SOYBEAN (*Glycine max* 'Armor DK 4744')
Frogeye leaf spot; *Cercospora sojina*
Cercospora leaf blight; *Cercospora kikuchii*
Septoria brown spot; *Septoria glycines*
Target spot; *Corynespora cassiicola*

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Evaluation of R4 fungicide timing to manage foliar disease and preserve yield in eastern Mississippi: Trial 1, 2016.

Foliar fungicides were evaluated on soybean at the R. R. Foil Plant Science Research Center in Starkville, Mississippi. The previous crop was soybean. A frogeye leaf spot (FLS) soybean variety, Armor DK 4744, was planted in a Marietta fine sandy loam on 19 May. Plots consisted of four rows spaced 38-in apart and 40 ft in length. Treatments were replicated four times in a randomized complete block design. Plots were not irrigated. Fungicides were applied at R4 on 8 Aug to each plot using a CO_2-pressurized backpack sprayer fitted with TeeJet 110015AIXR nozzles spaced 20-in apart and delivering 15 gal/A at 40 psi. A non-ionic surfactant (Induce) was added to each treatment at 0.25% v/v. Disease severity was visually assessed on the two center rows of the soybean plant canopy. Plots were rated at application (8 Aug), 14 days (22 Aug), 28 days (5 Sept), and 42 days (19 Sep) post-treatment based on a scale of 0 to 9 where 0 = no disease present and 9 = approximately 90% of the leaf surface covered with lesions. Cercospora leaf blight (CLB) was rated on a scale of 0 to 9 where disease intensity was separated as follows: 0 to 5=foliar symptoms only, 6=plus petiole symptoms, 7 to 9=plus pod and stem symptoms. Septoria brown spot (SBS) and target spot (TS) were rated on a 0 to 9 scale where: 0 to 3=presence in the lower canopy, 4 to 5=middle canopy, 6 to 8=upper canopy, and 9=extensive defoliation throughout the entire plant canopy with disease in the upper most canopy. Phytotoxicity was visually estimated as the percentage of foliar tissue affected in each plot. Defoliation as a result of target spot was visually estimated as the percentage per plot. Plots were harvested with a plot combine on 30 Sep, and yield was adjusted to 13% moisture. Prior to analysis, and where applicable, rating evaluations for frogeye leaf spot, Septoria brown spot, and target spot were converted to area under the disease progress curve (AUDPC) using trapezoidal integration. Data were subjected to analysis of variance, and means were compared at the *P*=0.05 significance level using Fisher's protected least significant difference (LSD) test.

Plots treated with Affiance, Domark, Proline, and Quadris Top SBX had significantly lower FLS severity. There were no significant differences among treatments in CLB, SBS, or TS severity when compared to the non-treated check. Defoliation was not significantly affected by fungicide treatment when compared to the non-treated check. The application of Proline had a significant phytotoxic response compared to all other treatments. There were no significant differences in yield among treatments.

	Area under the disease progress curve			Defoliation (0-100%)		Cercospora blight (0-9)		Phytotoxicity (0-100%)	Yield (bu/A)[x]
Treatment[z], rate (fl oz/A)	Frogeye leaf spot[y]	Septoria brown spot	Target spot	5 Sep	19 Sep	5 Sep	19 Sep	5 Sep	30 Sep
Non-treated	12.3 ab	19.8	19.0	42.5	77.5	5.0	6.8	0.0 b	44.4
Affiance 1.50SC, 10	6.8 d	19.3	17.5	37.5	61.3	5.3	7.3	0.0 b	48.8
Custodia 2.67SC, 8.6	10.3 bc	18.5	20.0	45.0	68.8	5.3	6.8	1.0 b	48.0
Domark 230ME, 4	7.0 d	19.3	16.8	42.5	66.3	5.0	7.0	0.0 b	49.5
Proline 480SC, 3	7.5 d	16.8	16.5	43.8	62.5	5.3	7.0	5.5 a	45.8
Quadris 2.08SC, 6	14.3 a	20.0	19.3	46.3	80.0	5.3	6.8	0.0 b	48.2
Quadris Top 2.72SC, 7.5	7.3 d	17.8	18.0	40.0	56.3	5.0	7.0	0.0 b	50.9
Quadris Top SBX 3.76SC, 8	8.8 cd	21.0	18.5	50.0	72.5	5.3	6.8	0.0 b	54.5
Quilt Xcel 2.20SC, 10	11.8 ab	20.0	17.8	45.0	71.3	5.0	6.8	0.0 b	46.2
Stratego YLD 4.18SC, 4	8.8 cd	17.8	16.8	38.8	62.5	5.0	7.0	0.0 b	47.2
LSD (0.05)	2.6	4.0	4.75	16.4	30.6	0.511	0.559	3.26	9.05
CV (%)	19.2	14.7	18.3	26.4	31.2	6.90	5.61	347.4	13.0
P-value for F-statistic	<0.0001	0.5666	0.8524	0.9069	0.8567	0.8217	0.6068	0.0379	0.6288

[z] All fungicide treatments included a non-ionic surfactant at 0.25% v/v.
[y] Means followed by the same letter(s) within a column are not significantly different according to Fisher's Protected LSD (*P*=0.05).
[x] Yield is weight of soybean with moisture content adjusted to 13%.