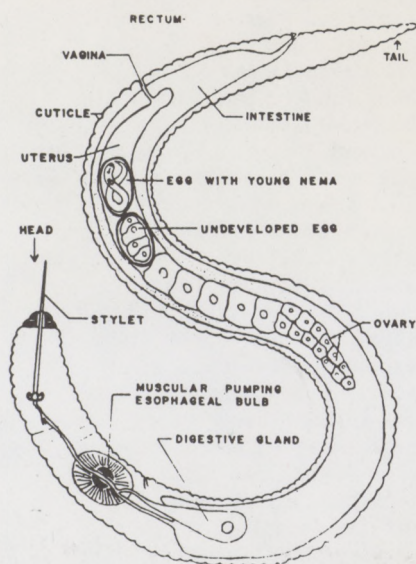


## Nematodes: where did they come from?

Ronald F. Myers

Over 20 nematode parasites of grasses are distributed throughout New Jersey. The suitability of the host grass in providing nutritional re-



PLANT DESTRUCTIVE NEMA

### Female Plant-Parasite Nematode

Diagrammatic sketch of a typical female plant-parasite nematode showing the hypodermic-like stylet and the pumping bulb used to feed upon the roots of turfgrasses.

Ronald F. Myers, Nematologist and Professor, Department of Plant Pathology, Cook College and Agricultural Experiment Station, Rutgers University, New Brunswick, NJ 08903

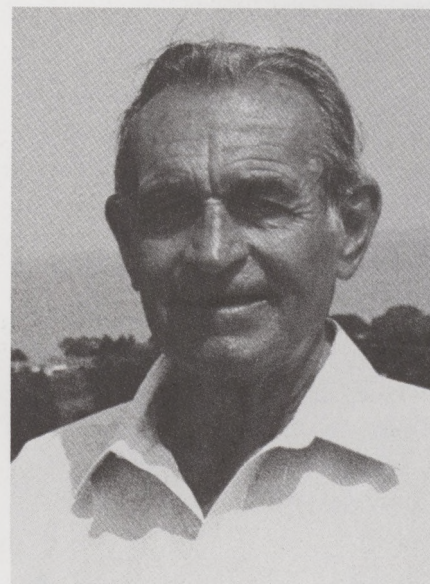
quirements exerts the greatest influence on survival of a particular species of nematode and the total number of nematodes that develops. Soil texture provides an additional restraint on certain nematodes. Other soil factors such as pH and nutrient levels produce only an indirect effect on nematodes through modifications in plant growth. Not all turfgrasses are equally good hosts to pathogenic nematodes.

Kentucky bluegrasses favor the development of high numbers of ring nematodes while low numbers of ring nematodes are found in many cultivars of perennial ryegrasses. Stunt nematodes pathogenic to most turfgrasses are absent from some selection of fine fescue. Fescues and bentgrasses are non-hosts for the grass cyst nematode while Kentucky bluegrass and perennial ryegrasses are good hosts. Other such examples of nematode-host incompatibility are currently being investigated.

The distribution of the grass cyst nematode, which causes a slight yellowing of Kentucky blue and other grasses, seems restricted to northern NJ, apparently due to the pres-

## Tom Morris Golf Award Goes to Sherwood Moore

New Jersey Turf growers can take great pride in Sherwood Moore's receiving the Tom Morris Award from the Golf Course Superintendents of America this February. This award was created to honor persons who have contributed greatly to the game of golf. Previous winners have been Arnold Palmer, Bob Hope, President Gerald Ford, Patty Berg, Robert Trent Jones, Gene Sarazen, and Chi Chi Rodriguez. Sherwood is the first golf superintendent to receive this recognition.



Awaredee: Sherwood Moore (GCSAA photo)

New Jersey is especially proud as Sherwood spent a large part of his career in this state. He has been a member of the New Jersey Superintendents Association over a span of fifty years.

— continued on page 5

— continued on page 4



## OPINIONS AND COMMENTS

### Are Annual Bluegrass Herbicides Working?

Several new annual bluegrass herbicides developed near the time of my retirement. Since then, I have heard various remarks about their potential and their usefulness in the field. Unfortunately, there seems to be no long-term formal studies by State Experimental Station personnel under golf turf conditions.

What is the relative effectiveness of these several market herbicides? Are they worth the cost and risk on the golf course? We can scarcely blame the Experimental Station researcher for this lack of information. Most administrators refuse to recognize or give credit for this type of research. Add to this need the fact that one test or field application seldom gives the technical answers needed.

Where does this situation with chemical control of annual bluegrass leave the golf course superintendent who has a serious infestation of this weed? If you feel you should use herbicides, leave an untreated check strip over several seasons. This technique was discussed in the September 1989 issue of *Greenworld*. The procedure is simple and it will help you to decide more quickly and accurately if the program is worthy of continuation.

•REE

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Spaceship Earth did not come with an instruction book.

--Buckminster Fuller



## OPINIONS AND COMMENTS

### Should Topdressing Cores Be Removed?

The answer is usually "No" where a good soil base and topdressing have been used in recent years. Many dispute this, but my reasons are several. Soil from the cores are the poor man's topdressing. Top dressing is costly. Removal of the cores soil is work. This soil is usually as good if not better than what you buy. Bentgrass needs more topdressing than typically used in these days of fast greens. Finally, the core soil usually has more life than prepared topdressing.

A key concern is the comparative quality of the existing surface soil of the green and the topdressing. Obviously, no one argues that cores should be left if they are clay or very low in sand content. All agree the existing soil and the topdressing should have a similar high sand content. This commentary is not dealing with 100% sand.

It can be argued that leaving the



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plugs on slows and messes the cultivation and topdressing operation. Part of the answer to this is that greens should not be wet or saturated at the time of cultivation. With moderately dry soil, matting and blowing the grass tufts to the edge for pickup is a most feasible operation.

I expect there is too little checking of the topdressing purchased or used. Make sure the dealer does not change his stock without telling

you in advance. Have frequent tests for sand, silt, and clay content performed as well as the distribution of sand size. Topdressing is too important and its impact too longlasting to be done loosely.

•REE

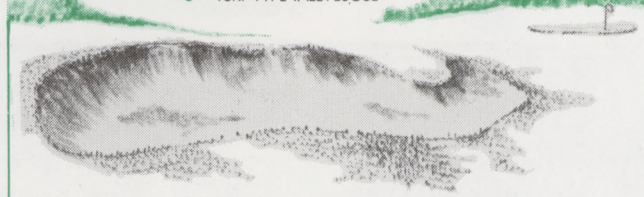
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Doctor: I do not know. Let me feel your pulse — next patient please.

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## Tom Morris Golf Award Goes to Sherwood Moore

— continued from page 1

He was a charter member of the New Jersey Turfgrass Association and he received the New Jersey Turf Association's Hall of Fame Award in 1986. He attended every New Jersey Rutgers 3-5 day turf course during the fifty year period from the mid-1930's until he retired in 1984.

Sherwood has a great sense of humor, is a pleasure to know, and is a very considerate person. Equally important, he had the great professional qualities of all outstanding golf course superintendents. I remember him as one of the superintendents



Sherwood Moore receives the NJ Turfgrass Ass. Hall of Fame award from Dave McGee in 1986

who listened keenly in the front row at lectures and on turf research field days for many years at Rutgers. Sherwood was a frequent lecturer in our 3-5 day courses and our two-year courses. In addition to his professionalism, he delivered the good turf. He

liked turf and his touch always gave his turf and other plants real class.

Sherwood, your awards are greatly deserved. Your friend and fellow superintendent, Robert Williams, gave the ultimate tribute by saying "...in my opinion, you are the all-time, most outstanding golf course superintendent ever." Sherwood, New Jersey turf salutes you again!

•REE

## Mowing Height Effect on Temperature of Greens in July

T. Salaiz and R.C. Shearman

*Nebraska Turfgrass Foundation Bulletin. Vol. 10:8, 1989*

Daily mowing at 1/8 inch gave greater temperatures in July than mowing bentgrass at 5/32 or 3/16 inch. This follows the general think-

ing and reports from higher regimes of mowing on other turf that higher temperatures develop with closer mowing. The study has not had time to show possible effects of the more severe mowing on bentgrass survival, roots and disease incidence. Theory and observations force us to expect these are also affected negatively.

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## Nematodes: where did they come from?

— continued from page 1

ence of greater amounts of silt and clay found in these soils. This nematode is absent from soils having a high sand content. Conversely, the stinging nematode, many species of stubby root nematodes, and the needle nematode attain their highest numbers in soils with 80% or more fine sands. The highest numbers of lesion nematodes occur in fine sandy loams and other sandy soils. Pin nematodes develop highest populations in clay loams. Dagger and several spiral nematodes also do better in heavier soils.

In addition to host suitability, the

presence or absence in soil of a particular nematode often relates to previous vegetation history and prior introduction (past dissemination pressures). Nematodes are dispersed, scattered, transported, and introduced to new grass areas by many means. Movement of nematodes infested plants and soil is the most common method of dissemination. Soil movement with plants, as fill, on tires of equipment and automobiles, or through wind, sand dressing, in peat moss, on golf shoes, and by animals, represent several of the ways nematodes are introduced into new areas. Nematodes are carried along during soil erosion by moving water and are spread by flooding and irrigation. Some nematodes are spread by birds, migratory animals, and insects. For example, *the grass cyst nematode is dispersed by migratory geese*. Eggs are produced and stored internally within the bodies of female grass cyst nematodes (100-200 eggs/cyst). The protein of the female cuticle (body wall) turns brown and becomes a tough protective

cyst. Cysts, ingested by geese along with grass roots, remain undigested passing through the intestine, and are deposited in bird droppings. The eggs protected within the cysts remain viable, hatching during late fall and early spring to produce a new generation of grass cyst nematodes. During the time it takes for the cysts to move through a goose, the goose may have migrated to a different geographical area, dispersing this nematode pathogen to other areas along the migration path.

Another interesting example of dispersion of a nematode pathogen occurs when the pinewood nematode is spread during maturation feeding and

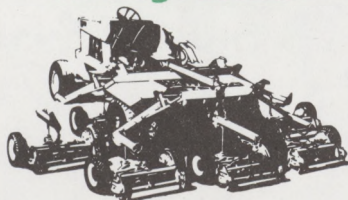
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## Nematodes: where did they come from?

— continued from page 5

oviposition by Sawyer beetles (*Monochamus* spp.). These insects, following pupation, are invaded by nematodes within the stem of a pine tree and upon emergence from the pine the beetles transport the pinewood nematodes to new host trees. After entering a new tree, the nematodes feed on thin-walled cells until the tree is severely injured or killed. Austrian, Scotch, and Japanese black pines planted throughout NJ in parks, landscaped grounds, along highways and on golf courses, are susceptible, especially when growing under stress conditions.

The presence of pathogenic nematodes in turfgrasses and ornamental trees should be expected and accepted as normal since most problem nematodes are native and widely distributed throughout NJ.



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