

Our Experience with Nematodes on Sand Topdressed Greens

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With more and more superintendents switching to sandier soil mixes and topdressings, a variety of uncusomary problems are occurring with greater frequency, with Nematode damage on sandy or sand topdressed greens becoming more common.

During the summer of 1985 at Bartlett Hills Golf Course, we experienced Nematode damage. Symptoms started in mid July when the greens looked weak, chlorotic, and didn't respond well to fertilizer applications @ $\frac{1}{2}$ #/m. Small yellow to yellow orange spots $\frac{1}{2}$ " in diameter were observed throughout several greens. A closer look at the affected grass plants showed a yellowing starting at the tips of the grass blades progressing inward towards the crown, affecting older leaves first. Larger areas a couple feet in diameter looked more like wilt, but the soil and the turf had plenty of moisture. Other areas resembled patch disease symptoms. Various fungicides were applied and seemed to suppress the "disease", but only for a few days in some cases.

Damage severity also seemed to vary as to the turf species. *Poa annua* was most affected, while the coarser bents seemed least affected. Samples were taken to the University of Illinois Plant Clinic where *Fusarium* spores were found in some of the infected areas, as well as Anthracnose on dead leaves.

The problems persisted so a microscope was purchased to try and find more clues. After viewing a few samples at 105 power, one sample had several Nematodes around the plant ligule. Additional samples were taken at areas which seemed to be in the same stage of decline and Nematodes were again found.

Soil samples to a 6" depth were sent to U of I for a Nematode count and to find out if the Nematodes were parasitic or just fungi feeders working on *Fusarium* spores.

Theoretically, Nematode damage made sense as far as yellowing turf not responding well to fertilizer or fungicides. Spots that looked like patch diseases could have been disease moving in on weak turf or diseases brought on from plant fluids in the soil by turf injured from feeding. Damage to the turfgrass circulatory system by enzyme secretions during feeding causes galls, lesions, lateral roots, and kills meristematic tissue would possibly account for some areas looking like wilt. *Poa annua* being most seriously affected may simply be the weakest variety showing damage first.

Results from the plant clinic indicated parasitic Nematodes were present. Stunt (*Tylenchorhynchus*) and Ring (*Criconemoides*) Nematodes had the highest counts. Recommendations stated: "The number of Nematodes present are believed inadequate to affect production of the crop to be grown."

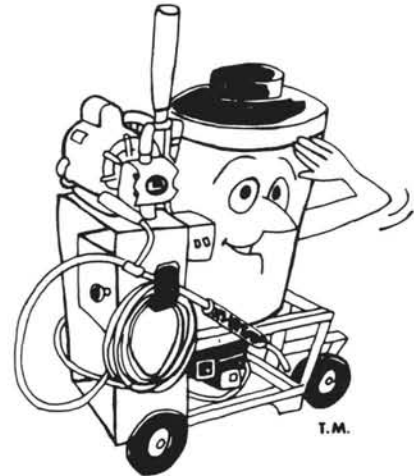
C.D.G.A.'s Dr. Randy Kane has seen an increase in incidents of Nematodes on greens, mainly on old greens with a clay base on a sand topdressing program. Dr. Kane pointed out that since Nematodes prefer sandy soil, sending a sample with 1" of sand and 5" of soil may dilute the sample if the concentration of Nematodes is only in the sand layer.

Not having a great deal of experience with Nematodes, a number of questions came to mind: Were the Nematodes brought in with the topdressing since lateral movement of the

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(Nematodes cont'd.)

critters seldom exceeds a few inches per year? Were they spread by golf shoes, spikers, aerifier tines, or did the population build up in the soil naturally? Is it the sandier soil we're using in our greens or did the mercuries and other heavy metals used for disease control keep Nematodes in check? Milorganite has been known to suppress Nematodes. Is it because activated sewage sludge contains metals which may suppress Nematodes, or does activated sewage sludge enhance development of natural predators?

Nematodes should be treated in the adult stage with soil temperatures above 60 degrees F. As the season moved toward fall, soil temperatures dropped and rains became frequent, which helped the greens recover to a healthy looking appearance. Knowing Nematodes were likely to reoccur the following season, the greens were watched very closely for symptoms.

Mid May of 1986, the soil temperatures warmed and Nematodes were again found on the yellowing grass plants. At this time all greens were treated with Namacur 15% granular at 2# material per 1000 square feet. Nine holes were closed and treated at a time because Namacur is a highly toxic restricted use chemical which must be watered in using a minimum of 1/2" water immediately after application.

Namacur claims systemic control for up to seven months, so only one treatment was made. We experienced no discoloration or burn on the turf after the heavily watering in the chemical and the health of the greens improved with no reoccurring symptoms.

I've learned a great deal about Nematodes but have come up with more questions than answers. Experts also question the threshold levels required for damage on golf greens. We know this may be a reoccurring problem at Bartlett Hills Golf Course and are much too familiar with the damage symptoms. I feel our course is safe for the rest of the year, but next year may be a whole new ball game.



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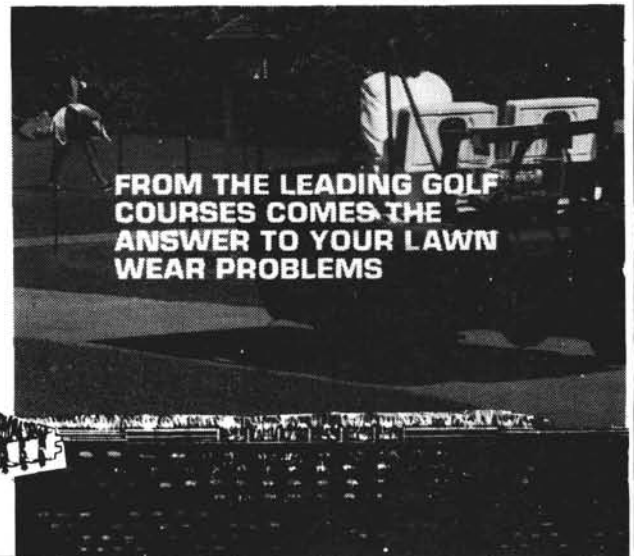
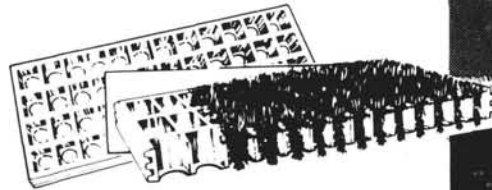


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