

BIOLOGICAL CONTROL OF PINK SNOW MOLD

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Introduction

The purpose of this study was to observe the effects of Tx-1 (*Pseudomonas aureofaciens*) in controlling pink snow mold (*Microdochium nivale*) on turfgrass. Various concentrations of Tx-1 were used alone and in conjunction with fungicide applications. One question asked was if Tx-1 used alone has any effect in controlling pink snow mold. It was previously unknown if Tx-1 was effective when used as a preventive control measure. Another objective was to determine the effect of Tx-1 applied in conjunction with a single fungicide application.

Methods/Results

This study was conducted on greens height creeping bentgrass (*Agrostis palustris*) cv. Pennlinks. The treatments were arranged in a randomized complete block design with four replications of each treatment. The treatments are as follows.

1. Tx-1 / 10^7 , daily
2. Tx-1 / 10^4 , daily
3. Control
4. Tx-1 / 10^7 , daily + Fore / 6oz./1000ft² applied once
5. Tx-1 / 10^4 , daily + Fore / 6oz./1000ft² applied once
6. Fore / 6oz./1000ft² applied once
7. Fore / 6oz./1000ft² applied weekly

Fungicide treatments 4, 5, 6, & 7 were applied on 10/31/97, and treatment 7 was applied again on 11/10/97. The Tx-1 treatments were applied at concentrations of 2×10^7 and 2×10^4 CFU/cm² a total of 17 times from 10/16/97 to 11/11/97. Early snowfall prevented some daily applications of Tx-1 in that time period. The plots were rated on 2/12/98 which was 101 days after the last fungicide application was made. Rating was based on a percent area infected scale. The data was analyzed using the SAS (Statistical Analysis Software) Proc. GLM (General Linear Model Procedure). T-tests were performed in this analysis which allows separation of means among treatments by least significant differences (LSD).

The following table represents analysis of the data of the seven treatments at both the .05 and .10 probability levels. The means with the same letter are not significantly different.

Treatment	#	Mean	P=.05	P=.10
Control	3	43.75	A	A
Tx-1 / 10^4 , daily	2	15.50	B	B
Fore / 6oz./1000ft ² applied once	6	15.50	B	B
Tx-1 / 10^7 , daily	1	12.50	B	BC
Tx-1 / 10^7 , daily + Fore / 6oz./1000ft ² applied once	4	9.75	B	BC
Tx-1 / 10^4 , daily + Fore / 6oz./1000ft ² applied once	5	2.50	B	C
Fore / 6oz./1000ft ² applied weekly	7	2.00	B	C

At the 5% probability level the data show there to be a significant difference between the six treatments vs. the control. At the 10% level some treatments can be separated from each other based on there being significant differences in their effectiveness in controlling disease.

Conclusion

Based on the analysis of these results there is sufficient evidence to conclude that all treatments (biological, fungicide, and combinations of the two) were effective in controlling pink snow mold in this study. It is likely that Tx-1 was able to control this disease by reducing the level of *Michrodochium* in the fall prior to infection later in the season.