TERRA SR204*	Bacon	2005-06
7	AR 98127-1-1	*ERNIE // ERNIE / PI 590277*	Bacon	2006-07
8	AR 850-1-1	*VERNE / CERUGA-5*	Bacon	2006-07
9	AR 97044-10-2	*ELKHART / AR 494B-2-2*	Bacon	2006-07
10	B020815	*PION 2552 / COKER 9543*	Hancock	2006-07
11	B017650	*STUCKY / L910097*	Hancock	2006-07
12	D02-8443	*CLEMENS / MASON // SHILOH*	Hancock	2006-07
13	M01-4377	*COKER 9663 / VA91-54-219*	Fogleman	2006-07
14	M03-3002	*WINTER X WINTER FHB BULK*	Fogleman	2006-07
15	M03-3104	*HOPEWELL / M94-1107*	Fogleman	2006-07
16	M03-3616	*HOPEWELL / PATTON*	Fogleman	2006-07
17	M03*3861	*PION 2552 / M94-1407*	Fogleman	2006-07
18	M03*3877	*T8141 / D93-6093*	Fogleman	2006-07
19	LA01096D-98	*ND2928 / LA841*	Harrison	2006-07
20	LA01143D-95	*LA841 / SHOU CHOU // LA841*	Harrison	2006-07
21	LA01155D-37	*C9663 / PI 225160 // LA841*	Harrison	2006-07
22	LA01161D-124	*LA422 / CIM1FHB5 // PIO 26R61*	Harrison	2006-07
23	LA01162D-142	*LA422 / FUTAI 8944 // LA841*	Harrison	2006-07
24	MD01W233-06-1	*MCCORMICK/CHOPTANK*	Costa	2006-07
25	NC04-20812	*NC94-6275 / P86958(HF) // VA96-54-234*	Murphy	2006-07
26	NC04-15533	*NC94-6275 / P86958(HF) // VA96-54-234*	Murphy	2006-07
27	NC04-14932	*NC94-7405 / MARION // NC94-7197*	Murphy	2006-07
28	NC04-22849	*P86958(HF) / C9835 // NC94-7197*	Murphy	2006-07
29	NC05-21984	*YAN-SHI 9 / P2580 // NC-NEUSE*	Murphy	2006-07
30	NC05-25083	*FUTAI 8944/ P2684 // NC-NEUSE(5A)*	Murphy	2006-07
31	VA06W-539	*NING 7840 / PIO 2684 //VA96-54-244, F10*	Griffey	2006-07
32	VA06W-540	*NING 7840 / PIO 2684 //VA96-54-244, F10*	Griffey	2006-07
33	VA06W-541	*NING 7840 / PIO 2691 // ROANE, F10*	Griffey	2006-07
34	VA06W-571	*ROANE / PIO 2684 // OH 552, F8*	Griffey	2006-07
35	VA06W-574	*ROANE / PIO 2684 // OH 552, F8*	Griffey	2006-07
36	VA06W-575	*ROANE / PIO 2684 // OH 552, F8*	Griffey	2006-07
37	GA991109-6E8	*Ernie / Pio 2684 // 901146*	Johnson	2006-07
38	GA991109-6A7	*Ernie / Pio 2684 // 901146*	Johnson	2006-07
39	GA031307-DH6-O6	*AGS 2000 / VA01W-461*	Johnson	2006-07
40	GA031454-DH38-6N8	*VA01-461 / USG 3592*	Johnson	2006-07
41	GA031454-DH40-6N40	*VA01-461 / USG 3592*	Johnson	2006-07
42	GA991371-6E12	*GA931521 / 2*AGS 2000*	Johnson	2006-07
43	F02122GP1	*96257G5-12/GLOSA*	Ittu	2006-07
44	F01302GP3-1	*K593U139/DLB/DLB*	Ittu	2006-07
45	F98039G5-10INC	*508U3-2FZ2/135U3-1*	Ittu	2006-07

FHB Incidence (1-100)

	CULTIVAR/ DESIGNATION	COL'BIA MO	RANK	S'BURY MD	RANK	B'BURG VA	RANK	URBANA IL	RANK	KINSTON NC	RANK	LEX'TON KY	RANK	MEAN ALL LOC.	RANK
1	ERNIE	100		60	28	7	3	90		11		48	1	45	2
2	COKER 9835	100		60	28	83	43	.		45		95	43	77	45
3	BESS	95		20	3	0	1	.		7		58	5	36	1
4	AR 97002-10-2	100		45	13	17	7	.		24		66	11	50	5
5	AR 97007-4-1	100		65	34	73	39	.		40		100	45	76	44
6	AR 97124-4-2	98		40	11	23	10	47		7		80	27	50	5
7	AR 98127-1-1	95		65	34	13	5	.		11		68	13	50	5
8	AR 850-1-1	100		18	1	47	23	85		20		85	34	54	14
9	AR 97044-10-2	98		50	16	50	26	.		11		75	18	57	19
10	B020815	100		60	28	60	31	87		27		80	27	65	36
11	B017650	100		60	28	63	34	.		.		78	22	66	37
12	D02-8443	100		75	42	13	5	90		21		67	12	55	17
13	M01-4377	97		40	11	53	29	88		42		78	22	62	28
14	M03-3002	97		50	16	10	4	80		24		80	27	52	9
15	M03-3104	100		65	34	3	2	48		24		90	39	56	18
16	M03-3616	97		35	7	27	12	67		12		78	22	50	5
17	M03*3861	97		50	16	47	23	82		40		83	31	63	29
18	M03*3877	98		55	21	67	35	90		39		80	27	68	39
19	LA01096D-98	100		55	21	73	39	.		.		90	39	71	42
20	LA01143D-95	100		85	45	67	35	.		.		59	6	69	40
21	LA01155D-37	.		55	21	67	35	.		.		55	3	61	25
22	LA01161D-124	.		50	16	43	20	.		.		60	7	53	10
23	LA01162D-142	100		50	16	27	12	.		.		95	43	59	22
24	MD01W233-06-1	100		18	1	47	23	80		18		83	31	53	10
25	NC04-20812	100		45	13	60	31	.		20		68	13	58	21
26	NC04-15533	100		35	7	37	17	.		24		73	16	54	14
27	NC04-14932	100		35	7	67	35	88		31		85	34	63	29
28	NC04-22849	100		60	28	40	19	97		36		78	22	63	29
29	NC05-21984	98		65	34	50	26	.		42		68	13	64	32
30	NC05-25083	100		30	4	97	45	.		21		55	3	61	25
31	VA06W-539	100		55	21	43	20	.		.		93	42	64	32
32	VA06W-540	98		35	7	53	29	.		.		75	18	57	19
33	VA06W-541	100		55	21	60	31	.		.		75	18	64	32
34	VA06W-571	98		70	38	83	43	.		.		60	7	69	40
35	VA06W-574	100		70	38	33	16	.		7		85	34	59	22
36	VA06W-575	100		75	42	43	20	.		11		78	22	61	25
37	GA991109-6E8	98		70	38	30	14	.		.		48	1	53	10
38	GA991109-6A7	98		55	21	73	39	.		.		65	10	64	32
39	GA031307-DH6-O6	98		60	28	50	26	.		39		85	34	66	37
40	GA031454-DH38-6N8	100		30	4	30	14	.		11		73	16	49	4
41	GA031454-DH40-6N40	100		80	44	20	9	.		15		83	31	60	24
42	GA991371-6E12	100		70	38	73	39	.		.		88	38	74	43
43	F02122GP1	100		45	13	17	7	53		20		90	39	54	14
44	F01302GP3-1	100		30	4	37	17	70		7		63	9	47	3
45	F98039G5-10INC	100		55	21	23	10	77		11		75	18	53	10
	Mean	99		52		44		76		29		75		61	
	L.S.D.(0.05)	4		34		30		32		19		19		29	
	CV%	2		32		50		25		33		21		24	

FHB Severity (1-100)

	CULTIVAR/ DESIGNATION	KIBLER AR		COL'BIA MO		S'BURY MD		B'BURG VA		URBANA IL	KINSTON NC	LEX'TON KY		SZEGED[1] HUN		FUN'LEA[1] ROM		MEAN ALL LOC.	
			RANK		RANK		RANK		RANK	RANK	RANK		RANK		RANK		RANK		RANK
1	ERNIE	28	16	21	8	35	27	3	2	35	9	31	7	1	7	28	8	19	3
2	COKER 9835	77	42	41	42	50	38	35	44	.	37	39	16	24	45	52	30	44	43
3	BESS	20	2	16	1	8	1	0	1	.	10	27	3	1	7	17	1	12	1
4	AR 97002-10-2	35	32	25	15	28	17	8	4	.	44	43	23	2	14	44	20	28	16
5	AR 97007-4-1	33	28	38	40	70	45	29	40	.	43	79	45	6	30	56	33	44	43
6	AR 97124-4-2	23	8	30	29	30	19	12	6	30	25	40	18	3	20	55	32	27	13
7	AR 98127-1-1	.	.	23	10	28	17	20	22	.	27	60	43	6	30	44	20	30	24
8	AR 850-1-1	32	25	17	2	10	3	21	24	53	40	48	29	12	41	64	39	31	26
9	AR 97044-10-2	47	39	27	22	50	38	26	37	.	21	55	37	14	43	66	41	38	40
10	B020815	30	18	30	29	30	19	25	34	57	59	45	26	13	42	49	24	35	36
11	B017650	35	32	32	35	40	30	25	34	.	.	49	31	7	34	61	37	36	37
12	D02-8443	42	38	31	34	50	38	14	9	71	13	47	27	9	37	60	36	33	31
13	M01-4377	28	16	19	4	23	8	16	12	65	53	55	37	9	37	46	23	31	26
14	M03-3002	30	18	24	12	30	19	12	6	65	32	47	27	3	20	34	11	26	11
15	M03-3104	33	28	27	22	45	35	10	5	42	35	35	12	5	28	67	42	32	30
16	M03-3616	23	8	24	12	25	13	14	9	32	21	44	25	5	28	56	33	26	11
17	M03*3861	33	28	28	24	30	19	24	30	64	62	33	9	6	30	49	24	33	31
18	M03*3877	30	18	22	9	43	33	25	34	53	63	50	34	7	34	50	27	36	37
19	LA01096D-98	32	25	25	15	40	30	24	30	.	.	28	4	3	20	45	22	29	20
20	LA01143D-95	25	12	40	41	60	44	36	45	.	.	55	37	1	7	51	29	39	41
21	LA01155D-37	.	.	.	.	30	19	30	43	.	.	43	23	0	1	41	18	29	20
22	LA01161D-124	30	18	.	.	33	25	24	30	.	.	23	1	4	27	58	35	29	20
23	LA01162D-142	30	18	33	36	38	29	19	19	.	.	24	2	1	7	50	27	28	16
24	MD01W233-06-1	23	8	19	4	13	4	18	17	37	33	36	13	2	14	26	4	21	5
25	NC04-20812	38	37	28	24	23	8	20	22	.	27	49	31	3	20	36	14	28	16
26	NC04-15533	33	28	30	29	23	8	13	8	.	36	40	18	2	14	67	42	30	24
27	NC04-14932	52	41	26	18	20	6	18	17	66	50	50	34	7	34	39	16	33	31
28	NC04-22849	48	40	41	42	45	35	26	37	79	61	62	44	9	37	61	37	44	43
29	NC05-21984	35	32	26	18	45	35	19	19	.	40	48	29	6	30	42	19	33	31
30	NC05-25083	25	12	33	36	23	8	29	40	.	11	42	21	0	1	53	31	27	13
31	VA06W-539	.	.	23	10	33	25	21	24	.	.	30	6	0	1	27	7	23	8
32	VA06W-540	20	2	28	24	18	5	23	27	.	.	40	18	1	7	26	4	23	8
33	VA06W-541	23	8	28	24	30	19	23	27	.	.	39	16	0	1	29	10	25	10
34	VA06W-571	35	32	30	29	40	30	29	40	.	.	38	15	0	1	22	3	28	16
35	VA06W-574	25	12	30	29	35	27	17	15	.	12	57	40	2	14	37	15	27	13
36	VA06W-575	30	18	36	39	50	38	17	15	.	16	50	34	1	7	49	24	31	26
37	GA991109-6E8	22	5	25	15	43	33	19	19	.	.	36	13	3	20	65	40	31	26
38	GA991109-6A7	25	12	20	7	23	8	26	37	.	.	58	41	3	20	76	44	34	35
39	GA031307-DH6-O6	35	32	19	4	25	13	22	26	.	74	58	41	14	43	39	16	36	37
40	GA031454-DH38-6N8	20	2	17	2	20	6	23	27	.	20	33	9	1	7	17	1	19	3
41	GA031454-DH40-6N40	30	18	26	18	55	43	16	12	.	25	42	21	2	14	34	11	29	20
42	GA991371-6E12	32	25	33	36	50	38	24	30	.	.	49	31	9	37	87	45	41	42
43	F02122GP1	22	5	26	18	25	13	6	3	46	34	33	9	2	14	28	8	22	6
44	F01302GP3-1	13	1	29	28	8	1	15	11	30	19	29	5	0	1	26	4	17	2
45	F98039G5-10INC	22	5	24	12	25	13	16	12	49	23	31	7	3	20	34	11	22	6
	Mean	31		28		33		20		50	21	43		5		46		30	
	L.S.D.(0.05)	9		11		20		12		21	18	13		1.7		.		20	
	CV%	.		25		30		44		24	44	26		.		.		34	

[1]DATA BY INDIVIDUAL ISOLATES ON FOLLOWING PAGES

Severity by Individual Isolates, Szeged, Hungary

	Cultivar/ Designation	*F. culmor.* Isol. 12375	*F. culmor.* Isol. 12551	*F. gramin.* Isol. 12377	*F. culmor.* Isol. 12375B	Mean All Isolates	*RANK*
1	ERNIE	3.4	0.0	0.4	0.9	1	*7*
2	COKER 9835	28.3	7.4	15.6	44.4	24	*45*
3	BESS	0.2	0.0	0.1	2.4	1	*7*
4	AR 97002-10-2	2.4	0.4	1.4	4.1	2	*14*
5	AR 97007-4-1	5.8	1.7	1.5	16.1	6	*30*
6	AR 97124-4-2	4.3	0.0	2.3	6.8	3	*20*
7	AR 98127-1-1	1.6	0.0	0.2	22.8	6	*30*
8	AR 850-1-1	8.8	2.1	4.7	32.2	12	*41*
9	AR 97044-10-2	28.9	0.4	0.9	27.8	14	*43*
10	BO20815	19.4	0.9	2.7	27.8	13	*42*
11	BO17650	6.3	1.4	0.0	19.4	7	*34*
12	DO2-8443	6.4	0.1	0.9	28.9	9	*37*
13	MO1-4377	9.1	2.9	2.2	20.6	9	*37*
14	MO3-3002	2.1	0.0	0.6	8.6	3	*20*
15	MO3-3104	4.8	0.0	1.7	13.2	5	*28*
16	MO3-3616	3.9	0.9	3.9	12.2	5	*28*
17	MO3*-3861	6.7	1.1	1.3	16.7	6	*30*
18	MO3*-3877	5.4	0.8	1.0	21.1	7	*34*
19	LAO1096D-98	3.3	0.0	0.0	9.1	3	*20*
20	LAO1143D-95	0.4	0.0	0.0	2.4	1	*7*
21	LAO1155D-37	0.1	0.0	0.0	0.0	0	*1*
22	LAO1161D-124	2.7	0.4	0.0	11.7	4	*27*
23	LAO1162D-142	0.8	0.0	0.0	4.4	1	*7*
24	MDO1W233-06-1	1.4	0.6	0.1	5.1	2	*14*
25	NCO4-20812	2.3	0.0	0.4	8.8	3	*20*
26	NCO4-15533	1.9	0.2	0.7	4.0	2	*14*
27	NCO4-14932	5.6	1.5	1.9	18.3	7	*34*
28	NCO4-22849	16.1	1.1	0.2	18.9	9	*37*
29	NCO5-21984	11.1	1.1	0.2	13.3	6	*30*
30	NCO5-25083	1.2	0.0	0.0	0.0	0	*1*
31	VAO6W-539	0.0	0.0	0.0	0.4	0	*1*
32	VAO6W-540	0.2	0.0	0.0	5.6	1	*7*
33	VAO6W-541	0.4	0.0	0.0	0.0	0	*1*
34	VAO6W-571	0.0	0.0	0.0	0.9	0	*1*
35	VAO6W-574	2.9	0.0	0.4	5.3	2	*14*
36	VAO6W-575	1.3	0.0	0.3	2.7	1	*7*
37	GA991109-6E8	3.1	0.0	0.0	8.6	3	*20*
38	GA991109-6A7	0.9	0.0	0.0	9.4	3	*20*
39	GAO31307-DH6-06	16.1	4.2	4.8	31.1	14	*43*
40	GAO31454-DH38-6N8	0.6	0.1	0.0	4.0	1	*7*
41	GAO31454-DH40-6N4(	1.0	0.0	0.0	8.6	2	*14*
42	GA991371-6E12	7.1	0.0	1.3	26.7	9	*37*
43	FO2122GP1	1.0	0.0	0.2	5.0	2	*14*
44	FO1302GP3-1	0.0	0.0	0.0	1.0	0	*1*
45	F98039G5-10INC	1.1	0.0	0.6	8.7	3	*20*
	Mean	5	1	1	12	5	
	LSD 5 %	3.4	3.4	3.4	3.4	1.7	

Severity by Individual Isolates 10 and 20 Days After Inoculation Fundulea, Romania.

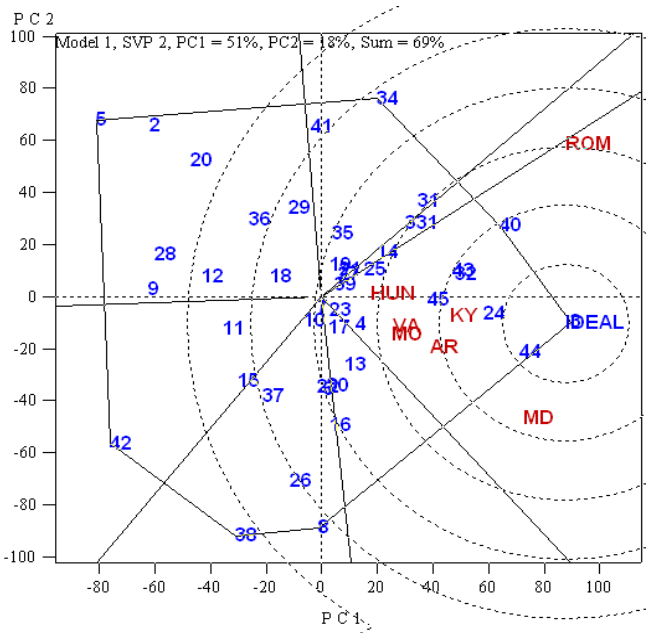
	Cultivar/ Designation	10 Days after Inoculation					20 Days after Inoculation					
		F. gram. Isol 96	*F. gram.* Isol 54	*F. gram.* Isol 111	*F. culm.* Isol 46	Mean All Isolates	*F. gram.* Isol 96	*F. gram.* Isol 54	*F. gram.* Isol 111	*F. culm.* Isol 46	Mean All Isolates	*RANK*
1	ERNIE	7	10	11	5	8	28	22	29	34	28	*8*
2	COKER 9835	9	12	11	5	9	47	56	41	65	52	*30*
3	BESS	5	9	7	5	6	18	19	15	18	17	*1*
4	AR 97002-10-2	5	8	9	6	7	47	38	36	54	44	*20*
5	AR 97007-4-1	6	11	13	6	9	63	40	53	69	56	*33*
6	AR 97124-4-2	8	10	14	7	10	40	36	71	72	55	*32*
7	AR 98127-1-1	4	16	13	5	9	20	62	43	50	44	*20*
8	AR 850-1-1	13	10	11	13	12	74	46	45	93	64	*39*
9	AR 97044-10-2	13	10	9	12	11	69	65	41	90	66	*41*
10	B020815	15	13	8	20	14	34	52	30	79	49	*24*
11	B017650	4	15	16	5	10	46	65	65	68	61	*37*
12	D02-8443	14	13	12	15	14	86	46	41	69	60	*36*
13	M01-4377	7	20	13	4	11	33	54	52	44	46	*23*
14	M03-3002	9	12	9	12	10	52	24	19	43	34	*11*
15	M03-3104	14	15	17	13	15	57	57	74	80	67	*42*
16	M03-3616	5	12	15	19	13	38	44	62	80	56	*33*
17	M03*3861	8	16	13	15	13	81	34	32	50	49	*24*
18	M03*3877	7	10	12	14	11	61	27	32	79	50	*27*
19	LA01096D-98	9	10	13	11	11	48	33	44	57	45	*22*
20	LA01143D-95	5	13	4	5	7	38	54	53	57	51	*29*
21	LA01155D-37	11	16	4	5	9	26	52	45	42	41	*18*
22	LA01161D-124	11	19	19	14	16	34	60	70	68	58	*35*
23	LA01162D-142	10	16	5	16	12	50	48	44	58	50	*27*
24	MD01W233-06-1	8	9	4	6	7	23	25	23	31	26	*4*
25	NC04-20812	9	10	11	16	12	21	47	36	43	36	*14*
26	NC04-15533	20	12	8	19	15	60	71	55	83	67	*42*
27	NC04-14932	12	4	7	9	8	60	32	22	42	39	*16*
28	NC04-22849	9	12	6	9	9	70	64	41	68	61	*37*
29	NC05-21984	7	10	4	9	8	31	49	40	47	42	*19*
30	NC05-25083	15	14	12	14	14	59	45	40	66	53	*31*
31	VA06W-539	6	6	6	7	6	30	26	24	27	27	*7*
32	VA06W-540	6	7	10	6	7	23	23	31	27	26	*4*
33	VA06W-541	6	7	9	5	7	40	21	27	28	29	*10*
34	VA06W-571	7	4	5	7	6	16	25	32	16	22	*3*
35	VA06W-574	10	5	4	6	6	27	54	37	32	37	*15*
36	VA06W-575	6	11	5	16	9	65	35	37	60	49	*24*
37	GA991109-6E8	17	15	4	6	11	40	92	68	60	65	*40*
38	GA991109-6A7	6	6	6	15	8	82	85	80	58	76	*44*
39	GA031307-DH6-O6	16	11	10	21	15	33	29	31	63	39	*16*
40	GA031454-DH38-6N8	8	4	9	12	8	17	11	19	22	17	*1*
41	GA031454-DH40-6N40	10	7	8	12	9	26	29	38	43	34	*11*
42	GA991371-6E12	16	15	17	19	17	79	99	85	86	87	*45*
43	F02122GP1	8	7	7	9	8	16	41	17	39	28	*8*
44	F01302GP3-1	8	4	4	11	7	30	18	18	36	26	*4*
45	F98039G5-10INC	8	5	5	12	8	37	27	27	43	34	*11*
	Mean	9	11	9	11	10	44	44	41	54	46	
	L.S.D.(0.05)											

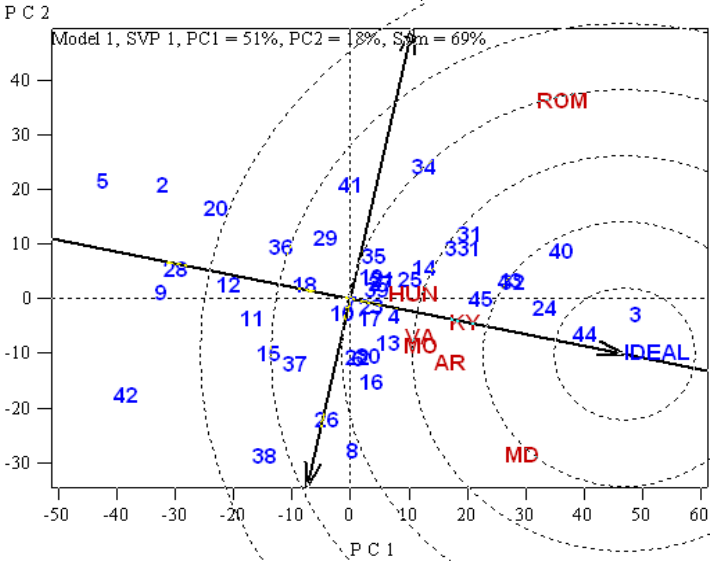
Head Severity Expressed as Area Under the Disease Progress Curve (AUDPC)
Fundulea, Romania

	CULTIVAR/ DESIGNATION	AUDPC[1]	RANK
1	ERNIE	221	*10*
2	COKER 9835	354	*26*
3	BESS	150	*1*
4	AR 97002-10-2	288	*17*
5	AR 97007-4-1	373	*30*
6	AR 97124-4-2	372	*29*
7	AR 98127-1-1	313	*20*
8	AR 850-1-1	437	*38*
9	AR 97044-10-2	442	*40*
10	B020815	384	*32*
11	B017650	406	*35*
12	D02-8443	440	*39*
13	M01-4377	339	*23*
14	M03-3002	275	*14*
15	M03-3104	484	*44*
16	M03-3616	407	*36*
17	M03*3861	378	*31*
18	M03*3877	357	*27*
19	LA01096D-98	333	*22*
20	LA01143D-95	319	*21*
21	LA01155D-37	296	*18*
22	LA01161D-124	448	*41*
23	LA01162D-142	368	*28*
24	MD01W233-06-1	195	*4*
25	NC04-20812	297	*19*
26	NC04-15533	483	*43*
27	NC04-14932	275	*14*
28	NC04-22849	395	*33*
29	NC05-21984	284	*16*
30	NC05-25083	400	*34*
31	VA06W-539	198	*6*
32	VA06W-540	203	*7*
33	VA06W-541	212	*8*
34	VA06W-571	169	*3*
35	VA06W-574	249	*12*
36	VA06W-575	340	*24*
37	GA991109-6E8	430	*37*
38	GA991109-6A7	462	*42*
39	GA031307-DH6-O6	341	*25*
40	GA031454-DH38-6N8	166	*2*
41	GA031454-DH40-6N40	265	*13*
42	GA991371-6E12	603	*45*
43	F02122GP1	219	*9*
44	F01302GP3-1	195	*4*
45	F98039G5-10INC	244	*11*
	Mean	329	
	L.S.D.(0.05)	63	

[1]% SEVERITY 10 AND 20 DAYS AFTER INOCULATION

FHB Severity
GGE Biplot Analysis[1]





The Illinois and North Carolina data were omitted from this analysis due to excessive freeze damage. Test location main effect accounted for 60% of the variation in FHB Severity. All seven test locations fell within a single mega-environment. Fundulea, Romania and Salisbury, Maryland were the most discriminating and diverse locations. The remaining five locations formed a relatively tight cluster. Entry main effects accounted for 17% of variation and Entry x Test Location accounted for 24% of variation.

The single arrowed-line passing through the biplot origin approximated the genotype (G) effect. Entries towards the right of the line (e.g. 3, 44, and 24) had lower overall Severities while entries towards the left of the abscissa (e.g. 5 and 42) had the highest Severity scores.

Entries 3, 24, 32, 40, 43, and 44 all fell within two concentric circles of the 'Ideal' entry.

The Average Environment Coordinate ordinate (double-arrowed line perpendicular to the abscissa) approximated the genotype x location (GxE) interaction associated with each entry. The greater the projection onto the ordinate, in either direction, the greater the instability of the entry over locations. Most of the more resistant entries exhibited stability, with the possible exception of entry 40.

[1]Yan, W., and M. S. Kang. 2003. GGE Biplot Analysis. CRC Press, Boca Raton, FL.

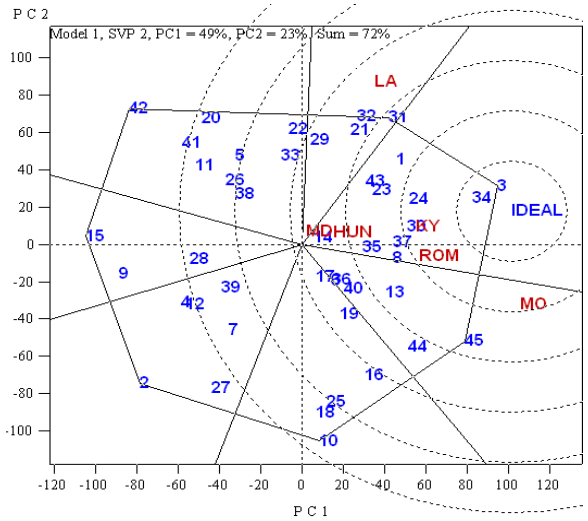
FHB Index (1-100)

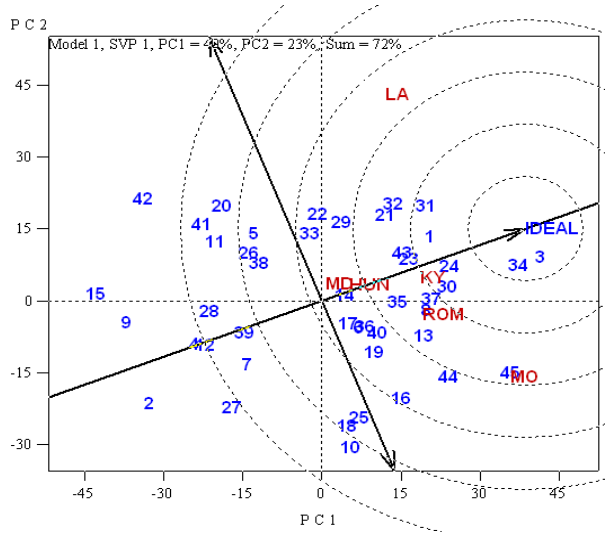
	CULTIVAR/ DESIGNATION	COL'BIA MO	RANK	S'BURY MD	RANK	B'BURG VA	RANK	URBANA IL	RANK	KINSTON NC	RANK	LEX'TON KY	RANK	MEAN ALL LOC.	RANK
1	ERNIE	21	7	22	28	1	2	32		1		15	2	12	3
2	COKER 9835	41	42	30	38	30	45	.		16		37	30	31	43
3	BESS	17	1	2	1	0	1	.		1		16	3	7	1
4	AR 97002-10-2	25	14	12	13	2	5	.		10		28	15	15	8
5	AR 97007-4-1	38	40	46	44	21	41	.		17		79	45	40	45
6	AR 97124-4-2	31	33	12	13	5	10	15		2		32	22	16	10
7	AR 98127-1-1	24	11	18	22	4	7	.		3		41	36	18	17
8	AR 850-1-1	17	1	2	1	10	21	45		8		41	36	16	10
9	AR 97044-10-2	27	22	26	32	15	30	.		2		41	36	22	30
10	B020815	30	29	18	22	15	30	49		15		36	29	23	33
11	B017650	32	35	26	32	16	35	.		.		38	31	26	39
12	D02-8443	31	33	38	41	4	7	64		3		32	22	21	27
13	M01-4377	20	6	10	11	8	19	57		23		42	39	21	27
14	M03-3002	25	14	16	19	1	2	52		8		38	31	18	17
15	M03-3104	27	22	29	36	1	2	26		9		31	21	19	21
16	M03-3616	24	11	9	9	5	10	19		2		34	27	15	8
17	M03*3861	28	24	15	18	15	30	53		25		27	13	22	30
18	M03*3877	22	9	25	30	18	36	47		25		40	35	26	39
19	LA01096D-98	25	14	24	29	18	36	.		.		25	12	20	23
20	LA01143D-95	40	41	51	45	24	42	.		.		32	22	34	44
21	LA01155D-37	.	.	19	25	20	39	.		.		23	7	20	23
22	LA01161D-124	.	.	18	22	13	26	.		.		14	1	14	6
23	LA01162D-142	33	36	20	27	7	16	.		.		22	6	18	17
24	MD01W233-06-1	19	4	2	1	10	21	29		6		29	16	13	5
25	NC04-20812	28	24	11	12	13	26	.		5		33	26	18	17
26	NC04-15533	30	29	9	9	5	10	.		9		29	16	16	10
27	NC04-14932	26	17	7	7	13	26	58		16		42	39	21	27
28	NC04-22849	41	42	28	34	10	21	76		24		48	42	30	41
29	NC05-21984	26	17	30	38	15	30	.		17		32	22	24	35
30	NC05-25083	33	36	7	7	28	44	.		3		23	7	19	21
31	VA06W-539	23	10	19	25	10	21	.		.		27	13	17	14
32	VA06W-540	28	24	6	5	14	29	.		.		30	20	17	14
33	VA06W-541	28	24	17	21	15	30	.		.		29	16	20	23
34	VA06W-571	30	29	28	34	24	42	.		.		23	7	24	35
35	VA06W-574	30	29	25	30	5	10	.		1		48	42	22	30
36	VA06W-575	36	39	38	41	8	19	.		2		38	31	24	35
37	GA991109-6E8	26	17	29	36	6	14	.		.		17	4	17	14
38	GA991109-6A7	21	7	12	13	20	39	.		.		38	31	20	23
39	GA031307-DH6-O6	19	4	16	19	12	25	.		30		49	44	25	38
40	GA031454-DH38-6N8	17	1	6	5	7	16	.		2		24	11	11	2
41	GA031454-DH40-6N40	26	17	44	43	4	7	.		4		35	28	23	33
42	GA991371-6E12	33	36	36	40	18	36	.		.		43	41	30	41
43	F02122GP1	26	17	12	13	3	6	26		9		29	16	16	10
44	F01302GP3-1	29	28	3	4	7	16	22		1		18	5	12	3
45	F98039G5-10INC	24	11	14	17	6	14	38		3		23	7	14	6
	Mean	28		20		11		40		8		33		21	
	L.S.D.(0.05)	14.3		21		9		22		12		.		16	
	CV%	31		53		63		31		73		.		39	

Percent Fusarium Damaged Kernels

	Cultivar/ Designation	% COL'BIA MO	RANK	% URBANA IL	RANK	% LEX'TON KY	RANK	% W'BORO LA	RANK	% KINSTON NC	RANK	% S'BURY MD	RANK	% SZEGED HUN	RANK	% FUN'LEA ROM	RANK	% MEAN ALL LOC.	RANK
1	ERNIE	25	17	35		34	11	8	7	24		12	17	0		11	8	16	6
2	COKER 9835	58	39	70		46	27	55	45	58		13	20	21		33	35	40	45
3	BESS	10	4	10		21	1	8	7	19		5	1	1		3	1	9	1
4	AR 97002-10-2	46	30	.		63	41	38	35	28		10	10	1		35	36	31	36
5	AR 97007-4-1	53	37	.		48	28	15	15	30		15	25	4		22	28	27	26
6	AR 97124-4-2	22	13	32		41	20	28	26	22		10	10	0		30	34	22	18
7	AR 98127-1-1	41	27	.		57	38	40	38	25		5	1	1		24	29	28	28
8	AR 850-1-1	15	7	40		29	6	20	20	44		15	25	15		24	29	23	21
9	AR 97044-10-2	59	40	.		53	34	38	35	29		15	25	22		46	44	37	44
10	B020815	22	14	37		42	23	53	44	44		17	35	5		18	23	29	33
11	B017650	49	33	.		55	35	15	15	.		18	40	14		38	39	32	39
12	D02-8443	47	32	80		56	37	38	35	36		20	44	9		35	36	34	41
13	M01-4377	16	9	30		40	18	25	24	28		14	24	3		17	18	20	12
14	M03-3002	38	24	63		36	14	25	24	25		9	8	0		17	18	21	15
15	M03-3104	78	43	43		41	20	40	38	31		16	30	2		42	41	35	43
16	M03-3616	15	8	22		38	17	40	38	66		9	8	1		21	26	27	26
17	M03*3861	35	23	32		34	11	30	29	44		17	35	4		17	18	26	25
18	M03*3877	23	15	42		55	35	45	41	47		25	45	2		12	11	30	34
19	LA01096D-98	17	11	.		60	40	28	26	.		18	40	1		16	17	24	23
20	LA01143D-95	50	34	.		79	45	5	2	.		11	14	0		20	25	28	28
21	LA01155D-37	.	.	.		41	20	5	2	.		7	4	0		13	12	16	6
22	LA01161D-124	.	.	.		50	31	5	2	.		12	17	1		35	36	24	23
23	LA01162D-142	17	10	.		65	43	5	2	.		17	35	0		11	8	20	12
24	MD01W233-06-1	21	12	17		35	13	13	11	10		8	5	1		8	4	14	2
25	NC04-20812	23	16	.		48	28	45	41	51		16	30	0		14	15	28	28
26	NC04-15533	50	35	20		36	14	23	22	43		6	3	0		39	40	28	28
27	NC04-14932	41	28	37		67	44	48	43	21		12	17	8		17	18	30	34
28	NC04-22849	53	38	50		57	38	33	31	37		13	20	2		26	33	31	36
29	NC05-21984	46	31	.		31	8	13	11	31		10	10	0		17	18	21	15
30	NC05-25083	14	6	.		32	10	15	15	14		8	5	.		24	29	14	2
31	VA06W-539	33	20	.		27	2	4	1	.		16	30	1		11	8	16	6
32	VA06W-540	39	25	.		28	4	5	2	.		15	25	1		13	12	18	10
33	VA06W-541	45	29	40		49	30	13	11	.		10	10	.		13	12	23	21
34	VA06W-571	8	3	.		28	4	8	7	.		18	40	4		9	6	14	2
35	VA06W-574	25	18	.		29	6	23	22	30		17	35	9		21	26	22	18
36	VA06W-575	28	19	.		42	23	28	26	16		18	40	1		19	24	22	18
37	GA991109-6E8	6	2	.		37	16	15	15	.		17	35	0		42	41	21	15
38	GA991109-6A7	40	26	.		42	23	20	20	.		13	20	1		48	45	28	28
39	GA031307-DH6-(	50	36	.		51	33	35	34	38		16	30	11		15	16	31	36
40	GA031454-DH38	33	22	.		31	8	33	31	19		11	14	0		10	7	20	12
41	GA031454-DH40	64	42	.		50	31	18	19	59		15	25	3		25	32	33	40
42	GA991371-6E12	62	41	.		64	42	10	10	.		13	20	9		45	43	35	42
43	F02122GP1	33	21	37		40	18	13	11	19		11	14	1		4	2	17	9
44	F01302GP3-1	11	5	27		45	26	33	31	25		8	5	0		5	3	18	10
45	F98039G5-10INC	4	1	30		27	2	30	29	15		16	30	1		8	4	14	2
	Mean	34		37		44		24		32		13		4		22		24	
	L.S.D.(0.05)	.		16		12		17		28		7		3		.		21	
	CV%	.		24		24		41		48		27		.		.		45	

Fusarium Damaged Kernels %
GGE Biplot Analysis





The Illinois and North Carolina data were omitted from this analysis due to excessive freeze damage. The Maryland, Kentucky, Hungary and Romania locations formed a single mega-environment. Louisiana and Missouri were the most discriminating and each formed a unique mega-environment. Location main effect accounted for 54% of the variation in FDK %. Entry main effects accounted for 16% of variation in FDK % and Entry X Location interaction accounted for 30% of variation.

The single arrowed-line passing through the biplot origin approximated the genotype (G) effect. Entries towards the right of the line (e.g. 3, and 34) had lower overall FDK% while entries towards the left of the abscissa (e.g. 2, 15, and 9) had the highest FDK% scores.

Entries 1, 3, 24, 30, 31, and 34 all fell within two concentric circles of the 'Ideal' entry.

The Average Environment Coordinate ordinate (double-arrowed line perpendicular to the abscissa) approximated the genotype x location (GxE) interaction associated with each entry. The greater the projection onto the ordinate, in either direction, the greater the instability of the entry over locations. All of the more resistant entries exhibited stability, with the possible exception of entry 31.

Incidence, Severity, Kernel Rating (ISK) Index [1]
(0.3 * Incidence + 0.3 * Severity + 0.4 * Fusarium Damaged Kernels)

	CULTIVAR/ DESIGNATION	KINSTON NC	RANK	COL'BIA MO	RANK	URBANA IL	RANK	LEX'TON KY	RANK	S'BURY MD	RANK	MEAN ALL LOC.	RANK
1	ERNIE	15		15	12	50		37	2	33	26	23	4
2	COKER 9835	48		40	43	.		58	32	38	34	45	44
3	BESS	12		7	1	.		34	1	10	1	15	1
4	AR 97002-10-2	31		31	36	.		58	32	26	14	33	25
5	AR 97007-4-1	37		28	33	.		73	45	46	42	49	45
6	AR 97124-4-2	18		14	7	36		53	20	25	12	27	11
7	AR 98127-1-1	21		21	22	.		61	37	30	20	32	20
8	AR 850-1-1	35		10	5	58		52	17	14	3	29	12
9	AR 97044-10-2	21		31	36	.		60	35	36	29	36	31
10	B020815	43		15	12	58		55	27	34	28	36	31
11	B017650	.		29	35	.		60	35	37	31	39	36
12	D02-8443	24		27	31	80		57	30	46	42	36	31
13	M01-4377	39		14	7	58		56	29	24	11	34	28
14	M03-3002	27		22	25	69		52	17	28	16	32	20
15	M03-3104	30		38	42	44		54	22	39	36	39	36
16	M03-3616	36		15	12	38		52	17	22	9	31	18
17	M03*3861	48		24	28	56		48	14	31	23	37	34
18	M03*3877	49		14	7	60		61	37	39	36	39	36
19	LA01096D-98	.		9	3	.		59	34	36	29	29	12
20	LA01143D-95	.		32	38	.		65	41	48	45	41	39
21	LA01155D-37	.		.	.	.		46	10	28	16	26	9
22	LA01161D-124	.		.	.	.		45	8	29	19	23	4
23	LA01162D-142	.		16	16	.		62	39	33	26	30	15
24	MD01W233-06-1	19		15	12	42		50	16	12	2	23	4
25	NC04-20812	34		17	17	.		54	22	26	14	31	18
26	NC04-15533	35		28	33	.		48	14	19	5	32	20
27	NC04-14932	33		23	26	61		67	43	21	8	34	28
28	NC04-22849	43		33	39	73		65	41	37	31	44	43
29	NC05-21984	37		27	31	.		47	12	37	31	37	34
30	NC05-25083	15		14	7	.		42	5	19	5	22	3
31	VA06W-539	.		19	19	.		47	12	32	24	32	20
32	VA06W-540	.		24	28	.		46	10	22	9	30	15
33	VA06W-541	.		23	26	.		54	22	30	20	32	20
34	VA06W-571	27		14	7	.		41	4	40	38	30	15
35	VA06W-574	17		19	19	.		54	22	38	34	34	28
36	VA06W-575	14		21	22	.		55	27	45	41	33	25
37	GA991109-6E8	.		8	2	.		40	3	41	39	26	9
38	GA991109-6A7	.		21	22	.		54	22	28	16	33	25
39	GA031307-DH6-O6	49		25	30	.		63	40	32	24	42	41
40	GA031454-DH38-6N8	17		18	18	.		44	7	19	5	24	7
41	GA031454-DH40-6N40	35		33	39	.		57	30	46	42	41	39
42	GA991371-6E12	.		34	41	.		67	43	41	39	43	42
43	F02122GP1	24		20	21	44		53	20	25	12	29	12
44	F01302GP3-1	18		12	6	40		45	8	14	3	20	2
45	F98039G5-10INC	16		9	3	50		43	6	30	20	24	7
	Mean	30		20.3		51		53		31		33	
	L.S.D.(0.05)	14		.		15		.		16		15	
	CV%	26		.		17		.		25		24	

[1]Kolb, F. L., and L. K. Boze. 2003. An alternative to the FHB index: incidence, severity, kernel rating (ISK) ind In: Canty, S.M., J. Lewis, and R.W. Ward (Eds.), 2003 National Fusarium Head Blight Forum Proceedings. Dec 13-15, Bloomington, MN. Michigan State University, East Lansing, MI.

SEED CHARACTERISTICS

	Cultivar/ Designation	1000 GR. WT. S'BURY MD	RANK	Seed Quality (0-9) W'BORO LA	RANK	Relative Seed Weight[1] FUN'LEA ROM	RANK	Relative Spike Weight[2] FUN'LEA ROM	RANK	Relative Yield Loss[3] SZEGED HUN	RANK
1	ERNIE	34.3	6	4.0	7	80	18	93	8	5	7
2	COKER 9835	30.5	25	8.0	44	79	19	86	21	38	43
3	BESS	28.8	30	4.0	7	88	10	96	5	13	19
4	AR 97002-10-2	31.6	19	5.0	19	68	32	88	15	-9	1
5	AR 97007-4-1	24.2	45	3.5	3	62	37	77	32	19	27
6	AR 97124-4-2	28.3	34	5.0	19	57	39	73	35	10	15
7	AR 98127-1-1	33.6	10	7.0	39	60	38	69	40	16	24
8	AR 850-1-1	34.0	7	3.5	3	77	22	83	25	34	41
9	AR 97044-10-2	36.0	5	5.0	19	52	41	72	36	19	27
10	B020815	31.6	19	6.5	36	68	32	82	27	13	19
11	B017650	24.4	44	5.0	19	48	43	59	44	23	33
12	D02-8443	25.7	41	6.0	31	74	25	83	25	23	33
13	M01-4377	26.8	39	4.0	7	74	25	85	22	16	24
14	M03-3002	36.7	4	7.0	39	81	16	77	32	11	18
15	M03-3104	29.3	27	7.0	39	53	40	69	40	15	22
16	M03-3616	28.2	35	6.5	36	63	36	75	34	20	30
17	M03*3861	33.3	11	5.5	25	69	31	82	27	28	39
18	M03*3877	29.0	29	6.0	31	75	23	85	22	25	36
19	LA01096D-98	31.2	22	6.0	31	102	1	97	2	13	19
20	LA01143D-95	28.5	32	3.0	2	73	28	89	13	6	9
21	LA01155D-37	31.6	19	5.5	25	82	14	82	27	6	9
22	LA01161D-124	28.6	31	2.5	1	68	32	71	38	8	13
23	LA01162D-142	30.5	25	4.5	13	73	28	78	31	30	40
24	MD01W233-06-1	27.5	37	4.5	13	84	11	89	13	5	7
25	NC04-20812	29.3	27	7.0	39	78	21	93	8	6	9
26	NC04-15533	31.7	17	5.5	25	35	45	61	43	27	38
27	NC04-14932	25.5	42	7.0	39	79	19	85	22	4	6
28	NC04-22849	24.9	43	8.5	45	73	28	87	18	3	4
29	NC05-21984	37.2	2	3.5	3	98	2	96	5	10	15
30	NC05-25083	33.1	12	5.0	19	81	16	72	36	.	.
31	VA06W-539	28.4	33	4.5	13	92	8	97	2	-2	2
32	VA06W-540	28.1	36	5.0	19	82	14	87	18	3	4
33	VA06W-541	31.1	24	4.5	13	84	11	93	8	.	.
34	VA06W-571	26.8	39	4.5	13	93	7	88	15	22	32
35	VA06W-574	32.1	16	4.5	13	74	25	87	18	10	15
36	VA06W-575	27.0	38	5.5	25	96	5	92	11	15	22
37	GA991109-6E8	33.0	13	4.0	7	64	35	71	38	20	30
38	GA991109-6A7	36.8	3	4.0	7	52	41	69	40	25	36
39	GA031307-DH6-O6	37.6	1	6.0	31	75	23	81	30	34	41
40	GA031454-DH38-6N8	33.8	8	5.5	25	89	9	98	1	19	27
41	GA031454-DH40-6N40	31.7	17	5.5	25	96	5	88	15	7	12
42	GA991371-6E12	31.2	22	3.5	3	38	44	55	45	8	13
43	F02122GP1	32.3	15	6.0	31	98	2	96	5	23	33
44	F01302GP3-1	32.7	14	6.5	36	98	2	97	2	1	3
45	F98039G5-10INC	33.8	8	4.0	7	83	13	90	12	16	24
	Mean	31		5.18		75		83		15	
	L.S.D.(0.05)	5		1.93		.		.		9	
	CV%	74		21.64		.		.		.	

[1]Relative Seed Weight: Seed Wt. from inoculated as a % of Seed Wt. from noninoculated plants
[2]Relative Spike Weight: Spike Wt. from inoculated as a % of Spike Wt. from noninoculated plants
[3]Relative Yield Loss: % reduction Grain Yield in inoculated versus non-inoculated plots

Grain Composition and Lodging, Szeged, Hungary

	Cultivar/ Designation	LODGING (%)	NIR %WET GLUTEN	NIR HARD-NESS	*RANK*	NIR %GRAIN PROTEIN	*RANK*
1	ERNIE	90	37	56.4	*3*	14.6	5
2	COKER 9835	0	25	3.7	*39*	12.9	*37*
3	BESS	0	32	21.0	*18*	14.0	*13*
4	AR 97002-10-2	60	34	8.8	*32*	14.6	5
5	AR 97007-4-1	0	31	25.7	*12*	13.5	*23*
6	AR 97124-4-2	0	33	5.8	*38*	14.7	*3*
7	AR 98127-1-1	60	42	36.9	*5*	16.1	*1*
8	AR 850-1-1	0	30	7.8	*34*	13.5	*23*
9	AR 97044-10-2	0	32	9.6	*30*	14.3	*9*
10	B020815	0	30	11.0	*28*	13.5	*23*
11	B017650	0	29	5.9	*37*	13.3	29
12	D02-8443	0	35	22.0	*16*	12.7	*41*
13	M01-4377	40	28	22.0	*16*	12.7	*41*
14	M03-3002	0	28	24.1	*14*	12.2	45
15	M03-3104	0	24	11.8	*26*	12.3	*44*
16	M03-3616	0	25	9.4	*31*	12.4	*43*
17	M03*3861	0	28	12.8	*24*	13.2	*30*
18	M03*3877	0	28	8.7	*33*	13.2	*30*
19	LA01096D-98	0	28	24.9	*13*	13.0	*34*
20	LA01143D-95	0	28	3.4	*40*	13.1	*32*
21	LA01155D-37	0	31	7.5	*35*	14.2	10
22	LA01161D-124	0	28	31.3	*6*	12.8	*39*
23	LA01162D-142	40	33	28.6	*8*	14.2	*10*
24	MD01W233-06-1	0	33	11.4	*27*	14.2	*10*
25	NC04-20812	0	28	18.5	*21*	12.9	*37*
26	NC04-15533	80	32	26.3	*10*	13.9	*15*
27	NC04-14932	0	28	16.0	*22*	13.4	*28*
28	NC04-22849	0	28	22.3	*15*	13.8	17
29	NC05-21984	95	31	27.0	*9*	13.7	*18*
30	NC05-25083	100	38	26.0	*11*	15.1	*2*
31	VA06W-539	70	29	12.2	*25*	13.5	23
32	VA06W-540	80	30	3.1	*41*	14.0	*13*
33	VA06W-541	80	30	19.0	*20*	13.5	23
34	VA06W-571	100	30	2.5	*43*	13.7	*18*
35	VA06W-574	100	35	10.5	*29*	14.6	*5*
36	VA06W-575	70	27	6.4	*36*	13.0	*34*
37	GA991109-6E8	0	25	2.6	*42*	12.8	39
38	GA991109-6A7	100	30	1.3	*44*	13.6	*20*
39	GA031307-DH6-O6	0	28	30.2	*7*	13.0	*34*
40	GA031454-DH38-6N8	0	28	19.3	*19*	13.1	32
41	GA031454-DH40-6N40	100	34	13.0	*23*	14.5	*8*
42	GA991371-6E12	90	35	21.3	*17*	14.7	3
43	F02122GP1	0	31	44.1	*4*	13.6	*20*
44	F01302GP3-1	20	33	61.3	*2*	13.9	*15*
45	F98039G5-10INC	0	32	65.0	*1*	13.6	*20*
	Mean	30.6	30.5	19.1		13.6	

DON and NIV*
(ppm)

	Cultivar/ Designation	DON B'BURG VA	RANK	DON LEX'TON KY	RANK	DON KINSTON NC	RANK	DON S'BURY MD	RANK	DON MEAN ALL LOC.	RANK	NIV W'BORO LA	RANK
1	ERNIE	0.2	11	18	25	9		10	37	9.1	18	0.3	1
2	COKER 9835	0.7	39	13	10	25		10	37	12.2	28	3.1	36
3	BESS	0.2	11	12	6	7		2	2	5.3	5	1.2	14
4	AR 97002-10-2	0.7	39	19	27	13		3	5	9.1	18	1.8	22
5	AR 97007-4-1	0.9	41	19	27	22		15	44	14.3	36	1.2	14
6	AR 97124-4-2	0.3	20	13	10	18		4	10	9.0	15	1.9	24
7	AR 98127-1-1	0.3	20	31	41	12		7	24	12.4	31	3.7	37
8	AR 850-1-1	0.4	32	17	20	30		6	22	13.3	34	2.9	33
9	AR 97044-10-2	1.0	42	21	29	20		5	17	11.7	27	2.0	25
10	B020815	0.3	20	28	37	47		11	40	21.6	45	5.8	45
11	B017650	0.2	11	24	32	.		7	24	13.0	32	0.8	10
12	D02-8443	0.4	32	16	18	9		12	42	9.5	20	1.2	14
13	M01-4377	0.5	35	15	14	19		7	24	10.2	22	2.0	25
14	M03-3002	0.1	2	15	14	11		4	10	7.5	9	3.0	34
15	M03-3104	0.1	2	29	38	25		15	45	17.1	38	2.8	31
16	M03-3616	0.2	11	14	12	15		7	24	8.8	13	2.5	30
17	M03*3861	0.3	20	25	33	47		8	30	20.2	44	4.1	40
18	M03*3877	0.5	35	30	40	37		5	17	18.1	40	4.4	41
19	LA01096D-98	0.5	35	39	44	.		8	30	18.5	41	2.8	31
20	LA01143D-95	0.3	20	22	30	.		4	10	11.1	25	0.7	9
21	LA01155D-37	0.3	20	10	2	.		3	5	7.0	7	0.4	5
22	LA01161D-124	0.5	35	15	14	.		10	37	10.9	24	0.3	1
23	LA01162D-142	0.1	2	43	45	.		7	24	19.3	42	0.5	6
24	MD01W233-06-1	0.1	2	10	2	6		1	1	4.1	2	1.5	19
25	NC04-20812	0.1	2	27	35	14		8	30	12.3	29	3.9	39
26	NC04-15533	0.1	2	17	20	11		4	10	8.1	10	3.0	34
27	NC04-14932	0.4	32	37	42	18		13	43	17.4	39	4.8	44
28	NC04-22849	0.1	2	18	25	22		5	17	11.3	26	4.5	42
29	NC05-21984	0.1	2	16	18	11		6	22	8.2	11	1.1	12
30	NC05-25083	0.1	2	12	6	6		4	10	5.4	6	2.0	25
31	VA06W-539	0.3	20	15	14	.		4	10	8.8	13	0.3	1
32	VA06W-540	0.2	11	12	6	.		7	24	9.0	15	0.3	1
33	VA06W-541	0.3	20	14	12	.		5	17	8.7	12	0.6	7
34	VA06W-571	0.2	11	17	20	.		8	30	10.7	23	0.6	7
35	VA06W-574	0.2	11	17	20	20		3	5	9.9	21	1.5	19
36	VA06W-575	0.3	20	17	20	10		8	30	9.0	15	2.1	28
37	GA991109-6E8	0.2	11	23	31	.		11	40	13.7	35	1.1	12
38	GA991109-6A7	0.3	20	27	35	.		2	2	12.3	29	1.3	18
39	GA031307-DH6-O6	0.3	20	37	42	34		8	30	19.8	43	4.5	42
40	GA031454-DH38-6N8	0.0	1	9	1	8		2	2	4.9	4	1.8	22
41	GA031454-DH40-6N40	.	.	29	38	18		4	10	13.1	33	1.2	14
42	GA991371-6E12	0.3	20	26	34	.		9	36	14.4	37	0.8	10
43	F02122GP1	0.2	11	12	6	10		5	17	7.0	7	1.6	21
44	F01302GP3-1	.	.	10	2	11		3	5	4.4	3	2.3	29
45	F98039G5-10INC	.	.	10	2	9		3	5	3.8	1	3.8	38
	Mean	0.3		20		18		7		10.9		2.1	
	L.S.D.(0.05)	.		9		12		7		11.8		1.7	
	CV%	.		59		34		51		55		45.9	

*DON and NIV analyses conducted by Yanhong Dong, Dept of Plant Pathology, University of Minnesota

Greenhouse Screening[1]

	Cultivar/ Designation	NC SEVERITY	RANK	VA SEVERITY	RANK	AR SEVERITY	RANK	MEAN SEVERITY	RANK	NC SPREAD	RANK
1	ERNIE	10	4	14	14	13	4	12	3	2	2
2	COKER 9835	64	31	27	43	65	45	52	40	12	32
3	BESS	6	1	9	3	5	1	7	1	2	2
4	AR 97002-10-2	27	12	20	35	32	26	26	20	5	12
5	AR 97007-4-1	52	28	14	14	17	8	28	23	9	27
6	AR 97124-4-2	60	30	18	23	42	32	40	31	13	35
7	AR 98127-1-1	73	34	21	37	43	33	46	38	12	32
8	AR 850-1-1	74	35	18	23	39	31	44	35	14	37
9	AR 97044-10-2	26	11	10	5	52	40	29	25	6	21
10	B020815	47	25	32	45	45	34	41	33	7	24
11	B017650	68	33	14	14	50	37	44	35	10	30
12	D02-8443	89	41	26	42	52	40	56	42	16	41
13	M01-4377	35	22	15	19	6	2	19	8	7	24
14	M03-3002	8	2	10	5	7	3	8	2	2	2
15	M03-3104	64	31	20	35	25	20	36	29	11	31
16	M03-3616	20	7	10	5	30	24	20	9	4	8
17	M03*3861	27	12	9	3	26	22	21	12	5	12
18	M03*3877	31	18	18	23	30	24	26	20	5	12
19	LA01096D-98	74	35	19	32	36	29	43	34	13	35
20	LA01143D-95	31	18	21	37	34	27	29	25	5	12
21	LA01155D-37	74	35	24	41	23	19	40	31	9	27
22	LA01161D-124	33	21	21	37	22	16	25	17	5	12
23	LA01162D-142	27	12	18	23	17	8	21	12	5	12
24	MD01W233-06-1	9	3	13	12	14	6	12	3	1	1
25	NC04-20812	80	38	11	9	25	20	39	30	16	41
26	NC04-15533	29	16	19	32	56	42	35	28	5	12
27	NC04-14932	88	40	13	12	34	27	45	37	18	45
28	NC04-22849	81	39	18	23	50	37	50	39	14	37
29	NC05-21984	41	24	10	5	22	16	24	16	7	24
30	NC05-25083	90	42	31	44	49	36	57	43	16	41
31	VA06W-539	14	5	19	32	20	12	18	5	2	2
32	VA06W-540	51	27	7	2	17	8	25	17	6	21
33	VA06W-541	30	17	14	14	16	7	20	9	5	12
34	VA06W-571	17	6	16	21	36	29	23	14	2	2
35	VA06W-574	28	15	18	23	22	16	23	14	4	8
36	VA06W-575	38	23	12	11	51	39	34	27	6	21
37	GA991109-6E8	100	43	21	37	64	44	62	45	14	37
38	GA991109-6A7	100	43	16	21	46	35	54	41	15	40
39	GA031307-DH6-O6	58	29	6	1	13	4	26	20	12	32
40	GA031454-DH38-6N8	22	9	11	9	21	14	18	5	4	8
41	GA031454-DH40-6N40	31	18	18	23	26	22	25	17	5	12
42	GA991371-6E12	100	43	18	23	59	43	59	44	17	44
43	F02122GP1	49	26	14	14	20	12	28	23	9	27
44	F01302GP3-1	22	9	18	23	21	14	20	9	3	7
45	F98039G5-10INC	21	8	15	19	19	11	18	5	4	8
	Mean	35		17		16.7		32		8	
	L.S.D.(0.05)	.		2		.		30		.	
	CV%	.		64		.		48		.	

[1] Severity data based on the percentage of infected spikelets / total spikelets
Spread = total number of diseased spikelets in a head.

SSR Analyses of 3BS, 5A, and 2DL Regions Associated with FHB Resistance

ENTRY NO	CULTIVAR/ DESIGNATION	PEDIGREE	Fhb1 (3BS) Xgwm533 145 bp	Qfhs.ifa-5A Xgwm304 217 bp	Qfhs.ifa-5A Xbarc117 221 bp	Fhb3 (2DL) Xcfd233 276 bp	Fhb3 (2DL) Xgwm608 152 bp	Fhb3 (2DL) Xgwm529 126 bp
	NING 7840	*Control for markers*	yes	yes	yes	yes	yes	yes
1	ERNIE	*Pike /3/ Stoddard / Blueboy // Stoddard D1707*	no	no	no	no	no	no
2	COKER 9835	*CK68-19 // CK61-19*3 / IN4946A4-18-2-10-2 /4/ Bb /3/ CK65-20*5 / W17-TRANS // TIFT /5/ P 2550*	no	no	no	no	no	no
3	BESS	*Check*	no	no	no	no	no	no
4	AR 97002-10-2	*AR 369-4-2 / NING 8026*	no	hetero	yes	no	no	yes
5	AR 97007-4-1	*AR 482A-11-2 / Super Zlatna*	no	no	no	no	no	no
6	AR 97124-4-2	*P88288C1-6-1-2 / TERRA SR204*	no	no	no	no	no	no
7	AR 98127-1-1	*ERNIE // ERNIE / PI 590277*	yes?	no	no	no	no	no
8	AR 850-1-1	*VERNE / CERUGA-5*	no	no	no	no	no	no
9	AR 97044-10-2	*ELKHART / AR 494B-2-2*	no	no	no	no	no	no
10	B020815	*PION 2552 / COKER 9543*	no	no	no	no	no	no
11	B017650	*STUCKY / L910097*	no	no	no	no	no	no
12	D02-8443	*CLEMENS / MASON // SHILOH*	no	no	no	no	no	no
13	M01-4377	*COKER 9663 / VA91-54-219*	no	no	no	no	hetero	no
14	M03-3002	*WINTER X WINTER FHB BULK*	no	no	no	no	no	no
15	M03-3104	*HOPEWELL / M94-1107*	no	no	yes	no	no	no
16	M03-3616	*HOPEWELL / PATTON*	no	no	yes	no	no	no
17	M03*3861	*PION 2552 / M94-1407*	no	no	no	no	no	no
18	M03*3877	*T8141 / D93-6093*	no	no	no	no	no	no
19	LA01096D-98	*ND2928 / LA841*	yes	no	no	yes	no	yes
20	LA01143D-95	*LA841 / SHOU CHOU // LA841*	no	no	no	no	no	no
21	LA01155D-37	*C9663 / PI 225160 // LA841*	no	no	no	no	no	no
22	LA01161D-124	*LA422 / CIM1FHB5 // PIO 26R61*	no	no	no	no	no	no
23	LA01162D-142	*LA422 / FUTAI 8944 // LA841*	no	no	no	no	no	no
24	MD01W233-06-1	*MCCORMICK/CHOPTANK*	no	no	no	no	no	no
25	NC04-20812	*NC94-6275 / P86958(HF) // VA96-54-234*	no	no	no	no	no	no
26	NC04-15533	*NC94-6275 / P86958(HF) // VA96-54-234*	no	no	no	no	no	no
27	NC04-14932	*NC94-7405 / MARION // NC94-7197*	no	no	no	no	no	no
28	NC04-22849	*P86958(HF) / C9835 // NC94-7197*	no	no	no	no	no	no
29	NC05-21984	*YAN-SHI 9 / P2580 // NC-NEUSE*	no	no	no	no	no	no
30	NC05-25083	*FUTAI 8944/ P2684 // NC-NEUSE(5A)*	no	yes	yes	no	no	no
31	VA06W-539	*NING 7840 / PIO 2684 //VA96-54-244, F10*	no	no	no	no	no	no
32	VA06W-540	*NING 7840 / PIO 2684 //VA96-54-244, F10*	no	no	no	no	no	no
33	VA06W-541	*NING 7840 / PIO 2691 // ROANE, F10*	hetero	no	no	no	no	no
34	VA06W-571	*ROANE / PIO 2684 // OH 552, F8*	no	no	no	no	no	no
35	VA06W-574	*ROANE / PIO 2684 // OH 552, F8*	no	no	no	no	.	no
36	VA06W-575	*ROANE / PIO 2684 // OH 552, F8*	no	no	no	no	no	no
37	GA991109-6E8	*Ernie / Pio 2684 // 901146*	no	yes	yes	no	no	no
38	GA991109-6A7	*Ernie / Pio 2684 // 901146*	no	yes	yes	no	no	no
39	GA031307-DH6-O6	*AGS 2000 / VA01W-461*	no	no	no	no	no	no
40	GA031454-DH38-6N8	*VA01-461 / USG 3592*	no	no	no	no	no	no
41	GA031454-DH40-6N40	*VA01-461 / USG 3592*	no	no	no	no	no	no
42	GA991371-6E12	*GA931521 / 2*AGS 2000*	no	no	no	no	no	no
43	F02122GP1	*96257G5-12/GLOSA*	no	no	no	no	no	no
44	F01302GP3-1	*K593U139/DLB/DLB*	no	no	no	no	no	no
45	F98039G5-10INC	*508U3-2FZ2/135U3-1*	no	no	no	no	no	no

Heading Date (Julian Days*)

	URBANA IL	COL'BIA MO	KINSTON NC	B'BURG VA	S'BURY MD	LEX'TON KY	FUN'LEA ROM	MEAN ALL LOC.	*RANK*
1 ERNIE	135	131	104	130	128	132	129	126	*14*
2 COKER 9835	139	134	104	132	133	133	134	128	*25*
3 BESS	139	134	109	131	133	132	131	128	*25*
4 AR 97002-10-2	136	134	113	133	132	131	133	129	*36*
5 AR 97007-4-1	.	132	103	132	128	131	131	126	*14*
6 AR 97124-4-2	132	130	110	132	130	131	130	127	*19*
7 AR 98127-1-1	136	131	107	131	130	132	130	127	*19*
8 AR 850-1-1	135	133	113	133	135	132	136	130	*42*
9 AR 97044-10-2	140	130	108	131	128	131	134	127	*19*
10 B020815	135	130	113	132	132	132	134	129	*36*
11 B017650	.	130	94	131	128	132	130	124	*3*
12 D02-8443	137	130	104	132	128	132	134	127	*19*
13 M01-4377	132	130	115	132	132	132	131	128	*25*
14 M03-3002	136	134	116	132	132	133	134	130	*42*
15 M03-3104	132	130	115	132	133	133	131	129	*36*
16 M03-3616	133	130	115	132	133	132	130	129	*36*
17 M03*3861	139	131	117	132	132	133	131	129	*36*
18 M03*3877	138	132	112	132	130	132	131	128	*25*
19 LA01096D-98	.	134	94	132	130	135	131	126	*14*
20 LA01143D-95	.	134	93	131	127	133	130	125	*9*
21 LA01155D-37	.	.	92	130	123	132	129	122	*1*
22 LA01161D-124	.	.	94	135	130	135	131	126	*14*
23 LA01162D-142	.	136	93	131	129	134	131	125	*9*
24 MD01W233-06-1	136	130	113	132	132	133	129	128	*25*
25 NC04-20812	.	132	113	131	132	132	131	128	*25*
26 NC04-15533	138	130	113	131	132	133	131	128	*25*
27 NC04-14932	134	131	115	132	133	133	136	130	*42*
28 NC04-22849	135	130	115	131	132	132	131	128	*25*
29 NC05-21984	.	132	102	130	128	133	129	125	*9*
30 NC05-25083	.	132	107	131	132	131	131	127	*19*
31 VA06W-539	135	132	93	130	125	133	129	124	*3*
32 VA06W-540	.	132	94	130	127	132	129	124	*3*
33 VA06W-541	137	130	94	131	127	133	131	124	*3*
34 VA06W-571	.	131	93	129	122	132	129	122	*1*
35 VA06W-574	.	130	104	129	127	131	129	125	*9*
36 VA06W-575	135	130	106	130	130	133	131	126	*14*
37 GA991109-6E8	134	132	95	130	127	131	129	124	*3*
38 GA991109-6A7	136	132	94	130	127	131	129	124	*3*
39 GA031307-DH6-O6	.	132	112	132	130	132	133	128	*25*
40 GA031454-DH38-6N8	.	131	112	131	128	133	133	128	*25*
41 GA031454-DH40-6N40	.	135	106	131	128	134	131	127	*19*
42 GA991371-6E12	.	130	94	130	130	133	131	125	*9*
43 F02122GP1	135	135	112	132	131	133	133	129	*36*
44 F01302GP3-1	136	135	109	131	128	132	133	128	*25*
45 F98039G5-10INC	137	134	111	133	133	133	136	130	*42*
Mean:	135.5	132	105	131	129	132	131	127	
L.S.D. (0.05)	2.2	.	2	1	2	1	2	6.9	
CV%	7.7	.	1.3	0.4	1	1	.	2.8	

***Days after December 31, 2004**

Plant Height (in)

	CULTIVAR/ DESIGNATION	COL'BIA MO	LEX'TON KY	S'BURY MD	FUN'LEA ROM	MEAN ALL LOC.	*RANK*
1	ERNIE	24	30	26	29	27	*1*
2	COKER 9835	27	31	29	27	28	*2*
3	BESS	32	34	32	33	33	*32*
4	AR 97002-10-2	24	32	33	40	32	*22*
5	AR 97007-4-1	27	33	32	38	32	*22*
6	AR 97124-4-2	33	35	35	40	36	*45*
7	AR 98127-1-1	31	35	34	35	34	*40*
8	AR 850-1-1	32	35	33	38	34	*40*
9	AR 97044-10-2	23	35	32	42	33	*32*
10	B020815	32	32	30	35	32	*22*
11	B017650	25	30	29	35	30	*5*
12	D02-8443	28	32	30	29	30	*5*
13	M01-4377	24	34	32	38	32	*22*
14	M03-3002	31	33	32	35	33	*32*
15	M03-3104	31	33	29	38	33	*32*
16	M03-3616	33	37	32	40	35	*44*
17	M03*3861	29	35	31	33	32	*22*
18	M03*3877	30	34	31	42	34	*40*
19	LA01096D-98	29	35	32	40	34	*40*
20	LA01143D-95	23	31	28	44	31	*10*
21	LA01155D-37	.	32	27	35	30	*5*
22	LA01161D-124	.	32	30	42	33	*32*
23	LA01162D-142	23	31	29	31	28	*2*
24	MD01W233-06-1	29	33	31	38	33	*32*
25	NC04-20812	30	33	31	33	32	*22*
26	NC04-15533	28	33	32	31	31	*10*
27	NC04-14932	28	32	30	33	31	*10*
28	NC04-22849	31	32	31	35	32	*22*
29	NC05-21984	26	31	31	38	31	*10*
30	NC05-25083	23	35	34	40	33	*32*
31	VA06W-539	26	31	29	40	31	*10*
32	VA06W-540	28	33	29	38	32	*22*
33	VA06W-541	25	32	30	35	31	*10*
34	VA06W-571	25	30	27	33	29	*4*
35	VA06W-574	26	30	29	38	31	*10*
36	VA06W-575	24	28	27	40	30	*5*
37	GA991109-6E8	30	33	27	40	32	*22*
38	GA991109-6A7	26	32	31	38	31	*10*
39	GA031307-DH6-O6	28	32	32	33	31	*10*
40	GA031454-DH38-6N8	29	32	31	35	32	*22*
41	GA031454-DH40-6N40	24	30	27	42	30	*5*
42	GA991371-6E12	32	35	31	35	33	*32*
43	F02122GP1	27	30	30	38	31	*10*
44	F01302GP3-1	26	32	34	31	31	*10*
45	F98039G5-10INC	29	32	31	33	31	*10*
	Mean:	28	32	30	36	32	
	L.S.D. (0.05)	.	2	3	.	8	
	CV%	.	5	5	.	5	

		Winter Survival % URBANA IL	Freeze Damage (0-9) COL'BIA MO
1	ERNIE	20	7
2	COKER 9835	14	6
3	BESS	23	5
4	AR 97002-10-2	2	6
5	AR 97007-4-1	2	6
6	AR 97124-4-2	100	4
7	AR 98127-1-1	2	7
8	AR 850-1-1	93	6
9	AR 97044-10-2	5	5
10	B020815	97	6
11	B017650	0	6
12	D02-8443	12	5
13	M01-4377	100	3
14	M03-3002	87	5
15	M03-3104	97	5
16	M03-3616	100	4
17	M03*3861	85	5
18	M03*3877	35	6
19	LA01096D-98	0	5
20	LA01143D-95	0	6
21	LA01155D-37	0	5
22	LA01161D-124	0	6
23	LA01162D-142	0	6
24	MD01W233-06-1	72	7
25	NC04-20812	0	6
26	NC04-15533	5	5
27	NC04-14932	97	3
28	NC04-22849	33	3
29	NC05-21984	0	7
30	NC05-25083	0	6
31	VA06W-539	0	6
32	VA06W-540	0	6
33	VA06W-541	2	6
34	VA06W-571	0	5
35	VA06W-574	0	7
36	VA06W-575	1	5
37	GA991109-6E8	0	6
38	GA991109-6A7	1	6
39	GA031307-DH6-O6	0	5
40	GA031454-DH38-6N8	0	5
41	GA031454-DH40-6N40	0	8
42	GA991371-6E12	0	5
43	F02122GP1	100	6
44	F01302GP3-1	28	6
45	F98039G5-10INC	88	4
	Mean:	32.3	5.5
	L.S.D. (0.05)	11.7	1.2
	CV%	22.3	13.6

Leaf and Viral Disease Ratings

	CULTIVAR/ DESIGNATION	STRIPE RUST % F'VILLE AR	STRIPE RUST % S'GED HUN	LEAF RUST % S'GED HUN	*STAGON. NODORUM* *(1-9)* B'BURG VA	POWDERY MILDEW *(1-9)* S'GED HUN	BYDV *% Plot* COL'BIA MO
1	ERNIE	89	5	5	3	3 s-ms 20	24
2	COKER 9835	95	80	0	7	5 ms 20	29
3	BESS	30	t	20	7	3 ms 40	21
4	AR 97002-10-2	0	10	0	6	3 s 50	34
5	AR 97007-4-1	1	5	0	8	1 ms 1	32
6	AR 97124-4-2	0	t	0	5	1 ms 1	19
7	AR 98127-1-1	1	1	5	7	0.0	25
8	AR 850-1-1	0	0	0	6	1 ms 5	10
9	AR 97044-10-2	32	5	0	6	1 ms 5	14
10	B020815	1	1	0	5	3 mst	15
11	B017650	0	20	20	7	0.0	26
12	D02-8443	1	20	0	7	0.0	38
13	M01-4377	0	20	0	2	3 ms 40	11
14	M03-3002	57	70	0	5	3 ms 30	32
15	M03-3104	0	80	0	2	3 mst	15
16	M03-3616	68	95	0	4	3 ms 30	24
17	M03*3861	12	20	0	4	3 ms 3 ST	9
18	M03*3877	12	5	0	5	3 ms 20 ST	16
19	LA01096D-98	1	0	40	6	5 s 40	15
20	LA01143D-95	0	0	0	8	0.0	32
21	LA01155D-37	4	0	0	8	lower stem	21
22	LA01161D-124	1	0	0	9	5 MS 10ST	50
23	LA01162D-142	1	0	5	7	0.0	29
24	MD01W233-06-1	1	20	1	5	0.0	13
25	NC04-20812	70	0	5	6	0.0	12
26	NC04-15533	83	0	5	7	0.0	9
27	NC04-14932	93	50	5	3	5 ms 40ST	41
28	NC04-22849	98	0	0	6	0.0	6
29	NC05-21984	88	5	0	7	5 ss 60ST	13
30	NC05-25083	80	1	0	8	0.0	48
31	VA06W-539	50	0	0	6	0.0	26
32	VA06W-540	3	0	0	6	0.0	18
33	VA06W-541	96	0	0	3	0.0	32
34	VA06W-571	85	60	0	7	0.0	21
35	VA06W-574	75	90	0	2	0.0	14
36	VA06W-575	2	5	0	7	0.0	25
37	GA991109-6E8	68	30	0	4	0.0	8
38	GA991109-6A7	63	5	0	6	0.0	13
39	GA031307-DH6-O6	25	1	70	1	0.0	12
40	GA031454-DH38-6N8	50	40	0	4	0.0	19
41	GA031454-DH40-6N40	0	80	0	7	0.0	35
42	GA991371-6E12	3	0	0	4	3 ms 20ST	9
43	F02122GP1	0	1	0	7	3 ms 10ST	35
44	F01302GP3-1	29	0	0	6	0.0	18
45	F98039G5-10INC	0	0	0	3	0.0	44
	Mean	13	.	.	5.5	.	22.5
	L.S.D.(0.05)	.	.	.	.	.	21
	CV%	.	.	.	.	.	47.6

Hessian Fly Screening
(Resistant - Susceptible Plants)[1]

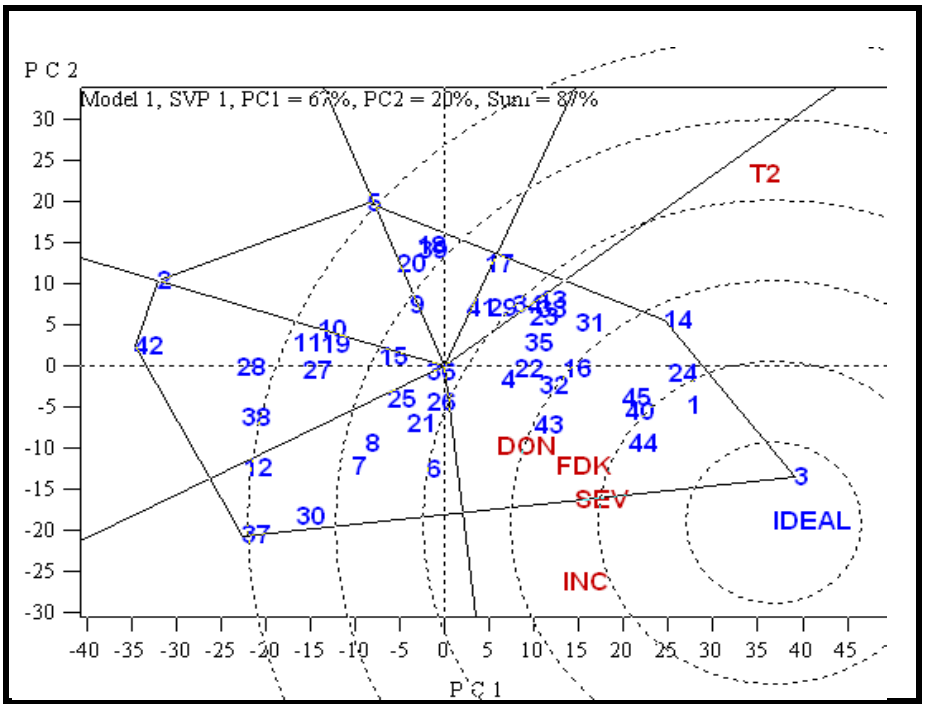
	CULTIVAR/ DESIGNATION	Biotype B	Biotype C	Biotype D	Biotype L
1	ERNIE	0-17	0-13	0-14	0-13
2	COKER 9835	0-18	3-13	0-15	0-15
3	BESS	0-15	0-13	0-17	0-14
4	AR 97002-10-2	0-16	10-5	0-10	0-18
5	AR 97007-4-1	0-17	0-14	5-10	0-16
6	AR 97124-4-2	0-17	0-12	0-16	0-16
7	AR 98127-1-1	0-17	0-12	0-15	0-17
8	AR 850-1-1	0-20	0-16	0-15	0-17
9	AR 97044-10-2	0-15	0-14	0-17	0-13
10	B020815	0-20	0-17	0-20	0-15
11	B017650	0-21	0-15	0-17	0-15
12	D02-8443	0-18	0-18	0-17	0-18
13	M01-4377	19-2	0-16	0-17	0-16
14	M03-3002	0-18	4-14	0-14	0-16
15	M03-3104	0-14	0-15	0-17	0-14
16	M03-3616	14-0	11-4	16-2	0-19
17	M03*3861	0-17	0-14	0-15	0-18
18	M03*3877	0-16	0-14	0-20	0-15
19	LA01096D-98	0-18	0-12	0-17	0-18
20	LA01143D-95	0-19	0-15	0-16	0-16
21	LA01155D-37	0-17	0-17	0-18	0-12
22	LA01161D-124	0-14	0-16	0-16	0-14
23	LA01162D-142	0-18	0-19	0-17	0-17
24	MD01W233-06-1	0-19	0-17	0-18	0-15
25	NC04-20812	0-15	0-14	0-19	0-16
26	NC04-15533	0-20	0-15	0-22	0-16
27	NC04-14932	0-19	0-18	0-23	0-16
28	NC04-22849	20-0	17-0	21-0	14-0
29	NC05-21984	0-18	0-14	0-19	0-15
30	NC05-25083	2-17	8-6	3-16	0-15
31	VA06W-539	0-18	15-0	12-5	0-11
32	VA06W-540	0-21	12-2	17-3	0-13
33	VA06W-541	0-20	12-1	0-14	0-15
34	VA06W-571	14-2	8-5	15-3	0-15
35	VA06W-574	17-0	0-17	0-17	0-16
36	VA06W-575	0-18	10-5	0-18	0-12
37	GA991109-6E8	0-10	0-14	0-17	0-13
38	GA991109-6A7	0-14	0-12	0-11	0-13
39	GA031307-DH6-O6	0-8	0-12	0-13	0-11
40	GA031454-DH38-6N8	0-17	0-14	0-19	0-12
41	GA031454-DH40-6N40	0-16	0-16	0-17	0-16
42	GA991371-6E12	0-15	0-11	0-14	0-12
43	F02122GP1	0-14	0-15	0-19	0-15
44	F01302GP3-1	0-17	0-17	0-14	0-16
45	F98039G5-10INC	0-14	0-17	0-16	0-14

[1] Sue Cambron, USDA-ARS, Dept Entomology, Purdue Univ.

Means Across Locations 2006-07

Cultivar/ Designation	FHB Incidence	RANK	FHB Severity	RANK	FHB Index	RANK	FDK	RANK	ISK	RANK	DON	RANK	G'hse Type II	RANK	Heading Date	RANK	Plant Height	RANK	Fhb1 3BS	Qfhs.ifa-5A	Fhb3 2DL
1 ERNIE	45	2	19	3	12	3	16	6	23	4	9.1	18	12	3	126	14	27	1	no	no	no
2 COKER 9835	77	45	44	43	31	43	40	45	45	44	12.2	28	52	40	128	25	28	2	no	no	no
3 BESS	36	1	12	1	7	1	9	1	15	1	5.3	5	7	1	128	25	33	32	no	no	no
4 AR 97002-10-2	50	5	28	16	15	8	31	36	33	25	9.1	18	26	20	129	36	32	22	no	Prob	?
5 AR 97007-4-1	76	44	44	43	40	45	27	26	49	45	14.3	36	28	23	126	14	32	22	no	no	no
6 AR 97124-4-2	50	5	27	13	16	10	22	18	27	11	9.0	15	40	31	127	19	36	45	no	no	no
7 AR 98127-1-1	50	5	30	24	18	17	28	28	32	20	12.4	31	46	38	127	19	34	40	yes?	no	no
8 AR 850-1-1	54	14	31	26	16	10	23	21	29	12	13.3	34	44	35	130	42	34	40	no	no	no
9 AR 97044-10-2	57	19	38	40	22	30	37	44	36	31	11.7	27	29	25	127	19	33	32	no	no	no
10 B020815	65	36	35	36	23	33	29	33	36	31	21.6	45	41	33	129	36	32	22	no	no	no
11 B017650	66	37	36	37	26	39	32	39	39	36	13.0	32	44	35	124	3	30	5	no	no	no
12 D02-8443	55	17	33	31	21	27	34	41	36	31	9.5	20	56	42	127	19	30	5	no	no	no
13 M01-4377	62	28	31	26	21	27	20	12	34	28	10.2	22	19	8	128	25	32	22	no	no	?
14 M03-3002	52	9	26	11	18	17	21	15	32	20	7.5	9	8	2	130	42	33	32	no	no	no
15 M03-3104	56	18	32	30	19	21	35	43	39	36	17.1	38	36	29	129	36	33	32	no	Prob	no
16 M03-3616	50	5	26	11	15	8	27	26	31	18	8.8	13	20	9	129	36	35	44	no	Prob	no
17 M03*3861	63	29	33	31	22	30	26	25	37	34	20.2	44	21	12	129	36	32	22	no	no	no
18 M03*3877	68	39	36	37	26	39	30	34	39	36	18.1	40	26	20	128	25	34	40	no	no	no
19 LA01096D-98	71	42	29	20	20	23	24	23	29	12	18.5	41	43	34	126	14	34	40	yes	no	Prob
20 LA01143D-95	69	40	39	41	34	44	28	28	41	39	11.1	25	29	25	125	9	31	10	no	no	no
21 LA01155D-37	61	25	29	20	20	23	16	6	26	9	7.0	7	40	31	122	1	30	5	no	no	no
22 LA01161D-124	53	10	29	20	14	6	24	23	23	4	10.9	24	25	17	126	14	33	32	no	no	no
23 LA01162D-142	59	22	28	16	18	17	20	12	30	15	19.3	42	21	12	125	9	28	2	no	no	no
24 MD01W233-06-1	53	10	21	5	13	5	14	2	23	4	4.1	2	12	3	128	25	33	32	no	no	no
25 NC04-20812	58	21	28	16	18	17	28	28	31	18	12.3	29	39	30	128	25	32	22	no	no	no
26 NC04-15533	54	14	30	24	16	10	28	28	32	20	8.1	10	35	28	128	25	31	10	no	no	no
27 NC04-14932	63	29	33	31	21	27	30	34	34	28	17.4	39	45	37	130	42	31	10	no	no	no
28 NC04-22849	63	29	44	43	30	41	31	36	44	43	11.3	26	50	39	128	25	32	22	no	no	no
29 NC05-21984	64	32	33	31	24	35	21	15	37	34	8.2	11	24	16	125	9	31	10	no	no	no
30 NC05-25083	61	25	27	13	19	21	14	2	22	3	5.4	6	57	43	127	19	33	32	no	yes	no
31 VA06W-539	64	32	23	8	17	14	16	6	32	20	8.8	13	18	5	124	3	31	10	no	no	no
32 VA06W-540	57	19	23	8	17	14	18	10	30	15	9.0	15	25	17	124	3	32	22	no	no	no
33 VA06W-541	64	32	25	10	20	23	23	21	32	20	8.7	12	20	9	124	3	31	10	hetero	no	no
34 VA06W-571	69	40	28	16	24	35	14	2	30	15	10.7	23	23	14	122	1	29	4	no	no	no
35 VA06W-574	59	22	27	13	22	30	22	18	34	28	9.9	21	23	14	125	9	31	10	no	no	no
36 VA06W-575	61	25	31	26	24	35	22	18	33	25	9.0	15	34	27	126	14	30	5	no	no	no
37 GA991109-6E8	53	10	31	26	17	14	21	15	26	9	13.7	35	62	45	124	3	32	22	no	yes	no
38 GA991109-6A7	64	32	34	35	20	23	28	28	33	25	12.3	29	54	41	124	3	31	10	no	yes	no
39 GA031307-DH6-O6	66	37	36	37	25	38	31	36	42	41	19.8	43	26	20	128	25	31	10	no	no	no
40 GA031454-DH38-6N8	49	4	19	3	11	2	20	12	24	7	4.9	4	18	5	128	25	32	22	no	no	no
41 GA031454-DH40-6N4	60	24	29	20	23	33	33	40	41	39	13.1	33	25	17	127	19	30	5	no	no	no
42 GA991371-6E12	74	43	41	42	30	41	35	42	43	42	14.4	37	59	44	125	9	33	32	no	no	no
43 F02122GP1	54	14	22	6	16	10	17	9	29	12	7.0	7	28	23	129	36	31	10	no	no	no
44 F01302GP3-1	47	3	17	2	12	3	18	10	20	2	4.4	3	20	9	128	25	31	10	no	no	no
45 F98039G5-10INC	53	10	22	6	14	6	14	2	24	7	3.8	1	18	5	130	42	31	10	no	no	no
NING 7840																			yes	yes	yes
	61		30		21		24		33		10.9		32		127		32				
	29		20		16		21		15		11.8		30		6.9		8				
	24		34		39		45		24.0		55.0		48.0		2.8		5				

Genotype-by-Trait Biplot

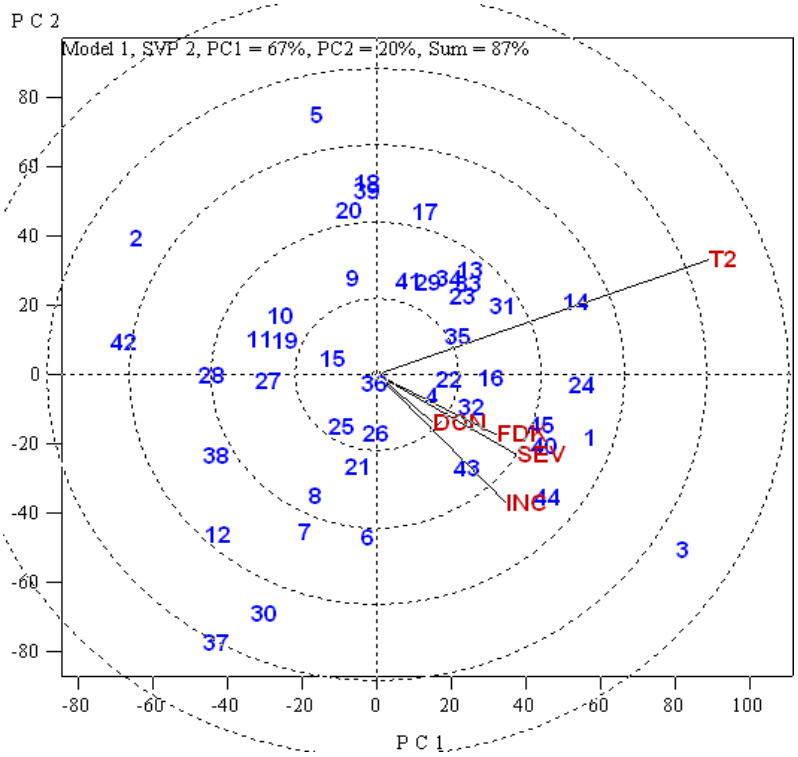


The FHB Index and ISK were omitted from this analysis.

The theoretical 'Ideal' entry, represented by the small circle with the arrow pointing to the center, had the best combined resistance when the variables Incidence, Severity, FDK, DON and Greenhouse Type II resistance were considered. Entries 1, 3, 24, 40, 43, 44 and 45 displayed good DON, FDK%, Severity, and Incidence scores

Correlations Between Traits Over Locations

	SEVERITY	INDEX	FDK	ISK	DON	G'HOUSE TYPE 2	HEADING DATE	PLANT HEIGHT
INCIDENCE	0.75	0.87	0.43	0.74	0.51	0.37	-0.33	ns
SEVERITY		0.88	0.77	0.87	0.58	0.57	ns	ns
INDEX			0.55	0.88	0.46	0.36	ns	ns
FDK				0.78	0.55	0.48	ns	ns
ISK					0.56	0.30	ns	ns
VOMITOXIN (DON)						0.30	ns	ns
G'HOUSE TYPE 2							ns	ns
HEADING DATE								0.35



Vector view of the entry-by-trait biplot showing the interrelationships among resistance traits. Field-based estimates of Incidence, Severity, FDK and DON had greater correlations with each other than they had with greenhouse-based Type II resistance. Greenhouse Type II was the most discriminating variable in that it displayed the largest standard deviation, followed by Incidence, Severity, FDK and DON.

Entry 37 was the most susceptible based on greenhouse Type II evaluation and Entry 42 displayed the greatest average susceptibility and Entry 3 (Bess) displayed the best resistance based on the combined estimates of Incidence, Severity, FDK and DON.