

## **Antitranspirants for the Management of Rust and Dollar Spot**

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Antitranspirants are products that when applied to plants reduce transpiration (loss of water through leaf tissues). One class of these products functions by producing a film over the leaf surface which reduces water loss. This has led these products to be used to improve drought stress and limit winter desiccation. These products generally consist of paraffin waxes, plastics, pine extracts, and silicones. The film produced by antitranspirants has been shown to have disease management benefits. Disease management by antitranspirants is attributed to preventing the pathogen from penetrating the plant surface. Research has not shown these products to have any direct antagonistic activity on the fungus.

Preliminary research at the University of Minnesota for managing diseases with antitranspirants has shown that they can provide significant management of several turfgrass diseases. A preliminary trial for the management of dollar spot during the summer of 1999 demonstrated that the application of the antitranspirant Leaf Shield at a 2 oz rate on a 14 day interval provided 50% to 70% disease reduction over the course of the trial. An additional trial examining the potential of 4 different antitranspirants to manage snow molds resulted in a 50% disease reduction in gray snow mold with application of the antitranspirant alone in comparison with the untreated control.

Evaluation of antitranspirants for the management of dollar spot and rust will make use of preventive applications of seven antitranspirants. The antitranspirants being examined include Leaf Shield, Transfilm, Wilt-Pruf, Clearspray, Vapor-Gard, and a silicone spray. Treatments will be applied in water through a CO<sub>2</sub> powered backpack sprayer calibrated to deliver 4 gallons of water per 1000 ft<sup>2</sup>.

Treatment applications will be repeated on a 14 day schedule. Fungicide and untreated controls will also be included in the study for comparative purposes. Based on the preliminary data from the 1999 field season on dollar spot and snow mold, antitranspirants show promise as an additional tool for the management of turfgrass diseases. The trial being proposed here is intended to identify the antitranspirants that are most effective for turf disease management. It is not expected that these products will provide complete disease management when applied alone. The next step will be to assess management of additional diseases, antitranspirants in conjunction with reduced fungicide rates and to examine their effect on plant growth, drought stress, etc...