

Pythium Suppression on Perennial Ryegrass

Reid Melton, Kurt Hockemeyer, Connor Cruz, and Paul Koch, Ph.D.
Department of Plant Pathology
University of Wisconsin - Madison



OBJECTIVE

To determine the efficacy of standard and experimental fungicides for the control of Pythium blight caused by the organism *Pythium aphanidermatum*.

MATERIALS AND METHODS

The study was conducted at the O. J. Noer Turfgrass Research and Education Facility on a stand of juvenile perennial ryegrass (*Lolium perenne*) maintained at 1.5 inches. The individual plots measured 3 feet by 10 feet and were arranged in a randomized complete block design with four replications. Broadcast fungicide treatments of Emerald and Pedigree were applied on July 15th to control dollar spot and brown patch, respectively. Individual treatments were applied at a nozzle pressure of 40 psi using a CO₂-pressurized boom sprayer equipped with two Teejet AI8004 nozzles. All fungicides were agitated by hand and applied in the equivalent of 1.5 gallons of water per 1000 ft². Four treatments were applied on July 2nd (21 days prior to covering) and three treatments were applied on July 16th (1 day prior to covering). Plots were double covered with an Evergreen cover to promote Pythium blight development on July 17th. Disease severity and turf quality (1-9, 9 being excellent and 6 acceptable) were visually assessed and subjected to an analysis of variance and means were separated using Fisher's LSD (P = 0.05). Results of the disease severity and turfgrass quality ratings can be found in Table 1.

RESULTS AND DISCUSSION

Treatments fell into three distinct levels of control. Phosphites applied 17 days before the plots were covered provided no disease suppression relative to the non-treated control ($\approx 65\%$ disease). Segway applied 17 days before covering performed the same as phosphites applied 1 day before covering with moderate disease severity ($\approx 26-43\%$ death). Segway applied 1 day before covering provided excellent Pythium blight suppression ($\approx 1.5\%$ death). This study illustrates how phosphites can be used for Pythium control when applied shortly prior to conducive infection conditions or under moderate disease pressure. The use of more traditional Pythium fungicides can give you larger windows of control, and if timed right, can completely control the disease. The Segway treatment 1 day before covering was the only treatment to provide acceptable turf quality.

Table 1. Pythium disease ratings on perennial ryegrass at the OJ Noer Turfgrass Research Facility in Madison, WI during 2019.

Treatment	Rate	Application Code ^b	Pythium Infection Centers	Pythium Disease Severity ^a	Turf Quality
			Jul 19	Jul 22	Jul 22
1 Nontreated Control			16.0 ab	62.5a	4.3bc
2 Stressmaster 0-0-31	3.0 fl oz/1000 ft ²	H	21.8 a	65.0a	4.0c
3 PolyPhosphite 30	2.0 fl oz/1000 ft ²	H	25.5 a	62.5a	4.3bc
4 PolyPhosphite 30	3.0 fl oz/1000 ft ²	H	24.5 a	62.5a	4.0c
5 Segway	0.9 fl oz/1000 ft ²	H	12.8 abc	26.3b	4.8b
6 Stressmaster 0-0-31	3.0 fl oz/1000 ft ²	J	15.8 ab	33.8b	4.8b
7 PolyPhosphite 30	3.0 fl oz/1000 ft ²	J	7.5 bc	43.8b	4.8b
8 Segway	0.9 fl oz/1000 ft ²	J	0.0 c	1.5c	6.5a

^aPythium severity was visually assessed as percent disease. Means followed by the same letter do not significantly differ (P=.05, Fisher's LSD).

^bApplication code H = July 2nd and J = July 16th.