



EVALUATION OF FUNGICIDES FOR CONTROL OF BROWN PATCH IN TALL FESCUE LAWNS

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IMPACT STATEMENT

Tall fescue is one of the most popular lawn grasses in transition zone environments, where warm- and cool-seasons grasses can be grown, due to its high quality and good tolerance of environmental stress. However, this grass is highly susceptible to a disease called brown patch, caused by *Rhizoctonia solani*. A fungicide test was conducted to determine what measures can be used to control this disease in tall fescue lawns. A single application of Heritage fungicide either before or after symptoms developed provided excellent full-season control of this disease. These treatments may be an effective means of suppressing this disease in high-maintenance tall fescue lawns.

BACKGROUND

Tall fescue remains one of the most popular lawn grasses in the transition zone of the United States due to its year-round turf quality, heat tolerance, and drought tolerance. However, one of the major weaknesses of the species is widespread susceptibility to brown patch. Turfgrass breeders have focused most of their efforts on dark foliage color, fine texture and high density. However, brown patch resistance has been elusive, as those cultivars with dense canopies provide a more favorable environment for disease to occur.

A number of different fungicides are available for the control of brown patch. However, most homeowners do not use fungicides due to a lack of knowledge, poor formulations, and inadequate equipment. With the increased presence of pesticide application companies in the homeowner market, the potential to apply fungicides effectively for the control of brown

patch has increased. To this end, a fungicide test to control brown patch in tall fescue lawns was needed to determine the best products and timing of application for control of this disease.

RESEARCH DESCRIPTION

A fungicide experiment was conducted on the turfgrass plots at the Arkansas Agricultural Research and Extension Center, Fayetteville. The plots were located on irrigated 'Millennium' tall fescue that was growing in full sun and was approximately 2 years old (planted fall 1998). There were 12 fungicide treatments in the trial. The experimental design was a randomized complete block with four replications. Each plot was 4 x 5 ft and a spray shield was used to confine treatments to the plot. Liquid formulations were applied in 4 gal per 1000 ft² using a hand-held CO₂ sprayer. Granular formulations were applied using a shaker can with holes in the top. The plot area annually received 4 lb of actual nitrogen (N), with 1.0 lb N/1000 ft² applied in March and September and 2.0 lb N/1000 ft² applied in November. To encourage the development of brown patch in the test area, an additional 0.5 lb N/1000 ft² was applied on 1 and 15 June and on 1 July, and plots were irrigated lightly (0.1 in.) at 12:30 pm each day between 15 June and 15 July. Treatments were applied either before symptoms appeared (BS) or after symptoms appeared (AS) (Table 1). Heritage treatments were applied once, and all other treatments were applied three times at 14-day intervals. Brown patch ratings were based on the percentage of the plot area diseased. Turf quality ratings were based on turf density and color.

FINDINGS

Brown patch symptoms were first noticed on 12 July and increased slowly, but the control plots were approximately 60% infected by brown patch by 31 Aug. (Table 1). Treatments applied after symptoms developed generally were more effective than treatments applied before symptoms, but Immunox treatments were similar with both timings. A single application of Heritage provided the best overall control of brown patch in this test, with less than 15% infection in both the before- and after-symptoms treatments (Table 1). Daconil and Thiophinate on 14-day intervals failed to effectively control the disease and were not significantly different from controls at either measurement date. Differences in turf quality were strongly associated with brown patch severity, but all plots suffered some heat stress.

In summary, a single application of Heritage on 1 June provided good control of brown patch through mid August and may be an effective means of suppressing this disease in tall fescue lawns. In addition, a single application of Heritage after symptoms occurred was also an effective treatment, giving the homeowner an option that is dependent on the presence of the disease.

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Table 1. Incidence of brown patch and turf quality as affected by different fungicide treatments.

Treatment, rate of product / 1000 ft ²	% Brown patch ^y		Turf quality ^x and timing ^z
	7 Aug.	31 Aug.	31 Aug.
Heritage 50 WDG, 0.4 oz, BS	0.5	13.5	6.3
Heritage 50 WDG, 0.4 oz, AS	0.0	6.5	7.3
Immunox 1.55 SC, 14 fl oz, BS	3.8	28.8	6.0
Immunox 1.55 SC, 14 fl oz, AS	2.5	30.5	5.8
Bayleton 1 G, 24 oz, BS	12.5	55.8	4.3
Bayleton 1 G, 24 oz, AS	9.3	25.5	5.5
Daconil 29.6 FL, 3.7 fl oz, BS	18.8	55.0	4.8
Daconil 29.6 FL, 3.7 fl oz, AS	5.0	46.3	5.8
Scotts Thiophanate M. 2.3 G, 21.9 oz, BS	25.0	65.8	4.3
Scotts Thiophanate M. 2.3 G, 21.9 oz, AS	17.5	36.3	5.8
Nontreated #1	16.3	60.8	4.3
Nontreated #2	12.5	54.5	4.5
LSD ($P=0.05$)	12.5	26.2	1.2

^y Percentage of plot area with brown patch symptoms.

^x 0 = all dead, 9 = excellent turf color and density.

^z BS = before symptoms (1, 15, and 29 June), AS = after symptoms (13 and 27 July and 10 Aug.); Heritage treatments were applied once on 1 June or 13 July for the BS and AS treatments, respectively, and others were applied on the three dates.