Fast Fonz Facts
14 May 2018

Fast Fonz Facts – Grubs and grub damage

I have already had a few calls about grubs and grub damage appearing as the weather warms. This included a visit to a winter wheat field in Isabella County that had thinning stand in some areas, caused by European chafer. It has been 15 years since the last Euro chafer outbreak in central Michigan. Grub survival seems good, at least in the places I've dug around in, and there are often multiple species present.

To assist in grub identification, I revised a field sheet with pictures and additional hints about typical crops or situations affected by different species (attached as a pdf).

In summary, at this time of the year:

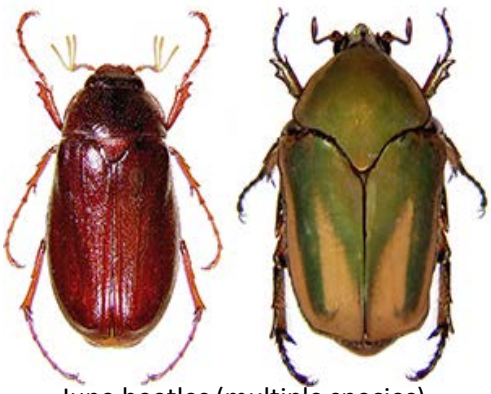
- Lighter textured fields and parts of fields (e.g sandy knolls) often are a focal point for grubs & their damage compared to other locations.
- Big honking grubs (size of a quarter) are almost certainly June beetle. Because of their multi-year life span, they may feed one more year before pupating.
- Grub damage to winter wheat is almost always caused by European chafer in central Michigan. This species will pupate in the next month, so damage to the wheat stand will end.
- Asiatic garden beetle is the easiest species to ID by sight based on a white 'bulb' on its mouthparts. To date, AGB as a pest is limited to the southern two tiers of counties bordering Indiana & Ohio. Thus far, the grubs I've collected appear to be second instar, meaning they have one more growth stage to go. This lengthy feeding period may be why they are so troublesome in corn. I am looking for AGB fields to sample this summer.
- If you know a field is infested, options are limited and there are no rescue treatment available. In winter wheat: nothing to be done now; chafers will stop feeding and pupate in a month. In soybean: seed treatments have little impact; delay planting as long as practical to avoid as much feeding as possible before grubs pupate. In corn: a high rate of seed treatment or a soil insecticide can help, but from experience I know that heavy grub populations eat through insecticide barriers; tillage can also help, but I've been in tilled fields with grubs problems; as in soy, delaying corn planting can reduce the feeding window open to grubs.

Dr. Chris DiFonzo
Field Crops Entomologist
Michigan State University
Department of Entomology
288 Farm Lane, Rm 243 Natural Science
East Lansing, MI 48824
517-353-5328

Field ID sheet for grubs

Chris DiFonzo, Michigan State University

Grubs of these scarab species are covered below.
Adult pictures are sized relative to each other.



June beetles (multiple species)

European chafer

Japanese

Asiatic garden

false Japanese

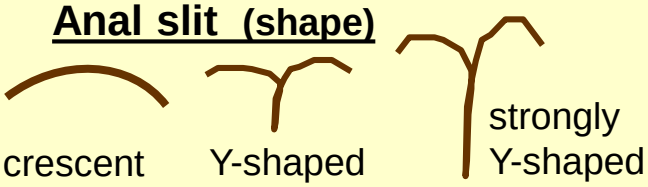
oriental

Aphodius

All species are annual (i.e. a single generation per year), except for June beetle which has a three-year lifecycle. Grubs are identified by the shape of the anal slit and hairs on the butt-end. Grubs in spring vary vastly in size by species

Asiatic Japanese Euro chafer June

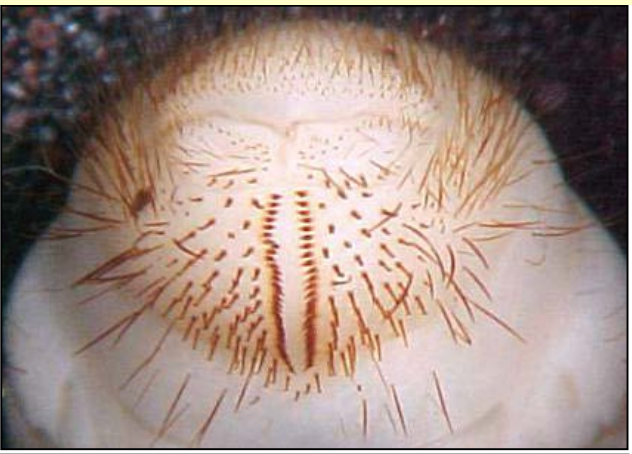
Anal slit (shape)



crescent Y-shaped strongly Y-shaped

Raster (pattern of hairs)

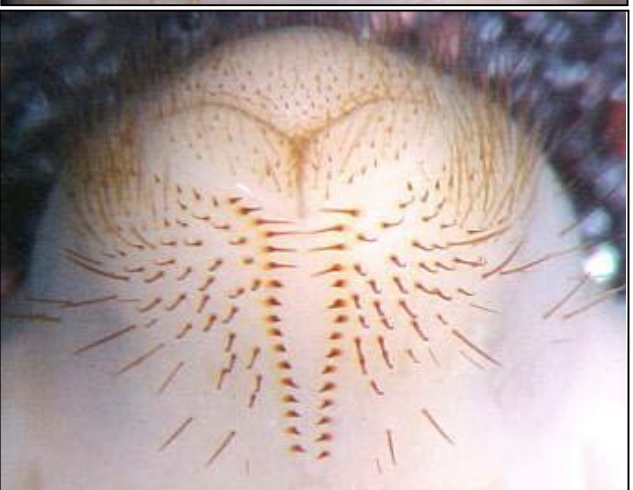
crescent triangle parallel rows (zipper)



June beetle ("true white grub")

- 3-year lifecycle; common in Michigan
- anal slit: Y-shaped
- raster: strong parallel rows (= closed zipper)
- damage to corn, soy, sugarbeet. Typically present in no-till fields or after fallow period.

Adults can have mass emergence in late May-June, but do not feed. There are multiple species – most large & brown in color, some green.



European chafer

- annual lifecycle
- anal slit: Y-shaped
- raster: diverging rows (= opening zipper)
- damage to winter wheat in fall & spring

Adults resemble small June beetles and do not feed.

Japanese beetle

- annual lifecycle; common across MI
- anal slit: crescent-shaped
- raster: short triangle
- damage to corn, soybean

Adults are metallic green/ purple with tufts of white hairs along abdomen. Adults feed on many plants and may defoliate crops and silk-clip corn.

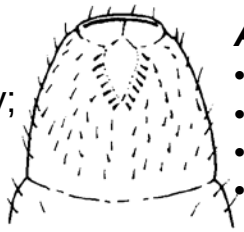
Asiatic garden beetle

- annual lifecycle
- anal slit: strongly Y-shaped
- raster: crescent-shaped row of spines
- other: distinctive white bulb on face, & an aggressive ‘bitey’ behavior
- damage to corn, alfalfa, potato in counties in Southern Michigan

Adults are chestnut brown & barrel-shaped. They come to at lights at night and feed on many plant species, but hide during the day.

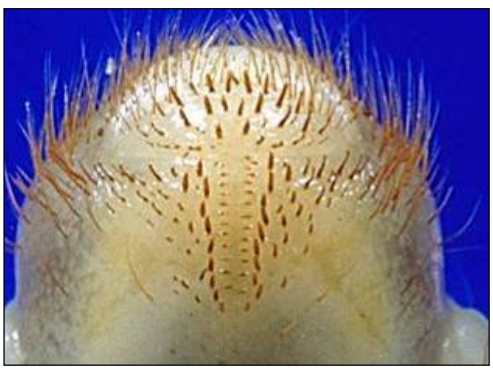
White bulb on face of AGB grubs;
No other species has this feature

Aphodius grubs & adults are very tiny; associated with manured fields

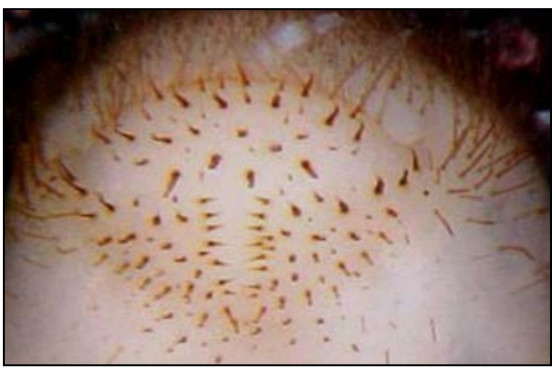


Aphodius (manure grubs)

- annual lifecycle;
- anal slit: difficult to see; anal pads
- raster: small triangle
- damage to corn & soy



I have never seen field of row crops in Michigan attacked by these two species.



Oriental beetle Annual lifecycle

- anal slit: crescent-shaped
- raster: 2 rows of spines, one small & one large
- adults have multiple color forms

False Japanese beetle annual lifecycle

- anal slit: crescent-shaped
- raster: short row of diverging spines
- adult lack white tufts of Japanese beetle