


## The Moss Network

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The best treatment was Ultra Dawn dishwashing detergent which was mixed at 4 ounces in 1 gallon of water (30 grams per liter) and applied by spot treatment using a backpack sprayer. Each moss spot was thoroughly soaked. The symptoms of effective control were that the moss turned orange-brown within 24 hours. **Generally the best control was achieved when air temperatures were between 55 and 80°F (13–27°C), on days with full sunlight.** If the Ultra Dawn treatment was applied at temperatures above 80°F (27°C) a slight discoloration of the surrounding desirable turf was observed, but the turf did recover within a few days.

Concerning the conditions under which moss was most likely to occur, there were no definite trends in terms of grass species, root zone mix, cutting height, soil pH, age of green, nitrogen fertility rate, or topdressing source. However, **in many cases, the moss was most prevalent if there was a thatch layer that was kept moist, even on greens with good drainage.** Typically, the moss problem occurred in full sun. If one green on a golf course had moss, it would readily spread to the other greens within a few years.


The 18 superintendents generally considered treatments involving iron sulfate or ferrous ammonium sulfate to be relatively ineffective. The material DeMoss® did kill the moss, but resulted in excessive damage to the surrounding turf.

These results represent the coordinated findings from one year. Thus, most probably there will be some touch-up applications required in the following years before cleanup of the moss problem stabilizes. Superintendent Frank Dobie has prepared a summary of the test observations conducted by various superintendents around the country. Those interested in further information or possible participation in 1998 can contact Superintendent Frank Dobie, The Sharon Golf Club, P.O. Box 8, Sharon Center, OH 44274; Phone: 330-239-2383; Fax: 330-239-1390. 

### RESEARCH SUMMARY

#### Fungicide Effects on Bacteria Used as Biological Control Agents

Seven fungicides were evaluated for their effect on six bacterial populations that are being assessed for use in the biological control of specific turfgrass diseases. The bacteria included *Azospirillum*, *Enterobacter*, *Pseudomonas*, and *Serratia* species. Nearly all the tank-mixed fungicides resulted in statistically significant reductions in each of the bacterial populations. The most consistently inhibitory fungicide was Banner® (propiconazole), which inhibited all 6 bacterial strains tested. Certain fungicides such as Daconil® (chlorothalonil) and Chipco 26019® (iprodione) enhanced some bacterial populations. **These results indicate that many of the commonly used turfgrass fungicides have negative impacts on bacteria used for the biological control of diseases.** This research covers the first year of a multi-year study.

Additional studies are needed to assess the relative effects of these fungicides on the actual disease control efficacy of each bacterial strain under field conditions. Certain fungicides may have a strong negative effect on disease control where bacterial populations are being applied. By the same token, there is evidence that continued research may identify fungicides that are compatible with the bacteria so they can be used in combination to maximize disease control with minimum chemical fungicide usage. [By E.B. Nelson and C.H. Craft in 1996–1997 Cornell Turfgrass Annual Report. pp. 14–19.] 

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