

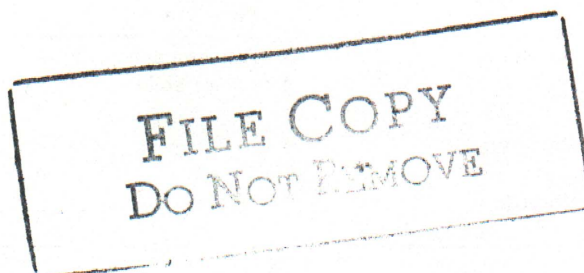
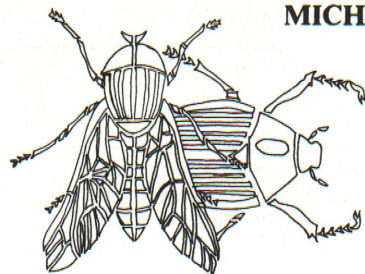
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White Grubs in Field Crops  
Michigan State University  
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# White Grubs in Field Crops

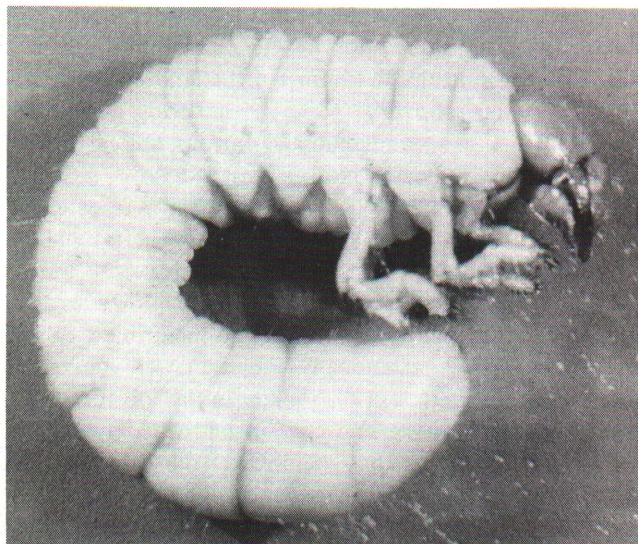
By Robert F. Ruppel, Department of Entomology

All too frequently, white grubs are not detected in crops until they have done their damage. This is because they feed on the roots beneath the soil surface where they are not seen by the grower. Their damage, however, is very evident. It appears as areas of wilted or dead seedlings and areas of stunted plants. These areas are commonly scattered across the field, circular in shape, and vary in size from a few yards to almost an entire field.

## Biology

Grasses are the normal hosts of grubs. Adult grubs are the familiar medium-sized to large, brown beetles called May beetles or June bugs. They lay their rounded, white eggs in late spring in the soil of grassy fields such as sod, lawns, meadows or fields with weed grasses. Grubs that hatch from these eggs are thick-bodied, cylindrical and curl into a C shape when disturbed (Figure 1). They are white and have a dark head and six small legs just behind the head. Grubs range in size up to an inch and one-half or more in length. They feed on the roots of the grasses during the summer and go deeply into the soil with cool, fall weather. Warm weather the next spring brings them to near the surface of the soil where they continue to feed on the roots. Different species of grubs feed from one to four seasons; our common damaging species feed for three years. Grubs transform to a quiet stage (pupa) in the soil. Adult beetles emerge from these pupae in the spring, leave the soil, feed on the leaves of trees and other plants, mate and lay eggs of the next generation.

Damage done by the grubs to a deeply rooted meadow may not be apparent even when grubs are abun-



**Figure 1.** Larva of the white grub. White grubs normally feed on grass roots, but will injure any crop if grass is not available. Check for grubs in fields with grassy areas before planting.

dant. Their damage in old pastures or weedy fields is also obscure or overlooked. Plowing and planting such infested fields leaves only one source of food available to grubs—the small plants of the crop. While grubs are primarily grass feeders, they will eat nearly any crop if grass is not available. Their feeding on the roots of the crop stunts the large plants and may completely kill seedlings and smaller plants. White grubs must be controlled before their damage is done.



## *Insecticides Recommended for White Grub Control in Field Crops — 1972<sup>a</sup>*

Insecticide	Lbs. Active Insecticide Per Acre	Crop	Notes
Parathion	3 in mineral soils; 4 in muck soils	corn, small grains except rye, soybeans, sugarbeets	Do not contaminate ponds and streams. Hazardous; handle with care
Diazinon	4	corn, soybeans, sugarbeets	
Chlordane	4	corn, small grains, soybeans	Non-dairy farms only.

<sup>a</sup> Consult your County Agricultural Agent for current insecticide recommendations.

### Detection

Suspect a problem with white grubs whenever a pasture, old meadow or grass-infested field is fitted for crops. Increased use of selected weed killers has left an increasing amount of grass weeds in fields. Be suspicious of fields that have areas of grassy weeds. Check plow furrows for grubs when suspected lands are fitted during late spring to early fall—when grubs are near the surface. Dig up some spots in the field and check the soil for grubs during the summer if the land will not be fitted until the following fall or early spring. Starlings, other birds, skunks and animals root up and eat grubs and are a good indicator of grub activity.

Check for grubs especially carefully where wildlife has been rooting. Apply an insecticide just before planting if the grubs are easily found in the field.

Make it a practice to check for grubs in plow furrows and areas where birds are feeding in the ground in all fields. Grubs are occasionally found in well-cultivated fields. Remember that grubs remain in the soil for three years. Damage can be expected in cultivated fields for two years following their removal from sod. Check seedling plants as soon as they germinate for areas of poor stand or wilting plants. Examine the soil around the plants for white grubs. If grubs are detected in time, the infested area may be treated with an insecticide, disked and replanted. Young plants are especially susceptible to insect damage. Check germinating plants and young seedlings for other insects such as cutworms, flea beetles, wireworms and seed corn maggots each time you check for grubs.

### Control

The best control for white grubs is total prevention. This is done by keeping fields as free of weed grasses as possible. Proper drainage, good land fitting, and sound weed control are helpful. Keep forage crops in high vigor to slow weed grasses in the crop. Turn down forage crops as soon as they are no longer vigorous. Check the soil in these fields for grubs before planting.

Spray or granule insecticides should be used to control grubs. Remember that insecticides are poisons; handle, store and apply them with great care. The label on the insecticide container has full instructions for safe, effective use. **Read the label** before buying any insecticide. Adjust equipment to apply the insecticide uniformly over the entire surface of the soil prior to planting. Cover the insecticide with soil immediately after application to prevent exposure to high soil surface temperatures and people, livestock and wildlife. Applying an insecticide over small plants and lightly harrowing it in to control grubs not detected until after the plants have germinated, is not recommended. It is better to treat the infested area (and a 20 to 40 foot border) with the insecticide, disk in the insecticide and replant the area, if there is still time. The insecticides recommended for use in 1972 are given in the table. **Check with your county Agricultural Extension Agent for current insecticide recommendations. Keep crops as free of weed grasses as possible. Check grassy fields for grubs before planting to a crop. Use insecticides safely when they are required. Cover the insecticide with soil immediately after application.**