RED THREAD DISEASE CONTROL, SUMMER 2003, BAYER

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ABSTRACT

Seven treatments for the control of red thread disease and an untreated check were assessed on a 1-year-old sward of perennial ryegrass at the Guelph Turfgrass Institute during July until September 2003. In additon to the five fungicidal treatments, a fertilizer program was tested which consisted of an extra application of fertilizer (N-P-K, 25-3-20 at 2 kg/100 m^2) at the start of the trial on top of the standard program with a single applicaton in the fall. All treatments reduced disease significantly compared to the untreated control with the exception of 26 gt(41 ml-21 days) on 13 august. No phytotoxicity was observed.

METHODS

Control of the disease red thread, caused by *Laetisaria fuciformis* (syn: *Corticium fuciforme*), was evaluated in fungicide trials. Five fungicidal treatments were applied to a natural infection of red thread in a 2 year old sward of perennial ryegrass (*Lolium perenne*) at the Guelph Turfgrass Institute in Guelph, Ontario. Turfgrass cultural treatments were similar to those used for maintenance of sports fields in Ontario. The plots were irrigated as needed, and mowing height was set at 20 mm. Sulphur-coated urea (N-P-K: 25-3-20) was applied each fall at a product rate of 2 kg/100 m^2 (500 g N/100 m^2). The experimental design consisted of a randomized complete block design with 4 replications. Each treatment plot measured 1 m x 2 m. Fungicide treatments were first applied on 23 July, with a wheel-mounted compressed air boom sprayer at 140 kPa in water at 11 L /100 m^2 using Lurmark 03-F110 nozzles. Fungicides were reapplied on a 14 or 21-day schedule according to specifications over a 5week period. An additional grower program with higher levels of nitrogen to manage red thread was also tested with a single application of sulfur-coated urea (N-P-K: 25-3-20 at 2 kg/100m^2) on 23 July.

Red thread disease was evaluated weekly for 7 weeks beginning 23 July, using the HorsfallBarratt rating scale (Horsfall and Cowling 1978) to estimate percent injury of the plots (1 = 99%, 2 = 95%, 3 = 91%, 4 = 82%, 5 = 62%, 6 = 38%, 7 = 18%, 8 = 9%, 9 = 5%, and 10 = 1% injury). For data analysis, the scale ratings of 1 to 10 were converted to percent injury values prior to statistical analysis. Injury of the plots also represents sources other than red thread disease in some cases, so another measure of disease was taken where the number of red thread patches was counted. Analysis of variance was performed with PROC ANOVA in SAS®. When a significant treatment effect was found, mean separation was done with the test of least significant difference (LSD, P = 0.05). Significant yellowing due to phytotoxicity was noted if present.

RESULTS AND DISCUSSION

During the summer of 2003, the weather was dry and warmer than average. Red thread was first observed 3 July 2002, and disease pressure was low with slight fluctuations throughout the season. The conditions were fair for turf growth. Compass (4.6 g - 21 days) and Compass + 26 GT (3.1 g + 41mL- 14 to 21 days) suppressed red thread disease and also provided the best turf quality. Compass (3.1 g - 14 days) and 26 GT (62 mL - 14 days) achieved good control of red thread disease and provided turf quality. The fertilizer application (500 g N/100 m^2) and 26 GT (41 mL-14 days) were slower to completely suppress disease and turf quality was better than the untreated check but lower than the other chemical treatments. No phytotoxicity was observed throughout the trial. Results are presented in Table 1.

Table 1a. Treatment, schedule, application rate, and weekly evaluation of red thread disease during July to October 2003. First fungicide treatments were applied on 23 July and evaluations are expressed as percent area affected in each 1 m by 2 m plot based on 4 replicates. Shaded boxes are significantly different from the untreated check. Mean number of patches is shown in Table 1b.

Treatment	Active Ingredient	Interval (days)	Product Rate /100m^2	% Area Injured						
				23 July	30 July	6 Aug	13 Aug	19 Aug	27 Aug	3 Sept
Untreated check				7	12	18	26	8	10	15
Nitrogen (25-3-20)	N 25%, P 3%, K20%	once	2 kg	10	7					
26 GT	iprodione 23%	14	62 mL	3	6					
26 GT	iprodione 23%	21	41 mL	6	6					
Compass + 26 GT	trifloxystrobin 50% + iprodione 23%	14 to 21	3.1 g + 41 mL	3	5					
Compass	trifloxystrobin 50%	14	3.1 g	8	7					
Compass	trifloxystrobin 50%	21	4.6 g	2	6					
LSD (p = 0.05)				9	9	9	9	3	4	9

Table 1b.

Treatment	Active Ingredient	Interval (days)	Product Rate /100m^2	Mean # Patches						
				23 July	30 July	6 Aug	13 Aug	19 Aug	27 Aug	3 Sept
Uninoculated Check				10	10	9	10	4	1	0
Nitrogen (25-3-20)	N 25%, P 3%, K20%	once	2 kg	10	5	3	3	1	0	0
26 GT	iprodione 23%	14	62 mL	5	3	1	0	1	0	0
26 GT	iprodione 23%	21	41 mL	5	3	3	3	2	0	0
Compass + 26 GT	trifloxystrobin 50% + iprodione 23%	14 to 21	3.1 g + 41 mL	5	2	0	0	0	0	0
Compass	trifloxystrobin 50%	14	3.1 g	7	3	1	1	0	0	0
Compass	trifloxystrobin 50%	21	4.6 g	2	2	0	0	0	0	0
LSD (p = 0.05)				8	7	5	5	2	1	0

Application Schedule

Treatment	Active Ingredient	Interval (days)	Product rate /100m^2	23 July	30 July	6 Aug	13 Aug	20 Aug	27 Aug	3 Sept
Uninoculated Check										
Nitrogen (25-3-20)	N 25%, P 3%, K20%	once	2 kg	X						
26 GT	iprodione 23%	14	62 mL	X		X		X		
26 GT	iprodione 23%	21	41 mL	X			X			
Compass + 26 GT	trifloxystrobin 50% + iprodione 23%	14 to 21	3.1 g + 41 mL	X		X		X		
Compass	trifloxystrobin 50%	14	3.1 g	X		X		X		
Compass	trifloxystrobin 50%	21	4.6 g	X			X			