



LAWN PEST CONTROL

INSECTS OF TURF GRASSES

Insects and other pests damage lawns in different ways. The two most common insects which attack lawns in Michigan are white grubs and sod webworms. The C-shaped white grubs, which vary from 1/4 to 1 inch in length, are the larvae of May or June beetles. They infest the soil and destroy the roots of grasses. Their presence often attracts moles and skunks to feed on them, causing additional damage to lawn areas.

Sod webworms are particularly troublesome on new lawns where they feed on the grass blades at night. Larvae of the sod webworm have pinkish-

William E. Wallner and George W. Bird, Dept. of Entomology, Gurdon K. Dennis, District Extension Horticultural Agent, and Joseph M. Vargas, Jr., Dept. of Botany and Plant Pathology.

cream bodies and brown heads, are 1/4 to 3/4 inches in length and may be found during the day in silken tubes at the base of the grass plants. The adults, gray or tan "millers" are active in the evening when they drop eggs on the lawn which produce the young larvae.

It is extremely important that you correctly diagnose the pest problem before you initiate a control program. Proper diagnosis is important since control measures are different for the various pests.

COMMON LAWN INSECTS IN MICHIGAN

INSECTS	Months of Occurrence	Control
Grubs, Wireworms	Early Fall thru Early Summer	Granular material spread with a spreader. Allow 1-2 weeks for control. Water in after application. 10% Chlordane Granules*
Ants	All year	25% Diazinon emulsion, or 22% Dursban emulsion, or 45% Chlordane emulsion
Sod Webworm and Cutworms	Early to Mid-June (1st Generation) Early to Mid-August (2nd Generation)	Drench applied when high populations occur. Apply late afternoon. Avoid watering for 3 days. 22% Dursban emulsion, or 25% Diazinon emulsion (Spectracide), or 50% Carbaryl (Sevin) Wettable Powder, or 2% Diazinon Granules, or 2% Trichlorfon (Dylox) Granules
Leafhoppers	Spring thru Fall	Spray leaf surfaces. Withhold water for 3 days. 25% Diazinon emulsion (Spectracide), or 50% W.P. Carbaryl (Sevin), or 57% Malathion emulsion
Clover Mites	April, May & late Fall	Spray building foundations, lawn and areas where they concentrate. 18.5% Kelthane emulsion, or 25% Diazinon emulsion (Spectracide)

*Note - Chlordane has been linked to thatch build-up in lawns. It may be advisable to avoid the routine use of Chlordane on lawns. ALL INSECTICIDES SHOULD BE APPLIED ACCORDING TO LABEL DIRECTIONS. FOLLOW ALL SAFETY PRECAUTIONS ON THE LABEL.

DISEASES OF TURF GRASSES

Most lawn disease fungi are present as saprophytic fungi in the thatch and organic matter. When conditions of temperature and moisture become right, they attack the live grass, particularly when the grass is weakened. The best preventive is to maintain a healthy, vigorous turf through proper fertilization, mowing and watering. The turf diseases listed are generally in order of importance and frequency of occurrence on Michigan turf.

NEMATODE PROBLEMS OF TURF GRASSES

Plant parasitic nematodes are microscopic worms that usually feed on the roots of plants. In Michigan, they can be severe pests of turf grasses. Above-ground symptoms of nematode-infected turf include yellowing of leaves, dieback and breakdown of young foliage and a tendency to wilt during periods of high temperature and low moisture. Grass cover generally becomes thin and growth during the summer months is poor. Severely infec-

COMMON LAWN DISEASES IN MICHIGAN

DISEASE	Months of Occurrence	Susceptible Grasses	Control
Fusarium Blight	May-Oct.	Most common on Kentucky bluegrasses	Benomyl (Tersan 1991) Drench into soil during first week of July
Leaf Spot, Melting Out, or Fading Out (Helmenhospodium)	Apr.-Nov.	Bent, Bluegrass and Fescue	2 applications 7-10 days apart with Fore, Daconil 2787, Actidione-Thiram, Dyrene
Stripe Smut	Apr.-June	Bluegrasses (Mostly Windsor and Merion)	Drench into soil 2 applications 7-10 days apart. Benomyl (Tersan 1991), Spot Kleen, Fungo, Cleary's 3336
Powdery Mildew	July-Nov.	Kentucky bluegrasses	Benomyl (Tersan 1991)
Fairy Ring	Apr.-Nov.	All grasses	Remove sod and soil and replace (No effective chemical)
Pink Snow Mold	Sept.-May	Bent, Bluegrass and Fescue	Benomyl (Tersan 1991), Fore, Fungo, Spot Kleen. Control previous Fall. Apply early Nov. and Jan. during a thaw.
Grey Snow Mold	Under snow	Bent and Bluegrasses	Control previous Fall, 2 applications Mid-Nov. and Jan. during thaw. Tersan SP
Dollar Spot	May-Nov.	Bent, Bluegrasses and Fescues	2 applications 5-7 days apart. Benomyl (Tersan 1991), Dyrene, Actidione-Thiram, Daconil 2787
Brown Patch	July-Aug.	Bent, Bluegrasses	Dyrene, Fore, Actidione-Thiram, Daconil 2787, 2 applications 5-7 days apart
Rust	July-Nov.	Bluegrasses	Fertilize and mow
Pythium Blight	July-Aug.	Bent, Bluegrasses, and Ryegrass	Tersan SP. 2 applications 5-7 days apart

ALL FUNGICIDES MUST BE APPLIED FOLLOWING LABEL DIRECTIONS.

ted areas may become bare and, in turn, infested by annual grasses and weeds. In addition to causing direct damage to root systems, feeding by some plant parasitic nematodes increases susceptibility of certain turf grasses to diseases, such as Fusarium blight.

Stunt, stubby-root, root-knot and cyst nematodes are the four most important nematode pests of Michigan turf grasses. High population densities of the stunt nematode appear to be very commonly associated with Michigan turf grasses. Spiral ring and sheath nematodes are also frequently found in high numbers in Michigan turf grasses; however, their overall influence on plant growth and development is unknown.

Because nematodes are microscopic and the damage they cause is very similar to that resulting from other factors, a laboratory analysis of soil and root tissue is usually necessary for diagnosis of plant-parasitic nematode problems. In Michigan, this service is provided by the Michigan State University Nematode Diagnostic Service Laboratory, which is operated under the direction of the Michi-

gan Cooperative Extension Service. Soil and root samples can be taken, submitted and reliably processed whenever the soil is not frozen. For the best possible results, however, samples should not be taken until 60 days after the initiation of annual root growth and before the first frost. See Extension Bulletin No. 800, "Nematode Detection" for details about how to take and submit nematode samples. (Available from your county extension office or the MSU Bulletin Office, P.O. Box 231, East Lansing, MI 48824).

Sites to be used for the establishment of high quality home lawns should not harbor high populations of detrimental species of plant parasitic nematodes. If sod is to be used, it is best to obtain a high quality product grown in nematode-free, nematicide-treated or fumigated soil.

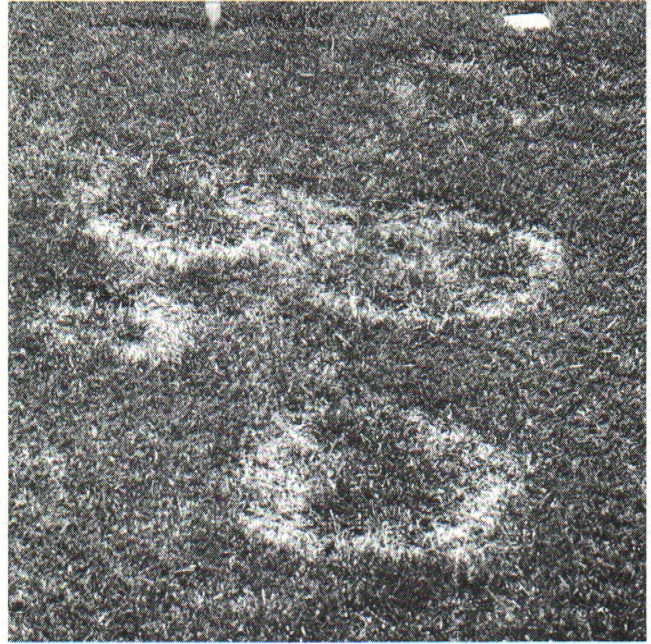
DBCP (Nemagon, Fumazone) is the only chemical registered for nematode control in established home lawns. It must be applied by a professional applicator, and to insure good penetration, it should be applied as a drench.

HOME LAWN NEMATODE CONTROL RECOMMENDATIONS

SOIL FUMIGANT	Rate/Acre	Restrictions	Limitations and Directions
Before Seeding or Sodding 1,3-D D-D Telone II	18-25 gallons 9-15 gallons	Must be applied by a professional applicator.	Apply as a preplant broadcast at least 21 days before seeding or sodding. Aerate before seeding or sodding. Space chisels 12 inches apart and inject to a depth of 5-10 inches. Apply when soil temperature is between 50 and 80°F.
DBCP Fumazone Nemagon	3-7 gallons	Must be applied by a professional applicator.	Apply as a preplant broadcast at least 14 days before seeding or sodding. Aerate soil before seeding or sodding. Space chisels 12 inches apart and inject to a depth of 5-10 inches. Apply when soil temperature is between 50° and 80°F.
Established Turfgrass DBCP Fumazone Nemagon	5 gallons	Must be applied by a professional applicator.	Mix 11-15 oz. of DBCP with 150 to 200 gallons of water and apply as a drench over 1,000 sq. ft. of sod. Water immediately after drench to insure good penetration of chemical.



White grubs are the larvae of May or June beetles and feed on the roots of grasses, leaving large, irregular, dead patches. If grubs are suspected, peel back dead sod and look for the grubs, which may be up to 1-inch long.



Close-up of Fusarium Blight. Note characteristic "frog-eye" symptoms—green grass surrounded by a ring of dead grass. Large areas of the lawn can be lost to this disease, if not treated. Best time to treat is the first week of July.



Turfgrass symptoms of nematode damage. Aboveground symptoms include yellowing of leaves, dieback and breakdown of young foliage and a tendency to wilt during high temperature and low moisture. Grass cover generally becomes thin and growth during summer months is poor. Since nematodes are microscopic and symptoms are similar to those from other pests, a soil sample is usually necessary to determine that problem is plant parasitic nematodes. At right is female nematode and cotton thread photographed at the same magnification. Though the nematode is nearly twice as long as the thread is wide, it is so narrow (1/15 the diameter of the thread) that it is not visible to the naked eye. Photographed by H. H. Lyon and W. F. Mai, Cornell University.

