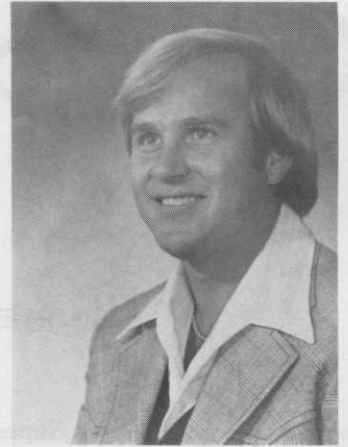


Nematode Control Update

By MIKE COOK
Nematode Controllers, Inc.
Brandon, Florida



While traveling the state of Florida, I hear many questions concerning nematodes and their control. I hope to answer the ones most frequently asked.

What do nematodes look like? Most are cylindrical and slender in shape. Semitransparent and very small (.5 to 3mm in length), they can normally be seen only under a microscope which is also used to classify and identify the species.

The nematode has a stylet on one end which is used to penetrate the plant. Those that completely enter the tissue of the plant to feed are classified as endoparasitic; those which feed exteriorly through the root tissue are ectoparasitic.

How do you know you have nematodes? The superintendent can begin watching for visible symptoms in turf quality such as wilting, thinning, chlorotic spots which look like a nutrient deficiency, no lateral root growth, very sparse feeder roots and shallow root system.

Once you notice some of these problem areas or symptoms, a soil sample should be taken for a nematode analysis. When taking samples, make sure they are kept cool. They need not be refrigerated but keep them cool enough to insure the survival of your count. The samples can be kept in a styrofoam container if they are not sent in for immediate analysis. If samples are allowed to sit in the trunk of a car or truck, the hot sun will kill over half the count and the reading will not be true.

When pulling samples take between 10 and 14 plugs from a fairway at that many different locations. Mark off a one square foot area and return to the exact spot to make the test valid. Do not take bare area plugs. Take plugs from the turf adjacent to the bare area. Put all the plugs taken from the same fairway in one bag. Once the bag has at least 12 plugs in it, shake it up to blend the soil together. Be sure to label the outside of each bag with the fairway number using a marking pen.

The samples can be sent to the University of Florida in Gainesville, U of F extension station in Ft. Lauderdale, or to a private laboratory such as Applied Agricultural Research Co. in Lakeland. Private labs usually return analysis results within a week depending on their work load.

To help you better understand your nematode analysis, I have listed those nematodes most commonly found in Florida which can be detrimental to turf quality. Beside the type of nematode is the count level (per 100 cc of soil) at which treatment is recommended.

Nematodes common to Florida:

1. Root-Knot.....	41	6. Stubby Root.....	41
2. Sting.....	10	7. Cyst.....	41
3. Lesion.....	41	8. Stunt.....	81
4. Lance.....	41	9. Ring.....	300
5. Spiral.....	81	10. Sheath.....	151

What chemicals are available today for treatment of nematodes? At the present time the most reliable means of control is by proper application of a nematicidal chemical. EDP (Ethylene Dibromide) is a liquid nematicide injected into the soil. Namacur, Dasanit and Mocap are granular nematicides.

Unfortunately, there is NO chemical on the market today which will completely eradicate the nematode and still be used safely on established turf. Therefore, we have to control nematodes to a point at which we can live with them. EDB treatment seems the best way to control them economically.

The EPA has put a temporary restraining order on DBCP (Dibromochloropropane) which states in so many words there will be no use or resale of DBCP in the continental United States for a period long enough for more studies to be made on the chemical. Personally, I feel the outlook for release of DBCP back on the market for restricted use is very bleak. Once the EPA pulls a product as fast as they pulled DBCP, it is very doubtful it will ever return. Enough said about a product over which we have little, if any, governing power. The job now is to find a product which will take the place of DBCP.

All my experiments during the past two years lead me to believe EDB and DD are the best products available for controlling nematodes economically. I can illustrate this with the figures below. They are based on samples from two different courses.

(Continued on Page 18)

NEMATODE (Continued from Page 16)

	After		Two Months Before		Three Months Before		Four Months Before	
	#1	#2	#1	#2	#1	#2	#1	#2
Root-Knot.....	80	62	66	0	24	0	42	20
Sting.....	110	38	36	54	42	22	28	24
Lesion.....	66	54	82	40	44	24	0	14
Lance.....	72	238	12	88	66	144	24	96
Spiral.....	40	356	64	144	52	88	24	112
Stubby Root.....	0	24	0	0	8	0	28	0
Cyst.....	0	6	0	0	0	0	0	0
Stunt.....	0	0	0	24	0	0	0	0
Ring.....	180	1082	48	288	88	450	64	492
Sheath.....	92	72	88	0	24	12	0	28

You can see that the overall treatment with EDB and DD has helped reduce the overall nematode population from the time the courses were treated in April through late July. In some cases you will note a few species which were not present in the previous months but are now. In other cases, there is a reduction in count, but it goes back up the next months. In still others, we have reduced the count considerably but not down to the desired level.

These two courses had never been treated before with any nematicide. Following the treatment the turf quality improved 100 per cent leading me to believe the treatment really helped by reducing nematode count. These courses may need another treatment to further reduce the count to accepted levels.

Proper soil moisture is a key ingredient in the application process. The soil must be moist prior to application. After the material has been applied use your irrigation system to apply between 1/4 and 1/2 inch of water per day for at least the first five days. This seals the product in the soil and gets the material where it is needed.

I hope this article will help to answer a few of your questions about nematodes and their control. Research is being done every day and it is hard to keep up with all the advancements. Therefore, I recommend you keep in touch with your county agricultural agents, Dr. Dunn at the University of Florida and the extension services throughout the state. ■

WELL AND PUMP INSTALLATION

Specializing in
Deep Well Turbine Pumps – Service and Repair
Maintenance Program Available

MAXSON WELL DRILLING, INC.

3328 N. E. 11th Ave.

Oakland Park, Fla.

Phone 564-3419

Early Extinction By Excessive Inflation

By JAMES P. CALLAGHAN
Rio Mar Country Club

As an agent for my employer, I purchased a specialized piece of turf equipment for \$5,200 in September, 1978. This month I purchased the same updated model for \$8,500. This represents a 63% increase in just 28 months or 27% per year, which is more than double the overall inflation rate. I question the accelerated rise in cost. Is it inflation — or what?

Granted, there are several innovations found on the new piece of equipment but this alone shouldn't account for such a drastic increase in price. In fact, some parts are no longer found on the new model. I ask what accounts for all the added expense because I can't see it!

However, I do see an ominous consequence on the horizon if some of the specialized turf equipment introduced during the last decade continues to increase in price at such an alarming rate. Coupled with high energy and maintenance costs, this equipment that has become commonplace on the golf course may soon be priced out of the market. Its remains will be found among those of the dinosaur.

In the future, sound economics will be scrutinized in every dimension. Manufacturers take heed — for soon it may be cheaper to cut our greens with an updated circa 1930 greensmower! ■

FLORIDA PESTICIDE USE SURVEY

Preliminary data shows that the golf course superintendents used a total of 63 pesticides on golf courses in Florida which includes 20 fungicides, 24 herbicides, 15 insecticides and 4 nematocides. *The top 5 pesticides used for golf courses were:*

Rank	Pesticide	Pounds ai
1	DBCP	274,773
2	MSMA	256,990
3	toxaphene	255,956
4	chlorpyrifos (Dursban)	81,273
5	trichlorfon (Dylox)	71,253

It seems to me that compared to the intricate workings of a golf course, a moon rocket is a simple toy.

David J. Gradman
Palm Beach Country Club