

Soybean Board Research Report

Evaluation of New Fungicides for Control of Asian Soybean Rust in Alabama in 2005.

Sikora, E. J., D. Delaney, K. McLean, A. Gutierrez-Estrada and M. Pegues.

A soybean fungicide trial was planted 21 June at the Auburn University, Gulf Coast Regional Research and Extension Center in Fairhope, AL to soybean variety DP 5808 RR. Plots consisted of 4 rows, 25 ft long, with a between-row spacing of 38 in. Plots were arranged in a randomized complete-block design with four replications. A 10-ft alley separated blocks. The fungicide treatments were applied as a foliar spray on 10 Aug (R2 growth stage) and 7 Sept (R5). Soybean rust was evaluated on 9 Sep and 29 Sep by rating disease severity on a 0-8 scale with 0=0%, 1=<2.5%, 3=5-10%, 4=10-15%, 5=15-25%, 6=25-35%, 7=35-67.5%, 8=67.5-100%. All plots were maintained throughout the season with standard herbicide, insecticide, and fertility production practices as recommended by the Alabama Cooperative Extension System. Plots were harvested 1 Dec. Data were statistically analyzed using PROC GLM, and means were compared with Fisher's protected least significant difference test ($P \leq 0.05$).

Weather conditions were favorable for high incidence of foliar disease on soybean as this area endured rains from tropical storm Cindy, as well as the hurricanes, Dennis and Katrina. Asian soybean rust (ASR) was first observed in the area on 30 June in a soybean sentinel plot located on the center. On 16 Aug, ASR was observed on one leaf on one plant in a control plot. ASR severity was significantly higher on the lower, middle and upper canopy (rust was only detected in the upper canopy on 29 Sep), and defoliation was greater on the control than on all other treatments on both rating dates. On Sep 9, the Headline SBR-Folicur, Folicur-Folicur, Headline SBR-Laredo and Laredo-Laredo programs had significantly less rust severity in the lower canopy than the Stratego-Stratego, Quilt-Quilt, Stratego-Folicur and Quilt-Laredo programs. All programs had significantly less rust severity in the middle canopy (with the exception of Stratego-Folicur and Quilt-Folicur) than the Quilt-Laredo program. The Headline SBR-Folicur, Folicur-Folicur, Headline SBR-Laredo and Laredo-Laredo programs had significantly less defoliation than Stratego-Folicur and Quilt-Laredo programs. On 29 Sep, the Headline SBR-Headline SBR, Headline SBR-Folicur, Headline SBR-Laredo, Laredo-Laredo+Headline, Quilt-Folicur, and Folicur-Folicur programs had significantly less rust severity in the lower canopy than the Stratego-Stratego, Quilt-Quilt, Stratego-Laredo and Quilt-Laredo programs. Headline SBR-Folicur, Folicur-Folicur, Laredo-Laredo+Dithane programs had significantly less rust severity in the middle canopy than the Stratego-Stratego, and Stratego-Laredo programs. Headline SBR-Folicur, Laredo-Laredo, Quilt-Folicur and Folicur-Folicur had significantly less rust in the upper canopy than the Stratego-Laredo program. There were few differences in yield among treatments. The Laredo-Laredo and Stratego-Folicur programs had greater yields than Quilt-Quilt.

Treatment	rate/acre growth stage	ASR severity 9 September lower canopy	ASR severity 9 September mid canopy	Defoliation 9 September	ASR severity 29 September lower canopy	ASR severity 29 September mid canopy	ASR severity 29 September upper canopy	Defoliation 29 September	Yield Bushels/acre
Control		4.75 a	2.75 a	28.5 a	6.68 a	5.31 a	1.62 a	60.5 a	31.6 bc
Headline SBR	7.8 oz R2	1.25 cde	0 c	2.25 bcd	0.93 d	0.31 cde	0.06 bc	6.5 cd	39.0 abc
Headline SBR	7.8 oz R5								
Stratego EC	10 oz R2	2.25 bc	.25 c	5.25 bcd	2.81 b	1.18 b	0.25 bc	9.25 bcd	35.8 abc
Stratego EC	10oz R5								
Quilt 1.67 SC	14 oz R2	2.325 bc	0 c c	5.65 bc	2.37 bc	0.93 bcd	0.06 bc	14.5 bc	31.4 c
Quilt 1.67 EC	14 oz R5								
Headline SBR	7.8 oz R2	0.25 de	0 c	0.25 d	0.06 d	0.06 e	0.0 c	3.75 cd	38.3 abc
Folicur EC	4 oz R5								
Headline SBR	7.8 oz R2	0.5 de	0 c	1.25 cd	0.06 d	0.62 e	0.06 bc	8.5 bcd	34.9 abc
Laredo EC	7 oz R5								
Laredo EC	7 oz R2	1.0 de	0 c	1.75 cd	1.25 cd	0.5 bcde	0.0 c	14.75 bc	37.4 abc
Laredo EC	7 oz R5								
Stratego EC	10 oz R2	2.5 b	0.25 bc	7.25 b	1.31 cd	0.56 bcde	0.12 bc	10.25 bcd	39.3 ab
Folicur EC	4 OZ R5								
Stratego EC	10 oz R2	1.5 bcd	0 c	4.25 bcd	2.5 bc	1.0 bc	0.31 b	17.0 b	36.2 abc
Laredo EC	7 oz R5								
Laredo EC	7 oz R2	1.25 cde	0 c	2.75 bcd	0.68 d	0.37 cde	0.12 bc	5.75 cd	39.8 a
Laredo EC + Headline EC	7 oz + 6 oz R5								
Quilt 1.67 SC	14 oz R2	1.5 bcd	0.25 bc	4 bcd	0.81 d	0.62 bcde	0.0 c	7.25 cd	32.5 abc

Folicur EC	4 oz R5								
Quilt 1.67 SC Laredo EC	14 oz R2 7 oz R5	2.25 bc	0.5 b	7.25 b	2.37 bc	0.56 bcde	0.18 bc	13.25 bcd	38.2 abc
Laredo EC Laredo EC + Dithane DF	7 oz R2 7 oz + 2 lb R5	1.25cde	0 c	2.5 bcd	1.37 cd	0.25 de	0.06 bc	11.25 bcd	36.7 abc
Folicur EC Folicur EC	4 oz R2 4 oz R5	0.25 e	0 c	0.25 d	0.18 d	0.125 e	0.0 c	6.5 cd	38.8 abc
LSD P=0.05		1.24	0.4	5.2	1.32	0.74	0.28	9.7	6.5

^z Disease severity was based on percentage of leaf surface area affected of five leaflets with 0=0%, 1=<2.5%, 3=5-10%, 4=10-15%, 5=15-25%, 6=25-35%, 7=35-67.5%, 8=67.5-100%.

Means within columns followed by different letters are significantly different according to Fisher's LSD ($P \leq 0.05$).