

SOUTHERN UNIFORM WINTER WHEAT SCAB NURSERY

2018 NURSERY REPORT

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

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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 /Bize/3/9346) / Shirley	Griffey	2017-18
45	VA16W-31	P992231A1-2-1 (Patton/Patterson /Bize/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		KINSTON		UIL		LEX'TON		KWS		COL'BIA		WARSAW		MEAN		GEBV	
		LA		NC		IL		KY		IL		MO		VA		ALL LOC.		SEVERITY	
		Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	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-DH83-17EL4	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)

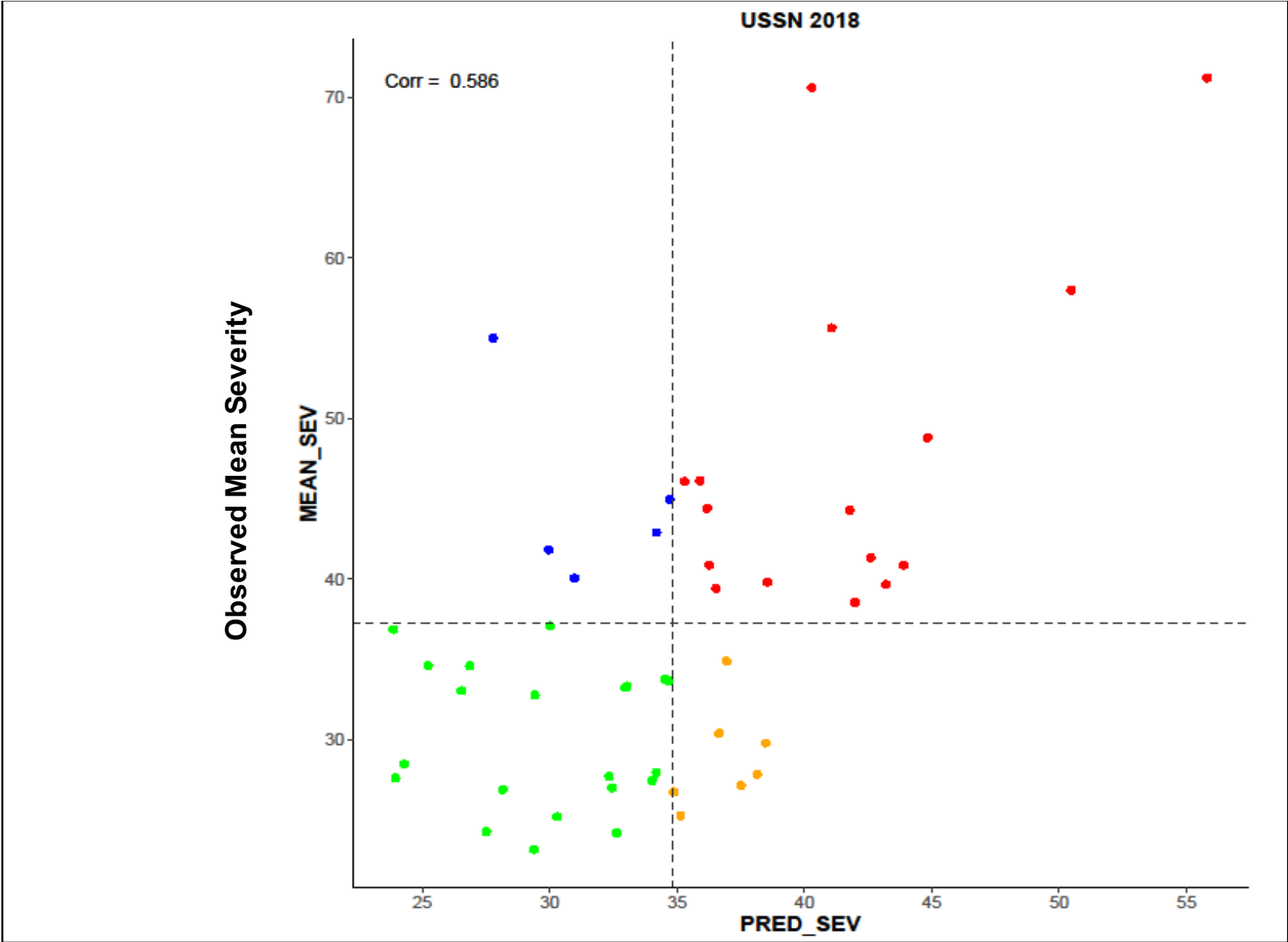
ENTRY NO	CULTIVAR/ DESIGNATION	N'PORT AR	LIMA IN	UIL IL	COL'BIA MO	WARSAW VA	MEAN ALL LOC.	RANK
1	ERNIE	28	50	3	90	100	54	12
2	COKER9835	90	70	65	100	100	85	49
3	BESS	5	30	8	90	95	46	2
4	JAMESTOWN	55	70	12	90	100	65	29
5	NC13-21213	58	85	43	83	100	74	44
6	NC14-23372	25	75	13	75	100	58	22
7	NC14-23373	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-DH83-17EL4	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		LIMA		COL'BIA		WARSAW		MEAN		GEBV	
	AR		IN		MO		VA		ALL LOC.			
	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	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-DH83-17EL5	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		UIL		LIMA		COL'BIA		WARSAW		MEAN		GEBV	
	AR		IL		IN		MO		VA		ALL LOC.		SEVERITY	
	RANK		RANK		RANK		RANK		RANK		RANK		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

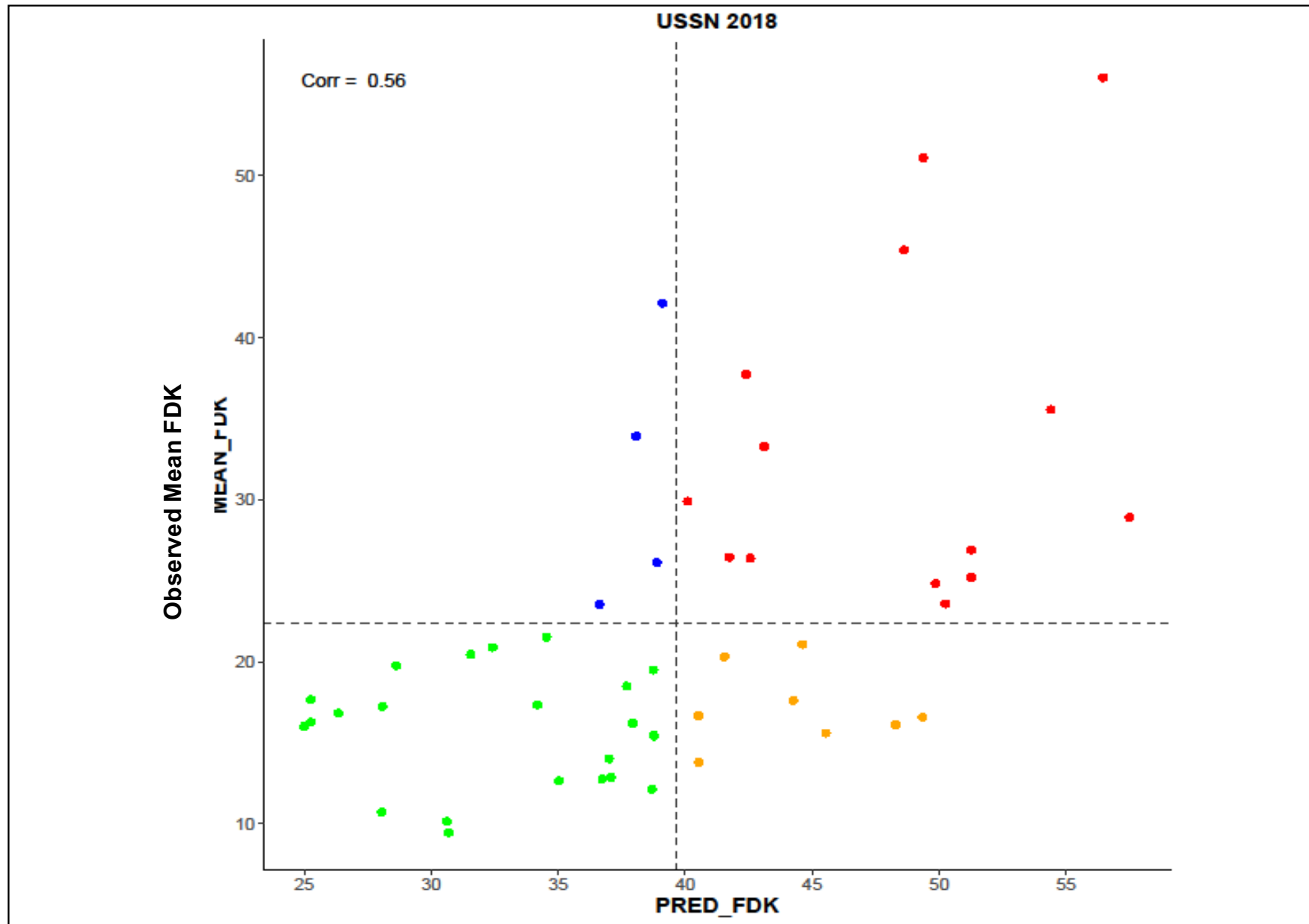
Mean	8	12	28	29	57	27
LSD (0.05)	.	17	.	.	24	20
CV%	.	72.6	.	.	30.6	37.2
Correlations with SEV Predictions	0.47	0.58	0.40	0.43	0.53	0.61

Percent Fusarium Damaged Kernels

CULTIVAR/ DESIGNATION	N'PORT		F'VILLE		KINSTON		UIL		KWS		LEX'TON		W'BORO		WARSAW		MEAN		GEBV	
	AR		AR		NC		IL		IL		KY		LA		VA		ALL LOC.			
	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	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		WARSAW		N'PORT		MEAN	
	IL	VA	IL	VA	AR	ALL LOC.	IL	VA
	Rank		Rank		Rank		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

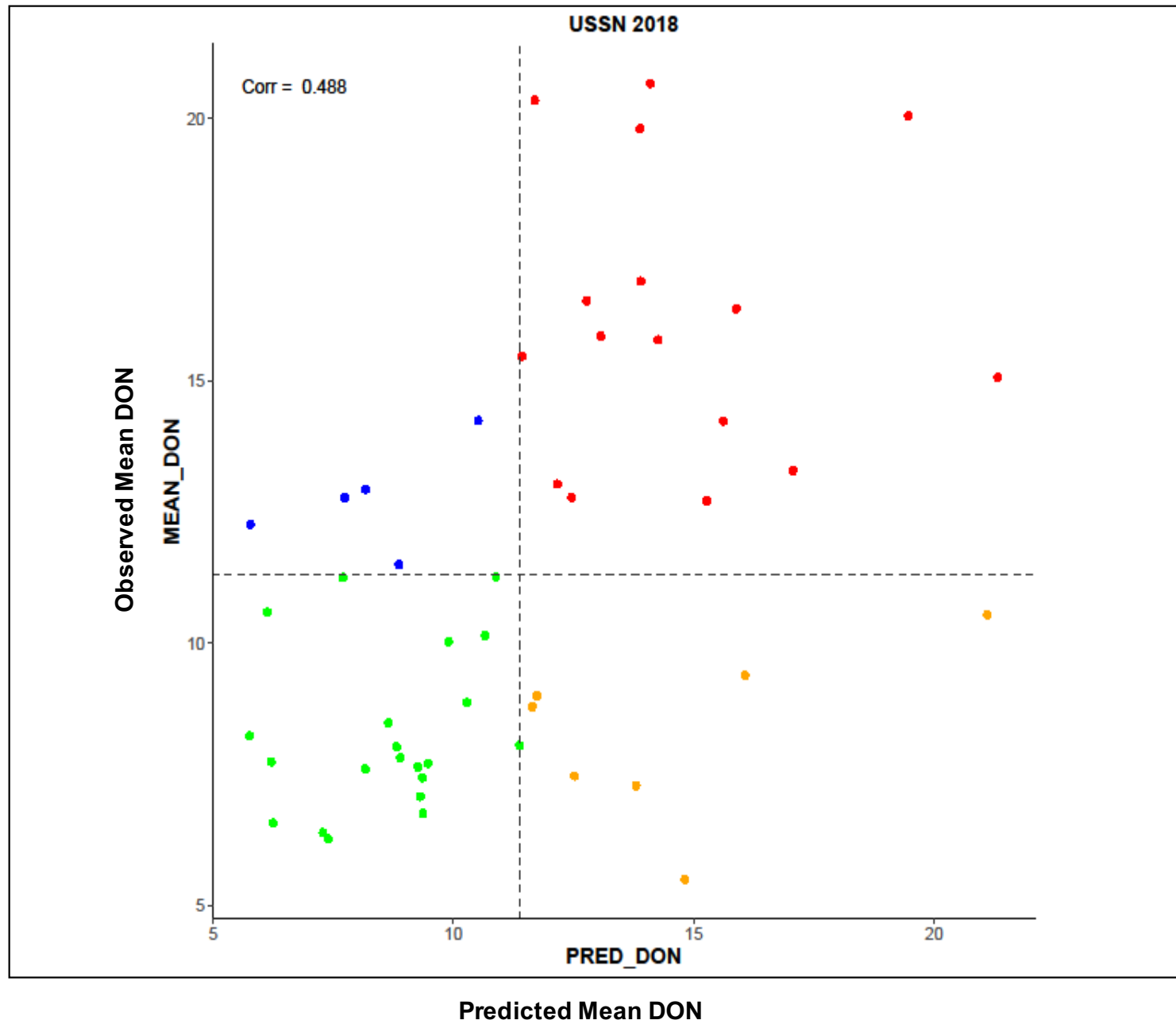
Mean	29	47	16	31
LSD (0.05)	18	12	.	17
CV%	32.2	8.1	.	23.7
Correlations with SEV Predic.	0.54	0.52	0.53	0.60

DON (ppm)

CULTIVAR/ DESIGNATION	KINSTON		B'BURG		N'PORT		F'VILLE		W'BORO		LEX'TON		MEAN			
	NC		VA		AR		AR		LA		KY		ALL LOC. GEBV			
	RANK	RANK	RANK	RANK	RANK	RANK	RANK	RANK	RANK	RANK	RANK	RANK	RANK	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	<i>Rht-B1</i>	<i>Rht-D1</i>	<i>Fhb1</i>	<i>Fhb Massey 3BL</i>	<i>Fhb 5A Ernie</i>	<i>Fhb 5A Ning</i>	<i>Fhb 2DL Wuhan 1/W14</i>	<i>Fhb_1B_Jamestown</i>	<i>Fhb_1A_Neuse</i>	<i>Fhb_4A_Neuse</i>	<i>Fhb_6A_Neuse</i>	<i>Fhb_2B_Bess</i>	<i>Fhb_3B_Bess</i>	H13
1 ERNIE	<i>Rht1</i>	no	no	F3BM	F5AE	no	no	no	F1AN	no	F6AN	no	no	no
2 COKER9835	no	<i>Rht2</i>	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	<i>Rht2</i>	no	no	no	no	no	F1BJ	F1AN	no	no	no	no	no
5 NC13-21213	no	<i>Rht2</i>	no	no	no	no	no	F1BJ	F1AN	F4AN	no	no	no	H13
6 NC14-23372	no	<i>Rht2</i>	<i>Fhb1</i>	no	F5AE	no	no	F1BJ	F1AN	no	F6AN	no	no	no
7 NC14-23373	no	<i>Rht2</i>	<i>Fhb1</i>	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	<i>Rht2</i>	no	no	no	no	no	no	no	F4AN	no	no	no	no
12 ARLA09238C-6-3	no	<i>Rht2</i>	no	no	no	no	no	no	F1AN	no	no	no	no	het
13 ARLA09179UC-9-3	no	<i>Rht2</i>	no	no	no	no	no	no	no	no	no	no	no	no
14 ARLA09137UC-17-2	no	<i>Rht2</i>	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	<i>Rht2</i>	no	no	no	no	no	no	no	no	no	no	no	no
17 GA091034-17EL44	no	<i>Rht2</i>	no	no	no	no	no	no	no	no	no	no	no	no
18 GA10654-17LE46	no	<i>Rht2</i>	no	no	no	no	no	F1BJ	het	no	het	no	F3BB	no
19 GA10389-17LE56	no	<i>Rht2</i>	no	no	no	no	no	F1BJ	no	no	no	no	no	H13
20 GA111005-17A3	no	<i>Rht2</i>	no	no	no	no	no	no	no	F4AN	no	no	no	H13
21 GA121086-LDH20-17A24	no	<i>Rht2</i>	no	no	no	no	no	F1BJ	F1AN	F4AN	no	no	no	H13
22 GA091537-17A29	no	<i>Rht2</i>	<i>Fhb1</i>	no	no	no	F2DLW	no	no	no	no	no	no	no
23 GA1035-DH49-17LE52	no	<i>Rht2</i>	<i>Fhb1</i>	no	no	no	no	no	no	F4AN	F6AN	no	no	no
24 KWS154	<i>Rht1</i>	no	no	F3BM	no	no	no	no	F1AN	no	F6AN	no	no	no
25 KWS192	no	<i>Rht2</i>	no	no	no	no	no	no	no	no	no	no	no	H13
26 KWS193	<i>Rht1</i>	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	<i>Rht2</i>	no	no	no	no	no	F1BJ	F1AN	no	no	no	no	no
29 L11811	no	<i>Rht2</i>	no	no	no	no	no	no	no	no	no	no	no	no
30 LA14066DH-147	no	<i>Rht2</i>	no	no	no	no	no	no	F1AN	F4AN	no	no	no	H13
31 LA08277C-P5-3-1	no	<i>Rht2</i>	no	no	no	no	no	no	no	F4AN	no	no	no	no
32 LA11289C-57-4	no	<i>Rht2</i>	no	no	no	no	no	F1BJ	no	F4AN	no	no	no	no
33 LA12120SB-56-4	no	<i>Rht2</i>	no	no	no	no	no	F1BJ	F1AN	no	F6AN	no	no	H13
34 LA14076-LDH6	no	<i>Rht2</i>	<i>Fhb1</i>	no	no	no	F2DLW	no	no	no	no	no	no	no
35 LA14066DH-172	no	<i>Rht2</i>	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	<i>Rht1</i>	no	no	no	no	no	no	no	F1AN	F4AN	no	no	no	no
38 NC11546-14	<i>Rht1</i>	no	het	het	no	no	no	Het	F1AN	no	no	no	no	H13
39 NC15-23047	no	<i>Rht2</i>	no	no	F5AE	no	no	F1BJ	F1AN	no	F6AN	F2BB	F3BB	no
40 NC15-21787	no	<i>Rht2</i>	<i>Fhb1</i>	no	no	no	no	no	no	no	F6AN	no	no	H13
41 NC11331-6	<i>Rht1</i>	het	<i>Fhb1</i>	no	no	no	no	F1BJ	no	F4AN	F6AN	no	no	H13
42 DH12SRW057-081	no	<i>Rht2</i>	no	het	no	no	no	F1BJ	F1AN	het	no	no	no	no
43 13VA-FHB-DH131	no	<i>Rht2</i>	no	no	no	no	no	F1BJ?	AN_h	no	no	no	no	no
44 VA15W-70	<i>Rht1</i>	no	no	no	no	no	no	no	no	F4AN	no	no	no	no
45 VA16W-31	<i>Rht1</i>	no	no	no	F5AE	no	no	no	no	no	no	no	no	no
46 VA16W-202	no	<i>Rht2</i>	no	no	no	no	no	no	no	no	no	no	no	H13
47 12VTK10-156	no	<i>Rht2</i>	no	no	no	no	no	no	F1AN	F4AN	no	no	no	H13
48 DH13SRW023-201	no	<i>Rht2</i>	no	no	no	no	no	F1BJ	F1AN	no	no	no	no	no
49 DH13SRW025-14	no	<i>Rht2</i>	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
<i>Qfhb.nc-2B.1 (Bess)</i>	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
<i>Qfhb.nc-3B.2 (Bess)</i>	S	267	56.0 p=0.0013	31.8 p<0.000	30.7 p<0.000	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<0.000	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<0.000	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<0.000	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<0.000	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<0.000	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=0.000	12.1 p<0.0001
	R	65	52.3 -2	27.7 -3	28.6 -3	9.1 -3

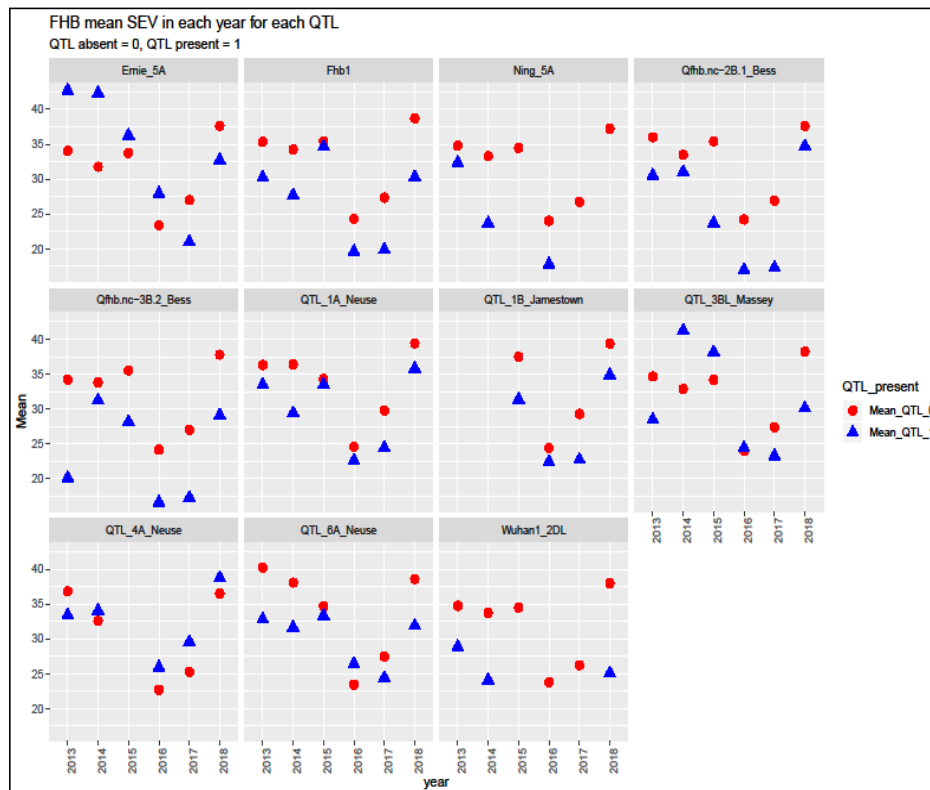
† QTL, quantitative trait loci.

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

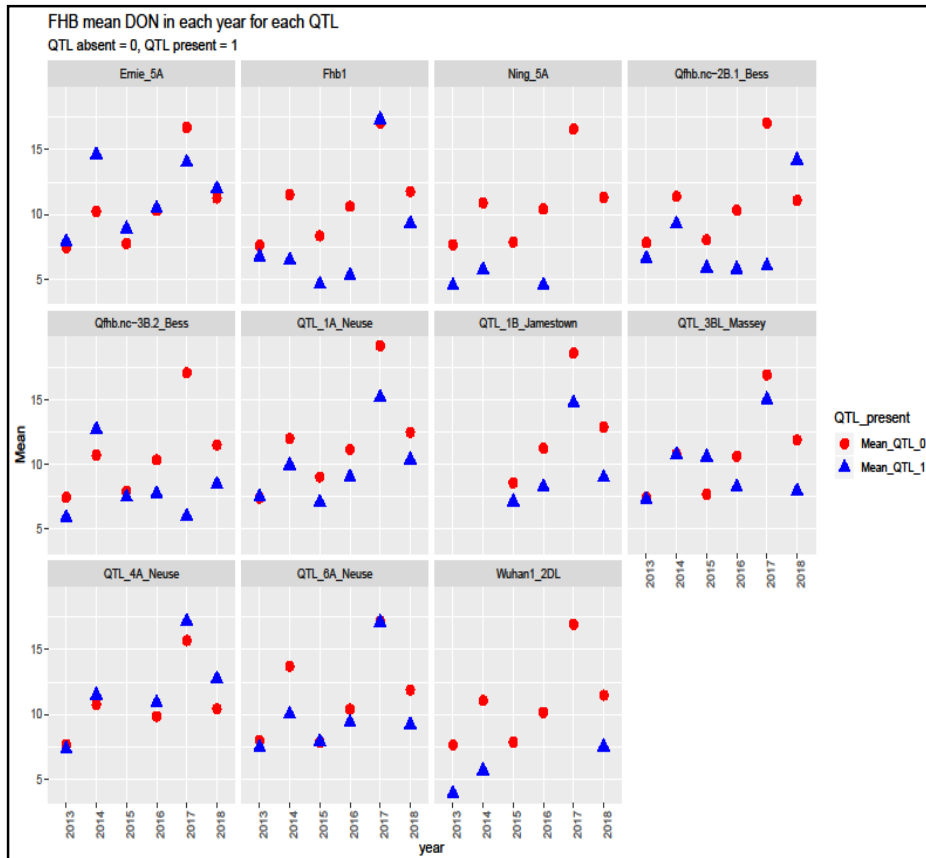
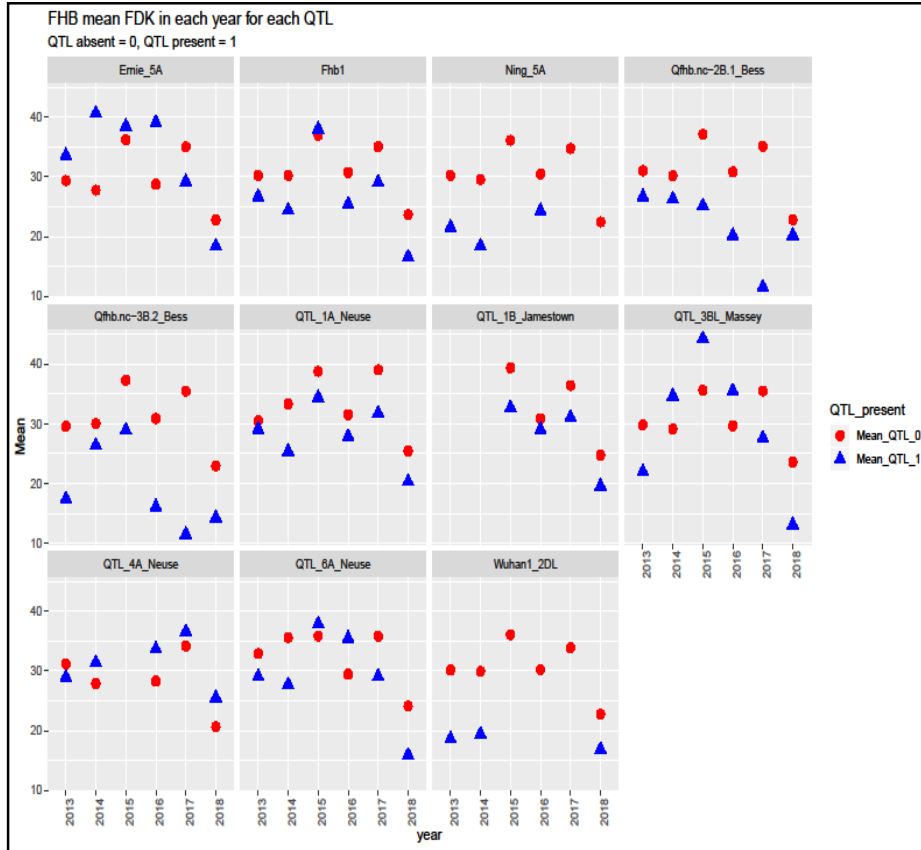
§ n indicates the number of lines in the allele group.

¶ 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 through 2018.



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



Heading Date (Julian Days*)

CULTIVAR/ DESIGNATION	W'BORO COL'BIA WARSAW LEX'TON KWS LIMA						MEAN	
	LA	MO	VA	KY	IL	IN	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	KWS	LEX'TON	MEAN	GEBV		
	NC	IL	KY	ALL LOC.	RANK	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	Leaf	Powdery Mildew	<i>Stagonospora</i>	Stripe
	Rust	Rust		<i>nodorum</i>	Rust
	Reaction	Reaction	Mildew		
	0-3	0-3	0-9	0-100	0-100
	TCRK	TNRJ	W'RSAW	KWS	Fay'ville
	VA	VA	VA	IL	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	GRAIN		TEST	
		YIELD % Mean	YIELD bu / ac	Rank	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 Scores¹

Cultivar/ Designation	FLOUR	SOFT.	TEST	KERNEL	FLOUR	LACTIC	Na ₂ CO ₃	SKCS	SKCS	SKCS
	YIELD	EQUIV.	WEIGHT	PROT.	PROT.	ACID	SRC	Ker.	Ker. Dia.	Ker. Wt
	%	%	lb/bu	(at 12%)	(at 14%)	SRC(%)	%	Hardness	mm	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	Plant Height	Flour		Softness		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
			Yield %	Equiv. %	Rank	Rank												
1 ERNIE	125	3	32	8	65.9	18	58.7	17	0-17	no	no	F3BM	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
3 BESS	126	10	36	33	65.1	31	59.2	14	0-17	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	F1BJ	F1AN	no
5 NC13-21213	126	10	33	12	62.9	45	54.7	39	17-0	H13	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	F1BJ	F1AN	F6AN
7 NC14-23373	130	49	36	33	65.9	19	54.8	38	13-2	no	Fhb1	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	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	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	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
12 ARLA09238C-6-3	129	47	37	41	65.9	20	58.5	18	0-19	Het?	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
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
15 ARLW08160D-20-1	126	10	37	41	64.8	34	55.5	36	0-15	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
17 GA091034-17EL44	127	21	35	25	66.1	17	56.8	27	0-15	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	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	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
21 GA121086-LDH20-17A24	125	3	31	3	63.5	43	53.4	45	17-0	H13	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
23 GA1035-DH49-17LE52	125	3	35	25	63.7	42	55.9	33	17-0	no	Fhb1	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	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
26 KWS193	128	36	34	21	64.3	39	53.7	43	15-0	H13	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	F1BJ	F1AN	no
28 L11820	125	3	34	21	65.3	30	61.0	7	0-15	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
30 LA14066DH-147	127	21	34	21	67.6	5	52.9	46	15-0	H13	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
32 LA11289C-57-4	126	10	33	12	61.4	49	56.4	31	0-19	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	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
35 LA14066DH-172	126	10	32	8	67.6	6	54.3	41	19-0	H13	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	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	F1AN	no
38 NC11546-14	126	10	36	33	65.7	23	59.1	15	17-0	H13	het	het	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	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	F6AN
41 NC11331-6	128	36	30	2	65.4	28	60.4	10	16-0	H13	Fhb1	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	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	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
45 VA16W-31	128	36	29	1	65.9	22	55.1	37	0-18	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
47 12VTK10-156	127	21	33	12	66.5	12	57.9	24	16-0	H13	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	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

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