Turf Nematode Control Update

Namatodes commonly contribute heavily to decline of turf in Florida. On the other hand, weak turf growth is often blamed on nematodes without reason except that no other cause is recognized. Correct diagnosis is clearly necessary before deciding to apply a nematicide, since the treatments are generally noxious, expensive, or both. Nematicides vary in effectiveness against different kinds of nematodes, and not all nematicides can be used in all sites.

DIAGNOSIS

Above ground symptoms: wilting and slow recovery from wilt, chlorosis, decline, or "melting out," weed invasion, irregular shape and slow spread of affected area, usually without abrupt borders.

Root symptoms: roots shorter and with fewer branch roots than healthy roots, darker in color, sometimes with swollen root tips or short brushes of lateral roots at root tip; reduced root system does not hold soil core or plug together.

REDUCING NEMATODE POPULATIONS IN ESTABLISHED TURF IS PRESENTLY POSSIBLE ONLY BY USE OF NEMATICIDES.

Previous history may indicate nematode problems which are apt to recur at a particular location.

Nematode sample analysis in a laboratory determines the kinds of nematodes and the relative numbers of each present per unit of soil (100 cc, pint, kilogram, etc.) present in the sample when it is processed. Most laboratories will also indicate in a general way whether the population detected is likely to significantly affect the crop for which advice was asked.

It is up to the turf professional to combine the evidence from all of these sources to assess the likely role of nematodes in a particular situation and the probability that treatments which can be used in that situation will be effective. "Threshold" or "action" levels for several kinds of nematodes on local turf species may be found from many different sources. However, NO magic numbers of any nematodes can be set as automatic cut-off levels, above which treatment is justified and below which it is not. Environmental factors, including the level of management, other pests and pathogens, and weather drastically affect how seriously nematodes stress turf. Aesthetic standards and budgets determine how much demand will be tolerated before expensive pesticides will be applied.

Reducing nematode populations in established turf is presently possible only by use of nematicides. All those now registered for use on any turfgrass in Florida are very toxic organon-phosphate pesticides, applied to the turf in granular or sprayable liquid formulations. All are carried through the soil dissolved in soil water; a limited amount of irrigation or rain is needed to carry the active ingredients into the turf root zone from a surface application, yet too much water can leach the material too deeply to inhibit nametodes in the root zone. This wastes the cost and effort of application and may contribute to environmental pollution.

NAMCUR 10G. 2-1/3 to 4-2/3 lbs. per 1,000 square feet or 100 to 200 lbs./acre. only this formulation of Namacur will be registered for turf as soon as existing supplies of Nemacur 15G have been used. May be used on golf courses, cemeteries, sod farms, industrial grounds, parkways roadways: Do not use on residential lawns or public recreational areas other than golf courses. Nemacur products are generally the most broadly effective nematicides now available for Florida turf.

NAMACUR 15G. 1.5 to 3.0 lbs./1,000 square feet or 68 to 134 lbs./acre. Sites and limitations are as for Namacur 10G., above.

DASANIT 15G. 1.5 to 3.0 lbs./1,000 square feet or 68 to 134 lbs./acre. May be applied to commercial turf such as

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sod farms, golf courses, and cemeteries; do not use near human dwellings.

MOCAP 10G. 5 to 7 lbs./1,000 square feet or 200 to 300 lbs./acre. May be applied to commercial turf such as golf courses, sod farms and cemeteries; may be used on home lawns only by certified commercial applicators. May be applied to bermuda, zoysia, St. Augustine, centipede, and bahia grasses. Effective against sting, awl, spiral, and some other ectoparasitic nematodes, but erratic in control of lance, root-knot, and and other endoparasitic species.

MOCAP EC. 2/3 to 1 pint/1,000 square feet or 3.5 to 5 gallons/acre. Do not use on home lawns. May be applied to commercial turf such as golf course, sod farms, and cemeteries. This formulation has the same limitations of effectiveness as the 10G. Foliar application with IMMEDIATE irrigation to wash Mocap EC from the foliage may result in serious injury to foliage.

SAROLEX EC. 1.5 to 2.5 pints/1,000 square feet or 8.2 to 13.6 gallons/acre. May be used on turf and lawns, including home lawns; has limited effectiveness gainst sting and few other ectoparasitic nematodes, with little or none against lance, root-knot, and other endoparasitic species.

(Dr. Bob Dunn, Extension Nematologist, Entomology and Nematology News, Volume 10, Number 3: May, June 1984.)

Pesticide Exposure Shown Despite Protective Clothing

Recent University of California research has shown that pesticide applicators may be getting unsuspeted levels of skin exposure to pesticides. Six workers, operating tractor-powered rigs to spray a diazinon/oil mixture in a pear orchard were studied. Each worker wore long trousers, a shirt, overalls, boots, a hat, rubber gloves, and either a respirator or a plastic mask. Despite these precautions, the detection systems showed that pesticide had penetrated the protective clothing and droplets had reached the skin through openings around the wrists and necks of the workers.

To measure the exposure, a fluorescent whitening agent was mixed with the pesticide. After the spraying was over the workers took off their clothing, the researchers then shone long-wave ultraviolet light (black light) on them.

The fluorescence glowed wherever the pesticide had reached the skin, and the researchers photographed the workers with a television camera equipped to operate in extremely low light. Then a computer translated the TV image into digital information, computing the relative exposure levels of each skin area according to the brighteness of its fluorescence. The detection system cannot yet measure the exact quantity of pesticide that reaches each spot of skin.

The scientists, Richard A. Fenski, John T. Leffingwell, and Robert C. Spear, are with the Department of Biomedical and Environmental Health Science (sic) at U.C. Berkeley. They described their experiments at an American Chemical Society meeting recently in St. Louis, Mo. Their findings raise questions concerning protective clothing to be worn by pesticide applicators and call into question previous methods of predicting and detecting contamination. (This story is based on a story from the San Francisco Chronical by David Perlman Science Editor) *The IPM Practioner* vol. V1, No. 5. ■

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