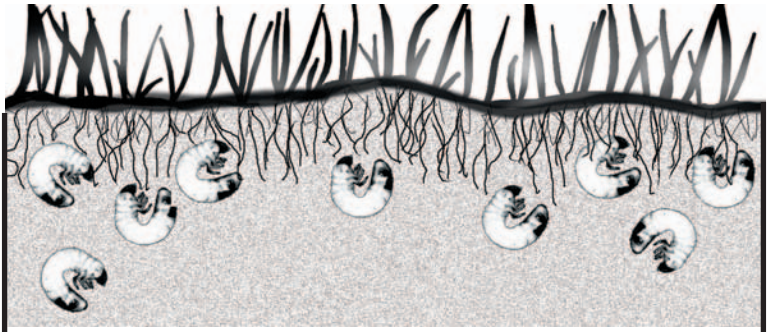
HEALTHY LANDSCAPE
PROBLEM SOLVER



GRUBS IN THE LAWN

In Michigan, the most destructive white grubs found in lawns and gardens are the larvae of Japanese Beetles and the European Chafer. White grubs have C-shaped bodies approximately 3/4 inch - 11/2 inches in length. They live in the soil and feed on plant roots which weakens and may eventually kill plants.

READ THE LABEL BEFORE BUYING ANY PESTICIDE. Re-read the label before using, storing or disposing of the pesticide — the label is the law. Following label instructions will help reduce risks to human health and the environment.

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DOES YOUR LAWN HAVE A GRUB PROBLEM?

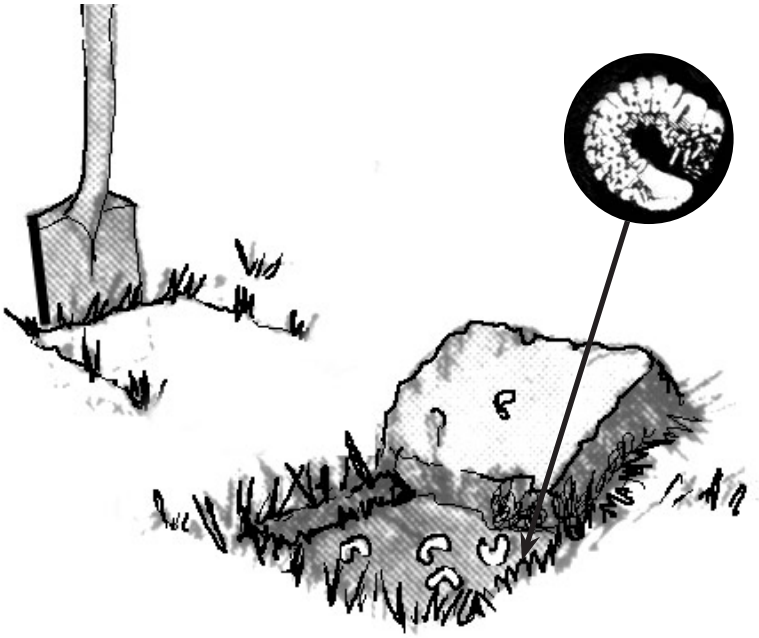
SYMPTOMS

Small, dried out and dying patches of grass, which may peel back like a carpet, indicate a possible grub problem. The presence of skunks or moles is not always a sign of a grub problem as these animals also eat other soil organisms such as worms.

SIMPLE TEST TO DETERMINE IF THERE IS A GRUB PROBLEM

The ideal time to look for grubs is mid April to early May, and mid to late August. Cut through three sides of a 1-square-foot flap of sod. Roll the flap back to look underneath. Loosen soil to a depth of 2" to 4". Count the grubs. Return flap to position and water well for 1 - 2 weeks to allow grass to reroot. To be sure you have a problem, repeat this in a few locations.

If you do not water your lawn frequently, five or more grubs per square foot indicates a grub problem. Twenty or more grubs per square foot may be a serious problem in a well-watered lawn.

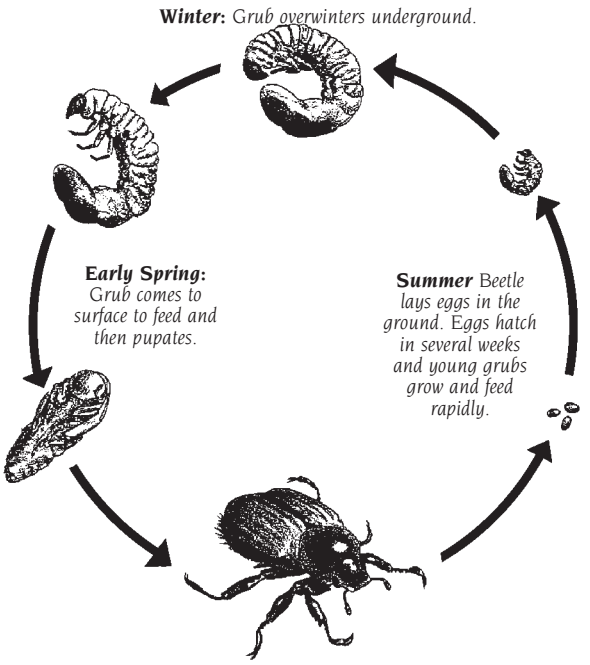


LIFE CYCLE AND EFFECTIVE TREATMENT TIMING

Grubs overwinter and begin feeding early in the spring (usually April/May). Grubs pupate and become adult beetles around late spring through early summer. The next generation begins in mid summer after female beetles lay their eggs in the lawn. In mid-August, these eggs hatch and the larvae (grubs) feed on grass roots throughout autumn.

Proper timing of any grub control treatment is esential for sucess. Application time varies with each product. Some products need to be applied early to mid-July, prior to the grubs hatching; other products need to be applied in the larval stages (when the grubs are present) in order to be effective. Read label instructions. Call MSU Garden Hotline for application information.

TO REDUCE PESTICIDE APPLICATIONS, APPLY GRUB CONTROL PRODUCTS IN THE SUMMER – NOT IN THE EARLY SPRING



GRUB CONTROL OPTIONS

There are usually several management options for solving any pest or disease problem. Use the non-pesticide approach whenever possible, saving pesticide use as the last line of defense. If a pest is identified at a damaging level, select a control targeted to the problem. This is called "Integrated Pest Management" or "IPM".

PREVENTION

The best way to *save* a grub-infested lawn is to properly irrigate. Daily watering promotes grass growth and counteracts root damage caused by grubs. Maintaining a healty lawn will allow it to better withstand grub attack.

BIOLOGICAL CONTROLS

B*eneficial nematodes* are soil-dwelling, microscopic worms that burrow inside and kill grubs. They can reduce grub population below destructive levels. Moisture before and after application is key to nematode effectiveness. They will not harm beneficial insects or earthworms.

CHEMICAL CONTROLS

If you decide to use a chemical treatment, consider the life cycle of the pest in determining the proper timing of the application. There are a number of chemical options. See "P*recautionary* S*tatements*" on package label for toxicity information. ***Whenever using chemical insecticides, carefully read and follow <u>all</u> label instructions***.

Sources of information:
Greg Patchan, Horticulture Agent, Oakland County MSU Extension.
Ellis and Landis. W*hat's Bugging You*?, MSU Extension Bulletin E-2649
Otkowski, et. al., *Common-Sense Pest control*, Taunton Press

FOR ADDITIONAL INFORMATION:

Oakland County Garden Hotline: 248/858-0902
National Pesticide Telecommunications Network (NPTN): 1-800-858-7378
(Information about environmental and health effects of specific chemicals)
Household pesticide disposal: Call SOCRRA for an appointment: 248/288-5153
Website: healthylandscapes.com