SOYBEAN (*Glycine max*)‘Dynagro DS39RY65’) N. M. Kleczewski

Phomopsis seed decay; *Phomopsis longicola* University of Delaware

Purple seed stain; *Cercospora kikuchii* 531 South College Ave

Newark, DE 19716

**Evaluation of foliar fungicides for management of seed diseases of soybean in Delaware, 2016.**

The experiment was conducted at the University of Delaware’s Carvel Research and Education Center, Thurmond Adams Research Farm in Georgetown, Delaware. The experiment consisted of 11 fungicide treatments and an untreated control arranged in a spatially balanced, randomized complete block design with four replications. Plots consisted of 8 rows spaced 15 in. apart and 30 ft. in length. The four inner rows were used as treatment rows, and the four outer rows were used as a buffer between adjacent plots. The plots were seeded into minimally tilled soybean residue on 20 Jun at a population of 150,000 plants /A. Plots were managed for nutrients and weeds according to Delaware extension guidelines. Fungicides were applied to the center four rows on 5 Jul (V5), 8 Aug (R1), and 17 Aug (R3) with a CO2 backpack sprayer that delivered 10 gpa at 35 psi. The sprayer was equipped with a 6 ft. boom with four TeeJet® 80V01 nozzles spaced 18 inches apart. Grain was harvested with a small plot combine on 20 Oct. and yields were corrected to 13.5% moisture. A 250 g subsample of harvested grain was collected for each plot, and 60 seeds were rated visually for percent Phomopsis and purple seed stain. Seed weight of 1000 seeds were measured from each subsample. Data were analyzed to ensure normality and statistically analyzed using a random effects mixed model (JMP v12). Following significant ANOVA at (α=0.1), means were separated using LSD (α=0.05).

Soybeans were planted later in the growing season than what is typical for the region as a result of persistent rains throughout the latter half of June. The majority of the growing season was hot and dry prior to R3. Consequently, no foliar diseases developed to a ratable level. The main seed diseases detected were purple seed stain caused by *Cercospora kikuchii* and Phomopsis seed decay. Trivapro (V5) followed by Quadris Top (R3), Trivapro (R3) Affiance (R1) and Affiance (R3) all significantly reduced purple seed stain relative to the untreated control. Trivapro (V5) followed by Quadris Top (R3) and Quadris Top (R3) reduced Phomopsis seed decay compared to the control. Trivapro (V5) followed by Quadris Top (R3), Trivapro (R3) and Quadris Top (R3) all reduced total seed disease compared to the control. All other treatments were similar to the untreated control for total diseased seed. The 1000 seed weight was greater than control for the Trivapro (V5) followed by Quadris Top (R3), Trivapro (R3) and Aproach Prima (R1) treatments. No effects of yield were detected. No phytotoxicity was evident.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Treatment and rate/acre | Crop Stage at Application | Cercospora  (%) | Phomopsis  (%) | | Total diseased  seed  (%) | | 1000 seed weight  (g) | | Yield  (bu / A) |
| Untreated control |  | 35.0 | 23.8 | abz | 58.8 | ab | 130.8 | cd | 54.1 |
| Trivapro 2.2 SE 13.7 fl oz  FB Quadris Top 2.72 SC 8 fl oz | V5 FBy R3 | 21.7 | 4.2 | c | 25.8 | e | 148.3 | a | 63.3 |
| Trivapro 13.7 fl oz | R3 | 18.3 | 20.0 | ab | 38.3 | cde | 142.5 | ab | 60.0 |
| Quadris Top 8 fl oz | R3 | 23.1 | 6.0 | c | 29.7 | de | 138.1 | abcd | 61.1 |
| Quadris Top 8 fl oz  FB Trivapro 13.7 fl oz | V5 FB R3 | 31.7 | 17.9 | b | 49.6 | abc | 139.6 | abcd | 64.2 |
| Aproach Prima 2.34 SC 6.8 fl oz | R1 | 29.2 | 27.1 | ab | 56.3 | abc | 129.6 | d | 45.6 |
| Aproach Prima 6.8 fl oz | R3 | 25.8 | 20.8 | ab | 46.7 | abcd | 136.7 | bcd | 60.4 |
| Priaxor 4.17 SC 4 fl oz | R3 | 33.3 | 30.0 | a | 63.3 | a | 134.2 | bcd | 55.1 |
| Domark 230 ME 4 fl oz | R1 | 33.8 | 27.5 | ab | 61.3 | a | 137.9 | bcd | 53.6 |
| Domark 4 fl oz | R3 | 30.4 | 20.8 | ab | 51.2 | abc | 136.7 | bcd | 52.8 |
| Affiance 1.5 SC 10 fl oz | R1 | 23.3 | 23.3 | ab | 46.7 | abcd | 140.0 | abc | 63.2 |
| Affiance 10 fl oz | R3 | 22.5 | 19.2 | ab | 41.7 | bcde | 140.8 | abc | 63.4 |
| P(*F*) | | 0.069 | 0.001 | | 0.034 | | 0.060 | | 0.12 |

z Means within a column followed by the same letter are not significantly different according Fisher’s Protected LSD test (α=0.05).

y FB = followed by.