SOUTHERN UNIFORM WINTER WHEAT SCAB NURSERY

2018 NURSERY REPORT

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LOCATION NOTES

Champaign, Illinois
- Cooperator: Jana Murche
- KWS Cereals USA.

Urbana, Illinois
- Cooperator: Fred Kolb.
- University of Illinois.

Fayetteville and Newport, Arkansas
- Cooperator: Esten Mason.
- University of Arkansas.

Lexington, Kentucky
- Cooperator: Dave Van Sanford.
- University of Kentucky.

Warsaw, Virginia
- Cooperator: Carl A. Griffey.
- Virginia Tech.

Columbia, Missouri
- Cooperators: Anne L. McKendry.
- University of Missouri

Winnsboro and Baton Rouge, Louisiana.
- Cooperator: Stephen Harrison.
- Louisiana State University.

Griffin, Georgia
- Cooperator: Mohamed Mergoum and Jerry Johnson.
- University of Georgia.

Lafayette, Indiana
- Cooperator: Don Obert.
- Limagrain Cereal Seeds.

Raleigh, North Carolina
- Cooperator: Gina Brown-Guedira.
- USDA-ARS Eastern Regional Small Grains Genotyping Lab

West Lafayette, Indiana
- Cooperator: Sue Cambron.
- USDA-ARS Crop Production and Pest Control Research Unit:

Wooster, Ohio
- Cooperator: Byung-Kee Baik
- USDA-ARS Soft Wheat Quality Laboratory

FHB Nurseries in Kinston, NC (top) and Warsaw, VA (bottom) during 2017-18

Entry List and Pedigrees, 2018 Nursery

ENTRY NO	CULTIVAR/ DESIGNATION	*PEDIGREE*	CONTRIBUTOR	IN NURSERY SINCE
1	ERNIE	*Check*	CHECK(RES)	1999-00
2	COKER9835	*Check*	CHECK(SUS)	2000-01
3	BESS	*MO11769/Madison*	CHECK(RES)	2006-07
4	JAMESTOWN	*Roane / Pioneer 2691*	Check (RES)	2007-08
5	NC13-21213	*Oglethorpe / Jamestown*	Murphy	2016-17
6	NC14-23372	*Jamestown // NC05-21937/NC-NEUSE*	Murphy	2016-17
7	NC14-23373	*Jamestown // NC05-21937/NC-NEUSE*	Murphy	2016-17
8	AR09006-10-2	*AR00039-5-2/MD #14*	Mason	2017-18
9	AR09009-8-3	*AR0039-5-2/Stars 0601W*	Mason	2017-18
10	AR09045-4-2	*MD #13/AR99263-7-1*	Mason	2017-18
11	ARLA09218C-5-2	*GA011124-8LE32 / LA01029D-139-3-C*	Mason	2017-18
12	ARLA09238C-6-3	*LA08067,F1(GA05467-4-G1-G2/LA98094BUB-58-5)/ AR01120-56-7*	Mason	2017-18
13	ARLA09179UC-9-3	*LA95135/NC06-27*	Mason	2017-18
14	ARLA09137UC-17-2	*LA95135/GA001170-7E26*	Mason	2017-18
15	ARLW08160D-20-1	*(GA98244-1-14-5-4/AGS2060)LA07049,F1/LA07007,F1*	Mason	2017-18
16	GA13VA-FHB-DH83-17EL5	*MD0361-09-7 / Jamestown // PI026R94*	Mergoum	2017-18
17	GA091034-17EL44	*SS8641*3/TRUMAN*	Mergoum	2017-18
18	GA10654-17LE46	*JAMESTOWN/IL97-1828*	Mergoum	2017-18
19	GA10389-17LE56	*041229-14-3-1/JAMESTOWN*	Mergoum	2017-18
20	GA111005-17A3	*001142-9E23/ AGS 2027*	Mergoum	2017-18
21	GA121086-LDH20-17A24	*JAMESTOWN/SS 8629*	Mergoum	2017-18
22	GA091537-17A29	*MD08#22-7/991371-6E12*	Mergoum	2017-18
23	GA1035-DH49-17LE52	*Pioneer 25R32 (Fhb1) / AGS 2038 // VA09W-73*	Mergoum	2017-18
24	KWS154	*Branson / SE991036R-C13*	Murche	2017-18
25	KWS192	*W06-202 / USG3555*	Murche	2017-18
26	KWS193	*Shirley (=VA03W-409) / P992231A1-2-1*	Murche	2017-18
27	L11815	*W98007V1/VA06W-392*	Obert	2017-18
28	L11820	*T814/L900819//McCormick*	Obert	2017-18
29	L11811	*GA991227-6A33/VA05W-258//VA05W-139*	Obert	2017-18
30	LA14066DH-147	*SAVOY/AGS3000 SIB*	Harrison	2017-18
31	LA08277C-P5-3-1	*VA02W-713/LA07152,F1(NC04-27617/LA841)*	Harrison	2017-18
32	LA11289C-57-4	*VA08MAS-412/LA03200E-23*	Harrison	2017-18
33	LA12120SB-56-4	*LA11038, F1(AGS 2038/AGS 2040)/NC09-20986*	Harrison	2017-18
34	LA14076-LDH6	*GA04434-12LE28 / MD08-26-H2-7-12-21*	Harrison	2017-18
35	LA14066DH-172	*SAVOY / AGS3000 SIB*	Harrison	2017-18
36	NC14-20369	*NC04-22849 // NC04-22906 / NC-Yadkin*	Murphy	2017-18
37	NC14-22588	*NC04-22906 / VA05W-500 // NC-Yadkin*	Murphy	2017-18
38	NC11546-14	*AGS 2027 / NC09-20986*	Murphy	2017-18
39	NC15-23047	*Bess / NC06-19896*	Murphy	2017-18
40	NC15-21787	*NC04-22849 / NC05-21937 // GA991371-6E12*	Murphy	2017-18
41	NC11331-6	*NC09-20986 / NC08-140*	Murphy	2017-18
42	DH12SRW057-081	*VA09W-73 / VA05W-251*	Griffey	2017-18
43	13VA-FHB-DH131	*MD03W61-09-7 / Jamestown // GA04570-10E46*	Griffey	2017-18
44	VA15W-70	*P992231A1-2-1 (Patton//Patterson /Bizel/3/9346) / Shirley*	Griffey	2017-18
45	VA16W-31	*P992231A1-2-1 (Patton//Patterson /Bizel/3/9346) / Shirley*	Griffey	2017-18
46	VA16W-202	*USG 3665 / SS8415 (VA07W-415) // Yorktown (VA08W-294)*	Griffey	2017-18
47	12VTK10-156	*GA031134-10E29 / Yorktown (VA08W-294)*	Griffey	2017-18
48	DH13SRW023-201	*VA08MAS-369 (McCormick / GA881130LE5) / Jamestown*	Griffey	2017-18
49	DH13SRW025-14	*GA04570-10E46 / Yorktown (VA08W-294)*	Griffey	2017-18

Fusarium Head Blight Rating
(0 - 9)

ENTRY NO	CULTIVAR/ DESIGNATION	W'BORO LA		KINSTON NC		UIL IL		LEX'TON KY		KWS IL		COL'BIA MO		WARSAW VA		MEAN ALL LOC.		GEBV SEVERITY	
			Rank		Rank		Rank		Rank		Rank		Rank		Rank		Rank		Rank
1	ERNIE	6	34	4	11	3	8	5	20	3	16	2	5	6	21	4	#	27	5
2	COKER 9835	8	46	9	49	7	42	7	45	4	35	6	47	9	48	7	#	56	49
3	BESS	2	2	3	2	3	8	3	1	3	16	2	5	4	3	3	1	28	7
4	JAMESTOWN	5	28	4	11	4	21	4	6	2	1	2	5	4	3	4	#	27	5
5	NC13-21213	6	34	7	47	5	28	5	20	6	48	3	17	7	31	5	#	36	30
6	NC14-23372	3	10	3	2	2	4	6	37	2	1	2	5	7	31	3	1	24	1
7	NC14-23373	3	10	3	2	3	8	5	20	2	1	1	1	5	13	3	1	24	1
8	AR09006-10-2	3	10	4	11	7	42	5	20	2	1	3	17	6	21	4	#	42	42
9	AR09009-8-3	3	10	3	2	8	49	4	6	2	1	5	43	6	21	4	#	43	44
10	AR09045-4-2	2	2	4	11	6	33	4	6	2	1	4	35	6	21	4	#	44	46
11	ARLA09218C-5-2	7	41	5	25	3	8	6	37	3	16	3	17	8	44	5	#	39	39
12	ARLA09238C-6-3	2	2	5	25	7	42	6	37	2	1	3	17	6	21	4	#	43	44
13	ARLA09179UC-9-3	6	34	5	25	6	33	7	45	3	16	4	35	7	31	6	#	41	41
14	ARLA09137UC-17-2	7	41	5	25	3	8	7	45	4	35	6	47	7	31	6	#	50	48
15	ARLW08160D-20-1	5	28	5	25	3	8	6	37	3	16	3	17	8	44	4	#	35	24
16	GA13VA-FHB-DH83-17EL!	6	34	3	2	1	1	5	20	3	16	2	5	4	3	3	1	33	18
17	GA091034-17EL44	8	46	8	48	7	42	7	45	7	49	7	49	9	48	8	#	40	40
18	GA10654-17LE46	5	28	5	25	4	21	3	1	2	1	3	17	6	21	4	#	29	10
19	GA10389-17LE56	4	23	4	11	6	33	4	6	2	1	3	17	7	31	4	#	36	32
20	GA111005-17A3	6	34	6	44	7	42	5	20	5	42	4	35	8	44	6	#	45	47
21	GA121086-LDH20-17A24	5	28	4	11	6	33	6	37	4	35	3	17	6	21	5	#	30	12
22	GA091537-17A29	3	10	3	2	2	4	4	6	2	1	3	17	3	1	3	1	32	16
23	GA1035-DH49-17LE52	7	41	2	1	3	8	3	1	3	16	3	17	5	13	4	#	34	21
24	KWS154	2	2	4	11	4	21	4	6	3	16	2	5	6	21	3	1	38	36
25	KWS192	3	10	4	11	6	33	5	20	3	16	3	17	4	3	4	#	38	36
26	KWS193	.	.	4	11	4	21	4	6	2	1	2	5	5	13	3	1	32	16
27	L11815	2	2	5	25	6	33	4	6	3	16	3	17	6	21	4	#	35	24
28	L11820	3	10	5	25	2	4	5	20	5	42	1	1	7	31	4	#	35	24
29	L11811	5	28	6	44	5	28	5	20	4	35	1	1	6	21	4	#	35	24
30	LA14066DH-147	7	41	5	25	7	42	5	20	3	16	4	35	7	31	5	#	35	24
31	LA08277C-P5-3-1	5	28	4	11	5	28	6	37	3	16	5	43	3	1	4	#	25	4
32	LA11289C-57-4	7	41	5	25	6	33	6	37	3	16	4	35	7	31	5	#	36	31
33	LA12120SB-56-4	2	2	4	11	3	8	5	20	2	1	5	43	4	3	3	1	30	12
34	LA14076-LDH6	4	23	3	2	2	4	5	20	3	16	2	5	4	3	3	1	29	10
35	LA14066DH-172	8	46	6	44	6	33	7	45	5	42	4	35	8	44	6	#	28	7
36	NC14-20369	3	10	5	25	5	28	4	6	5	42	2	5	7	31	4	#	37	33
37	NC14-22588	3	10	5	25	6	33	5	20	4	35	3	17	7	31	4	#	37	33
38	NC11546-14	3	10	3	2	1	1	3	1	3	16	3	17	4	3	3	1	30	12
39	NC15-23047	1	1	5	25	3	8	5	20	5	42	2	5	5	13	3	1	24	1
40	NC15-21787	3	10	5	25	7	42	5	20	3	16	3	17	7	31	4	#	42	42
41	NC11331-6	3	10	3	2	1	1	4	6	3	16	5	43	4	3	3	1	28	7
42	DH12SRW057-081	4	23	4	11	5	28	4	6	4	35	1	1	5	13	4	#	38	36
43	13VA-FHB-DH131	2	2	5	25	3	8	6	37	2	1	3	17	5	13	3	1	37	33
44	VA15W-70	3	10	4	11	4	21	5	20	4	35	3	17	7	31	4	#	34	21
45	VA16W-31	2	2	5	25	3	8	4	6	3	16	3	17	7	31	4	#	33	18
46	VA16W-202	6	34	5	25	4	21	5	20	5	42	4	35	5	13	5	#	31	15
47	12VTK10-156	6	34	4	11	4	21	4	6	2	1	4	35	4	3	4	#	33	18
48	DH13SRW023-201	4	23	5	25	3	8	4	6	3	16	2	5	5	13	3	1	34	21
49	DH13SRW025-14	4	23	5	25	3	8	3	1	2	1	2	5	4	3	3	1	35	24
	Mean	4		4		4		5		3		3		6		4			
	LSD (0.05)	2		.		.		2		.		.		.		2			
	CV%	21.6		.		.		19.8		.		.		.		27.4			
	Correl. with SEV Predictic	0.22		0.47		0.57		0.26		0.14		0.46		0.54		0.54			

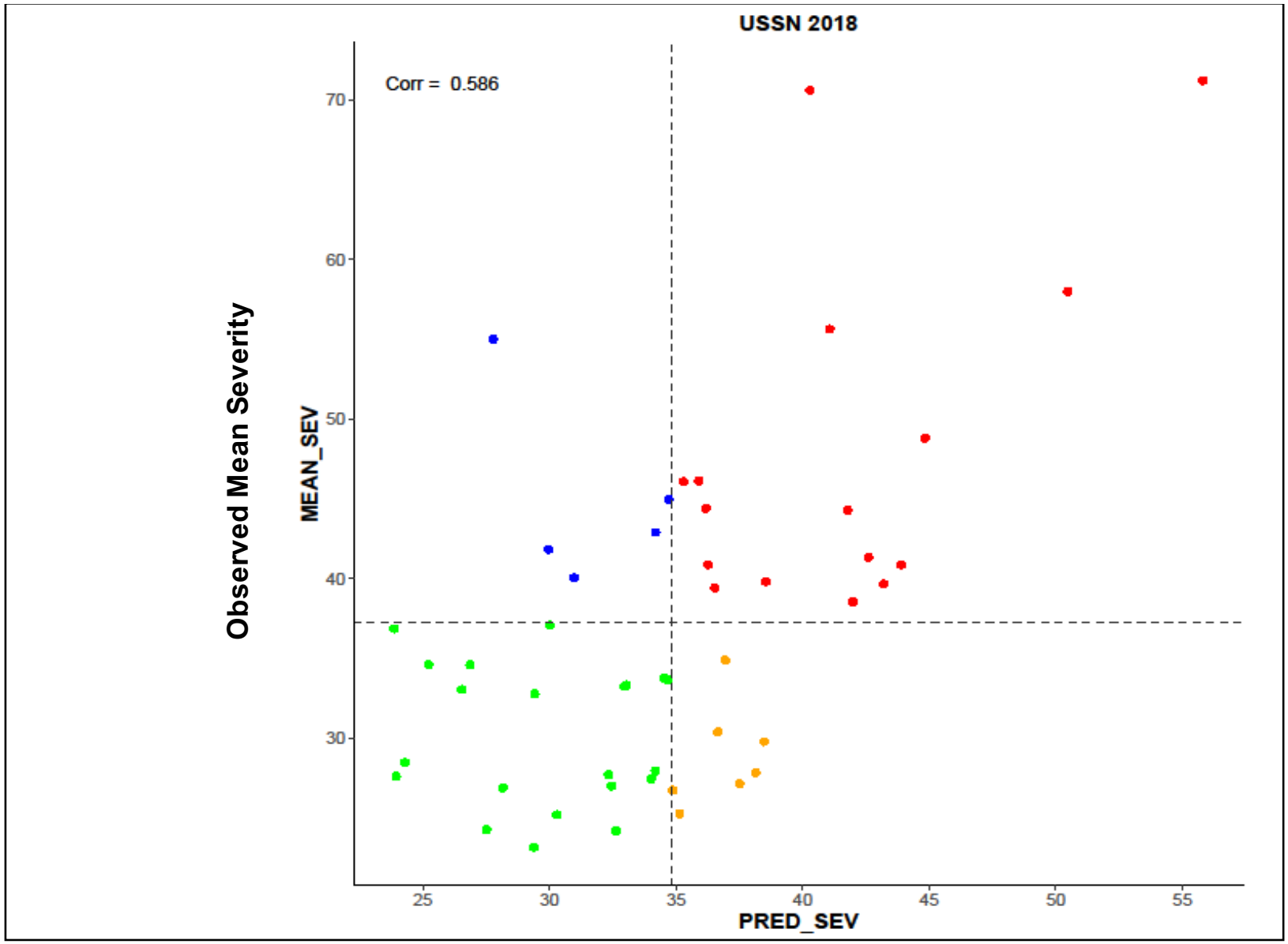
FHB Incidence (1-100)

ENTRY NO	CULTIVAR/ DESIGNATION	N'PORT AR	LIMA IN	UIL IL	COL'BIA MO	WARSAW VA	MEAN ALL LOC.	RANK
1	ERNIE	28	50	3	90	100	54	12
2	COKER9835	90	70	65	100	100	85	49
3	BESS	5	30	8	90	95	46	2
4	JAMESTOWN	55	70	12	90	100	65	29
5	NC13-21213	58	85	43	83	100	74	44
6	NC14-23372	25	75	13	75	100	58	22
7	NC14-23373	33	60	28	73	98	58	22
8	AR09006-10-2	35	65	40	95	98	67	34
9	AR09009-8-3	23	55	48	90	98	63	27
10	AR09045-4-2	35	70	33	88	100	65	29
11	ARLA09218C-5-2	80	60	20	98	100	72	41
12	ARLA09238C-6-3	35	60	30	100	100	65	29
13	ARLA09179UC-9-3	63	85	40	98	100	77	46
14	ARLA09137UC-17-2	55	80	14	100	100	70	39
15	ARLW08160D-20-1	80	75	6	90	100	70	39
16	GA13VA-FHB-DH83-17EL	88	70	15	98	90	72	41
17	GA091034-17EL44	73	90	55	100	100	84	48
18	GA10654-17LE46	60	45	10	95	100	62	26
19	GA10389-17LE56	53	65	20	100	95	67	34
20	GA111005-17A3	63	85	47	93	100	77	46
21	GA121086-LDH20-17A24	50	60	40	90	100	68	37
22	GA091537-17A29	23	45	7	90	100	53	9
23	GA1035-DH49-17LE52	30	50	6	95	90	54	12
24	KWS154	5	30	7	83	95	44	1
25	KWS192	23	45	17	85	100	54	12
26	KWS193	13	35	17	88	100	50	5
27	L11815	25	30	17	98	100	54	12
28	L11820	18	40	5	73	100	47	3
29	L11811	30	55	18	75	100	56	17
30	LA14066DH-147	45	70	48	98	98	72	41
31	LA08277C-P5-3-1	25	55	12	100	95	57	20
32	LA11289C-57-4	50	60	33	90	100	67	34
33	LA12120SB-56-4	33	35	15	100	95	56	17
34	LA14076-LDH6	33	30	10	93	98	53	9
35	LA14066DH-172	78	65	25	100	100	74	44
36	NC14-20369	60	35	8	83	95	56	17
37	NC14-22588	55	35	5	95	100	58	22
38	NC11546-14	18	45	6	100	95	53	9
39	NC15-23047	3	60	12	85	93	50	5
40	NC15-21787	20	50	23	93	100	57	20
41	NC11331-6	20	25	7	98	88	47	3
42	DH12SRW057-081	40	50	10	65	88	51	7
43	13VA-FHB-DH131	10	65	16	98	100	58	22
44	VA15W-70	30	65	40	93	100	66	32
45	VA16W-31	40	75	15	90	100	64	28
46	VA16W-202	48	70	21	100	100	68	37
47	12VTK10-156	40	65	25	98	100	66	32
48	DH13SRW023-201	20	50	15	78	95	52	8
49	DH13SRW025-14	60	40	3	75	95	55	16
	Mean	40	57	21	91	98	61	
	LSD (0.05)	.	.	22	.	8	21	
	CV%	.	.	54.3	.	5.6	15.7	

FHB Severity (1-100)

	CULTIVAR/ DESIGNATION	N'PORT AR	Rank	LIMA IN	Rank	COL'BIA MO	Rank	WARSAW VA	Rank	MEAN ALL LOC.	Rank	GEBV	Rank
1	ERNIE	7	11	40	17	25	16	61	27	33	18	27	5
2	COKER9835	55	49	75	45	61	47	94	49	71	48	56	49
3	BESS	7	11	35	14	19	9	47	14	27	6	28	7
4	JAMESTOWN	25	42	50	26	19	9	44	9	35	24	27	5
5	NC13-21213	18	36	75	45	26	18	65	31	46	42	36	30
6	NC14-23372	7	11	55	35	16	5	70	37	37	27	24	1
7	NC14-23373	5	5	50	26	14	3	45	12	28	11	24	1
8	AR09006-10-2	10	23	60	39	28	23	56	21	39	29	42	42
9	AR09009-8-3	5	5	45	20	46	43	63	30	40	31	43	44
#	AR09045-4-2	8	20	55	35	39	37	61	27	41	34	44	46
#	ARLA09218C-5-2	23	40	25	5	34	33	77	44	40	31	39	39
#	ARLA09238C-6-3	12	26	65	41	33	31	56	21	41	34	43	44
#	ARLA09179UC-9-3	27	43	80	48	43	40	73	42	56	46	41	41
#	ARLA09137UC-17-2	23	40	75	45	63	48	71	39	58	47	50	48
#	ARLW08160D-20-1	28	46	50	26	27	21	79	45	46	42	35	24
#	GA13VA-FHB-DH83-17EL53	27	43	15	2	18	6	37	4	24	2	33	18
#	GA091034-17EL44	30	47	90	49	72	49	91	48	71	48	40	40
#	GA10654-17LE46	12	26	30	11	28	23	61	27	33	18	29	10
#	GA10389-17LE56	12	26	50	26	32	30	70	37	41	34	36	32
#	GA111005-17A3	22	39	55	35	38	35	81	47	49	44	45	47
#	GA121086-LDH20-17A24	13	31	70	44	26	18	58	23	42	37	30	12
#	GA091537-17A29	3	2	45	20	25	16	34	1	27	6	32	16
#	GA1035-DH49-17LE52	7	11	25	5	33	31	47	14	28	11	34	21
#	KWS154	3	2	25	5	22	15	58	23	27	6	38	36
#	KWS192	5	5	45	20	27	21	42	8	30	16	38	36
#	KWS193	7	11	35	14	18	6	51	17	28	11	32	16
#	L11815	8	20	40	17	29	26	58	23	34	22	35	24
#	L11820	8	20	20	3	14	3	65	31	27	6	35	24
#	L11811	12	26	50	26	13	1	60	26	34	22	35	24
#	LA14066DH-147	15	34	55	35	43	40	67	34	45	41	35	24
#	LA08277C-P5-3-1	10	23	45	20	50	45	34	1	35	24	25	4
#	LA11289C-57-4	18	36	50	26	39	37	71	39	44	39	36	31
#	LA12120SB-56-4	7	11	50	26	51	46	41	7	37	27	30	12
#	LA14076-LDH6	10	23	20	3	19	9	44	9	23	1	29	10
#	LA14066DH-172	33	48	65	41	43	40	79	45	55	45	28	7
#	NC14-20369	27	43	25	5	21	14	67	34	35	24	37	33
#	NC14-22588	18	36	45	20	28	23	66	33	39	29	37	33
#	NC11546-14	5	5	30	11	30	27	36	3	25	4	30	12
#	NC15-23047	2	1	45	20	18	6	46	13	28	11	24	1
#	NC15-21787	13	31	65	41	31	29	68	36	44	39	42	42
#	NC11331-6	3	2	10	1	46	43	37	4	24	2	28	7
#	DH12SRW057-081	13	31	30	11	13	1	55	20	28	11	38	36
#	13VA-FHB-DH131	7	11	40	17	26	18	49	16	30	16	37	33
#	VA15W-70	7	11	60	39	34	33	71	39	43	38	34	21
#	VA16W-31	5	5	25	5	30	27	73	42	33	18	33	18
#	VA16W-202	15	34	50	26	41	39	54	19	40	31	31	15
#	12VTK10-156	7	11	50	26	38	35	39	6	33	18	33	18
#	DH13SRW023-201	5	5	35	14	19	9	51	17	27	6	34	21
#	DH13SRW025-14	12	26	25	5	20	13	44	9	25	4	35	24
	Mean	13		46		31		58		37			
	LSD (0.05)	.		.		.		24		21			
	CV%	.		.		.		28.9		28.4			
	Correlations with Prediction	0.48		0.39		0.46		0.54		0.59			

Observed Versus Predicted Mean FHB Severity for Entries in the 2017-18 Nursery



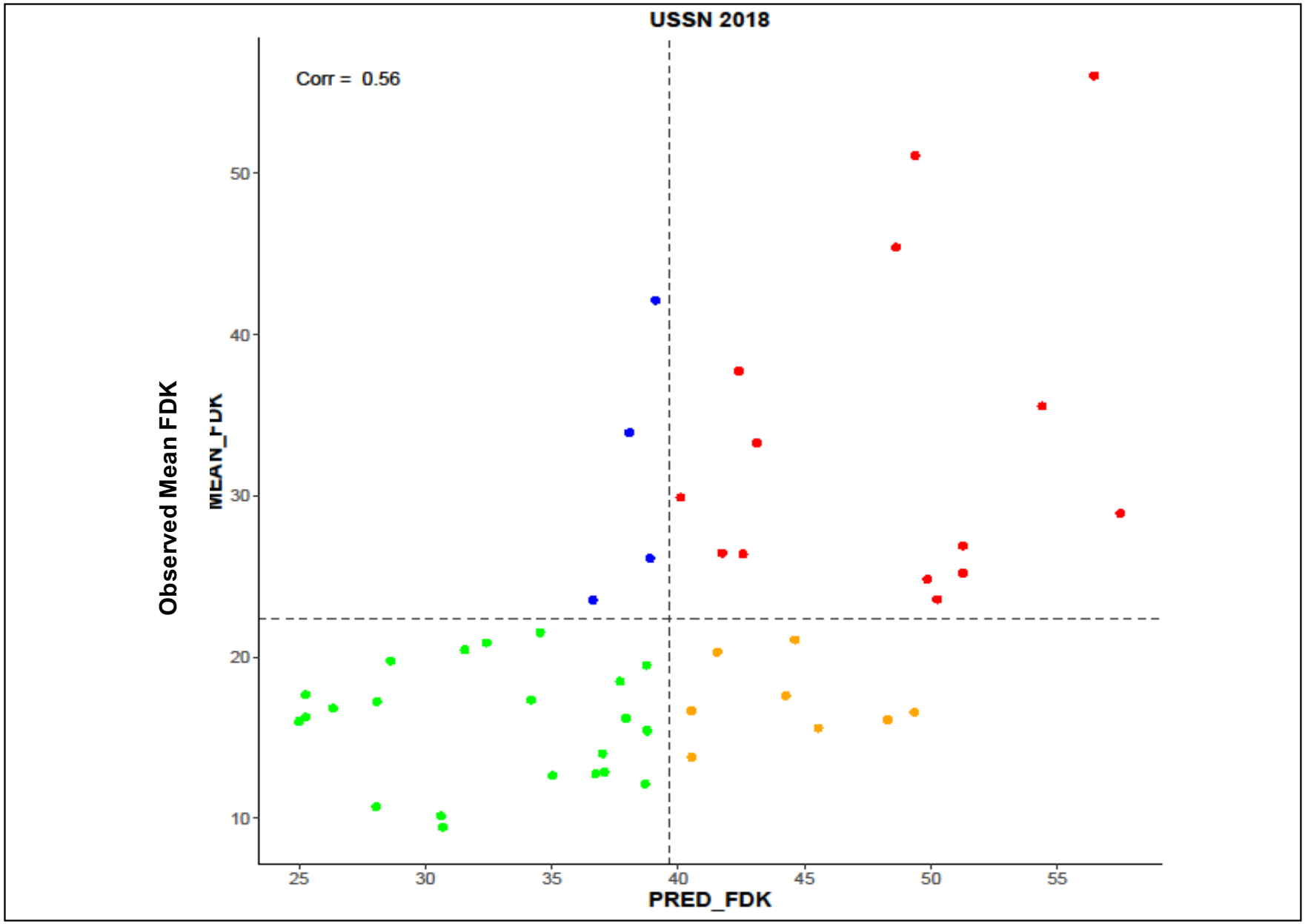
FHB Index (1-100)

	CULTIVAR/ DESIGNATION	N'PORT AR	RANK	UIL IL	RANK	LIMA IN	RANK	COL'BIA MO	RANK	WARSAW VA	RANK	MEAN ALL LOC.	RANK	GEBV SEVERITY	RANK
1	ERNIE	2	13	0.4	1	20	20	22	17	61	27	21	17	27	5
2	COKER9835	54	49	48	49	53	45	61	47	94	49	62	48	56	49
3	BESS	0	1	7	22	11	7	17	10	41	8	15	1	28	7
4	JAMESTOWN	10	35	6	18	35	33	17	10	44	13	22	18	27	5
5	NC13-21213	11	37	28	42	64	47	21	16	65	32	38	42	36	30
6	NC14-23372	2	13	4	11	41	41	14	5	70	38	26	28	24	1
7	NC14-23373	2	13	11	32	30	28	11	4	45	15	20	15	24	1
8	AR09006-10-2	4	23	30	44	39	36	27	23	55	21	31	33	42	42
9	AR09009-8-3	1	4	44	48	25	23	42	40	61	27	35	40	43	44
10	AR09045-4-2	4	23	22	38	39	36	34	34	61	27	32	35	44	46
11	ARLA09218C-5-2	25	45	9	27	15	14	34	34	77	44	32	35	39	39
12	ARLA09238C-6-3	5	28	23	40	39	36	33	33	56	23	31	33	43	44
13	ARLA09179UC-9-3	19	42	29	43	68	48	42	40	73	42	46	47	41	41
14	ARLA09137UC-17-2	13	40	6	18	60	46	63	48	71	39	42	45	50	48
15	ARLW08160D-20-1	33	48	2	6	38	35	25	21	79	45	35	40	35	24
16	GA13VA-FHB-DH83-17EL53	28	47	2	6	11	7	18	13	33	2	18	11	33	18
17	GA091034-17EL44	27	46	43	47	81	49	72	49	91	48	62	48	40	40
18	GA10654-17LE46	6	29	5	15	14	12	27	23	61	27	22	18	29	10
19	GA10389-17LE56	7	32	13	34	33	30	32	30	66	35	30	32	36	32
20	GA111005-17A3	20	43	36	45	47	44	35	37	81	47	44	46	45	47
21	GA121086-LDH20-17A24	8	34	27	41	42	42	23	18	58	24	32	35	30	12
22	GA091537-17A29	1	4	2	6	20	20	23	18	34	3	16	4	32	16
23	GA1035-DH49-17LE52	2	13	3	9	13	11	32	30	44	13	18	11	34	21
24	KWS154	0	1	4	11	8	3	19	15	55	21	17	6	38	36
25	KWS192	1	4	12	33	20	20	23	18	42	10	20	15	38	36
26	KWS193	1	4	7	22	12	9	16	9	51	19	17	6	32	16
27	L11815	2	13	10	30	12	9	28	26	58	24	22	18	35	24
28	L11820	2	13	1	2	8	3	10	2	65	32	17	6	35	24
29	L11811	4	23	9	27	28	27	10	2	60	26	22	18	35	24
30	LA14066DH-147	6	29	37	46	39	36	42	40	65	32	38	42	35	24
31	LA08277C-P5-3-1	1	4	7	22	25	23	50	45	32	1	23	24	25	4
32	LA11289C-57-4	11	37	20	37	30	28	34	34	71	39	33	38	36	31
33	LA12120SB-56-4	3	22	5	15	18	17	51	46	39	6	23	24	30	12
34	LA14076-LDH6	4	23	3	9	6	2	17	10	43	11	15	1	29	10
35	LA14066DH-172	24	44	16	35	42	42	43	43	79	45	41	44	28	7
36	NC14-20369	18	41	4	11	9	5	18	13	63	31	22	18	37	33
37	NC14-22588	10	35	4	11	16	16	27	23	66	35	25	27	37	33
38	NC11546-14	1	4	1	2	14	12	30	29	34	3	16	4	30	12
39	NC15-23047	0	1	6	18	27	26	15	6	43	11	18	11	24	1
40	NC15-21787	2	13	17	36	33	30	29	28	68	37	29	31	42	42
41	NC11331-6	1	4	1	2	3	1	45	44	34	3	17	6	28	7
42	DH12SRW057-081	11	37	7	22	15	14	9	1	48	17	18	11	38	36
43	13VA-FHB-DH131	1	4	7	22	26	25	26	22	49	18	22	18	37	33
44	VA15W-70	2	13	22	38	39	36	32	30	71	39	33	38	34	21
45	VA16W-31	2	13	6	18	19	19	28	26	73	42	26	28	33	18
46	VA16W-202	6	29	9	27	35	33	41	39	54	20	29	30	31	15
47	12VTK10-156	4	23	10	30	33	30	37	38	39	6	24	26	33	18
48	DH13SRW023-201	1	4	5	15	18	17	15	6	47	16	17	6	34	21
49	DH13SRW025-14	7	32	1	2	10	6	15	6	41	8	15	1	35	24
	Mean	8		12		28		29		57		27			
	LSD (0.05)	.		17		.		.		24		20			
	CV%	.		72.6		.		.		30.6		37.2			
	Correlations with SEV Predictions	0.47		0.58		0.40		0.43		0.53		0.61			

Percent Fusarium Damaged Kernels

	CULTIVAR/ DESIGNATION	N'PORT AR	Rank	F'VILLE AR	Rank	KINSTON NC	Rank	UIL IL	Rank	KWS IL	Rank	LEX'TON KY	Rank	W'BORO LA	Rank	WARSAW VA	Rank	MEAN ALL LOC.	Rank	GEBV	Rank
1	ERNIE	4	1	8	23	25	22	14	17	1	1	5	1	8	7	22	2	11	3	28	5
2	COKER9835	73	46	43	47	85	49	50	44	13	46	53	48	60	47	73	48	56	49	56	48
3	BESS	9	2	3	1	25	22	4	1	3	21	5	1	5	1	23	4	9	1	31	8
4	JAMESTOWN	40	31	5	10	13	7	13	16	2	8	13	16	15	22	41	30	18	22	25	1
5	NC13-21213	42	34	14	37	33	37	57	47	4	33	35	46	38	46	50	40	34	43	38	19
6	NC14-23372	33	21	14	37	20	17	8	7	2	8	18	32	5	1	35	16	17	17	26	4
7	NC14-23373	28	17	12	33	18	13	10	11	2	8	18	32	23	32	20	1	16	12	25	1
8	AR09006-10-2	43	36	13	36	35	38	23	31	3	21	23	38	20	30	39	27	25	34	50	43
9	AR09009-8-3	43	36	8	23	28	28	32	37	3	21	13	16	18	26	46	36	24	32	50	43
10	AR09045-4-2	57	42	21	43	40	42	20	24	4	33	8	3	13	19	54	44	27	39	51	45
11	ARLA09218C-5-2	33	21	7	19	30	33	15	18	3	21	15	24	30	37	35	16	21	29	45	37
12	ARLA09238C-6-3	55	41	4	3	30	33	37	41	3	21	20	35	13	19	41	30	25	34	51	45
13	ARLA09179UC-9-3	37	28	12	33	10	4	17	21	1	1	13	16	25	34	49	39	20	26	42	31
14	ARLA09137UC-17-2	48	39	6	14	30	33	30	36	5	40	33	45	33	40	47	37	29	40	57	49
15	ARLW08160D-20-1	25	11	8	23	13	7	20	24	2	8	13	16	15	22	38	23	17	17	49	40
16	GA13VA-FHB-DH83-17EL5	27	14	6	14	3	1	18	22	3	21	13	16	5	1	29	8	13	5	37	15
17	GA091034-17EL44	79	48	14	37	43	45	67	48	17	47	60	49	68	48	62	47	51	48	49	42
18	GA10654-17LE46	38	29	5	10	25	22	7	5	2	8	10	10	8	7	44	34	17	17	28	5
19	GA10389-17LE56	23	9	4	3	15	9	27	35	2	8	15	24	18	26	35	16	17	17	34	12
20	GA111005-17A3	62	44	27	46	40	42	37	41	5	40	23	38	35	43	57	45	36	44	54	47
21	GA121086-LDH20-17A24	33	21	11	32	10	4	32	37	3	21	20	35	18	26	47	37	22	31	35	13
22	GA091537-17A29	16	5	10	31	25	22	12	13	1	1	8	3	10	16	22	2	13	5	37	15
23	GA1035-DH49-17LE52	17	6	6	14	8	2	5	2	2	8	8	3	5	1	32	12	10	2	31	8
24	KWS154	27	14	5	10	20	17	20	24	3	21	13	16	5	1	32	12	15	10	39	22
25	KWS192	28	17	9	27	20	17	8	7	1	1	10	10	20	30	32	12	16	12	48	39
26	KWS193	40	31	8	23	23	20	20	24	2	8	15	24	.	.	30	9	19	24	39	22
27	L11815	25	11	6	14	35	38	15	18	1	1	13	16	10	16	37	22	18	22	44	36
28	L11820	15	4	3	1	25	22	12	13	3	21	15	24	13	19	40	28	16	12	46	38
29	L11811	58	43	24	45	70	48	52	46	4	33	23	38	30	37	42	32	38	45	42	31
30	LA14066DH-147	82	49	47	49	50	46	35	40	45	49	20	35	33	40	53	43	45	47	49	40
31	LA08277C-P5-3-1	40	31	6	14	18	13	33	39	4	33	10	10	18	26	36	20	20	26	32	10
32	LA11289C-57-4	65	45	18	42	40	42	70	49	12	45	30	43	30	37	73	49	42	46	39	22
33	LA12120SB-56-4	32	20	17	40	28	28	15	18	4	33	8	3	8	7	38	23	19	24	38	19
34	LA14076-LDH6	18	7	5	10	15	9	22	29	3	21	25	41	28	36	52	42	21	29	32	10
35	LA14066DH-172	35	25	7	19	25	22	50	44	18	48	40	47	35	43	57	45	33	42	43	34
36	NC14-20369	20	8	4	3	35	38	5	2	2	8	8	3	8	7	31	11	14	8	37	15
37	NC14-22588	25	11	7	19	18	13	8	7	4	33	18	32	15	22	36	20	16	12	38	19
38	NC11546-14	27	14	4	3	10	4	23	31	3	21	10	10	8	7	26	6	14	8	41	29
39	NC15-23047	14	3	4	3	28	28	18	22	2	8	13	16	8	7	43	33	16	12	25	1
40	NC15-21787	36	27	45	48	30	33	22	29	2	8	15	24	23	32	40	28	26	36	43	34
41	NC11331-6	30	19	12	33	8	2	7	5	2	8	10	10	8	7	26	6	13	5	35	13
42	DH12SRW057-081	23	9	4	3	15	9	8	7	1	1	8	3	5	1	35	16	12	4	39	22
43	13VA-FHB-DH131	33	21	9	27	23	20	12	13	5	40	8	3	9	14	25	5	15	10	39	22
44	VA15W-70	45	38	17	40	35	38	20	24	1	1	25	41	25	34	44	34	26	36	42	31
45	VA16W-31	78	47	22	44	50	46	23	31	4	33	10	10	15	22	38	23	30	41	40	28
46	VA16W-202	35	25	7	19	28	28	37	41	7	44	30	43	9	14	38	23	24	32	37	15
47	12VTK10-156	53	40	9	27	18	13	25	34	5	40	15	24	35	43	50	40	26	36	39	22
48	DH13SRW023-201	38	29	4	3	28	28	5	2	2	8	15	24	33	40	34	15	20	26	29	7
49	DH13SRW025-14	42	34	9	27	15	9	10	11	3	21	15	24	10	#	30	9	17	17	41	29
	Mean	37		12		27		22		4		17		19		40		22			
	LSD (0.05)	.		.		21		25		.		19		11		19		17			
	CV%	.		.		38.1		58.2		.		55.3		33.9		33.5		39.0			
	Correlations with Predictions	0.53		0.40		0.48		0.43		0.31		0.41		0.46		0.48		0.56			

Observed Versus Predicted Mean FDK for Entries in the 2017-18 Nursery



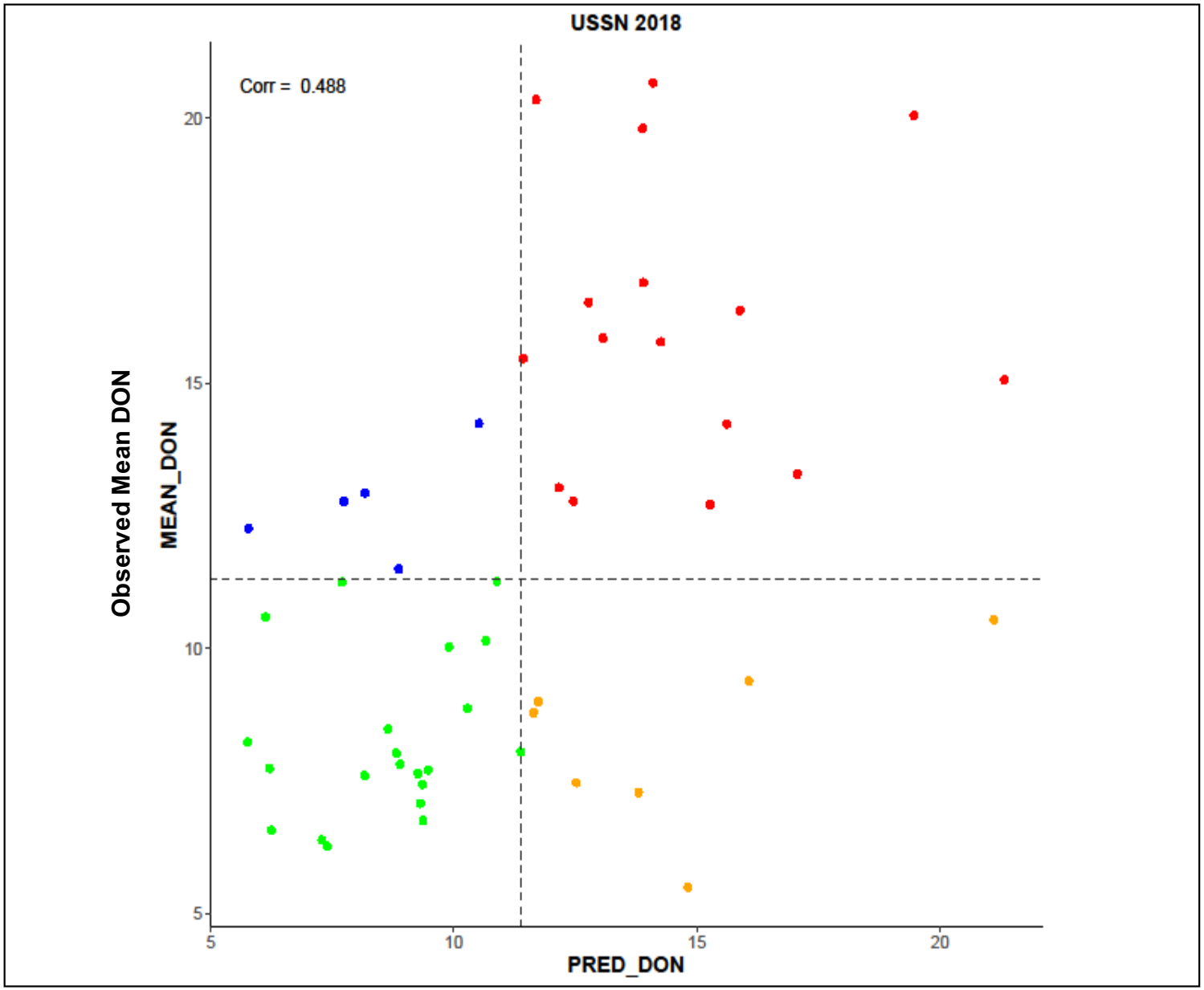
Incidence, Severity, Kernel Rating (ISK) Index
(0.3 * Incidence + 0.3 * Severity + 0.4 * Fusarium Damaged Kernels)

	CULTIVAR/ DESIGNATION	UIL IL	Rank	WARSAW VA	Rank	N'PORT AR	Rank	MEAN ALL LOC.	Rank
1	ERNIE	15	6	48	24	3	1	22	6
2	COKER9835	62	48	58	49	45	49	55	49
3	BESS	14	2	43	11	3	1	20	3
4	JAMESTOWN	21	17	43	11	21	39	29	26
5	NC13-21213	52	44	50	33	17	30	40	44
6	NC14-23372	15	6	51	38	10	14	26	14
7	NC14-23373	24	22	43	11	7	9	24	10
8	AR09006-10-2	45	39	46	20	17	30	36	35
9	AR09009-8-3	55	46	48	24	14	22	39	41
10	AR09045-4-2	38	35	49	29	23	41	37	37
11	ARLA09218C-5-2	23	20	53	44	17	30	31	28
12	ARLA09238C-6-3	47	42	47	23	24	42	39	41
13	ARLA09179UC-9-3	39	37	52	41	20	37	37	37
14	ARLA09137UC-17-2	30	28	51	38	21	39	34	34
15	ARLW08160D-20-1	18	11	54	45	18	34	30	27
16	GA13VA-FHB-DH83-17EL53	16	9	38	1	17	30	24	10
17	GA091034-17EL44	67	49	57	48	39	48	54	48
18	GA10654-17LE46	20	14	49	29	12	20	27	20
19	GA10389-17LE56	37	34	49	29	10	14	32	29
20	GA111005-17A3	52	44	55	47	30	44	45	45
21	GA121086-LDH20-17A24	45	39	48	24	18	34	37	37
22	GA091537-17A29	14	2	40	5	4	4	19	2
23	GA1035-DH49-17LE52	14	2	41	6	6	6	20	3
24	KWS154	23	20	46	20	9	11	26	14
25	KWS192	28	27	43	11	6	6	26	14
26	KWS193	25	26	45	18	14	22	28	22
27	L11815	30	28	48	24	6	6	28	22
28	L11820	14	2	50	33	5	5	23	8
29	L11811	43	38	48	24	20	37	37	37
30	LA14066DH-147	51	43	50	33	34	46	45	45
31	LA08277C-P5-3-1	32	31	39	3	14	22	28	22
32	LA11289C-57-4	57	47	52	41	34	46	48	47
33	LA12120SB-56-4	21	17	41	6	10	14	24	10
34	LA14076-LDH6	20	14	43	11	7	9	23	8
35	LA14066DH-172	46	41	54	45	16	28	39	41
36	NC14-20369	20	14	49	29	12	20	27	20
37	NC14-22588	24	22	50	33	10	14	28	22
38	NC11546-14	16	9	39	3	10	14	21	5
39	NC15-23047	22	19	42	8	3	1	22	6
40	NC15-21787	38	35	50	33	9	11	32	29
41	NC11331-6	8	1	38	1	9	11	18	1
42	DH12SRW057-081	24	22	43	11	10	14	26	14
43	13VA-FHB-DH131	19	13	45	18	14	22	26	14
44	VA15W-70	32	31	51	38	15	26	33	32
45	VA16W-31	24	22	52	41	31	45	36	35
46	VA16W-202	34	33	46	20	15	26	32	29
47	12VTK10-156	30	28	42	8	26	43	33	32
48	DH13SRW023-201	18	11	44	17	16	28	26	14
49	DH13SRW025-14	15	6	42	8	18	34	25	13
	Mean	29		47		16		31	
	LSD (0.05)	18		12		.		17	
	CV%	32.2		8.1		.		23.7	
	Correlations with SEV Predic.	0.54		0.52		0.53		0.60	

DON
(ppm)

	CULTIVAR/ DESIGNATION	KINSTON NC	RANK	B'BURG VA	RANK	N'PORT AR	RANK	F'VILLE AR	RANK	W'BORO LA	RANK	LEX'TON KY	RANK	MEAN ALL LOC.	RANK	GEBV	RANK
1	ERNIE	7	15	17	18	7	2	3	8	6	#	4	1	7	6	9	12
2	COKER9835	24	49	35	49	16	26	9	45	16	#	16	#	19	47	19	47
3	BESS	9	28	16	13	11	15	4	20	4	9	4	1	8	14	12	28
4	JAMESTOWN	4	5	13	9	15	25	3	8	5	#	4	1	8	14	6	1
5	NC13-21213	8	23	16	13	17	28	3	8	13	#	10	#	11	26	9	12
6	NC14-23372	7	15	12	6	20	34	8	42	6	#	12	#	11	26	6	1
7	NC14-23373	7	15	22	33	20	34	4	20	9	#	10	#	12	30	6	1
8	AR09006-10-2	19	43	22	33	28	47	9	45	7	#	13	#	16	44	14	36
9	AR09009-8-3	20	44	22	33	27	46	6	35	8	#	10	#	15	40	13	34
10	AR09045-4-2	21	47	34	48	28	47	10	48	7	#	6	#	18	46	14	36
11	ARLA09218C-5-2	11	31	21	29	17	28	4	20	11	#	7	#	12	30	15	41
12	ARLA09238C-6-3	11	31	12	6	20	34	4	20	7	#	10	#	10	24	21	48
13	ARLA09179UC-9-3	8	23	18	21	19	32	6	35	13	#	10	#	12	30	12	28
14	ARLA09137UC-17-2	8	23	25	42	24	45	4	20	14	#	13	#	15	40	21	49
15	ARLW08160D-20-1	7	15	19	26	9	9	6	35	4	9	7	#	9	21	12	28
16	GA13VA-FHB-DH83-17EL!	3	1	9	1	10	13	3	8	3	3	6	#	6	1	15	41
17	GA091034-17EL44	20	44	30	45	20	34	4	20	28	#	12	#	19	47	12	28
18	GA10654-17LE46	3	1	16	13	13	19	3	8	4	9	6	#	7	6	6	1
19	GA10389-17LE56	7	15	16	13	12	18	2	1	4	9	6	#	8	14	9	12
20	GA111005-17A3	11	31	24	38	23	43	5	31	16	#	9	#	15	40	14	36
21	GA121086-LDH20-17A24	4	5	13	9	9	9	2	1	4	9	6	#	6	1	7	6
22	GA091537-17A29	6	11	11	2	14	21	3	8	4	9	5	7	7	6	14	36
23	GA1035-DH49-17LE52	3	1	20	28	7	2	3	8	5	#	4	1	7	6	8	8
24	KWS154	5	8	12	6	16	26	4	20	3	3	7	#	8	14	11	23
25	KWS192	8	23	18	21	14	21	4	20	4	9	6	#	9	21	16	45
26	KWS193	13	40	17	18	18	30	6	35	3	3	9	#	11	26	11	23
27	L11815	5	8	15	11	12	17	2	1	4	9	5	7	7	6	9	12
28	L11820	3	1	16	13	8	6	4	20	5	#	5	7	7	6	9	12
29	L11811	20	44	21	29	19	32	7	39	14	#	12	#	16	44	16	44
30	LA14066DH-147	10	30	31	46	21	39	8	42	9	#	8	#	14	39	11	23
31	LA08277C-P5-3-1	9	28	24	38	14	21	3	8	7	#	5	7	10	24	8	8
32	LA11289C-57-4	12	38	18	21	21	39	5	31	8	#	9	#	12	30	8	8
33	LA12120SB-56-4	7	15	11	2	13	19	3	8	6	#	4	1	7	6	9	12
34	LA14076-LDH6	6	11	18	21	7	2	2	1	5	#	8	#	8	14	9	12
35	LA14066DH-172	6	11	22	33	9	9	4	20	9	#	7	#	9	21	10	21
36	NC14-20369	11	31	11	2	5	1	2	1	3	3	5	7	6	1	6	1
37	NC14-22588	6	11	17	18	8	6	3	8	4	9	10	#	8	14	9	12
38	NC11546-14	5	8	15	11	8	6	2	1	3	3	4	1	6	1	9	12
39	NC15-23047	8	23	21	29	10	13	3	8	2	1	6	#	8	14	10	21
40	NC15-21787	11	31	26	43	14	21	7	39	8	#	9	#	13	36	17	46
41	NC11331-6	4	5	11	2	11	15	2	1	3	3	7	#	6	1	7	6
42	DH12SRW057-081	7	15	18	21	7	2	3	8	2	1	6	#	7	6	13	33
43	13VA-FHB-DH131	12	38	19	26	22	42	8	42	5	#	5	7	12	30	12	28
44	VA15W-70	14	41	22	33	23	43	10	48	11	#	12	#	15	40	13	34
45	VA16W-31	22	48	33	47	28	47	9	45	11	#	15	#	20	49	14	36
46	VA16W-202	7	15	24	38	9	9	4	20	7	#	14	#	11	26	11	23
47	12VTK10-156	11	31	24	38	20	34	5	31	11	#	7	#	13	36	11	23
48	DH13SRW023-201	11	31	21	29	21	39	5	31	7	#	9	#	12	30	8	8
49	DH13SRW025-14	16	42	26	43	18	30	7	39	4	9	6	#	13	36	16	43
	Mean	9		19		16		5		7		8		11			
	LSD (0.05)	11		10		.		.		4		.		7			
	CV%	48.3		37.9		.		.		27.8		.		32.0			
	Correlations with Predictic	0.49		0.39		0.38		0.41		0.34		0.43		0.50			

Observed Versus Predicted Mean DON for Entries in the 2017-18 Nursery



Genotypic Analyses of Regions Associated with FHB Resistance and Other Pertinent Loci

	DESIGNATION	Rht-B1	Rht-D1	Fhb1	Fhb Massey 3BL	Fhb 5A Ernie	Fhb 5A Ning	Fhb 2DL Wuhan 1/W14	Fhb_1B_Jamestown	Fhb_1A_Neuse	Fhb_4A_Neuse	Fhb_6A_Neuse	Fhb_2B_Bess	Fhb_3B_Bess	H13
1	ERNIE	Rht1	no	no	F3BM	F5AE	no	no	no	F1AN	no	F6AN	no	no	no
2	COKER9835	no	Rht2	no	no	no	no	no	no	no	F4AN	no	no	no	no
3	BESS	het	no	no	no	no	no	no	F1BJ	het	no	no	F2BB	F3BB	no
4	JAMESTOWN	no	Rht2	no	no	no	no	no	F1BJ	F1AN	no	no	no	no	no
5	NC13-21213	no	Rht2	no	no	no	no	no	F1BJ	F1AN	F4AN	no	no	no	H13
6	NC14-23372	no	Rht2	Fhb1	no	F5AE	no	no	F1BJ	F1AN	no	F6AN	no	no	no
7	NC14-23373	no	Rht2	Fhb1	no	no	no	no	F1BJ	F1AN	F4AN	F6AN	no	no	no
8	AR09006-10-2	no	no	no	no	no	no	no	no	F1AN	F4AN	no	F2BB	no	no
9	AR09009-8-3	no	no	no	no	no	no	no	no	F1AN	F4AN	no	F2BB	no	no
10	AR09045-4-2	no	no	no	no	no	no	no	no	F1AN	F4AN	no	F2BB	no	no
11	ARLA09218C-5-2	no	Rht2	no	no	no	no	no	no	no	F4AN	no	no	no	no
12	ARLA09238C-6-3	no	Rht2	no	no	no	no	no	no	F1AN	no	no	no	no	het
13	ARLA09179UC-9-3	no	Rht2	no	no	no	no	no	no	no	no	no	no	no	no
14	ARLA09137UC-17-2	no	Rht2	no	no	no	no	no	no	no	no	no	no	no	no
15	ARLW08160D-20-1	no	no	no	no	no	no	no	no	F1AN	no	no	no	no	no
16	GA13VA-FHB-DH83-17EL5	no	Rht2	no	no	no	no	no	no	no	no	no	no	no	no
17	GA091034-17EL44	no	Rht2	no	no	no	no	no	no	no	no	no	no	no	no
18	GA10654-17LE46	no	Rht2	no	no	no	no	no	F1BJ	het	no	het	no	F3BB	no
19	GA10389-17LE56	no	Rht2	no	no	no	no	no	F1BJ	no	no	no	no	no	H13
20	GA111005-17A3	no	Rht2	no	no	no	no	no	no	no	F4AN	no	no	no	H13
21	GA121086-LDH20-17A24	no	Rht2	no	no	no	no	no	F1BJ	F1AN	F4AN	no	no	no	H13
22	GA091537-17A29	no	Rht2	Fhb1	no	no	no	F2DLW	no	no	no	no	no	no	no
23	GA1035-DH49-17LE52	no	Rht2	Fhb1	no	no	no	no	no	no	F4AN	F6AN	no	no	no
24	KWS154	Rht1	no	no	F3BM	no	no	no	no	F1AN	no	F6AN	no	no	no
25	KWS192	no	Rht2	no	no	no	no	no	no	no	no	no	no	no	H13
26	KWS193	Rht1	no	no	no	no	no	**	no	no	F4AN	no	no	no	H13
27	L11815	no	het	no	het	no	no	no	F1BJ	F1AN	no	no	hey	no	no
28	L11820	no	Rht2	no	no	no	no	no	F1BJ	F1AN	no	no	no	no	no
29	L11811	no	Rht2	no	no	no	no	no	no	no	no	no	no	no	no
30	LA14066DH-147	no	Rht2	no	no	no	no	no	no	F1AN	F4AN	no	no	no	H13
31	LA08277C-P5-3-1	no	Rht2	no	no	no	no	no	no	no	F4AN	no	no	no	no
32	LA11289C-57-4	no	Rht2	no	no	no	no	no	F1BJ	no	F4AN	no	no	no	no
33	LA12120SB-56-4	no	Rht2	no	no	no	no	no	F1BJ	F1AN	no	F6AN	no	no	H13
34	LA14076-LDH6	no	Rht2	Fhb1	no	no	no	F2DLW	no	no	no	no	no	no	no
35	LA14066DH-172	no	Rht2	no	no	no	no	no	F1BJ	F1AN	no	no	no	no	H13
36	NC14-20369	no	no	no	het	no	no	no	F1BJ	F1AN	F4AN	no	no	no	H13
37	NC14-22588	Rht1	no	no	no	no	no	no	no	F1AN	F4AN	no	no	no	no
38	NC11546-14	Rht1	no	het	het	no	no	no	Het	F1AN	no	no	no	no	H13
39	NC15-23047	no	Rht2	no	no	F5AE	no	no	F1BJ	F1AN	no	F6AN	F2BB	F3BB	no
40	NC15-21787	no	Rht2	Fhb1	no	no	no	no	no	no	no	F6AN	no	no	H13
41	NC11331-6	Rht1	het	Fhb1	no	no	no	no	F1BJ	no	F4AN	F6AN	no	no	H13
42	DH12SRW057-081	no	Rht2	no	het	no	no	no	F1BJ	F1AN	het	no	no	no	no
43	13VA-FHB-DH131	no	Rht2	no	no	no	no	no	F1BJ?	AN_h	no	no	no	no	no
44	VA15W-70	Rht1	no	no	no	no	no	no	no	no	F4AN	no	no	no	no
45	VA16W-31	Rht1	no	no	no	F5AE	no	no	no	no	no	no	no	no	no
46	VA16W-202	no	Rht2	no	no	no	no	no	no	no	no	no	no	no	H13
47	12VTK10-156	no	Rht2	no	no	no	no	no	no	F1AN	F4AN	no	no	no	H13
48	DH13SRW023-201	no	Rht2	no	no	no	no	no	F1BJ	F1AN	no	no	no	no	no
49	DH13SRW025-14	no	Rht2	no	no	no	no	no	no	no	F4AN	no	no	no	no

Efficacy of Selected FHB Resistance QTL

Mean Incidence, Severity, Fusarium Damaged Kernels (FDK), and DON for entries in the 2013-2018 Uniform Southern Winter Wheat Scab Nurseries with and without resistance alleles at quantitative trait loci (QTL) associated with resistance to (FHB).

QTL†	Allele‡	n§	INC		SEV		FDK		DON	
Qfhb.nc-2B.1 (Bess)	S	240	55.9	p=0.3567	31.7	p=0.271	30.8	p=0.0141	10.6	p<0.0001
	R	36	54.6	-1	30.6	-1	27.9	-3	8.6	-2
Qfhb.nc-3B.2 (Bess)	S	267	56.0	p=0.0013	31.8	p<0.000	30.7	p<0.0001	10.4	p=0.3086
	R	13	50.7	-5	25.9	-6	24.4	-7	9.8	-1
Ning_5A	S	275	55.8	p=0.3494	31.8	p=0.020	30.6	p<0.0001	10.4	p<0.0001
	R	7	55.5	0	27.8	-4	21.8	-9	5.3	-6
Ernie_5A	S	260	55.4	p=0.0003	31.2	p<0.000	29.8	p<0.0001	10.2	p=0.0008
	R	20	60.2	5	36.1	5	37.5	7	11.7	3
Wuhan-1_2DL	S	273	55.9	p=0.5693	31.9	p<0.000	30.6	p<0.0001	10.4	p<0.0001
	R	8	54.6	-1	24.7	-7	21.0	-10	5.3	-6
Sumai 3_Fhb1	S	247	56.0	p=0.7105	32.4	p<0.000	31.1	p<0.0001	10.9	p<0.0001
	R	31	55.5	0	27.5	-4	26.3	-5	7.1	-4
QTL_3BL (Massey)	S	258	56.2	p=0.2322	31.9	p=0.444	30.4	p=0.1837	10.4	p=0.1554
	R	19	54.5	-2	31.0	-1	32.2	2	9.6	-1
QTL_1A (Neuse)	S	127	56.6	p=0.0874	32.8	p=0.000	32.0	p<0.0001	11.3	p<0.0001
	R	136	55.2	-2	30.6	-2	29.8	-2	9.5	-1
QTL_4A (Neuse)	S	119	52.5	p=0.1041	30.1	p=0.207	28.6	p=0.1136	10.9	p=0.8684
	R	111	54.2	2	31.0	1	30.0	-1	11.0	0
QTL_6A (Neuse)	S	171	55.2	p=0.3488	31.1	p=0.319	30.7	p=0.7178	11.2	p<0.0001
	R	96	56.8	2	32.3	1	30.2	-1	8.9	-2
QTL_1B (Jamestown	S	106	54.4	p=0.0276	31.4	p<0.000	31.9	p=0.0001	12.1	p<0.0001
	R	65	52.3	-2	27.7	-3	28.6	-3	9.1	-3

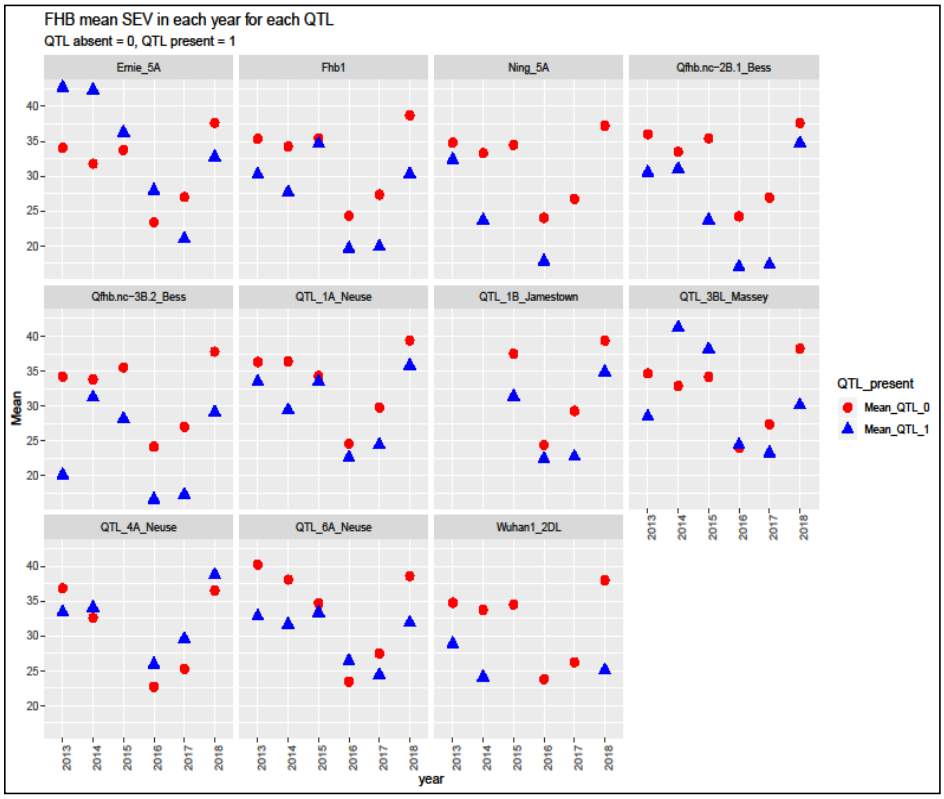
† QTL, quantitative trait loci.

‡ Indicates presence of resistance allele (R) or susceptibility allele (S) at the respective QTL.

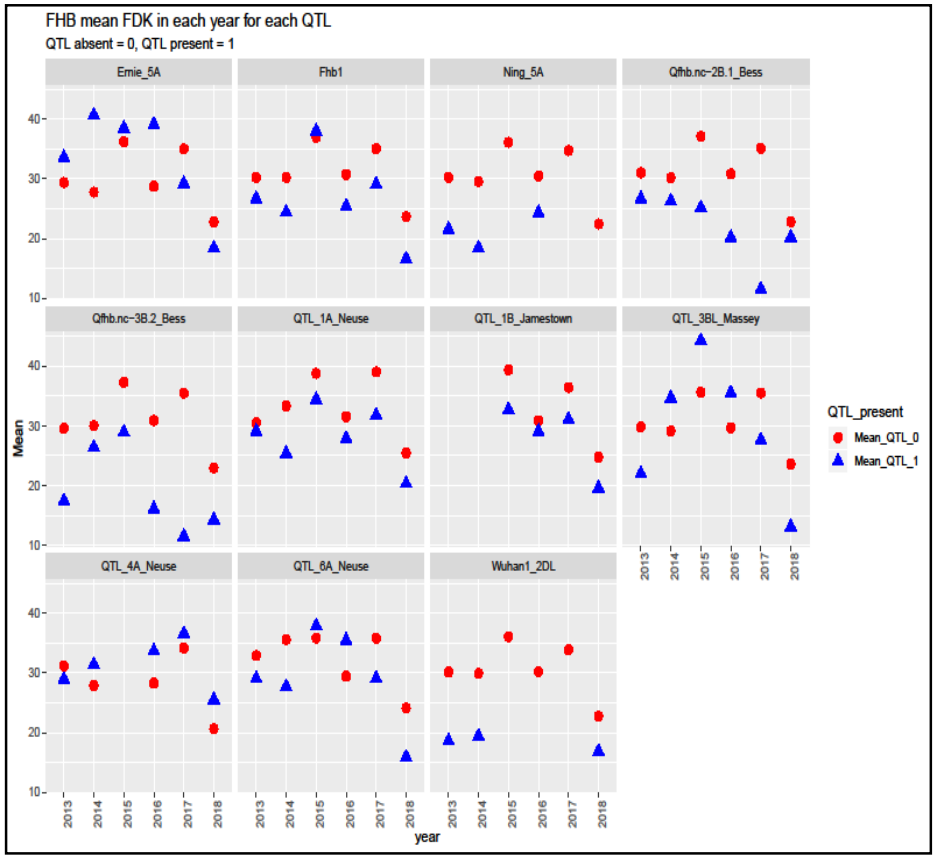
§ n indicates the number of lines in the allele group.

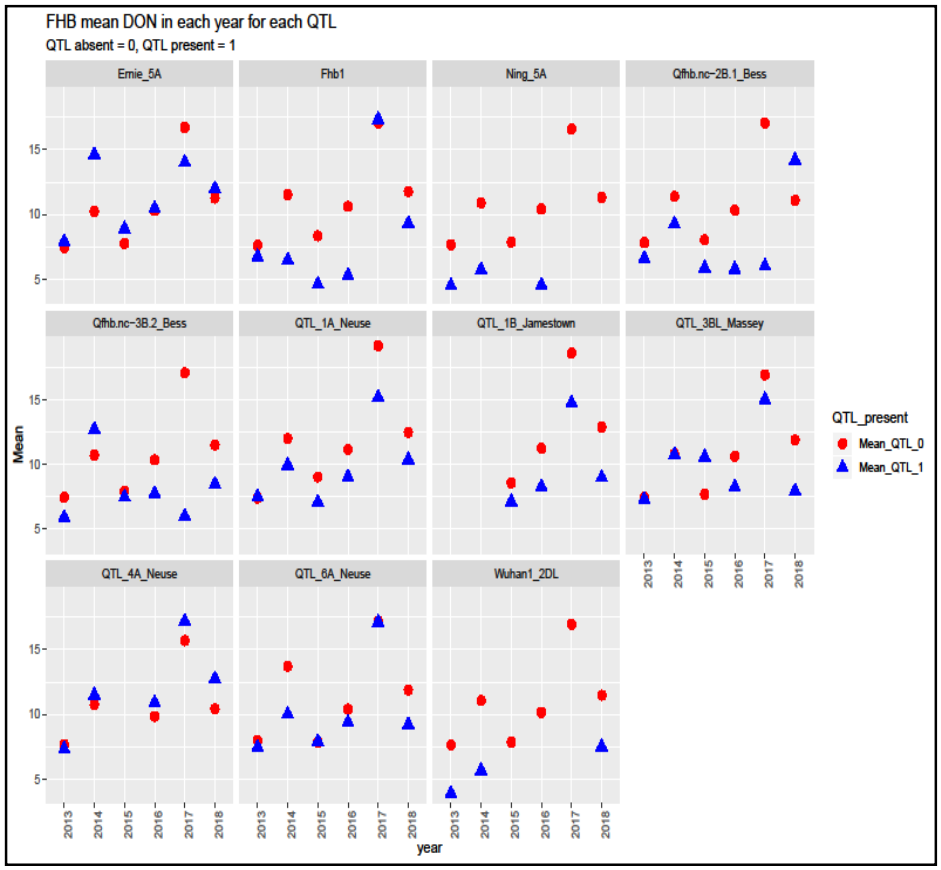
¶ Significance levels of mean comparisons are indicated as: NS (P > 0.05), * (P < 0.05), ** (P < 0.01), *** (P < 0.001).

Efficacy of Selected FHB Resistance QTL For FHB Severity, by year, for 2013 throuth 2018.



Efficacy of Selected FHB Resistance QTL For FDK (Top) and DON (Bottom), by year, for 2013 throuth 2018.





Heading Date (Julian Days*)

	CULTIVAR/ DESIGNATION	W'BORO LA	COL'BIA MO	WARSAW VA	LEX'TON KY	KWS IL	LIMA IN	MEAN ALL LOC.	Rank
1	ERNIE	86	137	124	129	138	135	125	3
2	COKER9835	86	142	127	132	143	137	128	36
3	BESS	88	138	126	131	140	136	126	10
4	JAMESTOWN	86	135	123	128	140	135	124	2
5	NC13-21213	86	137	124	131	141	137	126	10
6	NC14-23372	87	144	127	133	144	138	129	47
7	NC14-23373	90	144	127	134	144	138	130	49
8	AR09006-10-2	87	140	126	131	141	136	127	21
9	AR09009-8-3	88	141	127	131	141	136	127	21
#	AR09045-4-2	88	142	128	132	141	138	128	36
#	ARLA09218C-5-2	86	142	128	133	142	137	128	36
#	ARLA09238C-6-3	92	143	128	133	144	138	129	47
#	ARLA09179UC-9-3	86	138	127	133	141	136	127	21
#	ARLA09137UC-17-2	86	140	125	130	140	136	126	10
#	ARLW08160D-20-1	86	139	125	130	139	134	126	10
#	GA13VA-FHB-DH83-17EL53	86	135	123	128	136	131	123	1
#	GA091034-17EL44	86	143	125	131	140	136	127	21
#	GA10654-17LE46	86	139	124	128	140	136	125	3
#	GA10389-17LE56	86	140	124	128	140	135	125	3
#	GA111005-17A3	86	142	124	130	140	136	126	10
#	GA121086-LDH20-17A24	86	138	125	129	140	136	125	3
#	GA091537-17A29	87	142	128	132	142	137	128	36
#	GA1035-DH49-17LE52	86	138	123	129	139	134	125	3
#	KWS154	95	137	126	131	140	136	127	21
#	KWS192	91	138	127	131	140	137	127	21
#	KWS193	.	141	127	133	141	136	128	36
#	L11815	92	139	128	131	139	136	127	21
#	L11820	87	135	125	129	139	135	125	3
#	L11811	92	141	127	132	141	138	128	36
#	LA14066DH-147	86	142	125	130	141	137	127	21
#	LA08277C-P5-3-1	86	137	124	129	139	136	125	3
#	LA11289C-57-4	86	141	126	129	140	136	126	10
#	LA12120SB-56-4	90	142	126	134	142	138	128	36
#	LA14076-LDH6	86	141	126	133	142	137	127	21
#	LA14066DH-172	86	140	125	129	140	136	126	10
#	NC14-20369	92	139	125	130	140	136	127	21
#	NC14-22588	87	137	125	130	140	136	126	10
#	NC11546-14	86	138	126	130	140	136	126	10
#	NC15-23047	96	136	127	130	139	137	127	21
#	NC15-21787	88	143	127	131	142	138	128	36
#	NC11331-6	91	141	126	133	140	137	128	36
#	DH12SRW057-081	86	141	125	131	141	137	127	21
#	13VA-FHB-DH131	91	140	126	129	139	137	127	21
#	VA15W-70	95	138	124	132	140	138	128	36
#	VA16W-31	96	141	125	131	139	135	128	36
#	VA16W-202	86	138	125	131	141	137	126	10
#	12VTK10-156	86	142	126	131	142	137	127	21
#	DH13SRW023-201	87	142	127	131	141	137	127	21
#	DH13SRW025-14	86	139	125	129	140	136	126	10
	Mean	88.13	140	126	131	140	136	127	
	LSD (0.05)	4	.	1	2	.	.	3	
	CV%	2.8	.	2.1	0.62	.	.	1.2	

*Days after December 31, 2017

Plant Height (in)

	CULTIVAR/ DESIGNATION	KINSTON NC	KWS IL	LEX'TON KY	MEAN ALL LOC.	RANK	GEBV	RANK
1	ERNIE	34	28	35	32	8	35	7
2	COKER9835	32	28	33	31	3	35	7
3	BESS	39	32	38	36	33	36	18
4	JAMESTOWN	35	29	36	33	12	37	37
5	NC13-21213	36	30	35	33	12	35	7
6	NC14-23372	39	32	37	36	33	36	18
7	NC14-23373	39	32	37	36	33	35	7
8	AR09006-10-2	40	33	40	37	41	37	37
9	AR09009-8-3	39	33	39	37	41	37	37
10	AR09045-4-2	40	33	40	37	41	37	37
11	ARLA09218C-5-2	38	33	36	35	25	36	18
12	ARLA09238C-6-3	39	34	39	37	41	37	37
13	ARLA09179UC-9-3	34	32	34	33	12	37	37
14	ARLA09137UC-17-2	39	32	39	36	33	36	18
15	ARLW08160D-20-1	38	34	39	37	41	36	18
16	GA13VA-FHB-DH83-17EL53	34	30	38	34	21	37	37
17	GA091034-17EL44	37	33	37	35	25	35	7
18	GA10654-17LE46	35	33	37	35	25	37	37
19	GA10389-17LE56	37	33	36	35	25	36	18
20	GA111005-17A3	36	31	33	33	12	35	7
21	GA121086-LDH20-17A24	33	28	34	31	3	35	7
22	GA091537-17A29	39	33	36	36	33	36	18
23	GA1035-DH49-17LE52	37	31	37	35	25	36	18
24	KWS154	40	33	37	37	41	39	49
25	KWS192	38	33	37	36	33	35	7
26	KWS193	36	30	37	34	21	35	7
27	L11815	38	31	36	35	25	36	18
28	L11820	38	31	34	34	21	36	18
29	L11811	32	32	35	33	12	36	18
30	LA14066DH-147	36	32	34	34	21	36	18
31	LA08277C-P5-3-1	34	30	35	33	12	37	37
32	LA11289C-57-4	33	31	36	33	12	36	18
33	LA12120SB-56-4	41	36	43	40	49	36	18
34	LA14076-LDH6	37	30	33	33	12	33	1
35	LA14066DH-172	32	30	34	32	8	35	7
36	NC14-20369	41	35	42	39	47	37	37
37	NC14-22588	37	32	38	35	25	36	18
38	NC11546-14	39	32	37	36	33	36	18
39	NC15-23047	39	32	37	36	33	36	18
40	NC15-21787	43	35	39	39	47	36	18
41	NC11331-6	30	28	32	30	2	34	4
42	DH12SRW057-081	31	29	34	31	3	37	37
43	13VA-FHB-DH131	36	29	33	32	8	37	37
44	VA15W-70	31	28	34	31	3	33	1
45	VA16W-31	31	25	32	29	1	33	1
46	VA16W-202	33	27	34	31	3	34	4
47	12VTK10-156	36	29	34	33	12	35	7
48	DH13SRW023-201	35	32	37	35	25	36	18
49	DH13SRW025-14	34	29	32	32	8	34	4
	Mean	36	31	36	34			
	LSD (0.05)	3	2	2	2			
	CV%	3.9	3.3	2.6	3.6			
	Correlations with Prediction	0.43	0.53	0.52	0.53			

Leaf Disease Ratings

	CULTIVAR/ DESIGNATION	Leaf Rust Reaction 0-3 TCRK VA	Leaf Rust Reaction 0-3 TNRJ VA	Powdery Mildew 0-9 W'RSAW VA	*Stagonospora nodorum* 0-100 KWS IL	Stripe Rust 0-100 Fay'ville AR
1	ERNIE	3	3	6	3	78
2	COKER9835	0;	3	3	3	85
3	BESS	3	3	3	3	40
4	JAMESTOWN	3-	23;	5	3	2
5	NC13-21213	21;	12;	3	3	1
6	NC14-23372	3-	21;	1	2	5
7	NC14-23373	21;Tr3	12;	1	3	7
8	AR09006-10-2	3	3;	4	2	23
9	AR09009-8-3	3	3;	3	2	23
#	AR09045-4-2	3	3;	2	2	19
#	ARLA09218C-5-2	;1-	0;Tr3	4	2	40
#	ARLA09238C-6-3	;1=	;1-	0	2	15
#	ARLA09179UC-9-3	3	23;	1	3	2
#	ARLA09137UC-17-2	3-	32;	1	3	1
#	ARLW08160D-20-1	0;	23;	7	3	9
#	GA13VA-FHB-DH83-17EL53	;1	0;	5	3	7
#	GA091034-17EL44	1;	1;	0	3	9
#	GA10654-17LE46	3-	23	4	3	2
#	GA10389-17LE56	3-	1;Tr3	4	3	0
#	GA111005-17A3	3-	23-;	3	3	7
#	GA121086-LDH20-17A24	3-	;1/Tr3	3	3	1
#	GA091537-17A29	23;	;1-Tr3	8	3	9
#	GA1035-DH49-17LE52	2;	23;	7	3	2
#	KWS154	3-	3;	4	2	33
#	KWS192	3-	23-;	4	2	5
#	KWS193	23	0;	2	3	2
#	L11815	23	3	6	4	40
#	L11820	3-	3	7	4	30
#	L11811	3-	23-	4	5	7
#	LA14066DH-147	3-	23-;	6	5	1
#	LA08277C-P5-3-1	23;CN	23	8	4	0
#	LA11289C-57-4	0;	23;	2	3	2
#	LA12120SB-56-4	12CN	23;/Tr3	2	4	2
#	LA14076-LDH6	2;	23-	1	3	29
#	LA14066DH-172	0;	;1	2	3	2
#	NC14-20369	3	23;	0	2	50
#	NC14-22588	3	12;	1	3	58
#	NC11546-14	3	23	2	2	39
#	NC15-23047	32N	23;	2	3	1
#	NC15-21787	3-	3-	2	3	82
#	NC11331-6	12;Tr3	23	3	3	11
#	DH12SRW057-081	0;	3	5	3	70
#	13VA-FHB-DH131	12;	12-;	3	2	2
#	VA15W-70	23	0;	0	2	9
#	VA16W-31	23	;1-	2	2	5
#	VA16W-202	0;	23	0	3	0
#	12VTK10-156	0;	3	1	3	5
#	DH13SRW023-201	23-	23	0	4	2
#	DH13SRW025-14	12;	23;	1	3	9
	Mean			3	3	18
	LSD (0.05)			3	1	.
	CV%			83.0	19.0	.

Virulent on: Lr1, 2a, 2c, 3, 3ka, 9, 10, 11, 14a, 24, 30
Virulent on: Lr1, 2a, 2c, 3, 26, 3ka, 11, 30, 10, 14a, 18, 28

Grain Yield and Test Weight.
Warsaw, VA, 2017-18

ENTRY NO	CULTIVAR/ DESIGNATION	GRAIN YIELD % Mean	GRAIN YIELD bu / ac	*Rank*	TEST WEIGHT lb / bu	*Rank*
1	ERNIE	87	52	*45*	55.7	*45*
2	COKER 9835	102	61	*22*	55.6	*46*
3	BESS	95	57	*32*	57.5	*29*
4	JAMESTOWN	81	49	*47*	57.9	*16*
5	NC13-21213	111	66	*9*	57.7	*20*
6	NC14-23372	100	60	*24*	59.6	*4*
7	NC14-23373	99	59	*26*	59.3	*6*
8	AR09006-10-2	90	54	*41*	58.9	*10*
9	AR09009-8-3	108	65	*11*	58.8	*12*
10	AR09045-4-2	92	55	*36*	59.3	*7*
11	ARLA09218C-5-2	92	55	*36*	61.0	*2*
12	ARLA09238C-6-3	98	59	*26*	59.4	*5*
13	ARLA09179UC-9-3	103	62	*18*	56.7	*39*
14	ARLA09137UC-17-2	107	64	*12*	56.5	*42*
15	ARLW08160D-20-1	88	53	*43*	59.1	*8*
16	GA13VA-FHB-DH83-17EL5	104	62	*18*	56.8	*37*
17	GA091034-17EL44	114	69	*4*	57.2	*35*
18	GA10654-17LE46	86	52	*45*	57.7	*21*
19	GA10389-17LE56	92	55	*36*	57.8	*17*
20	GA111005-17A3	81	49	*47*	57.7	*22*
21	GA121086-LDH20-17A24	93	56	*35*	57.7	*23*
22	GA091537-17A29	97	58	*29*	60.5	*3*
23	GA1035-DH49-17LE52	97	58	*29*	57.3	*32*
24	KWS154	114	69	*4*	55.2	*47*
25	KWS192	105	63	*15*	57.7	*24*
26	KWS193	89	54	*41*	57.8	*18*
27	L11815	116	69	*4*	58.0	*15*
28	L11820	110	66	*9*	57.6	*26*
29	L11811	112	67	*7*	58.2	*14*
30	LA14066DH-147	100	60	*24*	57.5	*30*
31	LA08277C-P5-3-1	104	63	*15*	57.6	*27*
32	LA11289C-57-4	92	55	*36*	58.9	*11*
33	LA12120SB-56-4	94	57	*32*	57.8	*19*
34	LA14076-LDH6	98	59	*26*	59.0	*9*
35	LA14066DH-172	96	57	*32*	57.3	*33*
36	NC14-20369	103	62	*18*	57.4	*31*
37	NC14-22588	107	64	*12*	57.1	*36*
38	NC11546-14	103	62	*18*	58.7	*13*
39	NC15-23047	89	53	*43*	57.6	*28*
40	NC15-21787	96	58	*29*	56.4	*43*
41	NC11331-6	75	45	*49*	56.8	*38*
42	DH12SRW057-081	121	73	*2*	57.7	*25*
43	13VA-FHB-DH131	106	63	*15*	57.3	*34*
44	VA15W-70	106	64	*12*	56.0	*44*
45	VA16W-31	111	67	*7*	56.7	*40*
46	VA16W-202	128	77	*1*	54.1	*48*
47	12VTK10-156	101	61	*22*	53.8	*49*
48	DH13SRW023-201	118	71	*3*	62.1	*1*
49	DH13SRW025-14	91	55	*36*	56.6	*41*
	Mean	100	60		57.7	

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

	CULTIVAR/ DESIGNATION	Bio B R-S	Bio C R-S	Bio D R-S	Bio O R-S	Bio L R-S	*H13*
1	ERNIE	0-15	0-20	0-17	0-16	0-17	*no*
2	COKER9835	0-15	16-2	0-17	0-16	0-14	*no*
3	BESS	0-17	0-18	0-16	3-16	0-17	*no*
4	JAMESTOWN	14-0	14-0	13-0	0-18	0-18	*no*
5	NC13-21213	16-0	17-0	15-0	17-0	17-0	*H13*
6	NC14-23372	15-0	20-0	19-0	11-5	0-16	*no*
7	NC14-23373	17-0	18-0	18-0	17-2	13-2	*no*
8	AR09006-10-2	0-15	0-22	0-16	0-16	0-18	*no*
9	AR09009-8-3	0-16	0-16	0-21	0-16	0-22	*no*
10	AR09045-4-2	0-14	0-19	0-15	0-12	0-13	*no*
11	ARLA09218C-5-2	0-11	0-11	0-15	20-0	0-11	*no*
12	ARLA09238C-6-3	0-14	0-17	0-16	0-17	0-19	*Het?*
13	ARLA09179UC-9-3	0-13	0-15	0-13	0-18	0-16	*no*
14	ARLA09137UC-17-2	14-0	16-0	18-0	19-0	14-0	*no*
15	ARLW08160D-20-1	18-2	0-19	0-18	13-2	0-15	*no*
16	GA13VA-FHB-DH83-17E	0-15	0-17	0-17	0-12	0-14	*no*
17	GA091034-17EL44	17-0	12-0	16-0	17-2	0-15	*no*
18	GA10654-17LE46	15-0	16-0	14-2	19-0	0-17	*no*
19	GA10389-17LE56	17-0	17-0	20-0	17-0	18-0	*H13*
20	GA111005-17A3	17-0	17-0	19-0	17-0	17-0	*H13*
21	GA121086-LDH20-17A2	13-0	17-0	11-3	15-0	17-0	*H13*
22	GA091537-17A29	0-14	0-17	0-14	0-17	0-19	*no*
23	GA1035-DH49-17LE52	15-0	0-16	15-0	18-0	17-0	*no*
24	KWS154	0-16	0-15	0-14	0-21	0-15	*no*
25	KWS192	17-0	18-0	19-0	15-0	18-0	*H13*
26	KWS193	19-0	17-0	20-0	17-0	15-0	*H13*
27	L11815	0-14	0-16	0-17	0-18	0-18	*no*
28	L11820	0-17	0-16	0-18	0-16	0-15	*no*
29	L11811	0-11	0-14	0-15	0-18	0-18	*no*
30	LA14066DH-147	15-0	15-0	17-0	20-0	15-0	*H13*
31	LA08277C-P5-3-1	0-14	0-20	0-16	0-18	0-18	*no*
32	LA11289C-57-4	17-1	16-0	16-0	0-16	0-19	*no*
33	LA12120SB-56-4	19-0	19-0	16-0	17-0	17-0	*H13*
34	LA14076-LDH6	0-17	0-18	0-21	19-0	0-18	*no*
35	LA14066DH-172	16-0	19-0	19-0	16-0	19-0	*H13*
36	NC14-20369	18-0	16-0	18-0	14-0	18-0	*H13*
37	NC14-22588	0-17	0-20	0-16	0-19	0-16	*no*
38	NC11546-14	18-0	19-0	22-0	18-0	17-0	*H13*
39	NC15-23047	0-15	0-18	0-17	0-17	2-14?	*no*
40	NC15-21787	17-0	15-0	18-0	20-0	15-0	*H13*
41	NC11331-6	19-0	18-0	17-0	19-0	16-0	*H13*
42	DH12SRW057-081	0-15	0-13	0-16	0-19	0-17	*no*
43	13VA-FHB-DH131	17-0	17-0	20-1	3-16	0-13	*no*
44	VA15W-70	0-7	14-3	0-13	3-10	4-4	*no*
45	VA16W-31	0-17	1-16	0-14	0-16	0-18	*no*
46	VA16W-202	18-0	19-0	19-0	13-1	18-0	*H13*
47	12VTK10-156	17-0	18-0	14-0	19-0	16-0	*H13*
48	DH13SRW023-201	0-13	0-16	0-19	0-14	0-19	*no*
49	DH13SRW025-14	0-17	0-17	0-15	17-0	0-15	*no*

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

Milling and Baking Quality Scores[1]

	Cultivar/ Designation	FLOUR YIELD %	SOFT. EQUIV. %	TEST WEIGHT lb/bu	KERNEL PROT. (at 12%)	FLOUR PROT. (at 14%)	LACTIC ACID SRC(%)	Na_2CO_3 SRC %	SKCS Ker. Hardness	SKCS Ker. Dia. mm	SKCS Ker. Wt mg
1	ERNIE	65.9	58.7	57.0	13.2	10.1	136	69.3	-9.4	2.9	35.7
2	COKER9835	64.7	60.3	56.6	11.9	8.4	100	75.8	12.7	2.6	32.4
3	BESS	65.1	59.2	57.4	11.6	8.7	126	71.3	-1.5	2.5	31.7
4	JAMESTOWN	62.7	56.5	59.1	12.9	9.8	131	77.0	13.9	2.7	31.7
5	NC13-21213	62.9	54.7	58.6	12.8	9.4	139	73.7	14.7	2.7	31.2
6	NC14-23372	67.0	56.4	60.2	12.0	9.4	138	83.1	11.5	2.8	32.4
7	NC14-23373	65.9	54.8	59.8	12.5	10.7	136	86.4	14.2	2.7	30.1
8	AR09006-10-2	62.9	58.2	59.4	12.9	10.0	134	73.2	21.4	2.6	28.8
9	AR09009-8-3	64.5	55.7	59.2	11.8	9.2	120	70.3	21.0	2.6	28.9
#	AR09045-4-2	63.7	57.8	59.2	12.3	9.3	129	71.5	20.7	2.6	27.9
#	ARLA09218C-5-2	64.9	55.8	61.4	12.8	10.1	132	70.9	5.4	2.7	31.3
#	ARLA09238C-6-3	65.9	58.5	59.5	11.1	8.3	143	77.3	11.9	2.6	28.0
#	ARLA09179UC-9-3	68.6	60.6	56.9	11.8	9.1	149	69.0	-3.9	2.6	30.5
#	ARLA09137UC-17-2	63.9	59.0	57.5	12.4	9.1	151	74.6	5.2	2.7	32.5
#	ARLW08160D-20-1	64.8	55.5	58.8	13.6	10.7	170	71.7	0.3	2.6	28.2
#	GA13VA-FHB-DH83-17EL53	66.1	58.3	58.0	12.9	10.3	130	70.6	3.5	2.7	32.5
#	GA091034-17EL44	66.1	56.8	58.3	11.9	9.5	140	69.8	10.9	2.7	33.5
#	GA10654-17LE46	63.0	53.6	58.4	12.0	9.4	114	72.6	21.7	2.5	26.1
#	GA10389-17LE56	65.3	57.7	57.9	11.9	9.1	119	70.2	10.2	2.6	28.7
#	GA111005-17A3	62.4	54.5	58.4	12.4	9.4	130	76.6	27.7	2.7	33.7
#	GA121086-LDH20-17A24	63.5	53.4	58.2	12.5	9.7	117	72.1	24.0	2.7	31.6
#	GA091537-17A29	66.7	50.1	60.3	12.2	10.0	127	69.6	27.2	2.7	32.7
#	GA1035-DH49-17LE52	63.7	55.9	57.7	12.8	9.8	119	75.0	12.5	2.7	33.8
#	KWS154	67.3	61.3	57.2	11.0	8.5	128	69.5	3.9	2.7	34.1
#	KWS192	67.1	58.3	58.7	11.1	8.4	119	66.0	0.6	2.7	37.6
#	KWS193	64.3	53.7	58.3	12.8	9.3	101	69.2	19.2	2.7	32.7
#	L11815	67.8	60.4	58.3	11.6	9.1	122	68.9	5.7	2.7	35.7
#	L11820	65.3	61.0	58.5	12.3	9.4	127	71.2	-0.5	2.8	35.6
#	L11811	68.2	56.3	59.1	11.7	8.9	129	71.5	12.4	2.8	35.6
#	LA14066DH-147	67.6	52.9	58.0	13.7	10.4	184	74.1	17.2	2.7	32.6
#	LA08277C-P5-3-1	65.0	62.7	57.6	11.4	8.7	140	68.1	0.7	2.8	34.9
#	LA11289C-57-4	61.4	56.4	59.2	12.0	9.2	148	69.6	15.9	2.9	42.2
#	LA12120SB-56-4	65.4	61.5	58.2	10.7	8.4	127	67.0	3.9	2.8	34.0
#	LA14076-LDH6	66.2	59.3	58.8	10.6	8.4	113	66.6	19.9	2.5	27.8
#	LA14066DH-172	67.6	54.3	58.4	11.9	9.2	133	73.7	17.6	2.7	34.0
#	NC14-20369	67.6	61.8	57.5	12.2	9.4	144	73.5	5.5	2.5	27.8
#	NC14-22588	64.7	58.5	57.5	11.5	9.0	145	71.5	3.4	2.6	31.9
#	NC11546-14	65.7	59.1	58.5	11.0	8.7	143	71.9	9.0	2.8	34.4
#	NC15-23047	65.5	58.5	57.8	11.6	8.9	147	75.2	6.8	2.6	29.8
#	NC15-21787	65.9	65.6	57.1	10.5	8.0	119	67.7	-4.8	2.7	33.4
#	NC11331-6	65.4	60.4	56.9	10.7	7.9	112	64.7	17.2	2.5	26.0
#	DH12SRW057-081	70.8	59.7	57.8	10.7	8.4	125	73.3	7.2	2.6	33.9
#	13VA-FHB-DH131	66.3	53.9	57.7	12.0	9.2	117	67.5	8.5	2.8	35.3
#	VA15W-70	66.4	56.4	56.5	12.2	9.5	116	70.4	3.0	2.7	36.8
#	VA16W-31	65.9	55.1	56.9	11.9	9.7	111	69.7	7.5	2.7	34.6
#	VA16W-202	65.7	63.4	54.0	10.5	8.5	139	79.9	7.2	2.6	32.4
#	12VTK10-156	66.5	57.9	54.4	11.9	8.7	118	72.3	18.4	2.7	34.3
#	DH13SRW023-201	65.5	50.8	62.5	12.5	9.7	129	70.5	18.8	2.7	32.8
#	DH13SRW025-14	64.8	49.2	58.1	13.4	9.6	114	73.9	24.1	2.7	35.7
	Mean	65.4	57.5	58.2	12	9.2	129.6	71.9	10.4	2.7	32.5
	Standard Deviation	1.9	3.4	1.4	0.8	0.7	15.6	4.1	8.8	0.1	3.2

[1] Seed kindly supplied to USDA-ARS Wooster Quality Lab by Carl Griffey, Va Tech.

Means Across Locations 2017-18

	Cultivar/ Designation	FHB Rating		FHB Incidence		FHB Severity		FHB Index		FDK		ISK		DON	
			Rank		Rank		Rank		Rank		Rank		Rank		Rank
1	ERNIE	4	#	54	#	33	#	21	#	11	3	22	6	8	#
2	COKER9835	7	#	85	#	71	#	62	#	56	#	55	#	20	#
3	BESS	3	1	46	2	27	6	15	1	9	1	20	3	9	#
4	JAMESTOWN	4	#	65	#	35	#	22	#	18	#	29	#	8	#
5	NC13-21213	5	#	74	#	46	#	38	#	34	#	40	#	11	#
6	NC14-23372	3	1	58	#	37	#	26	#	17	#	26	#	11	#
7	NC14-23373	3	1	58	#	28	#	20	#	16	#	24	#	12	#
8	AR09006-10-2	4	#	67	#	39	#	31	#	25	#	36	#	17	#
9	AR09009-8-3	4	#	63	#	40	#	35	#	24	#	39	#	17	#
10	AR09045-4-2	4	#	65	#	41	#	32	#	27	#	37	#	20	#
11	ARLA09218C-5-2	5	#	72	#	40	#	32	#	21	#	31	#	13	#
12	ARLA09238C-6-3	4	#	65	#	41	#	31	#	25	#	39	#	11	#
13	ARLA09179UC-9-3	6	#	77	#	56	#	46	#	20	#	37	#	13	#
14	ARLA09137UC-17-2	6	#	70	#	58	#	42	#	29	#	34	#	15	#
15	ARLW08160D-20-1	4	#	70	#	46	#	35	#	17	#	30	#	9	#
16	GA13VA-FHB-DH83-17EL5	3	1	72	#	24	2	18	#	13	5	24	#	5	1
17	GA091034-17EL44	8	#	84	#	71	#	62	#	51	#	54	#	20	#
18	GA10654-17LE46	4	#	62	#	33	#	22	#	17	#	27	#	8	#
19	GA10389-17LE56	4	#	67	#	41	#	30	#	17	#	32	#	8	#
20	GA111005-17A3	6	#	77	#	49	#	44	#	36	#	45	#	16	#
21	GA121086-LDH20-17A24	5	#	68	#	42	#	32	#	22	#	37	#	6	2
22	GA091537-17A29	3	1	53	9	27	6	16	4	13	5	19	2	7	4
23	GA1035-DH49-17LE52	4	#	54	#	28	#	18	#	10	2	20	3	8	#
24	KWS154	3	1	44	1	27	6	17	6	15	#	26	#	8	#
25	KWS192	4	#	54	#	30	#	20	#	16	#	26	#	9	#
26	KWS193	3	1	50	5	28	#	17	6	19	#	28	#	11	#
27	L11815	4	#	54	#	34	#	22	#	18	#	28	#	7	4
28	L11820	4	#	47	3	27	6	17	6	16	#	23	8	7	4
29	L11811	4	#	56	#	34	#	22	#	38	#	37	#	16	#
30	LA14066DH-147	5	#	72	#	45	#	38	#	45	#	45	#	15	#
31	LA08277C-P5-3-1	4	#	57	#	35	#	23	#	20	#	28	#	11	#
32	LA11289C-57-4	5	#	67	#	44	#	33	#	42	#	48	#	13	#
33	LA12120SB-56-4	3	1	56	#	37	#	23	#	19	#	24	#	8	#
34	LA14076-LDH6	3	1	53	9	23	1	15	1	21	#	23	8	8	#
35	LA14066DH-172	6	#	74	#	55	#	41	#	33	#	39	#	10	#
36	NC14-20369	4	#	56	#	35	#	22	#	14	8	27	#	7	4
37	NC14-22588	4	#	58	#	39	#	25	#	16	#	28	#	8	#
38	NC11546-14	3	1	53	9	25	4	16	4	14	8	21	5	7	4
39	NC15-23047	3	1	50	5	28	#	18	#	16	#	22	6	9	#
40	NC15-21787	4	#	57	#	44	#	29	#	26	#	32	#	13	#
41	NC11331-6	3	1	47	3	24	2	17	6	13	5	18	1	6	2
42	DH12SRW057-081	4	#	51	7	28	#	18	#	12	4	26	#	7	4
43	13VA-FHB-DH131	3	1	58	#	30	#	22	#	15	#	26	#	13	#
44	VA15W-70	4	#	66	#	43	#	33	#	26	#	33	#	16	#
45	VA16W-31	4	#	64	#	33	#	26	#	30	#	36	#	21	#
46	VA16W-202	5	#	68	#	40	#	29	#	24	#	32	#	10	#
47	12VTK10-156	4	#	66	#	33	#	24	#	26	#	33	#	14	#
48	DH13SRW023-201	3	1	52	8	27	6	17	6	20	#	26	#	13	#
49	DH13SRW025-14	3	1	55	#	25	4	15	1	17	#	25	#	14	#
	Mean	4		61		37		27		22		31		11	
	LSD (0.05)	2		21		21		20		17.0		17		7	
	CV%	27.4		15.7		28.4		37.2		39.00		23.7		32	
	Correlations with Predic.	0.54 (SEV)		.		0.59		0.61 (SEV)		0.56		0.60 (SEV)		0.49	

Means Across Locations 2017 - 2018

	Cultivar/ Designation	Heading Date	Rank	Plant Height	Rank	Flour Yield %	Rank	Softness Equiv. %	Rank	Hessian Fly Bio. L	H13	Fhb1	Fhb Massey 3BL	Fhb 5A_Ning	Fhb 2DL Wuhan 1/W14	Bess 2B	Bess 3B	Jamestown 1B	NC-Neuse 1A	NC-Neuse 6A
1	ERNIE	125	3	32	8	65.9	18	58.7	17	0-17	no	no	F3BM	no	no	no	no	no	F1AN	F6AN
2	COKER9835	128	36	31	3	64.7	36	60.3	11	0-14	no	no	no	no	no	no	no	no	no	no
3	BESS	126	10	36	33	65.1	31	59.2	14	0-17	no	no	no	no	no	no	F3BB	F1BJ	het	no
4	JAMESTOWN	124	2	33	12	62.7	47	56.5	28	0-18	no	no	no	no	no	no	no	F1BJ	F1AN	no
5	NC13-21213	126	10	33	12	62.9	45	54.7	39	17-0	H13	no	no	no	no	no	no	F1BJ	F1AN	no
6	NC14-23372	129	47	36	33	67.0	10	56.4	29	0-16	no	Fhb1	no	no	no	no	no	F1BJ	F1AN	F6AN
7	NC14-23373	130	49	36	33	65.9	19	54.8	38	13-2	no	Fhb1	no	no	no	no	no	F1BJ	F1AN	F6AN
8	AR09006-10-2	127	21	37	41	62.9	46	58.2	23	0-18	no	no	no	no	no	no	no	no	F1AN	no
9	AR09009-8-3	127	21	37	41	64.5	38	55.7	35	0-22	no	no	no	no	no	no	no	no	F1AN	no
10	AR09045-4-2	128	36	37	41	63.7	41	57.8	25	0-13	no	no	no	no	no	no	no	no	F1AN	no
11	ARLA09218C-5-2	128	36	35	25	64.9	33	55.8	34	0-11	no	no	no	no	no	no	no	no	no	no
12	ARLA09238C-6-3	129	47	37	41	65.9	20	58.5	18	0-19	Het?	no	no	no	no	no	no	no	F1AN	no
13	ARLA09179UC-9-3	127	21	33	12	68.6	2	60.6	8	0-16	no	no	no	no	no	no	no	no	no	no
14	ARLA09137UC-17-2	126	10	36	33	63.9	40	59.0	16	14-0	no	no	no	no	no	no	no	no	no	no
15	ARLW08160D-20-1	126	10	37	41	64.8	34	55.5	36	0-15	no	no	no	no	no	no	no	no	F1AN	no
16	GA13VA-FHB-DH83-17EL53	123	1	34	21	66.1	16	58.3	22	0-14	no	no	no	no	no	no	no	no	no	no
17	GA091034-17EL44	127	21	35	25	66.1	17	56.8	27	0-15	no	no	no	no	no	no	no	no	no	no
18	GA10654-17LE46	125	3	35	25	63.0	44	53.6	44	0-17	no	no	no	no	no	no	F3BB	F1BJ	het	het
19	GA10389-17LE56	125	3	35	25	65.3	29	57.7	26	18-0	H13	no	no	no	no	no	no	F1BJ	no	no
20	GA111005-17A3	126	10	33	12	62.4	48	54.5	40	17-0	H13	no	no	no	no	no	no	no	no	no
21	GA121086-LDH20-17A24	125	3	31	3	63.5	43	53.4	45	17-0	H13	no	no	no	no	no	no	F1BJ	F1AN	no
22	GA091537-17A29	128	36	36	33	66.7	11	50.1	48	0-19	no	Fhb1	no	no	F2DLW	F2DLW	no	no	no	no
23	GA1035-DH49-17LE52	125	3	35	25	63.7	42	55.9	33	17-0	no	Fhb1	no	no	no	no	no	no	no	F6AN
24	KWS154	127	21	37	41	67.3	8	61.3	6	0-15	no	no	F3BM	no	no	no	no	no	F1AN	F6AN
25	KWS192	127	21	36	33	67.1	9	58.3	21	18-0	H13	no	no	no	no	no	no	no	no	no
26	KWS193	128	36	34	21	64.3	39	53.7	43	15-0	H13	no	no	no	**	**	no	no	no	no
27	L11815	127	21	35	25	67.8	4	60.4	9	0-18	no	no	het	no	no	no	no	F1BJ	F1AN	no
28	L11820	125	3	34	21	65.3	30	61.0	7	0-15	no	no	no	no	no	no	no	F1BJ	F1AN	no
29	L11811	128	36	33	12	68.2	3	56.3	32	0-18	no	no	no	no	no	no	no	no	no	no
30	LA14066DH-147	127	21	34	21	67.6	5	52.9	46	15-0	H13	no	no	no	no	no	no	no	F1AN	no
31	LA08277C-P5-3-1	125	3	33	12	65.0	32	62.7	3	0-18	no	no	no	no	no	no	no	no	no	no
32	LA11289C-57-4	126	10	33	12	61.4	49	56.4	31	0-19	no	no	no	no	no	no	no	F1BJ	no	no
33	LA12120SB-56-4	128	36	40	49	65.4	27	61.5	5	17-0	H13	no	no	no	no	no	no	F1BJ	F1AN	F6AN
34	LA14076-LDH6	127	21	33	12	66.2	15	59.3	13	0-18	no	Fhb1	no	no	F2DLW	F2DLW	no	no	no	no
35	LA14066DH-172	126	10	32	8	67.6	6	54.3	41	19-0	H13	no	no	no	no	no	no	F1BJ	F1AN	no
36	NC14-20369	127	21	39	47	67.6	7	61.8	4	18-0	H13	no	het	no	no	no	no	F1BJ	F1AN	no
37	NC14-22588	126	10	35	25	64.7	37	58.5	20	0-16	no	no	no	no	no	no	no	no	F1AN	no
38	NC11546-14	126	10	36	33	65.7	23	59.1	15	17-0	H13	het	het	no	no	no	no	het	F1AN	no
39	NC15-23047	127	21	36	33	65.5	25	58.5	19	2-14?	no	no	no	no	no	no	F3BB	F1BJ	F1AN	F6AN
40	NC15-21787	128	36	39	47	65.9	21	65.6	1	15-0	H13	Fhb1	no	no	no	no	no	no	no	F6AN
41	NC11331-6	128	36	30	2	65.4	28	60.4	10	16-0	H13	Fhb1	no	no	no	no	no	F1BJ	no	F6AN
42	DH12SRW057-081	127	21	31	3	70.8	1	59.7	12	0-17	no	no	het	no	no	no	no	F1BJ	F1AN	no
43	13VA-FHB-DH131	127	21	32	8	66.3	14	53.9	42	0-13	no	no	no	no	no	no	no	F1BJ	het	no
44	VA15W-70	128	36	31	3	66.4	13	56.4	30	4-4	no	no	no	no	no	no	no	no	no	no
45	VA16W-31	128	36	29	1	65.9	22	55.1	37	0-18	no	no	no	no	no	no	no	no	no	no
46	VA16W-202	126	10	31	3	65.7	24	63.4	2	18-0	H13	no	no	no	no	no	no	no	no	no
47	12VTK10-156	127	21	33	12	66.5	12	57.9	24	16-0	H13	no	no	no	no	no	no	no	F1AN	no
48	DH13SRW023-201	127	21	35	25	65.5	26	50.8	47	0-19	no	no	no	no	no	no	no	F1BJ	F1AN	no
49	DH13SRW025-14	126	10	32	8	64.8	35	49.2	49	0-15	no	no	no	no	no	no	no	no	no	no
	Mean	127		34		65		58		.	.									
	LSD (0.05)	3		2		.		.		.	.									
	CV%	1.2		3.6		.		.		.	.									
	Correlations with Prediction .			0.5		.		.		.	.									

Means Over the 2017 and 2018 Seasons

Cultivar/ Designation	FHB Incidence %	FHB Severity %	FHB Index	FDK %	ISK	DON ppm	Heading Date Julian	Plant Height in	Flour Yield %	Softness Equivalent %
ERNIE	48	28	18	19	25	8	117	33	65.7	56.4
COKER 9835	80	63	53	64	58	16	119	31	65.7	60.7
BESS	41	22	11	11	22	8	120	36	66.0	57.3
JAMESTOWN	54	25	16	19	28	7	115	32	63.5	55.3
NC13-21213	59	39	29	41	40	10	118	34	64.3	54.6
NC14-23372	54	28	19	22	29	10	121	35	67.5	53.7
NC14-23373	49	22	13	21	25	13	121	35	66.5	53.3
Mean	55	32	23	28	32	10	119	34	65.6	55.9
LSD (0.05)	14	6	7	10	5	5	3	2	1.7	3.9
CV%	10.2	7.9	12.8	14.3	6.8	21.6	1.1	2.6	1.0	2.8

Means and Variances of Genotypic Estimated Breeding Values for Severity of progenies from selected crosses between entries in the 2018 nursery, plus the means for the 10 % most resistant progeny in each cross.

Parent 1	Parent 2	Severity (%) Genotype Estimated Breeding Values of Cross Progenies		
		Mean	Variance	Mean lowest 10%
NC14-23372	LA08277C-P5-3-1	24	14.5	18
NC14-23372	NC15-23047	24	10.9	18
NC15-23047	NC11331-6	24	13.6	18
NC14-23373	LA08277C-P5-3-1	25	14.3	18
NC14-23372	NC11331-6	24	11.1	18
NC14-23373	NC15-23047	24	11.3	18
ERNIE	NC11331-6	25	15.1	18
NC14-23373	NC11331-6	25	11.4	19
Jamestown	NC15-23047	25	14.0	19
NC14-23372	LA14066DH-172	24	9.4	19
LA08277C-P5-3-1	NC15-23047	24	9.7	19
Jamestown	NC11331-6	26	14.5	19
GA121086-LDH20-17A24	NC11331-6	26	15.1	19
ERNIE	LA08277C-P5-3-1	25	11.3	19
LA08277C-P5-3-1	LA14066DH-172	25	10.8	19
ERNIE	NC14-23372	24	7.7	19
LA14066DH-172	NC15-23047	25	9.1	19
NC14-23373	LA14066DH-172	25	10.2	19
LA14066DH-172	NC11331-6	25	9.9	20
LA08277C-P5-3-1	NC11331-6	25	9.1	20
GA10654-17LE46	NC15-23047	27	15.7	20
Jamestown	LA08277C-P5-3-1	26	12.5	20
GA121086-LDH20-17A24	NC15-23047	26	11.2	20
ERNIE	LA14066DH-172	25	10.4	20
NC15-23047	VA16W-202	27	18.4	20
GA10654-17LE46	NC11331-6	27	16.3	20
GA121086-LDH20-17A24	LA14066DH-172	26	13.5	20
ERNIE	NC15-23047	25	7.4	20
GA121086-LDH20-17A24	LA08277C-P5-3-1	26	12.0	20
ERNIE	NC14-23373	25	7.5	20
Jamestown	NC14-23372	25	7.6	20
NC14-23372	GA10654-17LE46	26	11.5	20
Jamestown	LA14066DH-172	26	10.6	21
NC14-23372	GA121086-LDH20-17A24	25	7.5	21
NC14-23372	VA16W-202	27	13.8	21
NC14-23372	LA14076-LDH6	27	11.4	21
GA10654-17LE46	LA08277C-P5-3-1	27	12.9	21
BESS	NC14-23372	26	9.1	21
ERNIE	Jamestown	26	10.0	21
BESS	NC11331-6	27	11.8	21
NC14-23372	12VTK10-156	28	14.4	21
NC11546-14	NC15-23047	28	14.1	21
LA12120SB-56-4	NC15-23047	27	12.8	21
Jamestown	NC14-23373	26	6.8	21
ERNIE	VA16W-202	28	16.2	21
NC14-23373	GA10654-17LE46	27	10.5	21
NC14-23372	NC11546-14	28	13.1	21

Means and Variances of Genotypic Estimated Breeding Values for FDK of progenies from selected crosses between entries in the 2018 nursery, plus the means for the 10 % most resistant progeny in each cross.

Parent 1	Parent 2	FDK (%) Estimated Breeding		
		Mean	Variance	Mean lowest 10%
NC14-23373	NC15-23047	24	8.6	19
NC14-23372	NC15-23047	25	8.3	20
JAMESTOWN	NC15-23047	25	8.8	20
NC14-23373	DH13SRW023-201	25	8.6	20
GA10654-17LE46	NC15-23047	26	9.3	20
NC14-23373	GA10654-17LE46	25	7.3	21
NC14-23372	DH13SRW023-201	26	9.3	21
NC15-23047	DH13SRW023-201	26	9.3	21
ERNIE	NC14-23373	25	6.8	21
JAMESTOWN	NC14-23373	24	4.0	21
NC14-23372	GA10654-17LE46	26	7.9	21
ERNIE	NC15-23047	26	7.4	21
ERNIE	JAMESTOWN	26	7.9	21
ERNIE	NC14-23372	26	6.6	21
JAMESTOWN	NC14-23372	25	4.5	21
ERNIE	DH13SRW023-201	27	10.2	22
ERNIE	GA10654-17LE46	27	8.0	22
JAMESTOWN	DH13SRW023-201	26	5.5	22
BESS	NC14-23373	27	8.8	22
NC14-23373	LA08277C-P5-3-1	28	10.5	22
NC14-23373	NC11331-6	28	10.4	23
NC14-23373	GA1035-DH49-17LE52	28	9.6	23
BESS	NC14-23372	28	8.9	23
NC14-23373	LA14076-LDH6	28	9.5	23
NC14-23372	NC14-23373	24	0.6	23
GA10654-17LE46	DH13SRW023-201	27	4.9	23
NC14-23372	LA08277C-P5-3-1	29	10.7	23
NC14-23373	GA091537-17A29	30	13.8	23
NC14-23372	NC11331-6	29	10.5	23
JAMESTOWN	GA10654-17LE46	26	2.9	23
NC14-23373	NC14-22588	30	15.6	23
NC14-23372	GA1035-DH49-17LE52	29	10.0	23
LA14076-LDH6	NC15-23047	29	10.3	23
NC14-23372	LA14076-LDH6	29	9.8	23
BESS	JAMESTOWN	28	7.8	24
NC15-23047	NC11331-6	29	8.7	24
JAMESTOWN	NC11331-6	29	9.5	24
NC14-23372	GA091537-17A29	30	14.0	24
GA1035-DH49-17LE52	NC15-23047	29	8.1	24
GA091537-17A29	NC15-23047	30	14.4	24
NC14-23372	NC14-22588	31	15.8	24
BESS	DH13SRW023-201	29	9.2	24
NC14-23373	VA16W-202	29	9.6	24
JAMESTOWN	GA1035-DH49-17LE52	29	8.3	24
GA121086-LDH20-17A24	NC15-23047	29	8.3	24
ERNIE	NC11331-6	30	10.8	24
LA08277C-P5-3-1	NC15-23047	29	7.0	24

Means and Variances of Genotypic Estimated Breeding Values for DON of progenies from selected crosses between entries in the 2017-18 nursery, plus the means for the 10 % most resistant progeny in each cross.

Parent 1	Parent 2	DON (ppm) Genotype Estimated Breeding Values of Cross Progenies		
		Mean	Variance	Mean lowest 10%
NC14-23373	NC11331-6	5	2.5	3
NC14-23373	GA10654-17LE46	5	2.6	3
NC14-23373	25:131589:NC14-20369	6	2.9	3
NC14-23372	NC11331-6	6	2.6	3
GA121086-LDH20-17A24	NC11331-6	6	3.5	3
NC14-23373	DH13SRW023-201	6	3.2	3
JAMESTOWN	NC14-23373	5	1.5	3
NC14-23372	25:131589:NC14-20369	6	2.8	3
NC14-23372	GA10654-17LE46	6	2.3	3
NC14-23372	DH13SRW023-201	6	3.3	3
NC14-23373	GA121086-LDH20-17A24	5	1.5	3
NC14-20369	NC11331-6	6	3.4	3
JAMESTOWN	NC14-23372	5	1.5	3
JAMESTOWN	NC11331-6	6	2.2	3
NC14-23373	GA1035-DH49-17LE52	6	3.5	3
NC14-23373	NC14-22588	7	3.8	3
NC14-23373	12VTK10-156	7	3.9	3
NC14-23373	L11820	7	3.8	3
NC14-23372	GA121086-LDH20-17A24	6	1.4	3
GA10654-17LE46	GA121086-LDH20-17A24	6	2.4	3
NC14-23373	LA14066DH-172	7	3.4	3
NC14-23373	LA11289C-57-4	7	3.5	3
NC14-23372	GA1035-DH49-17LE52	7	3.5	3
NC14-23373	L11815	7	3.5	3
GA10654-17LE46	NC11331-6	6	2.4	3
JAMESTOWN	NC14-20369	6	2.4	4
NC14-23372	12VTK10-156	7	3.8	4
NC14-23372	L11820	7	3.8	4
GA10654-17LE46	NC14-20369	6	2.7	4
NC14-23372	LA11289C-57-4	7	3.6	4
NC11331-6	DH13SRW023-201	7	3.1	4
NC14-23372	NC14-22588	7	3.6	4
ERNIE	NC14-23373	6	2.5	4
NC14-23372	LA14066DH-172	7	3.3	4
GA121086-LDH20-17A24	NC14-20369	6	2.4	4
NC14-23372	L11815	7	3.4	4
NC14-23373	GA10389-17LE56	6	2.0	4
NC14-20369	DH13SRW023-201	7	3.5	4
GA121086-LDH20-17A24	DH13SRW023-201	7	2.8	4
JAMESTOWN	GA121086-LDH20-17A24	6	1.4	4
NC13-21213	NC14-23373	6	2.3	4
NC14-23373	LA14076-LDH6	7	3.6	4
NC14-23372	NC14-23373	5	0.2	4
GA121086-LDH20-17A24	GA1035-DH49-17LE52	7	3.3	4
ERNIE	JAMESTOWN	7	2.9	4
NC14-23372	LA14076-LDH6	7	3.7	4
NC14-23372	GA10389-17LE56	6	1.9	4