UNIFORM SOUTHERN SOFT RED WINTER WHEAT FUSARIUM HEAD BLIGHT SCREENING NURSERY

2002 NURSERY REPORT

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This is a joint progress report of cooperative investigations underway and funded by the 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 agency or agencies involved.

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December 1, 2002

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LOCATION NOTES

Bay, Arkansas

- Cooperators: June Hancock, Luis Lazoanaya
  Syngenta Seeds Inc.
- Reps: 2 Plot size: 4 rows 3 ft long
- Inoculation method: Infected corn
- Precipitation during grain fill: Misted daily
- Avg temp. during grain fill: 70^{o}

Lake City, Arkansas

- Cooperator: Barton Fogleman
  Agripro Seed
- No data to report – Negligible FHB

Fayetteville, Arkansas

- Cooperators: Gene Milus, Peter Rohman
  University of Arkansas
- Reps: 4 (field), 3 (greenhouse) Plot size: Single rows, 5' long Seed date: 10/08/01 Harvest date: 6/17/02
- Fertilizer: 80 lb N as ammonium nitrate, split appl.
- Inoculation method: FHB-infected corn kernels applied 2x, total of 12 kernels/sq ft
- Precipitation during grain fill: 8 mist periods of 10 min each between midnight and 8 am on 8 nights between 30 April and 8 May
- Date/Feekes growth stage when scored: 5/14/02

Urbana, Illinois

- Cooperators: Fred Kolb, Larry Boze
- University of Illinois
- Reps: 3 Plot size: 1 row x 3' Seed date: 10/2/01 Harvest date: 7/3/02
- Fertilizer: 40 lb N/A; P and K okay; no spring topdress
- Inoculation method: Grain spawn (wheat) and corn stalk debris inoculated with spores
- Precipitation during grain fill: Little natural, misted 5:30-7 AM and 7:30-9 PM daily (0.12 in./hr), turned off 6/3/02
- Date/Feekes growth stage when scored: Field, 25-26 d after flowering; greenhouse, 28 d after inoculation
- Avg temp. during grain fill: Cool early, hot later

Wooster, Ohio

- Cooperators: Clay Sneller, Pat Lipps
  Ohio State University

Lexington, Kentucky

- Cooperators: A. J. Stewart, B. Kennedy, D. Van Sanford
  University of Kentucky
- Reps: 2 Plot size: Two 4' rows Seed date: 10/26/01 Harvest date: 6/13/02
- Fertilizer: P, K, acc. to soil tests, 110 lb N split application
- Inoculation method: Scabby corn
- Precipitation during grain fill: 4.72 in.
- Avg temperature during grain fill: 65.1^{o}F
- Date/Feekes growth stage when scored: 10.5 + 21 d

Blacksburg, Virginia

- Cooperators: Carl A. Griffey, Julie Wilson, Daryoosh Nabati,
  Virginia Tech
- Reps: 3, randomized complete block Plot size: 4 x 5 ft (20 ft^{2}) Seed date: 10/5/01 Harvest date: 7/2/02
- Inoculation method: Colonized maize seed applied at booting stage
- Precipitation during grain fill: Approx. 1.76 in.; mist irrigation also applied as needed
- Avg temperature during grain fill: 62.98^{o}F

Manhattan, Kansas

- Cooperators: Gina Brown-Guedira, Kristi Hill-Ambroz
  USDA-ARS Genotyping Center

Kinston, North Carolina

- Cooperators: Paul Murphy, Rene Navarro
  North Carolina State University
- Reps: 2 Plot size: 4 rows x 3' long Seed date: 10/23/01 Harvest date: 5/25/02
- Fertilizer: 130 lbs N
- Inoculation method: Conidial suspension (3 x 10^{4} spores/ml) sprayed on plots at anthesis; misted for 14 d
- Precipitation during grain fill: 4.4 in.
- Avg temperature during grain fill: 65.7^{o}F

Griffin, Georgia

- Cooperator: Jerry Johnson
  University of Georgia
- No data to report--Negligible FHB

Baton Rouge, Louisiana

- Cooperator: Steve Harrison, Boyd Padgett
  Louisiana State University
- Plot size: 3' x 3' row plots
- Inoculation method: corn kernels
- Precipitation during grain fill: Mist system

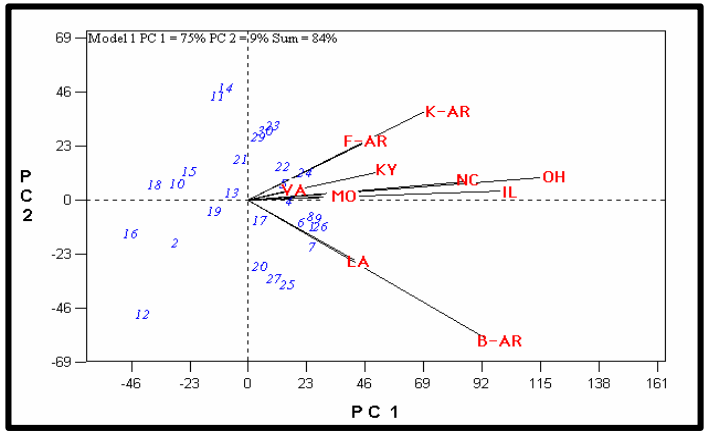
Columbia, Missouri

- Cooperator: Anne L. McKendry, Kara Bestgen
  University of Missouri
- Reps: 3 RCB (l rep lost)
- 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
- Field incidence data are the percentage of heads with visible symptoms of scab in a random sample of 20 heads
- Greenhouse inoculations result from point inoculations of a basal central floret with 10 μL of a 50,000 spores/mL suspension of *Fusarium graminearum* macrodonidia

Entry List, 2002 Nursery

ENTRY NO	CULTIVAR/ DESINATION	PEDIGREE	CONTRIIBUTOR	IN NURSERY SINCE
1	ERNIE	PIKE /3/ STODDARD / BLUEBOY // STODDARD / D1707	CHECK	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	2000-01
3	AR93095-4-1	BAYLES / FUNDULEA 29	MILUS/BACON	2001-02
4	AR93035-4-2	PIONEER 2548 / 4549-W1-2	MILUS/BACON	2001-02
5	AR93035-7-1	PIONEER 2548 / 4549-W1-2	MILUS/BACON	2001-02
6	AR922-5-1	AR358-4-1 / YMI 6	MILUS/BACON	2001-02
7	B961378	PS840061 / SALUDA // COKER 9877	HANCOCK	2000-01
8	B980416	COKER 9543 / ABI85-81	HANCOCK	2001-02
9	B980582	L881061 / L880436	HANCOCK	2001-02
10	D98*9762	SW85*5377 / PION 2555	FOGLEMAN	2001-02
11	D98*9764	SW85*5377 / PION 2555	FOGLEMAN	2001-02
12	D98*9770	89D-4776 / PION 2555	FOGLEMAN	2001-02
13	D98-9213	COKER 9134 / PION 2555	FOGLEMAN	2001-02
14	D97-6075	PION 2545 / 89M-4032A	FOGLEMAN	2001-02
15	GA931241E16	COKER 9134 / 881502	JOHNSON	2001-02
16	GA93052E42	841266 / 881404 // 831378	JOHNSON	2001-02
17	GA931463E27	87583 / 87467	JOHNSON	2001-02
18	GA931470E62	83484 / 87467	JOHNSON	2001-02
19	GA921233E17	GORE *2 / 83267	JOHNSON	2001-02
20	MDV11-52	COKER 9803 / FREEDOM	COSTA	2001-02
21	NC98-22251	STELLA / KS85WGRC01 // COKER 9733 /3/ COKER 86-29 (HF RES)	MURPHY	2001-02
22	NC98-26189	P81401A1-42-1 / SALUDA /3/ P 2555 / COKER 9907 // MV14 / WAKEFIELD	MURPHY	2001-02
23	NC98-26192	P81401A1-42-1 / SALUDA /3/ P 2555 / COKER 9907 // MV14 / WAKEFIELD	MURPHY	2001-02
24	NC98-27513	P81401A1-42-1 / SALUDA /3/ P 2555 / COKER 9907 // MV14 / WAKEFIELD	MURPHY	2001-02
25	VA01W447	WUHAN1//90-52-82/CK9835/3/C9803, F6	GRIFFEY	2001-02
26	VA01W461	PC-11(SHANGHAI4/CHILL"S":SCAB-RES)/3/92-51-39(IN71761A4-31-5-48//71-54-147//MCN1813)		
		//FFR555W/RCT/4/CK9803,F6	GRIFFEY	2001-02
27	VA01W462	PC-7(CHILL"S"/YM16:SCAB-RES)/3/92-51-39//CK9803/RCT/4/93-52-55, F6	GRIFFEY	2001-02
28	VA01W476	ROANE/W14, H2	GRIFFEY	2001-02
29	VA00W566	PC-7(CHILL"S"/YM16:SCAB-RES)/PION2548//PION2684, F6	GRIFFEY	2001-02
30	VA00W562	PC-7(CHILL"S"/YM16:SCAB-RES)/PION2548//PION2684, F6	GRIFFEY	2001-02

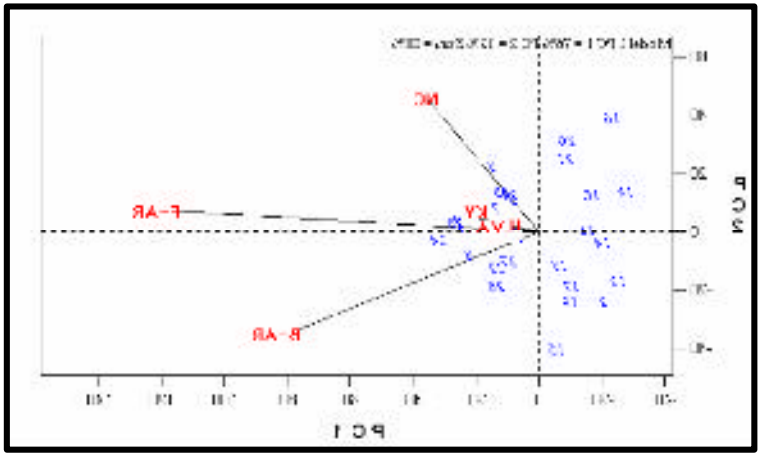
Relationships Among Testing Environments



FHB Severity.

Mega-environment 1: K-AR, F-AR, OH, IL, NC, KY, MO, and VA

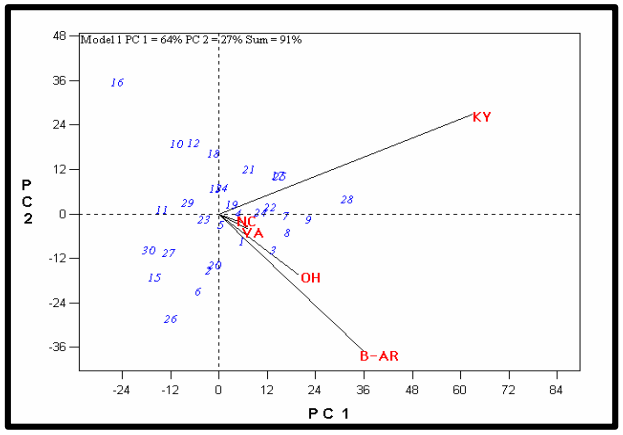
Mega-environment 2: B-AR, and LA



Scabby Seed Percent

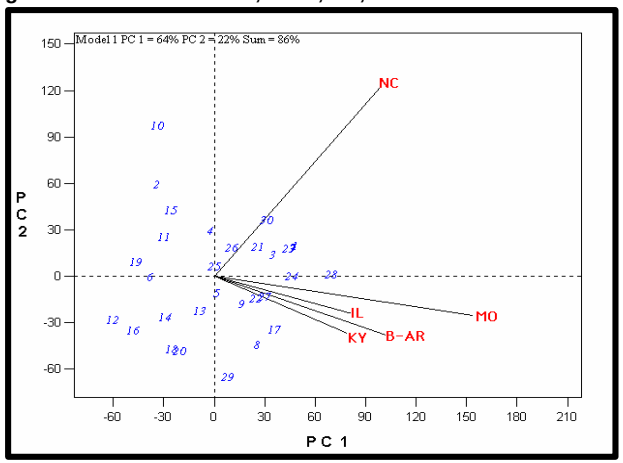
Mega-environment 1: NC alone.

Mega-environment 2: B-AR, F-AR, KY, VA and IL.



DON

A single mega-environment identified



Greenhouse Head Severity

Mega-environment 1: NC alone.

Mega-environment 2: B-AR, KY, IL and MO.

Relationships between the test locations for the variables FHB Severity, Scabby Seed Percent, Don and Greenhouse Head Severity were investigated using GGE biplot analyses (Yan et al., 2000. Crop Sci. 40:597-605). The magnitude of the angles between the vectors drawn from the point of origin to different location markers reflected the correlations between the locations for the variable evaluated.

FHB Incidence (1-100)

	CULTIVAR/ DESIGNATION	B' ROUGE LA	RANK	BAY AR	RANK	COLUMBIA MO	RANK	KINSTON NC	RANK	B'BURG VA	RANK	URBANA IL	RANK	WOOSTER OH	RANK	LEX'TON KY	RANK	MEAN ALL LOC.	RANK
1	ERNIE	4	3	99	11	60	1	34	7	17	3	65	6	57	10	85	17	52.6	3
2	COKER 9835	72	30	100	13	90	15	66	21	87	30	96	28	95	28	87	20	86.5	30
3	AR93095-4-1	10	9	100	14	90	16	18	2	50	16	80	17	48	5	84	14	60.1	9
4	AR93035-4-2	25	19	71	1	80	5	39	8	35	6	77	13	77	16	86	18	61.2	10
5	AR93035-7-1	8	7	96	5	83	6	31	5	52	18	73	11	62	12	85	16	61.3	11
6	AR922-5-1	7	5	96	6	85	9	45	9	37	9	48	3	52	7	80	12	56.2	6
7	B961378	18	11	98	9	88	13	22	3	36	8	78	16	38	1	67	3	55.7	5
8	B980416	1	1	99	12	73	3	66	20	25	4	53	4	42	2	59	2	52.2	2
9	B980582	24	18	92	4	78	4	53	11	10	2	57	5	63	13	74	6	56.3	7
10	D98*9762	33	22	100	15	95	25	91	29	67	27	93	25	90	26	93	28	82.7	29
11	D98*9764	22	16	100	16	100	29	91	30	77	28	90	22	53	8	88	23	77.6	25
12	D98*9770	27	21	100	17	95	26	55	17	78	29	96	27	100	29	91	26	80.2	27
13	D98-9213	22	17	100	18	90	17	51	10	52	19	87	20	78	17	87	21	70.8	19
14	D97-6075	18	12	100	19	100	30	91	28	30	5	82	18	87	24	87	22	74.4	23
15	GA931241E16	58	28	100	20	93	22	54	13	65	26	91	23	88	25	86	19	79.5	26
16	GA93052E42	35	24	100	21	90	18	55	16	42	12	97	29	100	30	96	30	77.0	24
17	GA931463E27	20	15	100	22	85	12	70	25	57	21	70	10	82	19	77	10	70.1	17
18	GA931470E62	65	29	100	23	93	23	73	26	51	17	93	26	92	27	90	25	82.0	28
19	GA921233E17	19	14	96	7	85	10	53	12	35	7	77	14	55	9	94	29	64.2	12
20	MDV11-52	35	23	91	3	98	28	63	19	43	13	92	24	72	15	84	15	72.2	20
21	NC98-22251	4	4	100	24	90	19	66	22	53	20	90	21	85	22	74	8	70.3	18
22	NC98-26189	25	20	100	25	93	24	54	14	58	22	67	7	82	18	73	5	68.9	15
23	NC98-26192	37	25	100	26	90	20	55	15	60	24	73	12	87	23	79	11	72.6	21
24	NC98-27513	10	10	100	27	83	8	24	4	42	10	68	8	45	4	90	24	57.7	8
25	VA01W447	38	26	97	8	85	11	57	18	46	15	70	9	72	14	92	27	69.6	16
26	VA01W461	18	13	87	2	90	14	32	6	44	14	48	2	50	6	74	7	55.4	4
27	VA01W462	38	27	98	10	83	7	67	23	58	23	82	19	85	21	82	13	74.1	22
28	VA01W476	1	2	100	28	63	2	11	1	8	1	2	1	45	3	50	1	35.0	1
29	VA00W566	7	6	100	29	90	21	73	27	62	25	77	15	57	11	75	9	67.6	14
30	VA00W562	9	8	100	30	95	27	69	24	42	11	.	.	82	20	68	4	67.4	13
	Mean:	24.0		97.4		87.0		54.0		47.3		74.1		70.6		82.4		67.0	
	L.S.D. (0.05)	71.0		ns		.		ns		20.7		2.9		21.2		22.0		12.3	
	C.V. (%)	23.0		9.3		.		59.3		32.1		7.2		.		14.2		18.4	

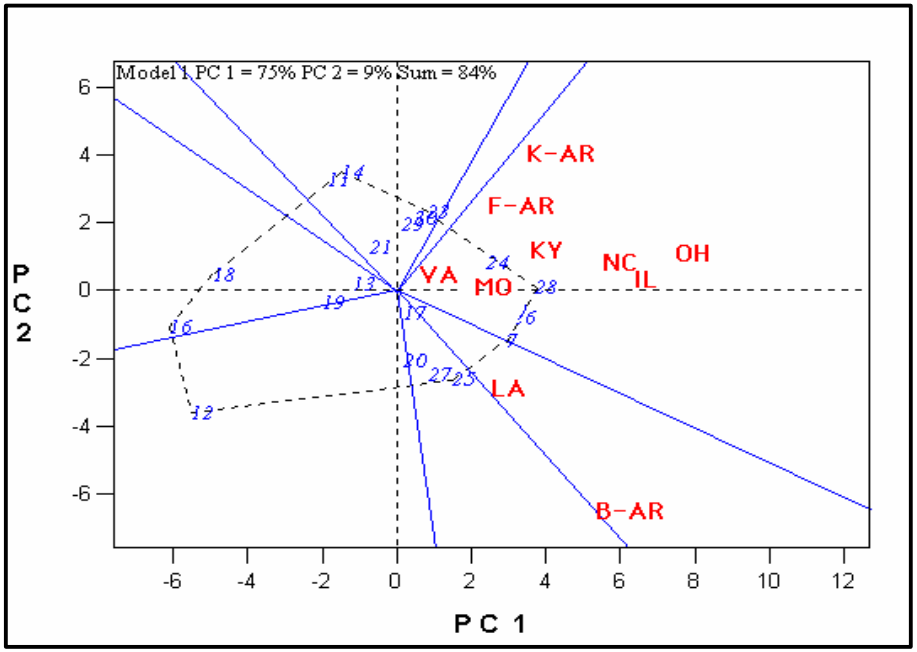
FHB Severity (1-100)

	Cultivar/ Designation	B' ROUGE LA	RANK	BAY AR	RANK	F'VILLE AR	RANK	KIBLER AR	RANK	COLUMBIA MO	RANK	KINSTON NC	RANK	B'BURG VA	RANK	URBANA IL	RANK	WOOSTER OH	RANK	LEX'TON KY	RANK	MEAN ALL LOC.	RANK
1	ERNIE	4	1	43	5	4	9	7	14	6	1	5	4	7	2	16	3	18	10	25	4	13.5	2
2	COKER 9835	32	21	78	21	21	23	48	28	36	29	55	28	28	30	58	25	53	26	43	23	45.1	27
3	AR93095-4-1	27	19	49	12	4	11	3	6	15	8	6	5	10	6	27	14	18	9	28	12	18.8	9
4	AR93035-4-2	32	22	43	6	4	10	4	8	13	6	19	14	14	17	30	18	13	6	34	16	20.6	10
5	AR93035-7-1	20	12	57	14	3	6	5	9	12	5	15	11	12	9	22	7	19	11	48	27	21.3	11
6	AR922-5-1	7	4	47	10	2	4	14	16	18	11	2	2	7	3	26	12	15	7	26	8	16.4	7
7	B961378	22	15	27	1	3	5	6	12	19	12	14	9	12	13	19	6	10	3	27	11	15.8	6
8	B980416	4	2	43	7	1	1	3	4	12	4	20	15	12	14	15	2	16	8	15	2	14.0	4
9	B980582	19	11	37	4	8	15	5	11	11	3	4	3	8	4	17	4	8	2	20	3	13.7	3
10	D98*9762	35	24	80	23	10	18	20	22	30	25	63	30	16	23	66	26	68	27	40	19	42.7	26
11	D98*9764	50	30	94	28	18	20	15	17	24	20	29	19	15	21	55	24	33	19	32	15	36.4	24
12	D98*9770	43	28	68	17	43	30	58	30	35	28	58	29	20	29	75	28	77	29	55	29	53.0	30
13	D98-9213	13	6	79	22	19	21	19	20	24	21	29	20	18	27	45	21	34	21	47	26	32.7	21
14	D97-6075	47	29	91	26	9	17	6	13	33	27	36	23	11	7	41	20	33	20	40	20	34.7	22
15	GA931241E16	33	23	93	27	24	24	31	26	25	22	50	26	14	19	50	22	51	25	43	24	41.5	25
16	GA93052E42	20	14	97	29	25	25	48	29	41	30	34	22	16	22	84	29	98	30	58	30	52.1	29
17	GA931463E27	20	13	59	15	14	19	18	19	23	19	28	18	15	20	33	19	25	16	45	25	27.8	18
18	GA931470E62	42	27	97	30	25	26	40	27	26	23	53	27	18	28	67	27	69	28	53	28	48.9	28
19	GA921233E17	25	18	73	20	26	27	20	23	22	15	42	25	14	18	52	23	45	24	43	22	36.2	23
20	MDV11-52	23	16	47	11	38	29	15	18	29	24	40	24	16	25	29	17	23	15	31	14	29.0	19
21	NC98-22251	28	20	82	24	19	22	19	21	22	16	26	17	17	26	28	15	36	23	36	18	31.4	20
22	NC98-26189	23	17	60	16	7	14	2	3	20	13	14	10	12	11	25	8	27	17	26	6	21.6	12
23	NC98-26192	35	25	70	19	3	7	4	7	17	10	10	8	12	10	25	9	34	22	26	7	23.6	14
24	NC98-27513	14	8	55	13	1	3	2	2	13	7	7	7	16	24	25	11	11	5	27	10	17.1	8
25	VA01W447	13	7	36	3	9	16	25	24	22	17	17	12	13	15	27	13	22	14	34	17	21.7	13
26	VA01W461	17	9	34	2	3	8	3	5	23	18	6	6	10	5	18	5	8	1	26	9	14.7	5
27	VA01W462	18	10	46	9	28	28	28	25	15	9	23	16	13	16	25	10	19	12	40	21	25.5	16
28	VA01W476	4	3	45	8	1	2	1	1	8	2	1	1	6	1	7	1	11	4	15	1	9.9	1
29	VA00W566	7	5	84	25	4	12	9	15	21	14	34	21	11	8	29	16	27	18	25	5	25.2	15
30	VA00W562	40	26	69	18	7	13	5	10	30	26	17	13	12	12	.	30	21	13	29	13	26.5	17
	Mean:	24.0		63.0		12.7		16.0		21.4		25.0		13.5		34.7		31.3		34.4		27.7	
	L.S.D. (0.05)	ns		43.0		5.1		7.0		.		19.3		4.9		11.7		16.5		25.1		8.1	
	C.V. (%)	23.0		35.9		63.2		53.2		.		38.6		26.7		20.6		.		39.2		36.3	

FHB SEVERITY
GGE BIPLOT ANALYSIS[1]

	CULTIVAR/ DESIGNATION	MEGA-ENVIRON. 1		RANK	MEGA-ENVIRON. 2		RANK	MEAN ALL LOC.	RANK
1	ERNIE	11.0	*	3	23.5	*	1	13.5	2
2	COKER 9835	42.8		27	55.0		22	45.1	27
3	AR93095-4-1	13.9	*	9	38.0	*	13	18.8	9
4	AR93035-4-2	16.4	*	10	37.5	*	12	20.6	10
5	AR93035-7-1	17.0	*	13	38.5	*	14	21.3	11
6	AR922-5-1	13.8	*	7	27.0	*	7	16.4	7
7	B961378	13.8	*	8	24.5	*	3	15.8	6
8	B980416	11.8	*	4	23.5	*	2	14.0	4
9	B980582	10.1	*	2	28.0	*	8	13.7	3
10	D98*9762	39.1		26	57.5		25	42.7	26
11	D98*9764	27.6		21	72.0		30	36.4	24
12	D98*9770	52.6		30	55.5		24	53.0	30
13	D98-9213	29.3		23	46.0	*	18	32.7	21
14	D97-6075	26.1		20	69.0		28	34.7	22
15	GA931241E16	36.0		25	63.0		27	41.5	25
16	GA93052E42	50.5		29	58.5		26	52.1	29
17	GA931463E27	25.1		18	39.5	*	15	27.8	18
18	GA931470E62	43.9		28	69.5		29	48.9	28
19	GA921233E17	33.0		24	49.0	*	19	36.2	23
20	MDV11-52	27.6		22	35.0	*	11	29.0	19
21	NC98-22251	25.4		19	55.0		23	31.4	20
22	NC98-26189	16.6	*	12	41.5	*	16	21.6	12
23	NC98-26192	16.4	*	11	52.5		20	23.6	14
24	NC98-27513	12.8	*	6	34.5	*	10	17.1	8
25	VA01W447	21.1		16	24.5	*	4	21.7	13
26	VA01W461	12.1	*	5	25.5	*	6	14.7	5
27	VA01W462	23.9		17	32.0	*	9	25.5	16
28	VA01W476	6.3	*	1	24.5	*	5	9.9	1
29	VA00W566	20.0		15	45.5	*	17	25.2	15
30	VA00W562	18.2		14	54.5		21	26.5	17
	Mean:	23.8			43.3			27.7	
	L.S.D. (0.05)	8.7			22.1			8.1	
	C.V. (%)	38.2			28.3			36.3	

*** Not significantly different from most resistant genotype**



Two mega-environments were identified for FHB Severity:
Mega-environment 1: AR (Kibler and Fayetteville), OH, IL, NC, KY, MO, and VA.
Mega-environment 2: AR (Bay) and LA.

Thirteen entries were not significantly different from VA01W476 (entry 28), the most resistant line in in Mega-environment 1. Twelve of these were not significantly different from Ernie (entry 1), the most resistant line in Mega-environment 2.

Important differences in ratings between the two mega-environments involved VA01W4 (entry 25), and VA01W462 (entry 27), as evidenced by their vertex positions on the biplo Mega-environment 2. Entries 12, 14 16 and 18 did not perform well in either mega-environment as evidenced by their positions on the biplot

[1] Yan et al., (2000). Crop Sci. 40:597-605.

FHB Index (1-100)

	CULTIVAR/ DESIGNATION	B' ROUGE LA	RANK	BAY AR	RANK	COLUMBIA MO	RANK	KINSTON NC	RANK	B'BURG VA	RANK	URBANA IL	RANK	WOOSTER OH	RANK	LEX'TON KY	RANK	MEAN ALL LOC.	RANK
1	ERNIE	0.3	3	43	7	10	1	1.8	5	1.3	3	11.7	5	8.2	7	21.1	11	12.2	3
2	COKER 9835	22.9	29	78	21	40	29	38.7	29	24.0	30	55.2	25	51.0	26	37.3	23	43.4	26
3	AR93095-4-1	5.0	15	49	12	16	6	1.1	2	5.7	12	21.8	14	8.9	8	23.6	12	16.4	9
4	AR93035-4-2	4.0	12	41	5	16	5	7.4	11	5.0	10	22.8	16	10.2	10	29.2	17	17.0	10
5	AR93035-7-1	1.3	7	56	14	15	4	4.5	9	5.7	13	16.0	8	12.2	11	41.0	26	19.0	12
6	AR922-5-1	0.7	4	46	10	21	12	1.3	3	3.7	6	12.6	6	9.6	9	20.9	10	14.5	7
7	B961378	4.3	14	27	2	21	11	3.2	8	5.0	9	14.8	7	4.2	2	18.1	4	12.2	4
8	B980416	0.0	1	42	6	17	8	14.2	14	3.3	4	8.0	2	6.5	6	8.6	2	12.5	6
9	B980582	6.0	18	35	4	15	3	2.7	7	0.7	2	9.5	4	4.7	3	15.1	3	11.1	2
10	D98*9762	11.7	27	80	23	31	25	56.8	30	10.3	27	61.5	26	61.7	27	36.6	22	43.7	27
11	D98*9764	10.2	24	94	28	24	15	26.2	23	12.0	28	49.1	24	20.2	18	28.0	16	33.0	23
12	D98*9770	11.6	26	68	17	37	28	34.1	27	15.3	29	71.2	28	76.7	29	50.5	29	45.6	28
13	D98-9213	2.8	10	79	22	27	22	14.7	16	10.0	26	39.6	22	24.8	20	41.2	27	29.9	21
14	D97-6075	8.2	21	91	26	33	27	33.0	26	3.3	5	33.9	20	29.6	22	35.0	21	33.4	24
15	GA931241E16	19.7	28	93	27	26	20	26.7	24	9.3	24	45.4	23	46.3	25	37.3	24	38.0	25
16	GA93052E42	10.8	25	97	29	45	30	24.3	21	6.7	17	81.8	29	98.1	30	55.8	30	52.4	30
17	GA931463E27	4.0	13	59	15	27	21	19.0	19	8.3	22	23.3	17	19.8	17	34.7	20	24.4	18
18	GA931470E62	26.3	30	97	30	27	23	37.6	28	9.7	25	62.2	27	64.5	28	47.3	28	46.5	29
19	GA921233E17	7.5	19	70	19	25	17	27.3	25	4.3	7	39.5	21	25.2	21	40.1	25	29.9	22
20	MDV11-52	8.3	22	44	8	29	24	24.0	20	6.3	15	26.8	19	16.5	15	25.7	14	22.6	16
21	NC98-22251	0.7	5	82	24	25	18	17.0	18	8.7	23	25.5	18	32.4	24	26.6	15	27.2	20
22	NC98-26189	6.0	17	60	16	22	13	8.6	12	6.7	16	16.3	9	22.1	19	18.5	5	20.0	13
23	NC98-26192	8.7	23	70	20	19	10	6.4	10	7.0	18	18.4	11	29.7	23	20.5	9	22.5	15
24	NC98-27513	2.3	8	55	13	16	7	1.7	4	7.3	19	17.6	10	4.7	4	24.1	13	16.1	8
25	VA01W447	3.9	11	24	1	26	19	12.3	13	6.0	14	18.7	12	15.8	13	31.4	18	17.3	11
26	VA01W461	2.5	9	32	3	25	16	2.3	6	4.7	8	8.5	3	3.9	1	19.4	7	12.3	5
27	VA01W462	8.0	20	46	11	18	9	16.7	17	8.0	21	20.5	13	16.5	14	33.1	19	20.9	14
28	VA01W476	0.0	2	45	9	13	2	0.1	1	0.3	1	0.1	1	5.7	5	7.4	1	9.0	1
29	VA00W566	1.0	6	84	25	24	14	24.5	22	7.3	20	22.1	15	15.0	12	18.9	6	24.6	19
30	VA00W562	5.5	16	69	18	32	26	14.4	15	5.0	11	.	30	16.9	16	19.7	8	23.8	17
	Mean:	7.0		62.0		24.0		16.8		7.0		28.8		25.4		29.3		25.0	
	L.S.D. (0.05)	ns		45.0		.		26.2		4.3		10.4		16.6		22.5		9.4	
	C.V. (%)	8.0		37.8		.		78.2		44.8		21.7		.		42.0		41.7	

Scabby Seed %

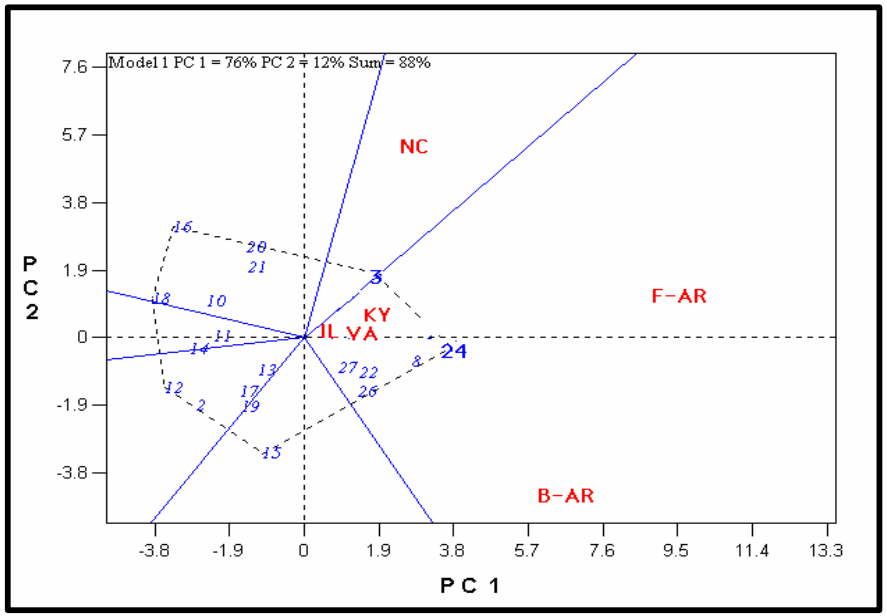
	CULTIVAR/ DESIGNATION	BAY AR	RANK	F'VILLE AR	RANK	KINSTON NC	RANK	B'BURG VA	RANK	LEX'TON KY	RANK	URBANA IL	RANK	MEAN ALL LOC.	RANK
1	ERNIE	17	5	23	2	17	9	6.0	7	21.8	11	2.0	3	14.5	4
2	COKER 9835	40	22	85	27	42	28	17.0	30	31.2	24	8.0	28	37.2	28
3	AR93095-4-1	33	19	34	6	11	3	7.7	15	19.7	10	4.0	14	18.2	7
4	AR93035-4-2	23	10	54	17	18	10	6.7	12	23.9	15	3.7	11	21.6	11
5	AR93035-7-1	32	18	44	9	16	7	10.0	19	31.7	26	5.0	20	23.1	15
6	AR922-5-1	28	14	49	14	21	14	5.7	4	34.8	28	2.7	8	23.5	16
7	B961378	16	4	51	15	8	1	5.7	5	10.5	3	2.7	7	15.7	6
8	B980416	17	6	28	5	25	20	5.0	3	9.6	2	2.3	4	14.5	5
9	B980582	14	2	25	4	12	5	4.3	2	25.4	18	1.3	1	13.7	3
10	D98*9762	51	25	78	24	22	17	15.7	29	43.3	30	8.0	29	36.3	27
11	D98*9764	48	24	80	25	32	23	11.3	24	15.3	6	6.3	23	32.2	24
12	D98*9770	56	28	85	28	49	30	14.7	28	31.6	25	7.7	26	40.7	30
13	D98-9213	30	16	73	20	27	21	10.0	20	34.7	27	6.0	22	30.1	21
14	D97-6075	54	27	83	26	39	27	8.7	18	18.9	7	4.7	17	34.7	25
15	GA931241E16	26	11	70	19	48	29	6.3	11	24.5	17	5.0	18	30.0	20
16	GA93052E42	68	29	85	29	15	6	11.7	25	29.5	22	8.0	27	36.2	26
17	GA931463E27	36	21	75	21	38	26	10.0	21	22.2	12	7.0	25	31.4	23
18	GA931470E62	70	30	85	30	36	24	13.3	27	28.7	21	6.3	24	39.9	29
19	GA921233E17	30	17	78	23	37	25	11.0	23	25.7	20	5.0	19	31.1	22
20	MDV11-52	47	23	75	22	8	2	8.0	16	19.4	8	4.3	15	27.0	18
21	NC98-22251	52	26	68	18	18	12	7.0	13	19.6	9	4.0	13	28.1	19
22	NC98-26189	15	3	48	12	22	15	6.0	8	23.3	14	3.0	10	19.6	8
23	NC98-26192	27	12	46	11	11	4	10.3	22	22.5	13	3.0	9	20.0	9
24	NC98-27513	10	1	19	1	17	8	7.3	14	12.0	4	2.3	5	11.3	1
25	VA01W447	29	15	41	8	24	18	6.3	9	14.9	5	4.7	16	20.0	10
26	VA01W461	19	7	41	7	30	22	12.7	26	30.2	23	5.3	21	23.0	14
27	VA01W462	22	9	48	13	24	19	6.3	10	37.9	29	3.7	12	23.7	17
28	VA01W476	19	8	24	3	19	13	3.0	1	6.5	1	1.7	2	12.2	2
29	VA00W566	35	20	44	10	18	11	8.3	17	24.4	16	2.3	6	22.0	12
30	VA00W562	27	13	51	16	22	16	5.7	6	25.5	19	.	30	22.1	13
	Mean:	33.0		56.3		24.2		8.7		23.2		4.3		25.2	
	L.S.D. (0.05)	26.0		9.0		.		4.5		9.5		1.5		10.6	
	C.V. (%)	38.5		13.7		.		38.0		12.2		20.2		40.5	

Scabby Seed %

GGE BIPLOT ANALYSIS[1]

	CULTIVAR/ DESIGNATION	MEGA-ENVIRON. 1	RANK		MEGA-ENVIRON. 2	RANK	MEAN ALL LOC.	RANK
1	ERNIE	17	*9*		14.0	* *4*	14.5	*4*
2	COKER 9835	42	*28*		36.2	*26*	37.2	*28*
3	AR93095-4-1	11	*3*		19.7	* *9*	18.2	*7*
4	AR93035-4-2	18	*10*		22.3	* *13*	21.6	*11*
5	AR93035-7-1	16	*7*		24.5	* *17*	23.1	*15*
6	AR922-5-1	21	*14*		24.0	* *16*	23.5	*16*
7	B961378	8	*1*		17.2	* *6*	15.7	*6*
8	B980416	25	*20*		12.4	* *3*	14.5	*5*
9	B980582	12	*5*		14.0	* *5*	13.7	*3*
10	D98*9762	22	*17*		39.2	*28*	36.3	*27*
11	D98*9764	32	*23*		32.2	*24*	32.2	*24*
12	D98*9770	49	*30*		39.0	*27*	40.7	*30*
13	D98-9213	27	*21*		30.7	*22*	30.1	*21*
14	D97-6075	39	*27*		33.9	*25*	34.7	*25*
15	GA931241E16	48	*29*		26.4	*18*	30.0	*20*
16	GA93052E42	15	*6*		40.4	*29*	36.2	*26*
17	GA931463E27	38	*26*		30.0	*20*	31.4	*23*
18	GA931470E62	36	*24*		40.7	*30*	39.9	*29*
19	GA921233E17	37	*25*		29.9	*19*	31.1	*22*
20	MDV11-52	8	*2*		30.7	*23*	27.0	*18*
21	NC98-22251	18	*12*		30.1	*21*	28.1	*19*
22	NC98-26189	22	*15*		19.1	* *7*	19.6	*8*
23	NC98-26192	11	*4*		21.8	* *11*	20.0	*9*
24	NC98-27513	17	*8*		10.1	* *1*	11.3	*1*
25	VA01W447	24	*18*		19.2	* *8*	20.0	*10*
26	VA01W461	30	*22*		21.6	* *10*	23.0	*14*
27	VA01W462	24	*19*		23.6	* *15*	23.7	*17*
28	VA01W476	19	*13*		10.8	* *2*	12.2	*2*
29	VA00W566	18	*11*		22.8	* *14*	22.0	*12*
30	VA00W562	22	*16*		22.1	* *12*	22.1	*13*
	Mean:	24.2			25.4		25.2	
	L.S.D. (0.05)	.			11.8		10.6	
	C.V. (%)	.			40.8		40.5	

*** Not significantly different from most resistant genotype**



Two Mega-environments were identified for Scabby Seed Percent:
Mega-environment 1: NC alone.
Mega-environment 2: AR (Bay and Fayetteville), KY, VA and IL.

The product moment correlation between the two mega-environments was 0.49.

Seventeen entries were not significantly different from NC98-27513 (entry 24), the most resistant line in Mega-environment 2. Twelve of these lines ranked among the most resistant 50% of entries in Mega-environment 1, also.

The largest differences in rankings between the two mega-environments involved GA9305E42 (entry 16) and MDV11-52 (entry 20). Entries 2, 10 11, 12, 13, 14, 15, 17,18, and 19 did not exhibit resistance in either mega-environments

[1]Yan et al., (2000) Crop Sci. 40:597-605

Vomitoxin (DON)*
(ppm)

	CULTIVAR/ DESIGNATION	BAY AR	RANK	B'BURG VA	RANK	WOOSTER OH	RANK	LEX'TON KY	RANK	URBANA IL	RANK	KINSTON NC	RANK	MEAN ALL LOC.	RANK
1	ERNIE	11.9	10	3.7	12	5.5	7	31.0	15	18.6	11	4.6	13	12.6	9
2	COKER 9835	9.8	5	7.0	27	9.0	17	41.0	23	31.5	24	9.0	24	17.9	20
3	AR93095-4-1	6.5	4	3.0	9	3.0	3	25.0	9	12.6	6	4.0	9	9.0	5
4	AR93035-4-2	15.5	12	4.7	18	9.0	18	29.0	11	16.8	10	5.0	17	13.3	11
5	AR93035-7-1	17.4	19	4.0	15	7.0	12	34.0	18	19.8	12	4.4	11	14.4	14
6	AR922-5-1	11.0	9	1.7	3	5.5	8	46.0	25	13.2	7	1.8	3	13.2	10
7	B961378	9.9	6	2.2	4	4.5	5	19.0	5	7.8	4	3.6	6	7.8	4
8	B980416	6.3	2	2.3	6	5.0	6	20.0	6	4.8	2	4.8	15	7.2	3
9	B980582	6.3	3	1.2	2	2.8	2	14.0	2	7.8	5	5.0	18	6.2	2
10	D98*9762	32.2	29	7.7	28	20.5	28	36.0	19	87.0	29	6.0	19	31.6	29
11	D98*9764	26.1	25	10.0	29	13.5	26	46.0	26	67.5	27	7.0	20	28.4	28
12	D98*9770	31.4	28	10.7	30	15.0	27	32.0	17	63.0	26	10.0	25	27.0	27
13	D98-9213	22.9	23	4.1	16	10.0	21	32.0	16	31.2	23	11.0	26	18.5	21
14	D97-6075	16.6	17	3.9	13	21.0	29	30.0	14	27.3	21	15.0	29	19.0	23
15	GA931241E16	15.8	14	5.3	21	12.5	24	54.0	29	33.9	25	17.0	30	23.1	26
16	GA93052E42	49.7	30	6.3	26	27.0	30	43.0	24	78.0	28	4.0	10	34.7	30
17	GA931463E27	15.9	15	5.3	22	8.0	15	17.0	3	22.8	16	11.0	27	13.3	12
18	GA931470E62	29.6	27	5.0	20	9.5	20	29.0	12	22.2	14	11.0	28	17.7	19
19	GA921233E17	16.4	16	5.4	23	13.0	25	30.0	13	24.0	17	7.0	21	16.0	16
20	MDV11-52	10.8	8	3.1	10	10.0	22	40.0	21	29.4	22	4.4	12	16.3	17
21	NC98-22251	22.3	22	2.2	5	8.5	16	23.0	8	20.4	13	4.8	16	13.5	13
22	NC98-26189	12.8	11	4.5	17	7.0	13	22.0	7	22.2	15	4.6	14	12.2	8
23	NC98-26192	21.6	21	5.5	25	7.0	14	38.0	20	26.4	20	2.4	4	16.8	18
24	NC98-27513	15.5	13	2.9	7	4.0	4	25.0	10	7.2	3	1.0	1	9.2	6
25	VA01W447	17.3	18	2.9	8	6.5	10	17.0	4	14.4	8	2.8	5	10.2	7
26	VA01W461	10.3	7	4.7	19	6.5	11	55.5	30	15.0	9	3.6	7	15.9	15
27	VA01W462	20.4	20	3.9	14	9.0	19	49.0	27	24.0	18	8.0	23	19.1	24
28	VA01W476	4.9	1	0.5	1	2.0	1	4.5	1	1.7	1	1.4	2	2.5	1
29	VA00W566	27.5	26	5.4	24	5.5	9	40.0	22	25.5	19	7.0	22	18.5	22
30	VA00W562	24.0	24	3.1	11	10.5	23	53.5	28	.	30	3.6	8	21.1	25
	Mean:	17.9		4.41		9.3		32.5		25.5		6.2		16.1	
	L.S.D. (0.05)	14.7		2.1		5.0		.		19.2		.		9.5	
	C.V. (%)	39.9		34.7		.		.		36.3		.		56.7	

*DON analysis conducted by Pat Hart's laboratory at Michigan State University.

Greenhouse Screening (Head Severity)

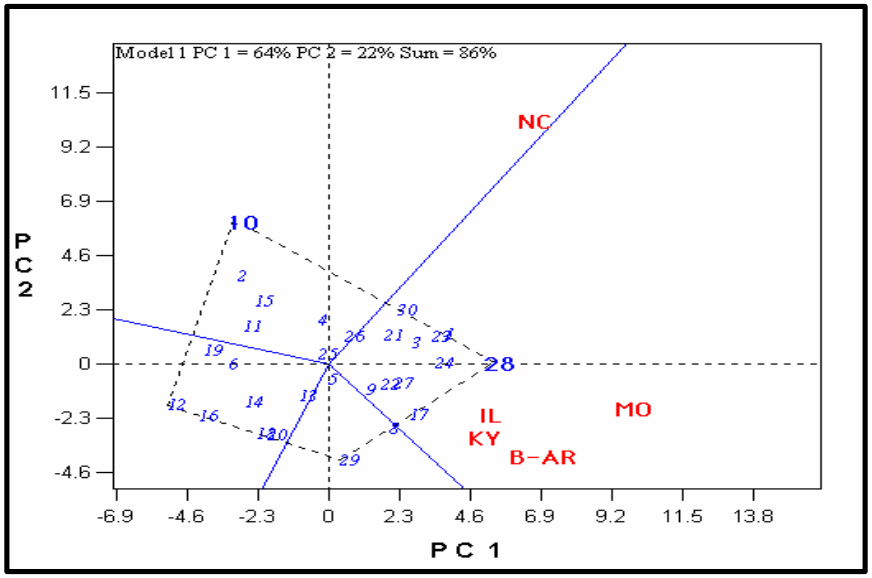
	Cultivar/ Designation	NC SEVERITY	RANK	IL SEVERITY	RANK	AR SEVERITY	RANK	KY SEVERITY	RANK	MO SEVERITY	RANK	MEAN ALL LOC.	RANK	NC KERNEL QUALITY	RANK
1	ERNIE	8.0	1	41	3	9	2	11	5	29	12	20	2	1.2	1
2	COKER 9835	29.0	10	96	28	74	27	53	26	83	27	67	23	3.6	14
3	AR93095-4-1	20.0	7	79	20	10	3	12	8	26	11	29	6	3.3	10
4	AR93035-4-2	30.0	12	77	19	48	20	28	17	60	17	49	18	2.7	4
5	AR93035-7-1	53.0	18	74	18	25	9	19	13	59	15	46	15	3.6	15
6	AR922-5-1	69.0	23	79	21	53	22	50	24	89	28	68	26	4.1	19
7	B961378	12.0	4	65	11	16	5	8	3	13	6	23	3	3.3	11
8	B980416	68.0	21	66	12	18	7	22	16	9	3	37	11	4.4	22
9	B980582	55.0	19	66	13	56	24	7	1	18	8	41	13	3.7	17
10	D98*9762	8.0	2	100	30	89	30	77	30	76	23	70	27	3.0	8
11	D98*9764	51.0	17	97	29	67	26	47	23	72	22	67	24	3.5	13
12	D98*9770	100.0	29	96	27	74	28	37	20	100	30	81	30	5.0	29
13	D98-9213	68.0	22	74	17	39	17	21	14	62	18	53	19	4.6	24
14	D97-6075	86.0	25	85	24	46	19	55	28	64	19	67	25	4.9	27
15	GA931241E16	35.0	13	90	25	65	25	40	22	83	26	63	22	2.9	6
16	GA93052E42	100.0	30	72	14	56	23	57	29	91	29	75	28	5.0	30
17	GA931463E27	56.0	20	64	8	19	8	11	7	7	2	31	7	4.1	20
18	GA931470E62	94.0	28	79	22	48	21	21	15	70	21	62	21	4.9	28
19	GA921233E17	71.0	24	94	26	77	29	54	27	82	25	76	29	4.4	23
20	MDV11-52	91.0	26	61	6	32	15	32	19	77	24	59	20	4.6	25
21	NC98-22251	28.0	9	65	10	26	10	50	25	20	9	38	12	3.2	9
22	NC98-26189	46.0	15	49	4	28	13	15	11	35	13	35	9	3.3	12
23	NC98-26192	16.0	6	41	2	39	18	12	9	14	7	24	4	2.1	2
24	NC98-27513	26.0	8	64	7	14	4	10	4	10	4	25	5	3.6	16
25	VA01W447	44.0	14	73	15	18	6	39	21	67	20	48	17	4.2	21
26	VA01W461	29.0	11	79	23	27	11	14	10	60	16	42	14	2.9	7
27	VA01W462	47.0	16	57	5	30	14	30	18	11	5	35	10	3.7	18
28	VA01W476	12.0	5	13	1	8	1	8	2	5	1	9	1	2.1	3
29	VA00W566	91.0	27	73	16	34	16	11	6	24	10	47	16	4.7	26
30	VA00W562	8.0	3	64	9	27	12	16	12	40	14	31	8	2.7	5
	Mean:	48.4		69.1		39.1		28.9		48.5		47.2		3.6	
	L.S.D. (0.05)	.		22.4		27.5		29.6		.		19.9		.	
	C.V. (%)	.		19.9		48.5		98.3		.		37.0		.	

Severity data based on the percentage of infected spikelets/total spikelets 21 to 28 days post inoculation.
Kernel quality data based on a weighted average of the number of kernels in an inoculated head falling into the following categories: 1=sound, 2=slightly shriveled, 3=moderately shriveled, 4=very shriveled, 5=tombstone.

Greenhouse Screening (Head Severity)
GGE BIPLOT ANALYSIS[1]

	CULTIVAR/ DESIGNATION	MEGA-ENVIRON. 1	RANK	MEGA-ENVIRON. 2		RANK	MEAN ALL LOC.	RANK
1	ERNIE	8	1	22.5	*	2	20	2
2	COKER 9835	29	10	76.5		27	67	23
3	AR93095-4-1	20	7	31.7		8	29	6
4	AR93035-4-2	30	12	53.3		20	49	18
5	AR93035-7-1	53	18	44.3		15	46	15
6	AR922-5-1	69	23	67.8		23	68	26
7	B961378	12	4	25.5	*	5	23	3
8	B980416	68	21	28.8	*	7	37	11
9	B980582	55	19	36.8		12	41	13
10	D98*9762	8	2	85.5		30	70	27
11	D98*9764	51	17	70.8		26	67	24
12	D98*9770	100	29	76.8		28	81	30
13	D98-9213	68	22	49.0		17	53	19
14	D97-6075	86	25	62.5		22	67	25
15	GA931241E16	35	13	69.5		25	63	22
16	GA93052E42	100	30	69.0		24	75	28
17	GA931463E27	56	20	25.3	*	4	31	7
18	GA931470E62	94	28	54.5		21	62	21
19	GA921233E17	71	24	76.8		29	76	29
20	MDV11-52	91	26	50.5		19	59	20
21	NC98-22251	28	9	40.3		14	38	12
22	NC98-26189	46	15	31.8		9	35	9
23	NC98-26192	16	6	26.5	*	6	24	4
24	NC98-27513	26	8	24.5	*	3	25	5
25	VA01W447	44	14	49.3		18	48	17
26	VA01W461	29	11	45.0		16	42	14
27	VA01W462	47	16	32.0		10	35	10
28	VA01W476	12	5	8.5	*	1	9	1
29	VA00W566	91	27	35.5		11	47	16
30	VA00W562	8	3	36.8		13	31	8
	Mean:	48.4					47.2	
	L.S.D. (0.05)	.					19.9	
	C.V. (%)	.					37.0	

* Not significantly different from most resistant genotype



Two Mega-environments were identified for Greenhouse Head Severity:
Mega-environment 1: NC alone.
Mega-environment 2: AR (Bay), KY,IL,MO.

The product moment correlation between the two mega-environments was 0.38.

Seven entries were not significantly different from VA01W476 (entry 28), the most resistant line in Mega-environment 2. Six of these entries ranked among the most resistant 25% of entries in Mega-environment 1.

The largest differences in rankings between the two mega-environments involved D98*9762 (entry 10) and GA931463E27 (entry 17).

Heading Date (Julian Days*)

	CULTIVAR/ DESIGNATION	BAY AR	RANK	COLUMBIA MO	RANK	KINSTON NC	RANK	B'BURG VA	RANK	URBANA IL	RANK	WOOSTER OH	RANK	LEX'TON KY	RANK	MEAN ALL LOC.	RANK
1	ERNIE	113	13	132	4	101	5	129	15	136	3	137	2	127	3	125	3
2	COKER 9835	116	28	134	27	102	10	130	27	144	23	144	22	130	29	129	24
3	AR93095-4-1	116	29	135	29	106	24	130	29	144	20	144	21	130	28	129	25
4	AR93035-4-2	115	24	134	26	107	29	130	26	144	22	146	28	128	17	129	26
5	AR93035-7-1	115	25	134	23	107	27	129	24	143	15	142	13	128	15	128	16
6	AR922-5-1	113	14	133	10	101	6	128	7	139	5	141	8	127	6	126	5
7	B961378	116	30	131	3	103	13	131	30	145	26	149	30	130	30	129	27
8	B980416	114	20	133	13	106	21	129	19	141	11	144	20	128	20	128	17
9	B980582	112	6	131	2	100	2	127	1	136	2	139	3	126	2	124	2
10	D98*9762	112	7	134	15	104	16	128	5	146	29	144	24	127	11	128	18
11	D98*9764	112	8	134	16	103	12	128	12	143	14	145	26	127	12	127	9
12	D98*9770	113	15	133	11	104	15	129	22	144	24	143	17	128	16	128	19
13	D98-9213	115	26	133	14	106	22	130	28	143	18	142	14	128	19	128	20
14	D97-6075	113	16	134	18	107	26	127	4	141	10	141	10	127	8	127	10
15	GA931241E16	114	21	134	20	106	25	129	20	145	25	147	29	129	23	129	28
16	GA93052E42	111	2	133	5	102	8	128	8	144	21	142	15	127	9	127	11
17	GA931463E27	114	22	134	21	101	7	129	16	140	9	144	19	129	25	127	12
18	GA931470E62	111	3	133	6	100	3	128	6	137	4	140	7	129	22	125	4
19	GA921233E17	112	9	133	8	103	11	128	10	140	8	141	9	127	7	126	6
20	MDV11-52	112	10	133	9	102	9	128	9	142	13	141	11	128	13	127	13
21	NC98-22251	113	17	134	25	107	28	129	21	143	17	141	12	128	14	128	21
22	NC98-26189	112	11	134	17	104	17	128	11	140	7	143	16	127	10	127	14
23	NC98-26192	112	12	134	24	104	19	129	25	141	12	139	5	127	4	127	15
24	NC98-27513	114	23	134	22	106	23	129	23	145	28	143	18	129	24	129	29
25	VA01W447	113	18	133	12	103	14	128	13	140	6	139	4	128	18	126	7
26	VA01W461	113	19	134	19	104	18	129	17	145	27	144	23	129	26	128	22
27	VA01W462	111	4	133	7	100	4	127	3	144	19	139	6	127	5	126	8
28	VA01W476	111	5	129	1	99	1	127	2	134	1	136	1	126	1	123	1
29	VA00W566	107	1	135	28	107	30	128	14	143	16	145	27	130	27	128	23
30	VA00W562	115	27	136	30	105	20	129	18	.	30	144	25	128	21	129	30
	Mean:	13		133		103		129		142		142		128		127	
	L.S.D. (0.05)	3		.		1.6		1.3		1.8		3.4		1.4		2	
	C.V. (%)	2		.		0.78		0.7		0.8		.		0.4		1.28	

*Days after December 31, 2001

Plant Height (in)

	CULTIVAR/ DESIGNATION	F'VILLE AR	RANK	COLUMBIA MO	RANK	KINSTON NC	RANK	B'BURG VA	RANK	WOOSTER OH	RANK	LEX'TON KY	RANK	MEAN ALL LOC.	RANK
1	ERNIE	38	10	31	9	31	11	28	10	38	8	26	3	32	7
2	COKER 9835	40	17	26	1	29	5	28	9	38	7	28	7	31	3
3	AR93095-4-1	41	26	34	23	40	30	31	22	42	22	33	27	37	28
4	AR93035-4-2	40	21	32	12	30	8	30	17	42	20	31	18	34	13
5	AR93035-7-1	40	22	33	20	29	7	32	27	42	24	31	21	35	19
6	AR922-5-1	43	30	36	29	35	26	34	30	45	30	33	28	38	30
7	B961378	36	5	32	13	25	1	29	12	41	16	33	26	33	11
8	B980416	40	18	34	25	31	13	29	14	40	13	29	10	34	14
9	B980582	40	19	34	22	32	16	32	25	41	17	32	23	35	20
10	D98*9762	40	16	33	18	32	17	30	18	42	21	30	15	35	21
11	D98*9764	41	24	34	26	34	22	30	19	44	27	34	29	36	23
12	D98*9770	41	25	37	30	34	24	31	20	45	29	31	22	37	29
13	D98-9213	41	27	35	27	30	10	32	24	44	28	34	30	36	24
14	D97-6075	41	23	35	28	35	28	32	26	42	23	32	25	36	25
15	GA931241E16	42	29	33	21	35	27	33	28	40	15	31	20	36	26
16	GA93052E42	34	1	29	7	28	4	26	2	38	5	29	8	31	4
17	GA931463E27	38	9	28	4	32	15	27	6	38	6	31	16	32	8
18	GA931470E62	35	2	29	8	27	3	27	4	36	2	27	5	30	1
19	GA921233E17	41	28	34	24	35	29	33	29	42	25	31	19	36	27
20	MDV11-52	36	6	32	10	31	12	27	5	36	3	27	4	31	5
21	NC98-22251	39	13	33	16	31	14	29	15	39	11	30	12	33	12
22	NC98-26189	37	8	29	6	34	20	27	3	39	9	29	9	32	9
23	NC98-26192	38	11	32	14	35	25	27	7	40	12	30	13	34	15
24	NC98-27513	39	14	32	11	29	6	29	13	42	19	31	17	34	16
25	VA01W447	39	12	33	19	33	18	29	16	40	14	30	14	34	17
26	VA01W461	40	20	32	15	34	23	31	21	43	26	32	24	35	22
27	VA01W462	37	7	28	3	34	19	28	11	39	10	27	6	32	10
28	VA01W476	36	3	29	5	30	9	25	1	38	4	25	2	31	6
29	VA00W566	39	15	33	17	34	21	28	8	42	18	29	11	34	18
30	VA00W562	36	4	28	2	26	2	31	23	34	1	24	1	30	2
	Mean:	39		32		32.0		29.52		97		29.7		34	
	L.S.D. (0.05)	2.1		.		.		1.96		2.5		5.2		1.9	
	C.V. (%)	3.7		.		.		4.87		.		6.1		4.9	

Leaf Diseases

	CULTIVAR/ DESIGNATION	LEAF RUST B' ROUGE LA	LEAF RUST F'VILLE[1] AR	% GREEN LEAVES F'VILLE[2] AR	% GREEN LEAVES KIBLER[3] AR	Powdery Mildew KINSTON[4] NC
1	ERNIE	85.0	4.6	50	3	5
2	COKER 9835	60.0	5.1	45	7	5
3	AR93095-4-1	0.0	6.1	55	40	5
4	AR93035-4-2	0.0	4.0	60	40	6
5	AR93035-7-1	7.5	3.2	70	45	5
6	AR922-5-1	3.5	2.7	50	7	8
7	B961378	0.0	4.7	50	11	7
8	B980416	0.0	3.9	70	12	3
9	B980582	0.0	2.5	70	26	5
10	D98*9762	7.5	6.0	60	17	8
11	D98*9764	3.5	5.2	60	19	6
12	D98*9770	11.0	0.3	55	13	5
13	D98-9213	0.0	2.5	70	23	4
14	D97-6075	0.0	5.5	70	45	5
15	GA931241E16	0.0	0.9	50	9	4
16	GA93052E42	0.0	2.6	36	3	1
17	GA931463E27	0.0	4.1	45	6	7
18	GA931470E62	3.5	7.0	50	3	1
19	GA921233E17	0.0	0.6	65	23	5
20	MDV11-52	0.0	1.2	50	21	0
21	NC98-22251	0.0	3.4	50	2	5
22	NC98-26189	0.0	4.6	70	45	5
23	NC98-26192	0.0	4.8	70	50	5
24	NC98-27513	0.0	2.1	70	50	5
25	VA01W447	70.0	3.6	60	5	5
26	VA01W461	0.0	0.3	65	69	1
27	VA01W462	0.0	3.0	50	2	2
28	VA01W476	25.0	1.9	50	35	5
29	VA00W566	0.0	0.7	45	3	3
30	VA00W562	.	1.7	45	22	4

[1]Inoculated with leaf rust race TNRL. Rated infection type on flag leaves using a scale of 0=no symptoms to 9= very susceptible

[2]Rated on May 13.

[3]Rated on May 9

[4]0=Resistant, 9=Fully Susceptible

Winter Survival and Straw Strength

	CULTIVAR/ DESIGNATION	SURVIVAL URBANA IL	FREEZE DAMAGE F'VILLE[1] AR	LODGING KIBLER[3] AR
1	ERNIE	8.7	0.0	6.8
2	COKER 9835	7.3	2.0	3.0
3	AR93095-4-1	8.7	0.5	5.3
4	AR93035-4-2	8.3	1.0	5.5
5	AR93035-7-1	9.0	0.0	2.8
6	AR922-5-1	7.3	1.3	8.0
7	B961378	9.0	1.5	5.3
8	B980416	9.0	0.0	6.8
9	B980582	9.0	1.0	7.5
10	D98*9762	6.7	1.5	7.8
11	D98*9764	9.0	1.0	1.0
12	D98*9770	6.7	1.5	3.0
13	D98-9213	9.0	0.0	8.0
14	D97-6075	9.0	0.0	6.8
15	GA931241E16	8.7	0.8	7.3
16	GA93052E42	4.0	1.5	6.8
17	GA931463E27	9.0	1.3	1.8
18	GA931470E62	8.0	2.0	6.5
19	GA921233E17	7.7	1.0	7.8
20	MDV11-52	9.0	0.8	8.3
21	NC98-22251	9.0	0.3	8.0
22	NC98-26189	9.0	0.3	8.0
23	NC98-26192	9.0	0.5	2.3
24	NC98-27513	8.7	0.0	2.3
25	VA01W447	8.7	1.0	4.5
26	VA01W461	5.0	1.3	0.0
27	VA01W462	8.0	0.3	7.3
28	VA01W476	8.7	1.0	7.5
29	VA00W566	8.7	0.0	3.0
30	VA00W562	1.7	2.0	0.0
	Mean:	8	0.8	5.3
	L.S.D. (0.05)	0.9	.	2.5
	C.V. (%)	6.7	.	45.0

Xgwm 533 MARKER GENOTYPES

	CULTIVAR/ DESIGNATION	FRAGMENTS OBSERVED (Base Pairs)
1	ERNIE	114
2	COKER 9835	124
3	AR93095-4-1	114
4	AR93035-4-2	124
5	AR93035-7-1	124
6	AR922-5-1	142 AND 150
7	B961378	114
8	B980416	114
9	B980582	142 AND 150
10	D98*9762	114
11	D98*9764	114
12	D98*9770	124
13	D98-9213	114
14	D97-6075	114
15	GA931241E16	114
16	GA93052E42	114
17	GA931463E27	114
18	GA931470E62	114
19	GA921233E17	114
20	MDV11-52	136
21	NC98-22251	114
22	NC98-26189	114 AND 124
23	NC98-26192	124
24	NC98-27513	124
25	VA01W447	114 AND 124
26	VA01W461	114
27	VA01W462	114
28	VA01W476	138
29	VA00W566	101 , 124 AND 153
30	VA00W562	124
	SUMAI 3	140

DATA PROVIDED BY GINA BROWN-GUEDIRA, AND KRISTI HILL-AMBROZ
USDA-ARS GENOTYPING FACILITY, KANSAS STATE UNIVERSITY.

Means Across Locations

	CULTIVAR/ DESIGNATION	FHB Incidence (0-100)	RANK	FHB Severity (0-100)	RANK	FHB Index (0-100)	RANK	Scabby Seed %	RANK	Vomitoxin DON (ppm)	RANK	Heading Date (Julian)	RANK	Plant Height (in)	RANK	Greenhse Type 2 (0-100)	RANK
1	ERNIE	52.6	3	13.5	2	12.2	3	14.5	4	12.6	9	125	3	32	7	20	2
2	COKER 9835	86.5	30	45.1	27	43.4	26	37.2	28	17.9	20	129	24	31	3	67	23
3	AR93095-4-1	60.1	9	18.8	9	16.4	9	18.2	7	9.0	5	129	25	37	28	29	6
4	AR93035-4-2	61.2	10	20.6	10	17.0	10	21.6	11	13.3	11	129	26	34	13	49	18
5	AR93035-7-1	61.3	11	21.3	11	19.0	12	23.1	15	14.4	14	128	16	35	19	46	15
6	AR922-5-1	56.2	6	16.4	7	14.5	7	23.5	16	13.2	10	126	5	38	30	68	26
7	B961378	55.7	5	15.8	6	12.2	4	15.7	6	7.8	4	129	27	33	11	23	3
8	B980416	52.2	2	14.0	4	12.5	6	14.5	5	7.2	3	128	17	34	14	37	11
9	B980582	56.3	7	13.7	3	11.1	2	13.7	3	6.2	2	124	2	35	20	41	13
10	D98*9762	82.7	29	42.7	26	43.7	27	36.3	27	31.6	29	128	18	35	21	70	27
11	D98*9764	77.6	25	36.4	24	33.0	23	32.2	24	28.4	28	127	9	36	23	67	24
12	D98*9770	80.2	27	53.0	30	45.6	28	40.7	30	27.0	27	128	19	37	29	81	30
13	D98-9213	70.8	19	32.7	21	29.9	21	30.1	21	18.5	21	128	20	36	24	53	19
14	D97-6075	74.4	23	34.7	22	33.4	24	34.7	25	19.0	23	127	10	36	25	67	25
15	GA931241E16	79.5	26	41.5	25	38.0	25	30.0	20	23.1	26	129	28	36	26	63	22
16	GA93052E42	77.0	24	52.1	29	52.4	30	36.2	26	34.7	30	127	11	31	4	75	28
17	GA931463E27	70.1	17	27.8	18	24.4	18	31.4	23	13.3	12	127	12	32	8	31	7
18	GA931470E62	82.0	28	48.9	28	46.5	29	39.9	29	17.7	19	125	4	30	1	62	21
19	GA921233E17	64.2	12	36.2	23	29.9	22	31.1	22	16.0	16	126	6	36	27	76	29
20	MDV11-52	72.2	20	29.0	19	22.6	16	27.0	18	16.3	17	127	13	31	5	59	20
21	NC98-22251	70.3	18	31.4	20	27.2	20	28.1	19	13.5	13	128	21	33	12	38	12
22	NC98-26189	68.9	15	21.6	12	20.0	13	19.6	8	12.2	8	127	14	32	9	35	9
23	NC98-26192	72.6	21	23.6	14	22.5	15	20.0	9	16.8	18	127	15	34	15	24	4
24	NC98-27513	57.7	8	17.1	8	16.1	8	11.3	1	9.2	6	129	29	34	16	25	5
25	VA01W447	69.6	16	21.7	13	17.3	11	20.0	10	10.2	7	126	7	34	17	48	17
26	VA01W461	55.4	4	14.7	5	12.3	5	23.0	14	15.9	15	128	22	35	22	42	14
27	VA01W462	74.1	22	25.5	16	20.9	14	23.7	17	19.1	24	126	8	32	10	35	10
28	VA01W476	35.0	1	9.9	1	9.0	1	12.2	2	2.5	1	123	1	31	6	9	1
29	VA00W566	67.6	14	25.2	15	24.6	19	22.0	12	18.5	22	128	23	34	18	47	16
30	VA00W562	67.4	13	26.5	17	23.8	17	22.1	13	21.1	25	129	30	30	2	31	8
	Mean:	67.0		27.7		25.0		25.2		16.1		127		34		47.2	
	L.S.D. (0.05)	12.3		8.1		9.4		10.6		9.5		2		1.9		19.9	
	C.V. (%)	18.4		36.3		41.7		40.5		56.7		1.28		4.9		37.0	

Correlations Between Traits Over Locations.

	SEVERITY	INDEX	SCABBY SEED	VOMITOXIN DON	G'HOUSE TYPE 2	HEADING DATE	PLANT HEIGHT
INCIDENCE	0.87	0.85	0.83	0.76	0.67	ns	ns
SEVERITY		0.99	0.93	0.82	0.79	ns	ns
INDEX			0.91	0.84	0.76	ns	ns
SCABBY SEED				0.78	0.81	ns	ns
VOMITOXIN (DON)					0.68	ns	ns
G'HOUSE TYPE 2						ns	0.37
HEADING DATE							0.37