



## European chafer in Michigan

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European chafer grubs are an emerging problem in Michigan field crops, particularly in winter wheat. Wheat stands fed on by chafer have a thinned appearance in the spring. Winterkill may also be responsible for poor stands in wheat fields. You can distinguish winterkill from chafer damage by simply taking a shovel and digging plants in areas that are thinning. Chafers are currently in the top 1-2 inches of soil, feeding in the root zone.

Chafer grubs are present in the soil in the fall when wheat is planted, and they immediately begin to feed on the roots of the wheat. Chafers do particularly well under dry conditions. Grubs can significantly reduce stand by late October or November. As the ground warms in the spring, they resume feeding and cause further damage. The symptoms in a wheat field are similar to that of grubs in a home lawn - dead spots, thinning or yellowing patches, and poor root growth. I have noticed that chafer-infested fields also have a lot of weeds in areas thinned by chafer feeding (see accompanying article by Jim Kells concerning weed control in wheat). By infesting wheat plots with grubs, MSU and cooperators at Ridgetown College in Ontario found that four grubs per square foot of wheat ground can significantly reduce biomass, the number of tillers, and yield in wheat. Compare this number to the threshold for a lawn, which ranges from 10 to 20 grubs per square foot.

Growers with heavily damaged fields sometimes opt to plow the wheat under in April/early May and replant immediately. Corn is a good option because of the availability of soil insecticides and seed treatments. Another option is to wait to replant the field to corn or soybeans late in May or into June, without using an insecticide. By that time, chafers begin to pupate (the resting stage before emerging as adult beetles), so the amount of larval feeding tapers off.

But how do you know if you have chafer?

Back by popular demand, and in keeping with the spring season, here are the top four grub species found in Michigan field crops - including European chafer.

**Positioning specimens for identification:** A key to identification is to position the grub to see its butt-end, called the raster at fancy dinner parties. Grubs tend to curl up, obscuring the back end of the insect. One way to solve this problem is to simply cut off the rear part of the insect so it can be positioned upright. A less messy trick is to stick the specimen upright in a shallow cup of sand. The sand holds the grub in place, and the specimen can be easily repositioned.

**Identification:** Grubs are identified by examining slits and hairs on the raster. The anal slit is the anal opening of the insect, a straight or Y-shaped transverse line on the last segment often surrounded by stout spines. The arrangement (size, shape, and number) of spines is called the rastral pattern. Pictures of the butt-ends of four different species found in Michigan field crops accompany this article. The originals of these photos (better quality, in color) are on the web version of this newsletter at: [GET ADDRESS](#).

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