

Golf Stop 6

Biological Control of Dollar Spot on Annual Bluegrass

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Past and present research has made it possible to use the biological control organism Tx-1 (*Pseudomonas aureofaciens*) for controlling dollar spot (*Rhizoctonia floccosum*) on turfgrass. This study seeks to further our understanding of how to achieve optimal disease control using Tx-1.

This study is primarily a replication of a similar study conducted last year and our aim is to verify our results. It was shown that a high rate of a fungicide, used in conjunction with Tx-1 applied daily, could prolong the effectiveness of the fungicide as compared to the interval of the fungicide alone. One question this year is to see whether the same results can be achieved using a lower rate of both the fungicide and Tx-1. We will compare the lower rate of each alone to a combination of the two. Results from last year showed that Tx-1 applied daily provided significant control of dollar spot on fairway height annual bluegrass. When Tx-1 was applied only once per week, acceptable control was not achieved. A mutant of Tx-1 (Tn-1a) was created in the laboratory which is thought to lack one of the primary antibiotics associated with its ability to control disease. This mutant did provide control of dollar spot which suggests there are likely other antibiotics which can also suppress dollar spot. The purpose of the heat killed treatment is to observe whether Tx-1 must be living to effectively control dollar spot or if the antibiotic which remains after boiling can effectively control the disease.

<u>Treatments</u>	<u>Rate</u>	<u>Application Interval</u>
1. Tx-1	10^7 CFU/cm ²	5 days/week
2. Tx-1	10^7 CFU/cm ²	1/week
3. Control	-----	-----
4. Banner Maxx + Tx-1	0.5 oz/1000 ft ² + 10^5 CFU/cm ²	Applied once 5 days/week
5. Banner Maxx	0.5 oz/1000 ft ²	Applied once
6. Banner Maxx + Tx-1	2 oz/1000 ft ² + 10^5 CFU/cm ²	Applied once 5 days/week
7. Banner Maxx	0.5 oz/1000 ft ²	Applied once
8. Tx-1	10^5 CFU/cm ²	5 days/week
9. Tx-1 (heat killed)	10^7 CFU/cm ²	5 days/week
10. Tn-1a	10^7 CFU/cm ²	5 days/week