

Disease and Hessian Fly Variety Tests, Prattville, Fairhope and Crossville, AL 2015-2016

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Seven commercially available wheat varieties were planted in replicated plots at Prattville Agricultural Research Unit in Prattville, AL on 12 November 2014, Gulf Coast Research and Extension Center in Fairhope, AL on 23 November 2015, and Sand Mountain REC in Crossville in mid-December. Plots were 5 ft X 20 ft, and replicated 4 times (RCBD). To determine Hessian fly infestation, plants from five 6-inch sections of row were excavated from each plot on 11 January (Prattville) or 11 February (Fairhope). The plants were examined in order to determine percent infested plants in each plot. Plants had 4-5 leaves and were starting to tiller (Prattville, Feeks 2-3) or were tillering (Fairhope, Feeks 3-4). In Fairhope, a second Hessian fly evaluation was made on 19 April when the wheat had just finished flowering (Feekes 10.6). Plants were excavated from five 6-inch sections of row in each plot. 15 of the excavated plants in each plot were chosen randomly for sorting. If the plants had fewer than 30 total tillers, additional plants were examined until 30 tillers had been examined. Plots were harvested on 25 May in Fairhope as well as in Prattville.

In Fairhope, Hessian fly infestation was highest on Southern Harvest 555, Pioneer 26R94, and USG 3404 (Table 2). Scab intensity reached moderate levels on SS 8629, but was low on DynaGro Savoy. Highest yields were from Dynagro Savoy, followed by Pioneer 26R94, Southern Harvest 555, Pioneer 26R41, and SS 8629.

Table 1. Hessian fly infestation, scab intensity and yield of seven wheat varieties, Fairhope, AL 2016.

Variety	Infested plants (%) on 11 Feb 2016*		Flies per tiller on 19 April 2016*		Yield (Bu/A)**		Scab intensity ^{&}	
DynaGro Savoy	1.0	a	0.08	a	60.9	a	0.4	c
Pioneer 26 R41	1.3	a	0.04	a	***51.6	bc	2.4	ab
Pioneer 26R94	7.3	b	0.52	b	56.2	ab	1.8	abc
Southern Harvest 555	20.4	c	0.51	b	53.2	b	1.1	ab
SS 8415	2.3	ab	0.05	a	***44.3	cd	2.0	abc
USG 3404	6.0	b	0.53	b	39.1	d	1.1	abc
SS 8629	0.6	a	0.04	a	51.7	bc	2.8	a

*Means within a column followed by the same letter are not significantly different, alpha=0.05, Tukey's LSD.

Percent infested plants was transformed with arcsin square root before analysis.

***Yield adjusted to the equivalent of 13.5% 60 lb. bushel. Means within a column followed by the same letter are not significantly different, alpha=0.05, Tukey's LSD.

***Only three replications of this variety were included in the yield analysis. In the fourth replication, these variety was located in a low spot in the field and had severe root rot.

[&] Scab intensity rated on a scale of 0 to 9, with 9 = all heads completely infected. Means differentiated with P = 0.05, Fisher's protected LSD.

The Hessian fly infestation in **Prattville** was highest on Southern Harvest 555 and USG 3404 (Table 1). Highest yields were recorded from DynaGro Savoy and Southern Harvest 555. Scab intensity, though generally low across all of plots, was not found in DynaGro Savoy or Pioneer 26R94. Yields should be interpreted with caution, since plants in some plots were infected with Rhizoctonia root rot.

Table 2. Hessian fly infestation, scab and rust intensity, and yield of seven wheat varieties, Prattville, AL, 2016.

Variety	Infested plants (%) on 11 Jan 2016*	Yield (Bu/A)*	Scab Intensity***	Rust severity&
DynaGro Savoy	2.06 cd	56.0 a	0 b	0 b
Pioneer 26 R41	0.47 d	40.9 bc	1.0 ab	17 a
Pioneer 26R94	3.49 c	45.8 ab	0 b	0 b
Southern Harvest 555	25.54 a	52.5 a	1.4 a	0 b
SS 8629	1.18 cd	40.4 bc	0.7 ab	18 a
USG 3404	13.24 b	32.6 c	1.7 a	23 a
USG GA 031086-10E26	3.55 c	50.4 ab	1.7 a	0 b

*Means within a column followed by the same letter are not significantly different, alpha=0.05, Tukey's LSD. Percent infested plants was transformed with arcsin square root before analysis.

**Yield adjusted to the equivalent of 13.5% 60 lb. bushel. Means within a column followed by the same letter are not significantly different, alpha=0.05, Tukey's LSD.

***Scab intensity on a scale of 0 to 9, with 9 = all heads completely infected. Means differentiated with P = 0.05, Fisher's protected LSD.

& Rust severity was rated on flag leaves on a scale of 0 to 100% leaf damage. Means differentiated with P = 0.05, Fisher's protected LSD.

No Hessian flies were found at **Sand Mountain REC in Crossville, AL**. Leaf rust was high on Croplan 9415, USG 3404 and SS 8629; other diseases were noted at low intensity. High yield was noted for DynaGro Savoy, while Croplan 9415 and USG 3404 did not yield well.

Table 3. Leaf rust, leaf and glume blotch, and scab intensities and yield of seven wheat varieties, Crossville, AL 2016.

Variety	Leaf Rust&		Leaf Blotch&		Glume Blotch&	Scab&	Yield (Bu/A)**	
Croplan 9101	21.75	d	0.5	abc	0	0.1	82.3	c
Croplan 9415	92.5	a	0	c	0.2	0	41.5	d
DynaGro Savoy	5.5	e	0.88	a	0.4	0.4	115.5	a
Pioneer 26R41	3.2	e	0.01	bc	0.4	0	85.0	c
Southern Harvest 555	0	f	1.34	a	1.8	0.2	86.0	b
SS 8629	51.5	c	0.8	ab	0.1	0	86.6	b
USG 3404	75.0	b	0.5	abc	0.2	0	62.0	c

& Diseases were as on a scale of 0 to 9, with 9 = all leaves/heads completely infected. Means within a column followed by the same letter are not significantly different based on Fisher's protected LSD, P = 0.05.

** Means within a column followed by the same letter are not significantly different based on Fisher's protected LSD, P = 0.05.