

Red Thread Disease Control

Tom Hsiang

Red thread disease is found in temperate regions throughout the world. Red thread is caused by the fungus *Laetisaria fuciformis*, but other fungi such as *Liminomyces roseipellis* can cause similar symptoms. The causal agent was identified in Ontario as *L. fuciformis* by the presence of antler-like red threads and the absence of clamp connections.

Red thread most frequently develops on perennial ryegrass and red fescue, particularly under low nitrogen conditions. It is also found on Kentucky bluegrass. It causes circular patches (5 - 50 cm in diam.) in which infected leaf tissue appears water-soaked, die and bleach out. The straw-coloured leaves among the live green leaves gives the turf a ragged appearance. The patches may be scattered or close together, and may be confused with dollarspot.

In Canada, red thread is most commonly seen in the wet maritime climate of coastal B.C. However, heavy levels of red thread infection were seen in the summer of 1992 in southern Ontario due to the extremely wet and cool conditions. This was atypical for southern Ontario which usually expe-

riences red thread symptoms (if at all) in mid-fall. An increased incidence of red thread was again observed in 1993. The beginning of the 1993 growing season was extremely wet and cool, and thus provided much better conditions for red thread disease than normally encountered. The red thread infections persisted throughout the latter half of the summer of 1993, even though it was much warmer and drier.

Prof. Hsiang selected a 3-year-old stand of perennial ryegrass which was observed to have high levels of natural infection in late spring and which persisted into summer. Eight fungicide treatments were foliar applied on Aug. 12, 1993, and were reapplied on a 7-day, and 14-day schedule over a five week period. Turfgrass cultural treatments were similar to those used for maintenance of sports fields in Ontario. Ten percent infection of the plot was considered an acceptable level of the disease and was used as the criterion for efficacious control of red thread.

Estimations of the area affected by red thread on 1 by 2 m plots were made at six dates between Aug. 12 and Sept. 15, 1993 (Table 1). By the second week after spray-

ing, all fungicide treatments showed a general decrease in disease with Daconil 2787, Fluazinam and Fore being the most effective materials. By the fourth week all the remaining treatments showed significant reductions in infection relative to the control. In general aesthetically acceptable levels of the disease (less than 10% of the area showing infection) were achieved three to four weeks after the initial application.

There are no fungicides registered for the control of red thread in Canada.

Fortunately in southern Ontario, cultural management practices are usually sufficient to contain the disease. Moderate levels of nitrogen are usually able to contain or mask the infections. In the U.S. the disease has been shown on well-fertilized turf, and is thought to be increasing in severity and distribution.

Table 1: The area of turf affected by red thread as influenced by material, application rate and spray schedule.

Material	Rate (prod./100 m ²)	Interval (days)	Date of Evaluation of Area Affected					
			8/12	8/20	8/25	9/4	9/9	9/15
Banner 130 EC	31 mL	14	29	24	19	14	6	8
	62 mL	14	24	14	13	8	6	8
Daconil 2787	90 mL	7	30	26	12	10	4	4
Dyrene 4	162 g	14	28	21	20	16	8	9
Fluazinam	15 mL	14	26	18	11	4	1	6
Fore	400 g	7	21	11	10	4	7	2
Nova	20 g	14	23	18	15	5	5	8
Rovral Green	60 mL	14	28	15	16	4	4	8
Tersan 1991	30 g	14	28	28	19	19	8	8
Untreated	-	-	26	24	24	2	24	23