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# The Effects of Fungicides and Regalia Tank Mixtures on Fray Leaf Spot in Nebraska Field Corn, 2014

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**The effects of fungicides and Regalia tank mixtures on gray leaf spot in Nebraska field corn, 2014.**

The objective of the trial was to compare industry fungicide programs with the microbial Regalia Rx plus fungicide tank mixtures for gray leaf spot (GLS) efficacy. Corn was grown under normal, irrigated agronomic practices at the South Central Ag Lab near Clay Center, NE. Soils were a silt loam with 6.7 pH and 1.8 % organic matter. Reduced tillage was performed to the field prior to planting. Corn (DKC 64-83 RIB, moderately susceptible to GLS) was planted at approximately 34,000 seed/A on 20 May. Seven treatments were arranged in a randomized complete block design with six replications. Fungicides were applied using a high-clearance sprayer equipped with a 10 ft wide spray boom housing six TeeJet XR11002 spray nozzles with 20 inch spacing. Spray solutions were delivered at 3 mph with 40 psi compressed air for a spray volume of 20 gpa. The treatments were applied at V5 growth-stage on 19 Jun and V8 growth-stage on 26 Jun. Disease severity was estimated as a percentage on the ear leaf and ear leaf-1 on 25 Aug. Wind lodging was assessed on 10 Oct. Push lodging was assessed (28 Oct) by pushing 20 random stalks from the standing position at shoulder height to the 45° position from vertical. Plots were harvested on 14 Nov from the center two rows using a Gleaner K2 plot combine and grain corrected to 15.5% moisture. All treatments were analyzed using ANOVA and means separated using Fisher's protected LSD with  $P = 0.10$ . Precipitation was greater than normal in Jun (8.9 in. vs 2.9 in.), and 3.3 in rain fell on 21 Jun. The longest dry spell occurred from 11 Jul to 31 Jul. An overhead linear sprinkler irrigated the trial on 22 Jul, 29 Jul, and 2 Aug at approximately 1.75 in. water for each date. Temperature (°F) highs were warmer than average in May, and the longest warm spell occurred from 18 May to 7 Jun. The hottest month was Jul with a high of 99°F on 21 Jul. High temperatures at the R1 growth stage ranged from the low-90s (°F) and decreased to the mid-70s (°F). Average monthly temperatures for Jul and Aug were in the mid-80s (°F).

Fungicides applied at V5, V8, or in sequence (V5 fb V8) did not injure corn (data not shown). Overall, GLS disease severity was low on both the ear leaf and ear leaf-1. Plots treated twice with Headline had significantly lower ear leaf GLS severity than those treated with Headline or Quadris treated once. GLS severity on the ear leaf-1 was significantly less in plots treated once with Headline versus Regalia plus Headline. Ear leaf-1 GLS severity was significantly lower in plots treated twice with Headline than those treated once with Headline or Quadris. Wind lodging was significantly reduced when plots were treated twice with Headline plus Regalia compared to plots treated once and the nontreated check. Generally, lodging was reduced with Headline applied twice compared to treatments applied once. Yields were nonsignificant between fungicide treatments and the nontreated check. However, yields were significantly higher in plots treated once with Regalia plus Quadris (V5) and plots treated twice with Headline versus those treated once with Headline or Quadris (V5) alone. Both Regalia plus Headline and Headline applied twice reduced overall GLS severity, wind lodging, and increased yields.

Treatment, Formulations, and Rate/A	Timing <sup>z</sup>	GLS Ear Leaf <sup>y</sup> % severity	GLS Ear Leaf-1 % severity	Wind Lodging <sup>x</sup> %	Push Lodging <sup>w</sup> %	Yield bu/A
Headline 2.08 SC, 10 fl oz	V5	2.7 a <sup>v</sup>	1.7 b	1.9 a	70.8	236.5 b
Quadris 2.08 SC, 6 fl oz	V5	2.2 b	1.8 ab	1.5 ab	72.5	233.9 b
Regalia Rx 5% EC, 16 fl oz, + Headline 2.08 SC, 10 fl oz	V5	2.5 ab	2.2 a	1.9 a	70.0	247.5 ab
Regalia Rx 5% EC, 16 fl oz, + Quadris 2.08 SC, 6 fl oz	V5	2.8 a	1.8 ab	2.2 a	71.7	256.0 a
Regalia Rx 5% EC, 16 fl oz, + Headline 2.08 SC, 10 fl oz fb Regalia Rx 5% EC, 16 fl oz, + Headline 2.08 SC, 10 fl oz	V5 fb V8	0.8 c	0.8 c	0.0 c	64.2	258.0 a
Headline 2.08 SC, 10 fl oz fb Headline 2.08 SC, 10 fl oz	V5 fb V8	0.8 c	0.8 c	0.3 bc	59.2	252.4 a
Nontreated Check	-	2.7 a	2.0 ab	1.0 ab	77.5	243.8 ab
CV %		24.02	31.9	74.05	16.72	6.29

<sup>z</sup> V5 application = 19 Jun 2014; V8 application = 26 Jun 2014.

<sup>y</sup> The leaf attached at the ear node, where ear leaf = 0. Ear leaf-1 designates the leaf below the ear leaf. Evaluations recorded on 25 Aug 2014.

<sup>x</sup> Wind lodging = ((stalks lodged in center two rows / total number stalks in center two rows) \* 100); assessed 10 Oct 2014.

<sup>w</sup> Push lodging = % lodged stalks when pushed from shoulder height to the 45° position from vertical.

<sup>v</sup> Data followed by the same letter, or without letters, within the column are not significantly different at  $P=0.10$  according to Fischer's protected LSD test.