

# Vegetable Pests – Master Gardeners of Ottawa-Carleton



## Colorado Potato Beetle

- adults overwinter in soil
- emerge to lay eggs in June
- a female can lay up to 800 eggs, usually in batches of around 30 eggs on the underside of leaves
- larvae emerge and start feeding
- pre-pupae stage, they stop feeding and drop to the ground where they pupate to adults
- adults are about 3/8 inch long with oval bodies with black and yellow-orange striped shells.
- can be multiple cycles in a season depending on the weather.

### Plants affected:

Potatoes as well as eggplant, tomato, pepper and other plants of the nightshade family (Solanaceae)

### Evidence:

Fruit with dry, brown chew marks. Both larvae and adults feed on the foliage of potatoes and can completely defoliate plants.

### Management:

- Shake adults onto drop cloth and dunk in bucket of soapy water. Pick off adults and larvae. Look for eggs on the underside of leaves and crush
- Rotate crops and avoid planting tomatoes adjacent to beetle overwintering sites i.e. previous year's tomato, eggplant or potato field
- Ladybugs are effective at eating potato beetles as are lacewings and spined soldier bugs, stink bugs
- *Bacillus thuringiensis* var *tenebrionis*, (Bt) is a natural bacterial disease which can control beetle populations. To be effective it must be applied in the 1<sup>st</sup> and 2<sup>nd</sup> instars. Apply every few days as soon as the egg clusters start to hatch. Do not wait until the 4<sup>th</sup> instar phase as B.T. does a poor job on large larvae and adults



## Cucumber Beetles

- adults are roughly a quarter of an inch long
- larvae are white grubs with a brownish head
- adults overwinter, and emerge in spring
- feed on weeds and other plants until their preferred food source, cucurbits (such as cucumbers, squashes, and melons) are available
- adults will feed on cucurbit plants, and the females will lay their eggs in the surrounding soil
- eggs hatch, and the larvae feed on below-ground cucurbit roots and stems until they pupate
- emerge as adults, and the cycle starts all over again
- plants most susceptible in their first to third leaf stages

### Plants affected:

Cucurbits; cucumber, squash, melons etc.

### Management:

- Management of first generation will help prevent a population rebound later in the season
- Sanitation - Remove plant debris and dispose of any diseased plant material (not in the compost)
- Mulching - straw mulch can deter cucumber beetles from laying eggs in the ground at the base of plants (decreasing access to the plant stems)
- Cover seedlings with floating row covers during early to mid-June, remove once the plants start to bloom or when the damaging phase of the insects has passed, so that pollination can take place
- Handpicking in early morning when the beetles are slower moving. Drop in container of soapy water or a small hand held vacuum works great for both cucumber and Japanese beetles. Squish the bag to kill the beetles before disposing of the bag
- Spot spray with soap and water
- Cucurbit varieties such as Turk's Turban are more attractive to the beetles and can be used as a trap crop



## Flea Beetles

- flea beetles is a general name applied to the small, jumping beetles of the leaf beetle family
- many flea beetles are attractively coloured; dark, shiny and often metallic colors predominate
- adult flea beetles feed externally on plants, eating the surface of the leaves, stems and petals
- under heavy feeding the small round holes caused by an individual flea beetle's feeding may merge into larger areas of damage
- some flea beetle larvae are root feeders

### Plants affected:

All Cruciferous crops, preferring the non-waxy, ethnic crucifers

### Evidence:

On cabbage, broccoli and cauliflower, flea beetles prefer the younger leaves

### Management:

- Early plantings can be protected using row covers. Transplants are less susceptible to damage than direct-seeded crops
- Use of the trap crop Indian mustard (*Brassica juncea* var. *crispifolia*) is a good deterrent



## Onion Maggots

- overwinter in the pupae stage (brown)
- emerge as adult onion maggot fly in mid to late May and start to mate. These adults are grayish and look something like the common housefly except that the onion maggot has larger legs and a narrower abdomen.
- female will live about 30 days & may lay 200 eggs
- eggs are laid around the base of onion seedlings
- eggs hatch in a few days and the larvae bore directly into the onion plant
- larvae grow to about 1 cm long and may attack the onion at any stage of development and feed within the plant for about 2 to 3 weeks
- when the larva becomes full grown it leaves the onion and pupates in the soil
- in Ontario, there are three generations each year

### Plants affected:

Onions

### Evidence:

Damage from the first generation attack usually can be seen in mid-to-late June as wilted onion seedlings. If you try to pull the wilted plant, it is likely to break just below the rotting stem of the seedling. Quite often the seedling dies before the maggot is full-grown. When this occurs the maggot will move down the row to the next seedling.

### Management:

- Good sanitation is very important in controlling the onion maggot. The third generations will die if they do not have the culls or missed onions on which to feed.
- Limited natural control of the onion maggot is provided by a complex of predators and parasitoids which include the predatory flies *Coenosia tigrina* and *Scatophaga stercoraria*, the wasp, *Aphaerata pallipes*, the beetle *Aleochara bilineata* and a fungus *Entomophthora muscae*.