EVALUATION OF KOCIDE FOR FOLIAR DISEASE CONTROL IN SOFT RED WINTER WHEAT IN KENTUCKY

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The soft red winter wheat variety Agripro/Coker Cooper was planted in strip rows with a Lilliston no-till planter following corn harvest on 12 Oct 07 on the Kevil Tract of the University of Kentucky Research and Education Center in Princeton, KY. Wheat strips were planted at a rate that would achieve a final stand of approximately 36 plants ft^2 and consisted of seven, 7-in rows with two 7-in rows bordering each side. Warrior insecticide was applied 3 fl oz/A in the fall on 16 Nov 07 and again at green-up on 20 Mar 08 to reduce the potential for barley yellow dwarf viral infections. Nitrogen was applied in a March/April split application. Liquid nitrogen (28-0-0) was stream applied to strip rows at a rate of 40 lb actual N on 10 Mar 08. For those fungicide treatments with and without a foliar N component, ammonium nitrate (34-0-0) was applied at the rate of 65 and 80 lb actual N, respectively on 7 Apr 08. The strip rows were subdivided into 15 ft-lengths by mowing when plants were entering the stem elongation stage (10 Apr). Established plots were 7.5 ft-wide x 15ft-long, the treatment area consisted of the seven center rows and there were two border rows on either side. Treatments were arranged in randomized complete block design with four replications and were applied on 2 Apr 08 with a hand-held CO^2-powered backpack sprayer boom equipped with four twinjet 8002VS nozzles operating at 40 psi and delivering approximately 20 gpa of spray solution. Plots were rated for phytotoxicity on 8 Apr 08. Plots were rated for leaf blotch complex (*Septoria tritici, Stagonospora nodorum*); leaf and stripe rust (*Puccinia triticina*; *Puccinia striiformis)*; and FHB (*Fusarium graminearum*) at the late-milk stage (FSG 11.1) on 29 May 08. Ratings were made based on a visual estimation of the percentage of leaf surface area diseased. The seven center rows of each plot (4 ft-wide) were harvested on 17 Jun 08 using a Wintersteiger small plot combine. Yields were adjusted to 13.5% moisture and 60 lb/bu. Shriveled kernels were assessed for each treatment plot by counting the number of affected kernels in a 100 kernel sample. Counts were repeated a second time and averaged. Grain samples (100 g) from each treatment plot were submitted for Deoxynivalenol (DON) analysis at University of Minnesota, St. Paul, MN. Percentage and count data were arcsine and square root transformed, respectfully prior to analysis using ANOVA and Student-Newman-Keuls test ($P \leq 0.05$). Although statistics provided are based on transformed data, arithmetic means are presented in order to provide a better indication of the level of disease control provided by each treatment, as well as the overall disease pressure in the trial.

Excellent growing conditions throughout the season limited foliar and head disease symptoms. However, there was scattered take-all throughout the plot area which accounts for the shriveled kernels observed in the test. FHB incidence and DON contamination were extremely low and were evident throughout the test at about 0.01% incidence and less than 0.2 ppm, respectively. No significant differences were observed among the treatments for leaf blotch, leaf and stripe rust disease symptoms when compared to the non-treated control. Light phytotoxicity was observed in plots sprayed with the Kocide + nitrogen treatment as early as five days after application. Shriveled kernels, yield, test weight, and DON were not significantly different from non-treated plots.

Treatment and rate per acre	Feeke's stage applied	Phyto-toxicity[w]	Leaf Blotch complex (% flag)	Leaf Blotch complex (% F-1)	Leaf & Stripe rust[x] (% flag)	Shriveled Kernels (%)	Yield (bu/A)	Test weight (lb/bu)	DON (ppm)
Non-treated……	NA	1.0 a[z]	3.0 NS[y]	15.0 NS	2.8 NS	11.1 NS	124.2 NS	60.0 NS	0.10 NS
Kocide 3000 0.75 lb + Induce 0.25% + Harmony GT 0.25 oz + Express .0125 oz	6	1.0 a	4.0	15.0	4.0	12.5	125.1	60.4	0.10
Kocide 3000 0.75 lb + Induce 0.125% + Harmony GT 0.25 oz + Express 0.125 oz + Nitrogen F 20 qts……	6	2.3 b	3.7	15.0	1.0	16.3	117.4	57.1	0.18
Headline 3 fl oz + Induce 0.125% + Harmony GT 0.25 oz + Express 0.125 oz + Nitrogen F 20 qts……	6	1.0 a	3.0	7.5	1.0	11.8	126.4	59.0	0.10
F value ($P \leq 0.05$)……		0.0004	0.9197	0.0999	0.1087	0.6809	0.4223	0.5843	0.4268
CV……		19.73	45.36	19.25	35.95	20.33	5.40	4.78	83.72

[w]Phytotoxicity 1-4 rating scale; 1 = none, 4 = severe.
[x]Stripe rust, *Puccinia striiformis* was the primary rust in the test.
[y]NS = no significant differences ($P \leq 0.05$) .
[z]Column numbers followed by the same letter are not significantly different, Student-Newman-Keuls test ($P \leq 0.05$).