

WHEAT VARIETY RESPONSE TO FUNGICIDE TREATMENT IN 2011

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Resistant varieties and timely fungicide applications are two powerful management tools available to KY wheat growers. In 2011, variety x fungicide trials were conducted in replicated plots at Lexington and Princeton, KY. Entries in the 2011 test were grown in 6-row 10 ft. plots, planted after corn, the residue of which had been conventionally tilled. At each location, entries were replicated three times and subjected to 2 treatments: fungicide-treated and control. Entries in the test consisted of 30 varieties and breeding lines, many of which were entered in the state wheat variety trial. The test was inoculated with scabby corn at the boot stage, and sprayed with a spore suspension during flowering. Fungicide-treated plots were sprayed at flowering with Prosaro (6.5 fl. oz./A) and Induce (0.125% w/v). Plots were rated for scab symptoms at 21 days after flowering using a 0-9 scale. After harvest, yield, test weight, and *Fusarium* damaged kernels (FDK) were measured. FDK is the

percentage of scabby seed or tombstones in a representative grain sample. In 2011 a significant level of leaf blotch was observed at both locations. Plots were rated on a 0-9 scale shortly after flowering; those ratings are included in this report. Although the focus of these trials is head scab, it is likely that the natural occurrence of leaf blotch contributed to the impact of the fungicide on yield and test weight.

While varieties and lines varied in their response to fungicide (Tables 2, 3), overall head scab and leaf blotch levels were significantly reduced while yield and test weight were significantly increased (Table 1).

Though head scab was not a serious problem for Kentucky wheat producers in 2011, the lessons of the 2009 epidemic are still important: use the best management practices by planting scab resistant varieties and apply fungicides when weather favors disease development.

TABLE 1. EFFECT OF FUNGICIDE APPLICATION AVERAGED OVER 30 WHEAT VARIETIES AND LINES, LEXINGTON AND PRINCETON, KY 2011					
	Yield (bu/ac)	Test Wt (lb/bu)	Scab Rating (0-9)	FDK (%)	Leaf Blotch (0-9)
Fungicide Treated	81.4 a	55.3 a	1.2 a	3.1 a	4.7 a
Control	61.4 b	52.4 b	2.6 b	6.3 b	7.0 b
Rating = 0-9 ratings of scab symptoms, FDK = Fusarium damaged kernels. Means followed by different letters are significantly different from one another.					

TABLE 2. YIELD, TEST WEIGHT, SCAB RATING AND FUSARIUM DAMAGED KERNELS (FDK) OF 30 WHEAT VARIETIES AND BREEDING LINES, LEXINGTON AND PRINCETON, KY 2011.

Entry	Yield (bu/a)	No Fungicide				Fungicide Treated*				
		Test Wt (lb/bu)	Scab Rating (0-9)	FDK (%)	Leaf Blotch (0-9)	Yield (bu/a)	Test Wt (lb/bu)	Scab Rating (0-9)	FDK (%)	Leaf Blotch (0-9)
BECK 135	58.9	52.1	4.0	7.8	6.7	77.3	54.7	1.3	2.8	3.8
Dyna-Gro 9922	56.8	49.6	3.3	10.8	7.5	81.6	54.8	1.8	4.8	4.2
EXCEL 234	63.8	54.0	2.5	4.9	7.3	82.9	55.5	0.9	2.9	5.5
Exsegen Dinah	67.2	54.0	2.3	6.0	6.8	85.6	56.6	1.0	2.9	5.2
KAS1200	64.0	50.0	2.0	9.1	7.0	91.7	53.4	1.3	4.5	5.2
KY03C-1237-32	64.9	44.8	1.7	4.0	7.8	87.1	55.5	0.6	1.9	5.7
Pembroke 2008	59.6	51.6	2.8	8.0	7.5	80.2	54.9	1.7	3.4	5.0
Pioneer variety 25R32	72.0	55.5	1.7	3.4	7.5	89.0	56.5	0.3	1.7	4.7
Pioneer variety 26R15	66.2	51.6	2.9	7.2	6.8	85.2	54.1	2.0	4.2	5.2
SS 8302	64.2	51.4	2.8	6.3	7.5	82.6	54.9	1.5	3.9	4.7
SS 8600	53.6	49.2	3.8	10.4	7.2	70.5	54.1	2.1	5.1	3.8
SYNGENTA BRANSON	48.0	48.3	3.3	11.4	6.8	56.8	52.6	2.0	5.9	4.5
SYNGENTA W1104	66.4	50.4	2.8	7.8	7.0	95.7	53.4	0.8	3.4	3.8
Truman	74.7	55.9	0.2	5.0	5.5	91.5	59.0	0.0	1.7	3.5
USG 3251	62.5	51.1	3.7	7.2	7.0	77.7	54.2	1.7	3.3	4.3
KY02C-1058-02	67.6	54.9	2.2	4.1	6.3	85.9	57.4	1.2	2.2	4.2
KY02C-1002-06	60.7	51.4	3.2	6.8	6.5	79.9	55.3	1.3	3.2	4.2
KY03C-1237-33	51.9	51.7	2.8	7.5	6.3	76.3	55.3	1.3	3.3	4.3
KY03C-1237-39	65.1	54.0	2.4	4.6	7.2	79.4	55.8	1.2	2.2	5.0
KY02C-1076-07	46.6	49.8	4.3	10.7	7.3	72.5	53.3	2.3	5.6	5.0
KY03C-1237-01	55.1	53.2	3.7	5.3	7.0	79.3	55.2	1.0	2.8	4.5
KY03C-1237-05	59.6	53.7	1.8	3.8	7.3	83.1	55.8	0.8	2.5	4.7
KY03C-1237-06	57.2	52.9	3.2	5.7	7.7	77.2	55.3	1.7	2.8	6.0
KY03C-1237-07	61.8	54.2	2.3	4.7	8.0	82.7	55.9	1.3	2.2	6.0
KY03C-1237-11	53.6	51.9	3.3	7.4	7.2	74.1	53.9	1.9	3.9	4.8
KY03C-1237-12	64.1	53.6	2.4	4.1	8.0	89.2	55.6	1.0	2.0	5.3
KY03C-1002-02	72.0	53.5	2.2	3.7	8.0	91.3	55.1	1.2	2.4	5.3
KY02C-3005-25	73.4	58.3	0.5	2.3	5.0	86.4	59.3	0.0	1.0	3.5
KY02C-3004-07	54.5	54.8	1.5	4.6	6.5	71.2	56.0	0.2	2.8	3.7
KY03C-1237-22	57.2	53.5	2.3	4.8	6.7	77.4	54.6	1.0	3.2	4.8
Average	61.4	52.4	2.6	6.3	7.0	81.4	55.3	1.2	3.1	4.7

*Prosaro (6.5 fl. Oz/A) and Induce (0.125% w/v) applied at flowering.

TABLE 3. RESPONSE TO FUNGICIDE TREATMENT IN 30 WHEAT VARIETIES AND LINES, LEXINGTON AND PRINCETON, KY 2011

Percent Change with Fungicide Treatment					
Entry	Yield (bu/a)	Test Wt (lb/bu)	Scab Rating (0-9)	FDK (%)	Leaf Blotch (0-9)
BECK 135	31.2	5.0	-66.7	-63.7	-42.5
Dyna-Gro 9922	43.8	10.6	-47.5	-55.5	-44.4
EXCEL 234	30.0	2.6	-63.3	-39.9	-25.0
Exsegen Dinah	27.3	4.9	-55.6	-51.8	-24.4
KAS1200	43.3	7.0	-33.3	-50.2	-26.2
KY03C-1237-32	34.0	4.5	-65.0	-52.7	-27.7
Pembroke 2008	34.7	6.5	-41.2	-58.1	-33.3
Pioneer variety 25R32	23.7	1.8	-80.0	-50.8	-37.8
Pioneer variety 26R15	28.7	4.9	-31.4	-41.8	-24.4
SS 8302	28.8	6.8	-45.5	-38.4	-37.8
SS 8600	31.5	9.8	-44.4	-51.1	-46.5
SYNGENTA BRANSON	18.3	9.1	-40.0	-48.0	-34.1
SYNGENTA W1104	44.0	6.0	-69.7	-56.5	-45.2
Truman	22.5	5.6	-100.0	-67.1	-36.4
USG 3251	24.3	6.1	-54.5	-54.4	-38.1
KY02C-1058-02	27.0	4.5	-46.2	-47.8	-34.2
KY02C-1002-06	31.7	7.5	-57.9	-53.4	-35.9
KY03C-1237-33	47.1	7.0	-55.9	-56.3	-31.6
KY03C-1237-39	21.8	3.3	-51.7	-51.6	-30.2
KY02C-1076-07	55.4	7.0	-46.2	-47.7	-31.8
KY03C-1237-01	44.0	3.9	-72.7	-46.7	-35.7
KY03C-1237-05	39.4	3.7	-54.5	-34.1	-36.4
KY03C-1237-06	34.8	4.6	-47.4	-50.8	-21.7
KY03C-1237-07	33.8	3.2	-42.9	-52.7	-25.0
KY03C-1237-11	38.3	3.8	-42.5	-46.7	-32.6
KY03C-1237-12	39.2	3.8	-58.6	-50.8	-33.3
KY03C-1002-02	26.8	3.0	-46.2	-35.3	-33.3
KY02C-3005-25	17.7	1.6	-100.0	-55.1	-30.0
KY02C-3004-07	30.7	2.2	-88.9	-38.6	-43.6
KY03C-1237-22	35.3	2.1	-55.6	-34.5	-27.5
Average	33.0	5.1	-56.8	-49.4	-33.6