



AN UPDATE ON WHITE GRUB CONTROL IN TURF

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Entomology

Japanese Beetle and European Chafer Damage to Turfgrass

- When to look for damage
- In May to June, or more commonly in late August to September. Old damage is usually apparent in July and August.
- Preferred turfgrass hosts
- Young larvae require fine fibrous roots for normal development. Grass type is very important. Thatch may be chewed and broken apart in place.
- Damage
- Patches of dead grass with entire root system chewed off. Grass can be lifted like a carpet.
- Where to find insects
- Small larvae can be found feeding on grass roots in August. Larger larvae present in root zone in September and late April to June. Adult beetles can be found from mid June to early August. European chafer adults emerge two weeks earlier than Japanese beetle adults.

June Beetle Grubs (*Phyllophaga* spp.) and Damage

- When to look for damage
- Anytime from May to September when plants are under drought stress.
- Preferred turfgrass host plants
- Little is known about preferred host plants.
- Damage
- Patches of dead grass with the root system consumed by larvae in the soil. Grass can easily be pulled up because of the lack of roots.
- Where to find larvae
- These insects have a 2 or 3-year life cycle. Various life stages of the larvae can be found in the root zone from April to September.

Preventive Control Strategies for
Japanese Beetle, European Chafer and June Beetles

- Resistant cultivars - None have been identified
- Cultural practices - Irrigation and fertilization help turfgrass compensate for root pruning. Well-maintained grass may tolerate 30 annual grubs or 10 June beetles per sq ft.
- Biological control - Milky spore disease--only for control of Japanese beetle, not effective against other grubs. Do not use with insecticides. Best on low-value lawns.

Japanese Beetle and European Chafer
Insecticide Control

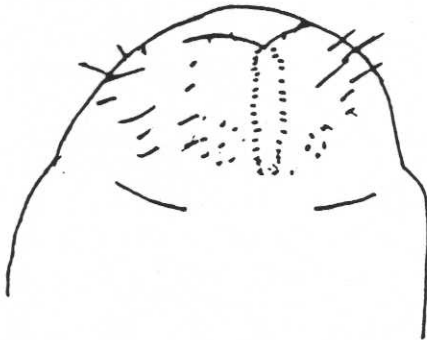
<u>Insecticide</u>	<u>Formulation</u>	<u>Amount of formulation per 1,000 sq. ft.</u>	<u>Expected % control</u>
Triumph	4E	1.5 oz	65-95
Oftanol	5G	0.9 lbs.	65-95
Oftanol	2I	3 oz.	70-95
Oftanol	0.5G	3.0 lbs.	65-95
Proxol	80SP	3.7 oz.	65-95
Dylox	80SP	3.7 oz.	65-95
Mocap	10G	2.3 lbs.	60-95
Turcam	76WP	0.75 oz.	65-95
Diazinon	Ag 500	4.6 oz.	60-90
Diazinon	2E	8 oz.	50-90
Diazinon	5G	3 lbs	50-90
Sevin	SL	-----	70-80
Sevin	80S	4 oz.	65-80

1. Timing of Application
 - a. Spring - April to early May (30-90% control).
 - b. August - Best control (90%).
 - c. Carry-over spring to fall: 50-75% with Oftanol.
2. Spray Volume
 - a. Use 4 gal/1,000 sq ft if possible.
 - b. More water is better.
3. Irrigation
 - a. Irrigate 1/2 inch after application.
 - b. Irrigating immediately or 48 hours later, little difference for granular insecticides.

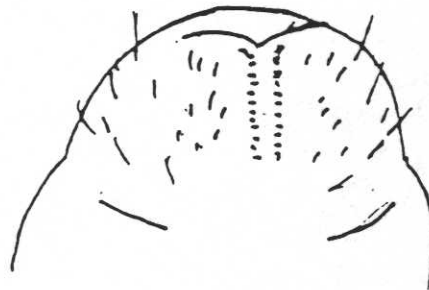
4. Choice of Insecticides

- a. Use granular insecticides if irrigation is not available.
- b. Dursban and Aspon not recommended.
- c. Proxol/Oftanol; Proxol faster, Oftanol more residual.
- d. Caution - toxicity on home lawns.
- e. Some material for professionals only.
- f. Diazinon and Triumph for use on house lawns only (not golf courses and sod farms).

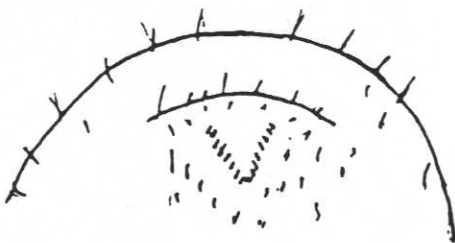
RASTERS OF SOME WHITE GRUBS



June Beetle
(*Phyllophaga* spp.)



European Chafer



Japanese Beetle



Masked Chafer