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True White Grub Identification and Management

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Abstract

Some grub activity in corn has been noted this growing season. Ideally, scouting for true white grubs should occur prior to planting, however, most people do not realize they have an infestation until stand loss occurs. Areas that were previously pasture or sewn to grass should be monitored for their presence. Grubs are more likely to be found in fields close to cottonwood or willow trees. In some instances, the presence of true white grubs within field crops is not well understood.

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True White Grub Identification and Management

By Adam J. Varenhorst, Mike Dunbar and Erin Hodgson, Department of Entomology

Some grub activity in corn has been noted this growing season. Ideally, scouting for true white grubs should occur prior to planting, however, most people do not realize they have an infestation until stand loss occurs. Areas that were previously pasture or sewn to grass should be monitored for their presence. Grubs are more likely to be found in fields close to cottonwood or willow trees. In some instances, the presence of true white grubs within field crops is not well understood.

Identification

Grubs are always C-shaped and are white with a brown head capsule (Figure 1a). Unlike caterpillars, grubs lack abdominal prolegs. The raster, or tip of the abdomen, is also commonly brown. There are many grubs with a similar appearance, but true white grubs are distinguished by a “zipper” of hairs on the tip of the raster (Figure 1b).

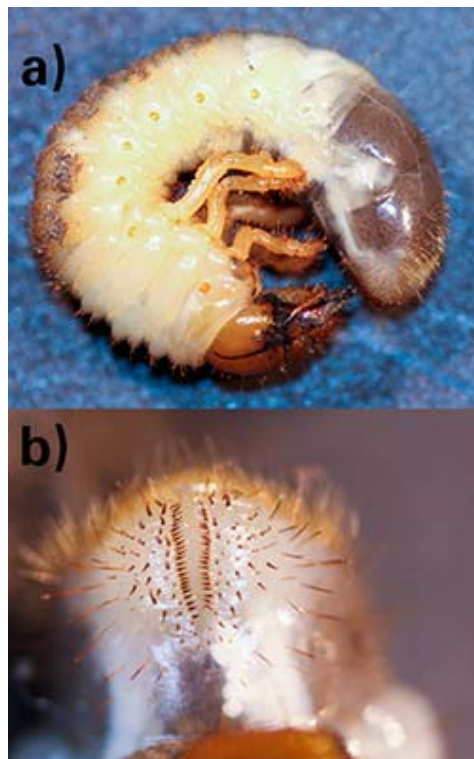


Figure 1. True white grubs have a) a C-shaped body and three pairs of legs on the thorax (directly behind the head), and b) a zipper of hairs on the tip of the raster (abdomen). Photos courtesy of Adam Varenhorst.

Grub injury

True white grubs feed on the fine root hairs of grasses and potentially field crops. High populations can prune roots and reduce the ability of corn or soybean to uptake water and other nutrients (Figure 2). The aboveground symptoms of this injury are plant wilting and purpling of the leaves and stems. Fields with large infestations of white grubs will experience stand loss (Figure 3). When present, true white grub injury is greater in early-planted cornfields due to the early plant development.



Figure 2. True white grubs can prune corn roots. Photo courtesy of Adam Varenhorst.



Figure 3. True white grub feeding in corn can result in plant stunting and eventually stand loss if densities exceed one or more per cubic foot. Photo courtesy of Adam Varenhorst.

Life cycle

True white grubs are the immature stage of May or June beetles (*Phyllophaga* spp.) and are an occasional pest of corn and soybean in Iowa. Unlike other white grubs found in the state, true white grubs have a three-year life cycle. Adult females lay eggs in mid- to late summer of year one. The grubs hatch, feed on existing roots and molt once before overwintering in the soil. During the first year, true white grub feeding causes no observable injury. However, the following spring (year two), grubs will move toward the soil surface and feed on existing plant roots, which may include corn or soybean. Slight grub injury may be observed in year two. In the fall, grubs will move back down into the soil profile to overwinter. In the spring of the third year, grubs will move to the soil surface and feed on roots for a final time. It is

during the third year that the grubs are largest, and the feeding becomes obvious with plant symptoms aboveground. Grubs will pupate and emerge as adults in midsummer of the following year.

Management

Unfortunately there are no rescue treatments for true white grubs. Preventative measures should be taken before planting if scouting reveals a presence of true white grubs in a field. To scout for grubs, dig and break up soil before planting. Sampling efforts should target grassy areas within and around fields. Thresholds for true white grubs are one or more per cubic foot of soil. There are both seed treatments and in-furrow insecticides labeled for the management of true white grubs.

The extended life cycle should be taken into consideration during following growing seasons.

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