

Programmed Turf Disease Control

By ROBERT T. MILLER

Biochemicals Department

E. I. Du Pont de Nemours and Co.

Wilmington, Del.

Programming and proper timing in application of specific fungicides offer great potential for improving the control of turf diseases and in reducing possible environmental problems stemming from excess use of chemicals. These are the facts established by a three-year development program on three fungicides that were commercially introduced as a "1-2-3 turf program" in 1971.

Now, with additional experience wherever cool season grasses are grown and in the bentgrass areas of the south, there is added evidence of the effectiveness of this program that involves Tersan LSR, Tersan 1991 and Tersan SP turf fungicides. The program requires action in three seasons—spring, summer and fall.

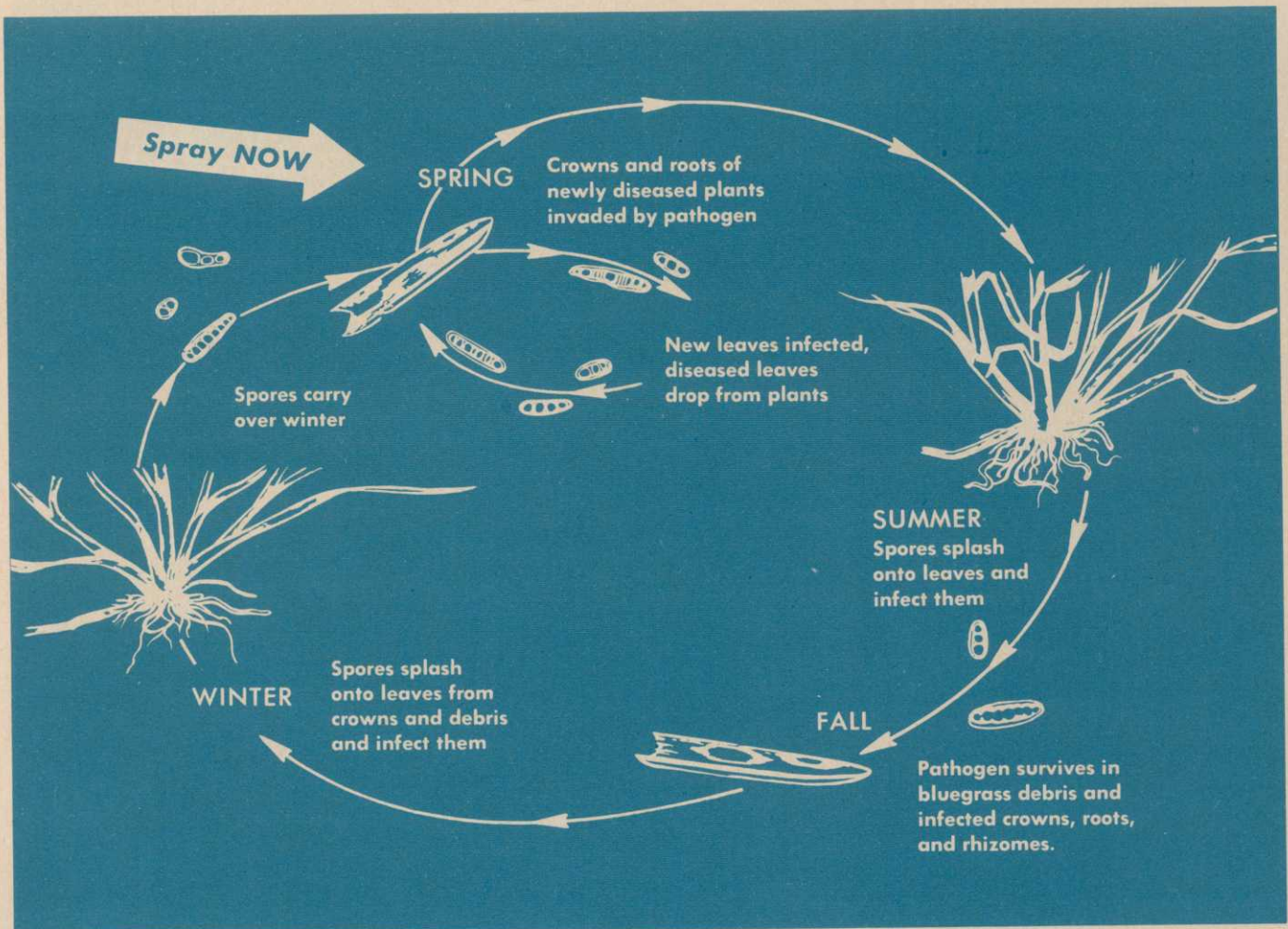
In essence, the first step calls for application of Tersan LSR in early

spring, about the time of first or second cutting, to control leafspot (*Helminthosporium* spp.). Spraying at this time breaks the disease cycle of overwintered inoculum. Turf enters the spring growing period in a healthy condition. This decreases the chances of melting out or thinning out later on in the warmer weather of late spring or early summer.

In addition, large brown patch (*Rhizoctonia*) and rust can be controlled with this fungicide.

A second step in the program calls for application of Tersan 1991 when dollar spot (*Sclerotinia*) first appears usually May or June, depending on the area. This application will prevent or eradicate dollar spot, as well as prevent large brown patch. The lasting qualities of Tersan 1991 help to provide longer control than that available with other previously available compounds; and in addition, this new fungicide will also

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Control *Helminthosporium* by spraying "Tersan" LSR early in the spring—at the beginning of the disease cycle. This inhibits the "melting-out" stage. Should symptoms appear during the season, use "Tersan" LSR to check disease spread. Spray at rate of 3-4 ozs. per 1000 sq. ft. at 7 to 10 day intervals. Reduce intervals during periods of severe disease conditions.



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DISEASE CONTROL (from page 16)

control stripe smut and pink snow mold.

The third step concerns the application of Tersan SP in the fall. It has proven highly effective for control of snow mold (*Typhula*); and has also been outstanding for control of *Pythium* blight in any season. Application should be made early in November for snow mold.

Formerly, it was common for a snow mold chemical to be applied as late in the fall as possible, prior to snow. But the weatherman does not always cooperate and this has produced complications in application. Sometimes an unexpected snow would prevent an application. Tersan SP is low in solubility and can be applied earlier, while still lasting for a full season.

Disease control programs to date have primarily involved cool season grasses in the north for tees, greens and fairways. Reaction has been striking. A superintendent from one of the northern border states said: "Summertime diseases are not normally a big problem in our area, but snow mold is a problem every year. Last fall I used Tersan SP on my greens and tees and in the spring they were disease free. Even during the winter when my greens were free of snow they were not off-color."

A Midwest superintendent reported: "By following this program, I sprayed my greens and tees less and had better disease control and color than I have ever had before."

An Eastern superintendent said: "Early applications of Tersan LSR prevented *Helminthosporium* from being a problem and I saw no dollar-spot or large brown patch on my tees, greens or fairways. On greens and tees, I sprayed Tersan 1991 every 14 days, on fairways only three times the whole season."

Other programs for bentgrass courses in the south and for Bermudagrass greens that are overseeded have aroused similar enthusiasm. A superintendent in the south with bentgrass greens made this observation: "Following the disease control program large brown patch and dollar spot were no problem. When *Pythium* appeared Tersan SP stopped it right now."

A superintendent in the south with Bermudagrass greens commented: "Disease on Bermudagrass greens is seldom a major problem, but at overseeding, diseases can cause headaches. This year DuPont's suggestions solved the problem."

With response such as this, maintenance men concerned with indus-

trial and school or college lawns may find new ways to develop and maintain these essential areas. Knowledge developed on golf fairway maintenance is readily adapted to similar turfs in similar geographic areas.

Disease control can obviously mean many different things to different people. To a golf superintendent or a turf manager, control means an area of turf that has a healthy green color and is free of any blemishes. To a plant pathologist working on disease control, however, the same phrase means the absence of any problem that is of his particular concern.

When a new fungicide is being developed for widespread use, however, it is essential that work be done in all areas of the country. The objective is to learn if a product is effective on all grasses and under varying environmental conditions and turf management practices. Naturally, it is understood that the rates of use for a fungicide can and will vary for different diseases and different disease pressures. And it is clear that one fungicide will not control all diseases. In fact, as time goes on and new candidate chemicals appear, the more useful compounds seem to be those that are more specific.

Another element that becomes more obvious in the development of new turf chemicals is the importance of a safety factor related to the use of a chemical on the plant. As plants are weakened by disease and insects, they are somewhat more susceptible to injury by any compound. Therefore a safety factor is most important.

The ideal product would be one that controls disease at a low rate but would also be safe on the plant at any rate. This ideal may seldom be reached, but nonetheless study concerning rates is of such a detailed nature that when recommended rates are established and a product is labeled, that product should indeed be used at the recommended rates. The old story—read and heed the label—is still excellent advice.

Another aspect of new product development in turf compounds concerns their lasting qualities and possible hazard to users. A long-term residual characteristic may not always be what is needed, despite an apparent economy. Environmental requirements must receive major attention. Application safety and safety to humans and animals are other elements that must be carefully studied prior to product introduction, with directions for handling

being spelled out on product labels and in product literature.

A 13-state area was directly involved in numerous studies leading to the new "1-2-3" turf program. One of the striking new elements established in these studies was the importance of proper timing—as suggested by the yearly disease cycle of *Helminthosporium* spp. (See drawing on page 16.)

By using specific-type fungicides and timing applications to fit disease activity, it has been possible to get more effective disease control with lighter rates and fewer applications of a compound. New systemic-type compounds such as Tersan 1991 have been of special value here. They can be used at low rates and with longer intervals between applications.

In addition, this new compound is not washed away and lost by a rain. With older compounds, much of the effectiveness of the treatment could be lost through a rain following closely after application.

Results with the "1-2-3" turf disease control program have been excellent. Superintendents have reported they used fewer applications of fungicides, at lower rates with better disease control, better turf color and more ease of mind.

This is an encouraging response—and one that may stimulate others to consider the program for their own needs. It is hoped that more turf managers will be interested in applying the program to their own needs in the coming year.

Incorporate Herbicide— Brochure Tells How

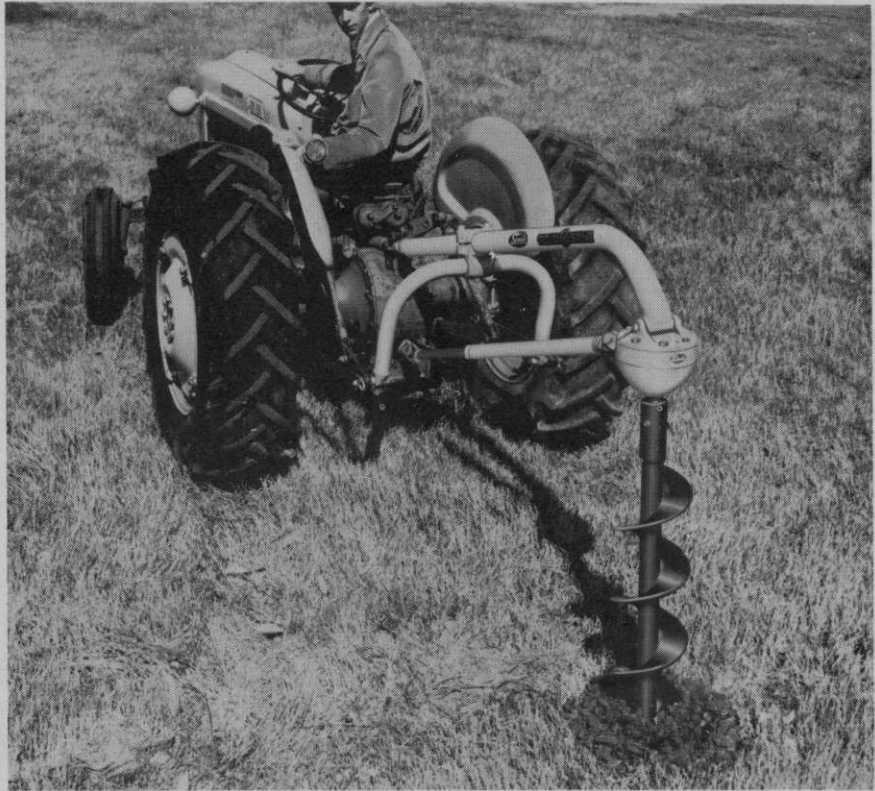
A brochure that describes how to construct a simple rig on tractor or tillage equipment for herbicide soil incorporation is available from Stauffer Chemical Company.

It provides illustrations and instructions for tooling up for both small and large acreage rigs and details various ways to mount tanks and nozzle systems. The rigs adapt for either liquid or granular herbicides. Design suggestions range from relatively simple rigs that suit small acreages and cost as little as \$100, to more elaborate units with bigger tanks, pump and spray boom that can fit any tractor or disc.

Copies of the brochure **Ways To Mix Stauffer's Selective Herbicides In the Soil for Weed Control**, A-10316, are available from Stauffer Chemical Company, Dept. F. L., Agricultural Chemical Division, 299 Park Avenue, New York, N.Y. 10017.

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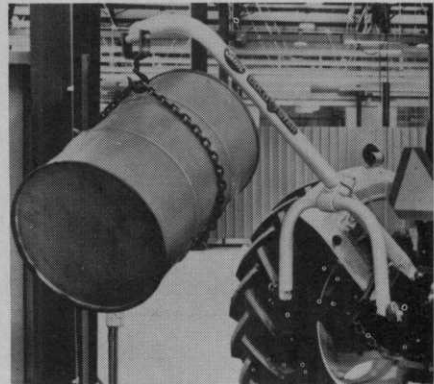


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