

SOYBEAN (*Glycine max* 'Armor DK 4744')
 Cercospora leaf blight; *Cercospora kikuchii*
 Frogeye leaf spot; *Cercospora sojina*

W.L. Solomon, T.H. Wilkerson, W.J.
 Mansour, and T.W. Allen
 Delta Research and Extension Center
 Mississippi State University
 Stoneville, MS 38776

Evaluation of the Bayer foliar fungicide protocol in western Mississippi, 2014.

Foliar fungicides were evaluated at the Delta Research and Extension Center (DREC) in Washington County, Mississippi. The previous crop was soybean. The trial was planted on a Sharkey clay on 6 May to the soybean variety Armor DK 4744 a frogeye leaf spot susceptible variety. Plots consisted of four rows spaced 40-in apart and 30 ft. in length. Replicates were separated by a 10 ft. alley. Treatments were replicated four times in a randomized complete block design. Plots were furrow irrigated throughout the season as needed. Fungicide treatments were applied at several different timings with the initial application made on 15 Jun (V7) using a CO₂ sprayer with a multi-boom system fitted with TeeJet 8003VS nozzles spaced 20 in. apart and delivering 15 gal/A at 38 psi. A second fungicide application was made 4 Jul (R2) using the same spray application. The third spray application was made on 17 Jul (R4). A non-ionic surfactant was added to each treatment applied regardless of application timing at a rate of 0.25% v/v. Disease severity ratings were visually assessed on the presence of disease symptoms from the two center rows of the soybean plot canopy. Plots were rated 10 days following the R4 application (27 Aug), 29 days following the initial R4 application (15 Aug), and again 50 days following the R4 application (5 Sep). Disease assessments were made based on a scale of 0 to 9 where 0 = no disease present and 9 = severe disease characterized by approximately 90% leaf coverage. Green stem (30 Sep) was assessed immediately prior to harvest (soybean growth stage R8; physiological maturity) based on three counts of the total number of plants within a 36-in. area. The total number of plants exhibiting green stem were then counted from within each area and a percentage of green stem was created for each plot based on an average of the three counts. Plots were harvested with a plot combine on 1 Oct and yields were adjusted to 13% moisture. Data were subjected to analysis of variance and means were compared at the 0.05 significance level using Fisher's protected least significant difference (LSD) test. Prior to statistical analysis assessments of phytotoxicity and green stem were transformed using a square root transformation. Data presented in the table below were back-transformed to percentages for the purposes of presentation.

Fungicide treatment with 4 oz of Domark at R2 fb 6 oz of Headline at R4 significantly increased yield as did the consecutive applications of 4 oz of Priaxor at V7 fb R4, Priaxor alone at R4, two applications of 4 oz of Stratego YLD at V7 fb R4. By the last rating date, 50 days post-R4 application, only treatment with 4 oz of Domark at R2 fb 6 oz of Headline at R4 and a single application of Stratego YLD at V7 significantly reduced the observable symptoms of frogeye leaf spot compared to the nontreated check. Even though *Cercospora* blight was present, visual assessments of *Cercospora* blight regardless of fungicide applied did not determine that a particular fungicide application reduced observable disease. Fungicide treatment with 4 oz of Domark at R2 fb 6 oz of Headline at R4, two applications of Priaxor (V7 fb R4), a single application of Priaxor at R4, 3 oz of Proline at R2 fb 4 oz of Stratego YLD, a single application of Stratego YLD at R4, and two applications of Stratego YLD (V7 fb R4) significantly increased yield compared to the nontreated check. Fungicide treatment with 4 oz of Domark at R2 fb 6 oz of Headline at R4 and Stratego YLD at V7 significantly increased green stem as assessed immediately prior to harvest.

Treatment ^z , rate (fl oz/A) @ Soybean growth stage	Frogeye leaf spot (0-9)			Cercospora blight (0-9)	Green stem (%)	Yield (bu/A) ^x
	27 Jul ^y	15 Aug	5 Sep	5 Sep	30 Sep	
Nontreated check	2.0	4.3 a	8.8 ab	7.0	1.6 bc	69.9 def
Dimilin 2 L, 2 oz @ R4	2.0	4.5 a	9.0 a	7.0	0.5 c	69.1 ef
Domark 230 ME, 4 oz @ R2 fb Headline 2.09 SC, 6 oz @ R4	1.0	2.8 d	7.8 cd	6.5	10.7 a	79.9 a
Headline 2.09 SC, 6 oz @ V7	2.0	4.3 a	9.0 a	7.3	1.3 bc	69.4 ef
Headline 2.09 SC, 6 oz @ V7 fb 6 oz @ R2	1.3	3.5 bc	8.3 bc	6.8	1.6 bc	68.4 f
Headline 2.09 SC, 6 oz @ V7 fb 6 oz @ R2 fb 6 oz @ R4	1.3	3.5 bc	8.5 ab	7.0	1.8 bc	70.7 de
Priaxor 4.17 SC, 4 oz @ V7 fb 4 oz @ R4	1.8	4.3 a	9.0 a	7.0	2.0 bc	73.2 bc
Priaxor 4.17 SC, 4 oz @ R4	1.8	4.0 ab	8.5 ab	7.3	1.7 bc	73.1 bc
Proline 4.17 SC, 3 oz @ R2 fb Stratego YLD 4.18 SC, 4 oz @ R4	2.0	4.3 a	8.8 ab	7.3	0.2 c	78.1 a
Stratego YLD 4.18 SC, 4 oz @ V7	1.0	3.3 c	7.3 d	6.5	13.8 a	71.7 cd
Stratego YLD 4.18 SC, 4 oz @ V7 fb 4 oz @ R4	2.0	4.0 ab	8.8 ab	7.0	1.4 bc	75.0 b
Stratego YLD 4.18 SC, 4 oz @ R4	2.0	4.3 a	9.0 a	7.0	0.8 bc	75.0 b
Quadris 2.08 SC, 6 oz + Dimilin 2 L, 2 oz @ R4	1.8	4.3 a	8.8 ab	7.3	3.0 bc	69.7 def
LSD (<i>P</i> =0.05)	NS	0.7	0.6	NS	3.3	2.0
CV (%)	-	12.9	4.9	-	27.8	1.8

^z All fungicide treatments included a non-ionic surfactant at 0.25% v/v, fb = followed by.

^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 Yields are weight of soybean with moisture content adjusted to 13%.