

# Identifying White Grubs

## No ifs, ands, or butts

CDD  
#003

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White Grubs – the larvae of scarab beetles – are a growing concern in field crops in Indiana, Michigan, Ontario, and Ohio (I-MOO). Early in the season, grubs feed on germinating seeds and small plants, reducing plant stand. Later in the season, grubs feed on corn and soybean roots, reducing root mass and impacting water & nutrient uptake and standability. Grub-feeding on tuber crops such as sugar beets directly impacts tuber size and quality.

Grub identification is important because there are multiple species present in the Midwest, and these species differ in life cycle and damage. Most species have a single-year (annual) life cycle, with only one generation per year, but some June beetles have a multi-year life cycle. Annual grubs stop feeding in the spring, and may be avoided by adjusting planting time, but a field infested with June beetle may be infested for several seasons. Some grubs pupate earlier in the season (European chafer) than others (Japanese beetle). Adults of the different species also differ in behavior and damage. European chafer beetles are a nuisance around lights, but do not feed. In contrast, Japanese and Asiatic garden beetles do feed and cause damage in the adult stage.

Grub set upward in sand



### Positioning grubs for ID

Grubs are naturally C-shaped, and it is sometimes difficult to make them lay flat. Unfortunately, important characters for identification are on the butt-end of the grub (arrow in pictures). These includes the shape of the **anal slit** (the anal opening of the insect) and the **raster pattern** (pattern of hairs and spines in front of the anal slit).

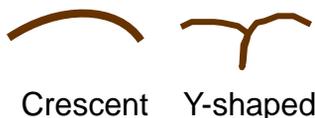
...or cut off the back end.



The easiest way to view the anal slit and raster pattern is to cut off the end of the grub and put it upright in a dish of water or alcohol. If it is important to keep the specimen intact, set the dead grub in a small dish of fine sand (such as playground sand). This allows you to position the grub with the hind end facing up.

### Terms used to describe grub parts:

Anal slit



Crescent    Y-shaped



Strongly  
Y-shaped

Raster



Crescent



Triangle



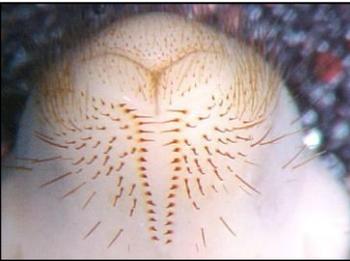
Rows or zipper

**Asiatic garden beetle** Annual grub  
 Chestnut colored & Barrel-shaped  
 Adults feed on many plants.



C. Krupke

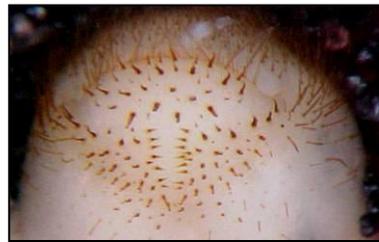
Anal slit: strongly Y-shaped  
 Raster: crescent-shaped row of spines



D. Shetlar

**European chafer** Annual grub  
 Adults do not feed  
 Anal slit: Y-shaped  
 Raster: Diverging rows of spines  
 (= opening zipper)

**False Japanese beetle** Annual grub  
 Abdomen lacks white tufts  
 Anal slit: Crescent-shaped  
 Raster: Short row of converging spines

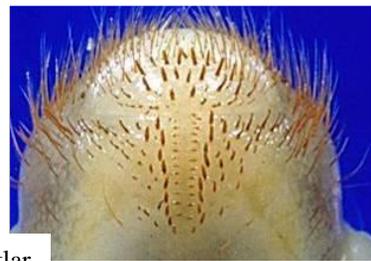
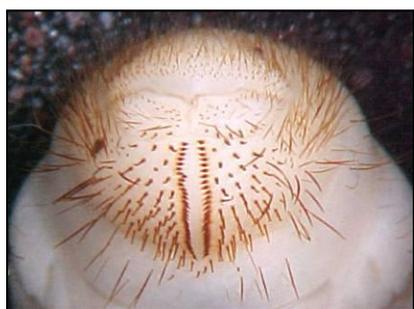


**Japanese beetle** Annual grub  
 Metallic green/ purple. Adults feed.  
 Note tufts of white hairs along abdomen  
 Anal slit: Crescent-shaped  
 Raster pattern: Triangular



**Manure (Aphodius) grubs** Annual grub  
 Grubs are small; adults are small dung beetles  
 Common in manured fields  
 Raster: undefined, with "pads"

**May/ June beetles** Multi-year grub  
 Large beetles, often dark, some green  
 Anal slit: Y-shaped  
 Raster pattern: Parallel rows of spines  
 (= closed zipper)



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**Oriental beetle** Annual grub  
 Multiple color forms  
 Anal slit: crescent-shaped  
 Raster: 2 rows of spines  
 – one small & one large