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# Foliar Fungicide Comparison for Southern Rust Management, Stay Green on Specific Leaves, and Yield in Nebraska, 2015

J. D. Harbour

*University of Nebraska-Lincoln*, [jharbour2@unl.edu](mailto:jharbour2@unl.edu)

T. A. Jackson-Ziems

*University of Nebraska-Lincoln*, [tjackson3@unl.edu](mailto:tjackson3@unl.edu)

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**Foliar fungicide comparison for southern rust management, stay green on specific leaves, and yield in Nebraska, 2015.**

The objective of the trial was to compare foliar fungicides for southern rust (SR) 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 V3 on 20 Jun, and at R3 stage (i.e., early milk) on 1 Sep. Plots were assessed for phytotoxicity, SR severity (12 Oct), and stay green (14 Oct). 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).

Phytotoxicity was not observed from any fungicide treatment 7 DAT (data not presented). GLS severity on this particular hybrid was negligible. SR severity was significantly less in plots treated with Quilt Xcel at R1 compared to fungicides applied at V3 and the non-treated check. Percent stay green on ear leaf -2 leaf was significantly greater with Quilt Xcel compared other fungicides and the non-treated check. Stay green on the ear leaf-1, ear leaf, and ear leaf+1 leaves was significantly greater with R3 fungicide treatments compared to V3 fungicide treatments and the non-treated check. Yield differences were nonsignificant between fungicide treatments and the non-treated check.

Treatment, Formulation, Rate/A <sup>z</sup>	SR Severity <sup>y</sup> %	Stay Green <sup>x</sup> L-2 <sup>w</sup> , %	Stay Green L-1 <sup>w</sup> , %	Stay Green L0 <sup>w</sup> , %	Stay Green L+1 <sup>w</sup> , %	Yield, bu/A <sup>v</sup>
Non-treated Check	11.7 a <sup>u</sup>	5 b	8 b	31 b	45 b	252
Approach 2.08 SC, 4 fl oz (V3)	12.0 a	5 b	7 b	32 b	45 b	244
Approach 2.08 SC, 6 fl oz (V3)	13.0 a	2 b	6 b	30 b	38 b	246
Approach Prima 2.34 SC, 6.8 fl oz (R3)	8.8 ab	5 b	24 a	30 a	62 a	254
Quilt Xcel 3.18 SE, 10.5 fl oz (R3)	6.2 b	16 a	23 a	56 a	68 a	251
<i>P</i> -value	0.0626	0.0562	0.0296	0.0586	0.005	0.4469
CV (%)	40.6	50.6	33.8	47.8	26.5	4.4

<sup>z</sup> Treatments were applied at V3 (20 Jun 2015) and R3 (1 Sep 2015).

<sup>y</sup> Southern rust (SR) % severity evaluated 12 Oct 2015.

<sup>x</sup> Stay green was determined by visually estimating the percentage of green foliage on each on leaf on 14 Oct 2015.

<sup>w</sup> L-2 = 2nd leaf below the ear leaf; L-1 = 1st leaf below the ear leaf; L0 = the ear leaf; and, L+1 = 1st leaf above the ear leaf.

<sup>v</sup> Yield, where plots were harvested on 10 Nov 2015.

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