STOP 1

FAIRWAY FUNGIGATION STUDY

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Establishment:

The direct injection of undiluted fungicides into irrigation systems for control of plant diseases is a relatively new concept. This method of fungicide application shows promise in vegetable and potato production where fungicides can be applied uniformly through overhead irrigation systems.

This annual bluegrass fairway fungicide experiment is part of a long-term study to determine the feasibility of direct injection of fungicides into golf course irrigation systems for the control of summer fairway diseases.

The annual bluegrass in this block was seeded in early 1981. It has been mowed regularly and fertilized and irrigated as needed.

Daconil 2787 flowable (FL) fungicide was selected as our test fungicide with the degree of dollarspot (Sclerotinia homoeocarpa) infection serving as an indicator of the effectiveness of the fungigation method of fungicide application. Undiluted Daconil 2787 FL was injected directly into the irrigation system at the rate of approximately 3 gallons/hr using a Hydro-Flo Chem-Injector single piston pump (Hydro-Flo Corp., 112 Maple Ave., Dublin, PA 18917). Treatments were applied on June 9, June 22, July 8, July 20, August 6 and August 20 at the rate of 7 qts/acre through an irrigation system consisting of four Nelson irrigation heads with a capacity of 15 gallons/minute/head. In order to provide a comparison of fungigation application versus sprayer application, part of the annual bluegrass study was sprayed with Daconil 2787 FL at 7 qts./acre using a CO_2 small plot boom sprayer operating at 20 gallons/acre. The dates of application were the same as above. A control area which received no fungicide was also included in the study.

Conclusions:

1) Fungigation is a faster means of applying fungicides.

2) Fungigation may be a less expensive means of applying fungicides if labor, equipment, etc. is considered.

3) Fungigation applications can be made at night when there is no play on the golf course.

4) Fungigation can be an effective means of applying fungicides for the control of golf course diseases.

Potential Problems:

1) Irrigation systems must have uniform coverage, otherwise voids will exist where the disease will occur (however, if the irrigation system is not applying the fungicide uniformly, then it

is not applying water uniformly. This could be a good method of checking the system and changing to more suitable heads or adding additional heads to the system).

2) Future systems should be designed with fungigation capability in mind. Systems should start at point A by the pump and end at point B on the far end of the course with a valve for draining the system. Accurate rate of application will be difficult with systems not designed in a straight line or continuous arrangement. Fungicide residue may also remain in the line causing a possible exposure problem when the irrigation system is turned on again for irrigating or for other purposes, i.e., cleaning equipment. Exposure problems may also arise in instances where irrigation water falls into open water or other non-target areas.

3) Conventional spray equipment may still be needed to enable the golf course superintendent to apply fungicides for necessary disease control on fairways which are already saturated and can tolerate no additional water.

This was an extremely heavy year for Sclerotinia dollarspot and anthracnose. Many golf courses in the area lost 50% or more of their turf to these diseases. In this study, both methods of application gave satisfactory disease control. During the late July-early August period, approximately 10% of the Daconil 2787 FL treated fairways were lost to anthracnose and Sclerotinia dollarspot. An additional Daconil 2787 FL application during the July 18 to August 13 time period or an application of benzimidazole fungicide on July 18 would have improved the level of disease control based on past experience.