Scouting for Grubs

There are three common grub pests in Eastern Canada, they include the larvae of: European Chafer, Japanese Beetle and June Beetle (a.k.a. White Grub). To avoid these pests, avoid planting in cool, wet conditions which delay crop emergence and avoid planting susceptible crops which have not been treated with insecticide in fields that have a known history of damage.

Identification

	Larvae	Adults	Adult Photo
European Chafer	• White C-shaped larvae with an orange-brown head and dark posterior • 4 mm to 25-30 mm • Y-shaped pattern of anal bristles	• ~ 13 mm • Wings are brownish-beige with a darker brown line at the junction of the wings	 Mike Reding & Betsy Anderson, USDA Agricultural Research Service, Bugwood.org - See more at: http://www.insectimages.org/browse/detail.cfm?imgnum=5171066#sthash.WmiDXLzu.dpuf
Japanese Beetle	• White C-shaped larvae with an orange-brown head and dark posterior • 4 mm to 25-30 mm • Wide, shallow V-shaped pattern of anal bristles	• ~ 13 mm • The head and the thorax are metallic green with reddish coppery wing and a series of 12 white tufts of hair along the margin of the abdomen	 Kansas Department of Agriculture Archive, Bugwood.org - See more at: http://www.insectimages.org/browse/detail.cfm?imgnum=5512149#sthash.g6lANgao.dpuf
June Beetle	• White C-shaped larvae with an orange-brown head and dark posterior • 4 mm to 40 mm • Oval shaped raster pattern with two parallel rows of anal bristles	• ~ 20 to 35 mm • Maroon colour • Larger than European chafer and Japanese beetles	 Steven Katovich, USDA Forest Service, Bugwood.org.

Life Cycle

- European Chafer and June Beetle adults are nocturnal, while Japanese Beetles are active during the day
- European Chafer and Japanese Beetle are annual grubs, while June Beetle grubs have a three-year cycle
- European Chafer larvae are more cold tolerant and can be at the soil surface as soon as the ground thaws
- June Beetle larvae do the most damage during their second year and are at the soil surface once the ground warms up
- Japanese Beetle larvae come to the soil surface once the soil is 15°C – adults can also cause economic damage to soybean leaves later in the season

Damage/Feeding

- European Chafer primarily target corn and cereals
- Japanese Beetles primarily target soybeans and mixed forages
- June Beetles primarily target corn, soybeans, mixed forages and cereals

Damage is dependent upon the timing of planting/crop stage relative to the presence of actively feeding larvae. The signs listed below can help to identify damage of these grubs/beetles:

- Roots: fibrous roots chewed and pruned
- Plants: less vigourous, yellow, wilted, stunted and dying
- Flowers and seeds: reduced seed production
- Field: thin plant population, uneven growth, sometimes in circular patches
- Specific to Japanese Beetle adults: soybean leaves are skeletonized, leaving only veins or irregular shaped holes

Scouting/Identification of Adults

- European Chafer and June Beetle
    - May to July
    - June beetle adults are only present in year 1 of the cycle, if a high population is observed there could be significant grub damage the following year (April to September)
- Japanese Beetles
    - End of June to mid-August
    - Adults feed on flowers, leaves and soybean pods

Scouting for Larvae

- Fall scouting can help predict populations for the following spring
- Scout in high risk areas of the field, including: areas near tree lines and in sandy knolls.
- With a shovel, dig a hole 7-10 cm deep in five different areas in the field and count the number of larvae in each sample.
- Two or more larvae per square foot warrant control. If grub populations are high (four or more per square foot), consider using the higher label rate of an appropriate insecticide.

Sources:
Grain Farmers of Ontario. Guide to Early Season Field Crop Pests. (verified May/15).
Mike Reding & Betsy Anderson, USDA Agricultural Research Service, Bugwood.org - See more at: http://www.insectimages.org/browse/detail.cfm?imgnum=5171066#sthash.WmiDXLzu.dpuf
Kansas Department of Agriculture Archive, Bugwood.org - See more at: http://www.insectimages.org/browse/detail.cfm?imgnum=5512149#sthash.g6lANgao.dpuf
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