White Grub

CROP BULLETIN

Chuck Bremer, Former Agronomy Information Manager

KEY POINTS:

- "True white grubs", of the Phyllophaga genus are the only white grubs found to cause stand losses in corn.
- Damage to crops occurs only on young corn seedlings; feeding results in nutrient and moisture stress to plants.
- Scout fields by watching soils for white grubs during spring tillage; infestation may be localized.
- Pesticide application at planting or seed treatments may provide some protection. However, rescue insecticides are not effective, and replant may be warranted.

PEST FACTS AND IMPACT ON CROP

- White grubs of the *Phyllophaga* genus (called "true" white grubs) are the only ones found to cause stand losses in corn, as they may be present the complete season and generations may overlap.
- A c-shaped grub up to 1¼ inches long.
- Damage only occurs on the young corn seedling.
- Significant damage can occur from true white grub densities of one larva per cubic foot prior to planting.
- There is little loss from annual white grubs (*Cyclocephala lurida*), as they only feed for a short period.

PEST SYMPTOMS/INJURY ID

- Young plants are stressed and turn light tan, yellow, or purple from nutrient and moisture stress.
- Plants wilt, grow slowly and may die, reducing stands.
- Plants that survive are usually behind in development compared to surrounding plants.

HOSTS

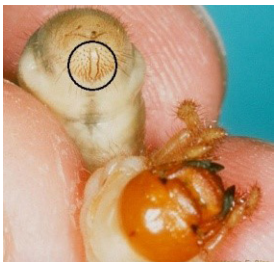
- Research in North Dakota found primary distribution of Phyllophaga grubs within 100 feet of shelterbelts consisting of cottonwood, willow, or similar species near row crop fields.
- Oviposition and natural habitat are in wooded or grassy areas, and different species probably have different specific host plants.
- Corn and other row crops are incidental hosts of larval white grubs.

DISTRIBUTION

- Although most states in the United States have at least one species, most species of Phyllophaga are found east of the Rocky Mountains.
- There are more than 25 species in the Midwest, Northeast, and South.

PEST ID / CONFUSED OR SIMILAR SPECIES

- **True white grub** identified by two parallel rows (zipper) of hairs on raster (underside of tail)



True white grub or May/June beetle (3-year grub)

Annual white grub or masked chafer (1-year grub)

- **Annual white grubs** = *Cyclocephala lurida*
  - Annual white grub is identified by lack of parallel rows of hairs on their raster; the hairs are randomly scattered.
  - Annual white grub feeds on organic matter in soil.

- **Japanese beetle** = *Popillia japonica*
  - Japanese beetle rasters form a prominent "V."

Japanese beetle (1-year grub)

- **Manure grubs** = *Aphodius spp.*
  - Manure grubs are very small & feed on decaying organic matter in the soil.

- **Green June beetle** = *Cotinis nitida*
  - Green June beetle grubs can be up to 2 inches long and if given the chance, will crawl away on their back.

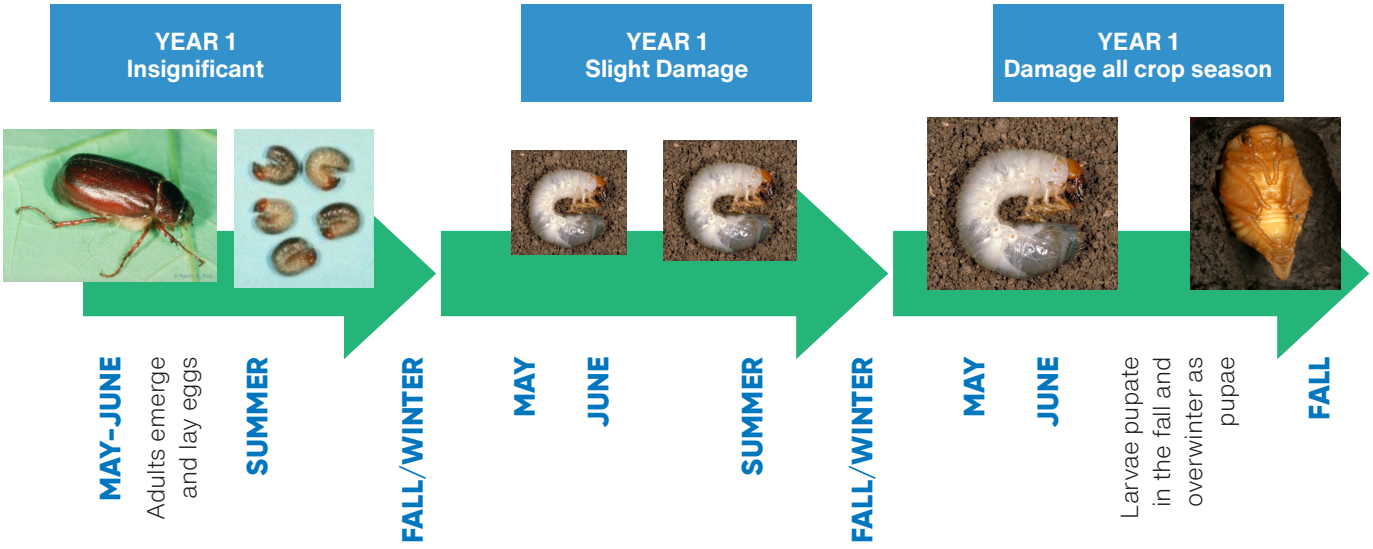
MANAGEMENT CONSIDERATIONS

Scout fields by watching soils for white grubs during spring tillage.

- An infestation may be quite localized where vegetation and soil moisture were conducive to egg laying and grub survival.
- A pesticide at planting may be warranted if there are signs of white grubs prior to planting.
  - Soil samples (>2/cu ft); previous history
- Insecticides applied at planting or high rate of insecticide seed treatment may give some protection.
- Rescue insecticides after the crop has been planted are not effective; replanting is the only remedial treatment.
- No transgenic products control white grubs.
- In localized areas of stand loss or reduced growth, replanting may be warranted.

TYPICAL PHYLLOPHAGA ("TRUE")WHITE GRUB LIFE CYCLE

Two species or generations may overlap within the same field



The foregoing is provided for informational use only. Please contact your sales professional for information and suggestions specific to your operation. Product performance is variable and depends on many factors such as moisture and heat stress, soil type, management practices and environmental stress as well as disease and pest pressures. Individual results may vary.