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Fungicide and Herbicide Effects on Grey Leaf Spot in Nebraska Field Corn, 2015

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Fungicide and herbicide effects on grey leaf spot in Nebraska field corn, 2015.

The objective of the trial was to compare foliar fungicides applied to three growth stages of corn for grey leaf spot (GLS) efficacy. Irrigated corn was grown based on Nebraska Extension irrigation recommendations at the South Central Ag Lab near Clay Center, NE. Soils were a silt loam with 6.7 pH and 1.8 % OM and the previous crop was soybean. Reduced tillage was performed to the field prior to planting. Corn (DKC 65-79 RIB, tolerant to gray leaf spot (GLS)) was planted at approximately 34,000 seed/A on 26 May. Five treatments were arranged in a randomized complete block design with six replications. Fungicide treatments were applied using a high-clearance sprayer equipped with a 10 ft wide spray boom housing six TeeJet XR11002 spray nozzles with 20-in. spacing. Spray solutions were delivered at 3 mph with 40 psi compressed air for a spray volume of 20 gpa. Treatments were applied to V6- (29 Jun), V8- (8 Jul), and at R1- (7 Aug) stage corn. Plots were assessed for phytotoxicity, GLS severity (24 Aug), and stalk lodging (4 Nov). Corn stalk lodging (push lodging) was assessed by pushing 20 random stalks, at shoulder height, to the 45° position. Plots were taken to yield from the center two rows using a Gleaner K2 plot combine (10 Nov). Grain yield was adjusted to 15.5% moisture. All treatments were analyzed using ANOVA, and means were separated using Fisher's protected LSD with $P = 0.10$. Precipitation was greater than normal in Jun (8.05 in. vs 2.9 in.), and 4.74 in. rain fell on 4 Jun. The longest rain-free period occurred from 20 Aug to 3 Sep. An overhead linear-move sprinkler irrigator delivered approximately 1.6 in. water to the trial on 18, 27, and 29 Jul, 17, 24 Aug, and 1 Sep. Average monthly temperatures (°F) were 72 (Jun), 76 (Jul), 73 (Aug), 72 (Sep) and 58 (Oct). The hottest month was Jul with a high of 97°F on 5 Jul. The longest consecutive days with temperatures >90°F occurred 31 Aug to 6 Sep. High temperatures at the R1 through R2 stage (29 Jul - 13 Aug) ranged in the low-80s (°F) and decreased to the mid-70s (°F).

Treatments applied to corn at V6, V8, or R1 did not cause phytotoxicity (data not presented). GLS severity was not significantly different in plots treated with fungicides at any corn stage compared to the non-treated check. Lodging was significantly reduced in plots treated with Headline AMP 10 oz at R1 than V6 or V8 Headline AMP treatments and the non-treated check. Plots treated with Fortix applied at V6, V8 or R1 corn were not significantly different than the non-treated check. It is unknown why Glyphos X-tra had such low lodging. There were no significant differences between treatments for yield.

Treatment, Formulation, Rate/A ^z	Timing ^y	GLS Severity ^x %	Push Lodging ^w %	Yield bu/A
Non-treated Check	-	2.9 b ^v	30 ab	254
Fortix 3.22 F, 5 fl oz + Glyphos X-tra 4 L, 32 fl oz	V6	2.5 b	31.7 ab	261
Glyphos X-tra 4 L, 32 fl oz	V6	2.7 b	18.3 c	250
Headline AMP 1.66 SE, 10 fl oz + Glyphos 4 L, 32 fl oz	V6	2.5 b	35.8 a	259
Fortix 3.22 F, 5 fl oz	V8	2.3 b	25 bc	255
Headline AMP 1.66 SE, 10 fl oz	V8	2.5 b	35 ab	257
Fortix 3.22 SC, 5 fl oz	R1	3.2 ab	25 bc	273
Headline AMP 1.66 SE, 10 fl oz	R1	3.0 b	17.5 c	255
<i>P</i> -value		0.0645	0.0516	0.8278
CV %		19.2	40.8	8.5

^z All treatments were applied with NIS @ 0.25% v/v.

^y V6 application = 29 Jun; V8 application = 8 Jul; R1 application = 7 Aug.

^x GSL severity evaluated on 24 Aug 2015.

^w Push lodging = % lodged stalks when pushed from shoulder height to the 45° position from vertical, and evaluated on 4 Nov 2015.

^v Data followed by the same letter or without letters within a column are not significantly different at $P = 0.10$ according to Fisher's protected LSD test.