
CURVULARIA IN FLORIDA GREENS

By LYNN GRIFFITH

Most golf course superintendents are familiar with basic turfgrass pathology and the common turf diseases, such as brown patch and dollar spot. One turf pathogen which is not well understood, but frequently encountered in Florida is the fungus *Curvularia*. The disease has been around for quite

some time, but has been popping up increasingly in turfgrass pathology diagnoses, especially during the exceptionally rainy weather of the past year. It is a common disorder, but unfamiliar to many superintendents.

The hosts of *Curvularia* include bermudagrass, annual and Kentucky bluegrass, creeping bentgrass, *Poa trivialis*, and fine-leaf fescue. The fungus also infects gladiolus and clover, but is primarily a turfgrass disease. There are four major species of *Curvularia* which infect turf. Unlike most turfgrass pathogens, it can be found on most any grass species, but it infects very few non turf crops.

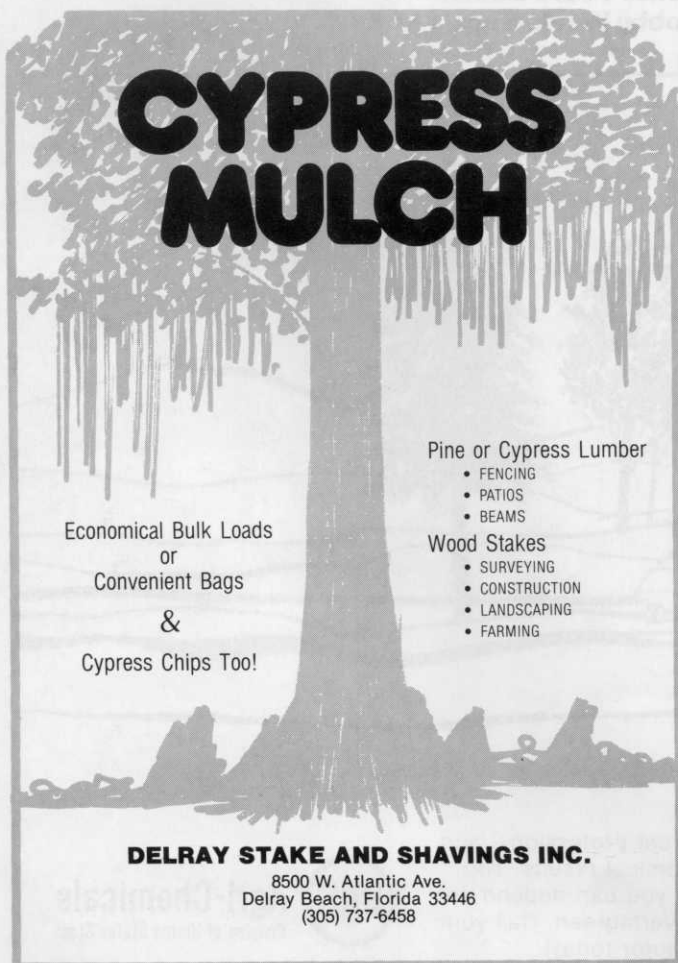
Curvularia is very similar in many ways to *Helminthosporium*. In fact, some pathologists refer to it as the *Helminthosporium-Curvularia* complex. Both fungi are pigmented, and the spores are quite similar, even to a trained pathologist's eye. The *Curvularia* spores are a bit stubbier, however, than those of *Helminthosporium*. The two fungi are sometimes found together in diseased turf.

There is some question as to whether *Curvularia* is a turf pathogen at all. It has been described a number of times as a "stress pathogen", meaning that it will cause disease after something else is already wrong with the turf. By this, I mean anything which may weaken the turf, such as nematodes, *Pythium* or *Rhizoctonia*, nutritional problems, poor soil aeration, excess moisture, or compaction. *Curvularia* may be found in almost any grass debris, even if the turf is healthy. The fungus is an excellent saprophyte, meaning it exists or persists in dead and dying tissue. The consensus of opinion seems to be that *Curvularia* will invade turf that is already weakened and become a secondary pathogen.

Curvularia is primarily a leaf and sheath rot in the bermudagrass greens in Florida. The grass blades turn yellow from the tip back, then turn tan or brown. Often the older leaves further back on the plant are affected, whereas the newest leaves are not. This is probably due to part of the intensive cropping practices used on Florida greens, where the grass temporarily outgrows the fungus. *Curvularia* will often be involved when a formerly healthy looking green will rather suddenly fade or become thinned.

Curvularia is basically a warm, wet weather fungus, growing best when temperatures exceed 75 degrees, but especially at 85 degrees and above. It often appears to attack turf which is suffering from heat stress or high temperature growth stoppage, especially when moist, humid conditions are also present. The heavy rains of the past year or so, along with the fairly warm weather in some parts of the state have made it rather troublesome. The fungus is often encountered in heavy dew periods in greens which are shaded for a good part of the morning. It is also more of a problem in highly compacted, poorly aerated soils. The disease is not nearly as bad on

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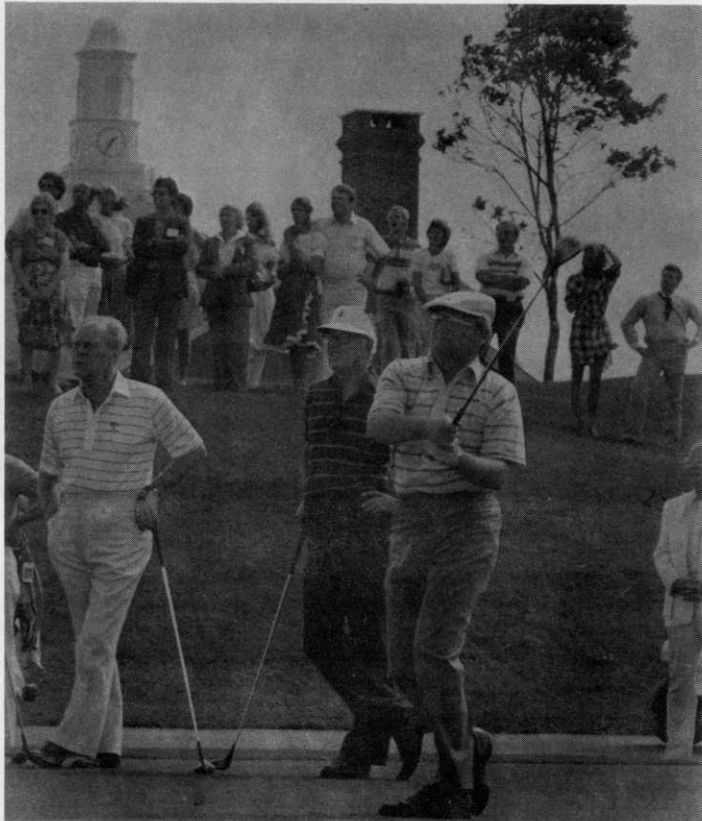
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WHAT A PRICE TO PAY!

We all know that the prices of various goods advance at different rates. Some will shoot ahead, while some will remain static. What would happen, though, if you took the price trend for the last five years and projected it to the next 10 years, or to the year 2001?

That is exactly what Manplan Consultants, a Chicago-based management consulting firm, has done in a recent study. Here are projected prices for various goods based on their price trends in the past 10 years (are you ready?)

	1973	1977	1987	2001
Low priced car	3,000	5,000	17,700	105,000
High priced car	6,500	12,000	55,320	471,240
Private college tuition	3,000	3,840	7,219	17,510
Average house	34,500	54,000	191,160	1,134,000
Bar of soap	.15	.35	3.01	61.12
Toothpaste	.39	.79	4.89	62.80
Rump roast (lb.)	1.49	1.49	1.64	1.89
Ground beef (lb.)	.89	1.19	2.57	7.54
Coffee (lb.)	.70	3.25	163.86	39,642
Jelly (small jar)	.25	.59	5.28	113.98
Sunday Newspaper	.30	.60	4.38	70.92



PGA Tour Commissioner, Dean Beman, driving from 1st tee.

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fairways. It will persist for years in decaying turf debris, and if he's looking for it, a pathologist can find latent *Curvularia* in almost any turf sample.

Because *Curvularia* is so similar to *Helminthosporium*, those fungicides which control *Helminthosporium* will generally control *Curvularia*. The most effective compounds seems to be Daconil and the Mancozeb fungicides (Manzate 200, Dithane M-45, or Tersan LSR). Other fungicides which have been used include Actidione, either alone or in conjunction with Terraclor or Thiram. We don't feel that the cadimium fungicides are particularly effective against *Curvularia*.

Because *Curvularia* is so prevalent in stressed or dying tissue, at one time several turf pathologists considered it to be a major factor in Bermudagrass Decline. Subsequent investigations, however, have resulted in the conclusion that it is not a primary cause of Bermudagrass Decline. It is frequently found in "declining" greens, but probably as a saprophyte or secondary pathogen.

When *Curvularia* is diagnosed as a pathogen in a fading green, the superintendent must first ask himself what is the real, underlying cause. Its presence indicates that something else is wrong. The fungus itself should be treated, but for full, lasting recovery, the primary cultural disorder must also be addressed. Many times this year the weather has aggravated an already existing problem in the root zone. As a result, the lush, well-fed grass plant could not support its foliage properly, and *Curvularia* invaded the weakened tissue. Thus, in order to control this disease, the superintendent must combine the use of proper chemical controls with fundamentally good turf maintenance practices. ■

Wesco-Zaun/Toro Announce Michael Swanson Outstanding Salesperson Award

Wesco-Zaun, distributor of Toro products for the west coast of Florida, has announcez that Michael Swanson has been honored as the Southeastern Regional Master Salesman for Toro Commercial Turf Products. Swanson was presented a special blazer for most outstanding Toro turf products salesperson in the Southeastern United States at the annual Toro Distributor Convention on August 2 in Minneapolis, Minnesota, headquarters for Toro.

Swanson is currently the President of the Florida Turf Grass Association and represents Wesco-Zaun and Toro in cities, counties, municipalities and parks on the west coast of Florida. ■