RING NEMATODE INJURY TO CENTIPEDEGRASS LAWNS AND POSSIBLE CONTROL

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Abstract. **The ring nematodes (several species) are a major problem of centipedegrass lawns in Escambia County, Florida. Over a three-year period, beginning April 21, 1970, 112 soil samples from centipede turf were submitted to the nematode assay laboratory. Of this number, 96 contained moderate to very high levels of nematodes. Ring nematode was a major factor in all but six.**

The problem is so severe that most lawns begin to deteriorate after three to four years, if untreated. The conventional drench treatment, using DBCP has shown erratic results. Response ranges from none at all to very good.

Recently, a golf green-type nematicide injector was modified for home lawn use. Shanks were replaced with coulters for use in cutting slits in the turf for DBCP injection. By observed turf response, the DBCP injection treatment appears to be much superior to the conventional drench treatment.

Centipedegrass is the major turfgrass found in urban and suburban Pensacola lawns. Grass established on newly developed property generally provides a desirable appearance for only three to four years. As the lawn ages, predictable syptoms occur. Above ground symptoms include weed encroachment, wilting, thinning, and an increased susceptibility to cold injury and fungi.

Within the past several years, concern by homeowners has led to many field inspections for the purpose of diagnosing centipedegrass problems. In some cases, the problem could be traced to excessive thatch, insects, diseases, improper fertilization programs, or other common causes. Many lawns, however, show restricted root growth which cannot be traced to the above causes.

Beginning April 21, 1970, soil samples were taken while diagnosing lawn problems. The samples were taken for the purpose of determining nematode numbers. All were packaged and sent to the nematode assay laboratory at the University of Florida. Over a three year period, 112 samples were submitted.

All lawns tested were three years old, or older. Of this number, 96 contained moderate to very high levels of nematodes and treatment was advised. Ring nematode was a major factor in ninety of the lawns.

Nematodes can interfere with plant growth by reducing the size of the root system, thus limiting water and nutrient uptake (4). In 1971, Dickson, Smart, and Perry (1) stated that the ring nematodes are a major problem on centipedegrass where heavy to very heavy infestation levels are found. Esser (2) notes that ring nematodes are ectoparasites and can move easily to new feeding sites.

The current recommendation for ring nematode control is a surface drench using DBCP. Results have been very erratic by this method. In some cases no visual response can be found following the treatment.

In 1971 (3) exploratory tests indicated that DBCP injected into established turf provided satisfactory results. During late summer of 1971, a demonstration treatment was applied at a local golf course. Results were so favorable that a local sprayman became interested in obtaining a nematicide injector machine and modifying it for use in home lawns.

During the winter of 1972 a commercial machine was purchased. The golf green-type machine was found to be smaller, and more practical for use in home lawns than the original fairway equipment.

The machine consisted of a small tractor with a set of chisels which opened the soil at six-inch intervals. The chisels also acted as delivery shanks for the nematicide.

An immediate problem was found with the machine. Lawns which had very shallow root system were seriously damaged by the chisels. The amount of uprooted turf made the use of the equipment questionable.

In early spring of 1973 small coulters were placed ahead of each delivery shank. The coulters are seven and one-half inches in diameter attached to a seven-eighths inch horizontal shaft. This allows the turf to be sliced three inches deep just ahead of the delivery shanks.

The present rate of application is approximately three gallons of 86% DBCP per acre. Of 50 centipede lawns treated by this method only one failure was noted. The failure was attributed to poor watering practices after the treatment. Most lawns

show visual improvement within four weeks. Many display complete coverage of previously bare areas, and very desirable turf within six weeks.

Even though the modified machine is satisfactory, one more change will be made. Behind each delivery shank an individual spring-loaded packer wheel is being installed. The purpose is to provide a more complete seal of slits made by the coulters.

Based on our visual evaluation this year, DBCP is believed to be the most positive ring nematode control presently available. Of primary importance is the interval before repeat treatments are needed. Lawns treated this past season will be *checked in* the future for the purpose of determining nematode increases.

Literature Cited

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PESTICIDE PHYTOTOXICITY TO ORNAMENTAL PLANTS[1]

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Abstract. **Three insecticides and 3 miticides were evaluated in a climate controlled greenhouse to determine phytotoxicity effects on 17 ornamental plants. Pesticides were applied at 1X and 2X rates at 7 day intervals for 3 weeks. Observations for plant damage were made 1 week after each treatment.**

Almost one-half the plants treated with the 1X rate exhibited some phytotoxic responses. The most sensitive plants were schefflera (Brassaia actinophylla, **Endl.), fluffy ruffle fern** (Nephrolepis exaltata, **L. Schott, 'Fluffy Ruffles'), peperomia** (Peperomia obtusifolia, **A. Dietr.), and golden pothos** (Scindapsus aureus, **(Lind. and Andre) Engl. 'Golden Pothos'). The most toxic chemicals were Plictran and Omite and the least phytotoxic materials evaluated were Zectran and Pirimor.**

In a second experiment 6 insecticides were evaluated in a simulated nursery production area to determine phytotoxicity on 12 woody ornamental plants. Pesticides were applied at 1X and 4X rates at 7 day intervals for 3 weeks and observations for plant damage made 1 week after each treatment.

One-fourth of the plants tested exhibited some phytotoxic responses at the 1X rate. The most sensitive plants were azalea (Rhododendron indicum, **Sweet), loquat** (Eriobotrya japonica, **Lindl.) and euonymus** (Euonymus japonicus, **L.). The most toxic chemicals were Baygon W. P. and Phosvel E. C. and least phytotoxic were Temik, Orthene and Meta-Systox-R.**

Continual insect and mite control in ornamental nurseries is necessary for nurserymen to produce quality plants for the ultimate consumers (1). Although miticide and insecticed phytotoxicities have been reported for some foliage plants (3, 4, 5), only limited information is available on phytotoxicity of these materials to woody ornamental plants produced in Florida (2, 6). Continued evaluation of pesticides is necessary to present ornamental plant growers with safe control measures. These investigations were conducted to determine the phytotoxic effects of selected insecticides and miticides to both foliage and woody ornamental plants.

Two experiments were established to determine the relative safety of pesticides to foliage and woody ornamental plants.

Experiment 1 was conducted in a climate controlled greenhouse at the AREC, Sanford, Fla. Shade paint was applied to give approximately 60% shade. Temperature and humidity was monitored throughout the experiments. Daily temperatures ranged from 80° to 85° F. and temperatures at night ranged from 62° to 68° F. with relative humidity ranging from 95% during the night to 60% in the early afternoon. Plants included were rooted cuttings of ardisia (*Ardisia crispa*, A. DC.),

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