

**1993 DMI RESISTANT DOLLAR SPOT UPDATE**  
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Strains of *Sclerotinia homoeocarpa*, the causal agent of dollar spot, were isolated from several golf courses where demethylation inhibitor (DMI) fungicides had been reported to give little or no control. ED<sub>50</sub> values for 50 isolates of *S. homoeocarpa*, from each of 6 golf courses, were determined for 4 DMI fungicide concentrations based on radial mycelial growth. Isolates collected from golf courses where DMI fungicides were used on a regular basis had higher ED<sub>50</sub> values than isolates from golf courses where DMI fungicides had never been used. These tests provided evidence that the strains of *S. homoeocarpa* were resistant to the DMI fungicides and allowed for the establishment of one fungicide concentration as a monitoring dose to follow shifts in the *S. homoeocarpa* populations. A fungicide field trial was initiated in the summer of 1991 on a golf course which had reported no control of dollar spot with the use of DMI fungicides, such as Bayleton, Rubigan, and Banner. During the next two field seasons, individual field plots were sampled prior to the first fungicide application and following the last fungicide application. Each individual isolate sampled was tested against the established monitoring dose. From the data collected, the effects of each fungicide treatment on the *S. homoeocarpa* population was evaluated.

The contact fungicides, Daconil 2787 and Dyrene, applied alone provided excellent disease control and were the only treatments to maintain a level of stability within the *S. homoeocarpa* population when compared to the control. The DMI fungicides applied alone or in combination or alternation with a contact fungicide resulted in a shift in the *S. homoeocarpa* population towards a higher level of resistance. Based on these results, the old theory that alternating contact and systemic fungicides or applying them together will prevent resistance from occurring does not appear to be valid.

A system needs to be designed to delay dollar spot from becoming resistant to the DMI fungicides since most of the resistance problems to the systemic fungicides has occurred with this disease. The selection pressure on the population can be reduced by limiting the use of DMI fungicides during the time of year when dollar spot is most severe. This should allow the wild-type DMI sensitive strains of *S. homoeocarpa* to remain dominant for a longer period of time in the population.