

Testing Evito fungicide for control of stripe rust on spring wheat, 2008.

Evito fungicide was tested at different rates for efficacy in controlling stripe rust on spring wheat in comparison with Quadris, Quilt, and Tilt in a field exposed to natural infection of stripe rust near Pullman, WA. Urea (46-0-0) was applied at 60 lb/A at the time of cultivation. Susceptible 'Lemhi' spring wheat was seeded in rows spaced 14 in. apart at 60 lb/A (97% germination rate) with a drill planter on 1 May 08. Harmony Extra 0.33 oz plus Buctril 0.75 pt/A with Agridex crop oil concentrate (COC) at 1% of spray volume was applied on 30 May when wheat plants were at tillering stage. Before the first fungicide application, the field was divided into individual plots of 5 ft in width and 15.5 – 17.3 ft in length by cutting plants between plots with a rototiller and the area of each plot was used to calculate the yield at bu/A. Fungicides were applied in 16 gal water/A on different dates and stages depending upon the treatments. The first application of Evito for the two-application treatment was done on 12 Jun at late tillering stage when there was no stripe rust in the plots. The single applications of Evito, Quadris, Quilt, and Tilt and the second application of Evito for the two-application treatment were done on 1 Jul when plants were at early flowering stage and stripe rust severity was 1-10% in plots. A 601C backpack sprayer was used with a CO₂ pressurized spray boom at 18 psi having three operating nozzles spaced 19 in apart. A randomized block design was used with four replications. Rust severity (percentage of diseased foliage on whole plot) was assessed in each plot on 2 Jul, 7 Jul, 15 Jul, 23 Jul, and 31 Jul or 1, 6, 14, 22, and 30 days after the second fungicide spray, respectively. Plots were harvested on 1 Sep when kernels were naturally dry, and test weight of kernels was measured for each plot. Area under disease progress curve (AUDPC) was calculated for each plot using the six sets of severity data. Relative AUDPC was calculated as percent of the non-treated control. Rust severity, relative AUDPC, test weight, and yield data were subjected to analysis of variance and means were separated by Fisher's protected LSD test.

All fungicide treatments significantly reduced stripe rust severity 6 days after the second application in the field. Differences in rust severity between the treatments and non-treated control remained significant thereafter. Relative AUDPC values of all treatments were significantly lower than the non-treated control, but varied significantly (1.0-71.2%) among the treatments. The treatment of Evito plus Folicur provided the best control. Its efficacy was significantly better than that of the treatment with either Evito at 2 fl oz/A or Quadris, but not significantly different from those of the other treatments as measured by relative AUDPC. All treatments significantly increased grain test weight. Only the Evito at 2 fl oz/A or Tilt treatments significantly increased grain yield.

Cultivar, treatment, rate/A, and timing of application ^x	Stripe rust severity (%) ^z					Relative AUDPC ^w	Test weight ^y (lb/bu)	Yield ^y	
	2 Jul Heading	7 Jul Flowering	15 Jul Milk	23 Jul Soft dough	31 Jul Dough			Mean (bu/A)	Increase (%)
Non-treated control	6.5 a	22.5 a	67.5 a	90.0 a	100.0 a	100.0 a	56.5 b	45.3 d	0.0
Evito 4.00FL 2 fl oz/A (heading – 1 Jul)	5.0 b	2.5 b	11.3 c	13.8 c	28.8 b	18.9 c	57.4 a	50.6 ab	11.8
Evito 4.00FL 3 fl oz/A (heading – 1 Jul	4.3 b	0.8 b	4.0 c	5.3 cd	10.0 c	7.1 cd	57.7 a	46.1 bc	1.8
Quadris 2.08FL 9 fl oz/A (heading – 1 Jul)	5.0 b	2.3 b	42.5 b	70.0 b	92.5 a	71.2 b	57.3 a	46.0 bc	1.7
Evito 4.00FL 2 fl oz/A (late tillering – 12 Jun) + Evito 4.00FL 2 fl oz/A (heading – 1 Jul) ..	3.0 b	1.0 b	5.3 c	4.0 cd	4.0 c	5.7 cd	57.3 a	49.0 abc	8.2
Tilt 3.60FL 4 fl oz/A (heading – 1 Jul)	5.5 ab	0.8 b	1.3 c	0.0 d	0.0 c	1.6 d	57.7 a	51.2 a	12.8
Quilt 1.04+0.62FL 14 fl oz/A (heading – 1 Jul)..	6.3 ab	0.0 b	0.3 c	0.0 d	0.0 c	1.2 d	57.9 a	49.3 abc	8.8
Evito 4.00FL 2 fl oz/A plus Folicur 3.60FL 4 fl oz/A (heading – 1 Jul).....	8.75 a	0.0 b	0.0 c	0.0 d	0.0 c	1.0 d	57.8 a	48.5 abc	7.2
LSD ($P \leq 0.05$)	3.7	5.1	14.4	12.0	18.5	14.3	0.7	4.9	

^z Stripe rust severity was recorded as percentage of leaf area with disease.

^y Test weight (lb/bu) and yield (lb/A) based on 3-5% moisture measured for each plot.

^x Crop Oil Concentrate (COC) at 1% v/v was applied in treatments of Quadris, Tilt, and Quilt, and non ionic surfactant (NIS) at 0.25 (%v/v) was applied in all treatments of Evito except that plus Folicur.

^w AUDPC is area under disease progress curve, = $\sum[\text{rust severity (i)} + \text{rust severity (i+1)}]/2 \times \text{days}$. Relative AUDPC was calculated for each treatment as the percent of the AUDPC (as 100%) of the non-treated control.

^v Column numbers followed by the same letter are not significantly different at $P = 0.05$ as determined by LSD test.