Insect Diagnostic Laboratory
Cornell University, 4140 Comstock Hall, Ithaca, NY 14853

Colorado Potato Beetle

Leptinotarsa decemlineata (Say); Family: Chrysomelidae

Mating adults (each about 3/8 inch long).

Photo by Whitney Cranshaw,
Colorado State University, Bugwood.org

Larvae (1/2 inch long when full grown).

Photo from USDA APHIS PPQ Archive,
USDA APHIS PPQ, Bugwood.org

Description

The Colorado potato beetle was first described in 1824 from the upper Missouri River Valley, where it fed on a weed called buffalo bur or sand bur. When early settlers first began to plant potatoes, the beetles discovered a new food plant.

Adult Colorado potato beetles are yellow and have ten longitudinal dark stripes on their wing covers. They are about 3/8 inch in length, round to oval-shaped.
The larvae (or slugs as they are sometimes called) are brick red in color, hump-backed, soft bodied, and 1/2 inch in length when full grown. Larvae have two rows of black spots on either side of the body.
Eggs are orange-yellow and laid in clusters on the underside of the leaves.

Injury

Larvae and adults feed on the foliage of potato, eggplant, tomato, and pepper plants. They may reach large numbers and strip all the foliage from the plant as well as spoil the fruit by eating into it. They are especially destructive to small plantings.

Life History

Adult beetles overwinter several inches below the soil surface, near the summer's crop plants. Adults emerge from their overwintering sites in the spring: mid-May on Long Island; about 7 to 10 days later in central New York State. As soon as potato plants are up, females begin laying eggs on the undersides of leaves. Eggs are laid in clusters of 20 or more. Larvae feed on foliage, grow rapidly, and complete their development in 18 to 21 days. The full-grown larva burrows into the ground and changes to the pupa (resting state). After about 10 days, the adult beetle emerges from the pupa, crawls up out of the ground, and after a short period of feeding, mated females lay eggs for a second generation in the same season.

Management

The Colorado potato beetle has become increasing difficult to control with insecticides, because it has developed resistance to many chemicals. Management strategies should begin when the first beetles of the season are seen, or earlier.

a. Hand picking is possible, especially for small gardens. The beetles are relatively large, showy and slow moving. Aim to inspect plants twice a week. Drop beetles and larvae into a container of soapy water.

b. Trap cropping using eggplant transplants as living bait for the beetles prior to emergence of the potatoes has been suggested. Beetles and eggs on the eggplants need to be periodically removed and crushed or dropped into a container of soapy water.

c. Lightweight floating row cover can be placed over plants as a barrier. Be sure to secure the edges when using this material. Potatoes do not need to be pollinated, so covers can remain in place for the growing season. However, other crops do require pollination, and covers should be removed when flowering begins.

d. Crop rotation is often suggested for larger growing areas. Do not plant susceptible crops in the same area year after year – the farther away the better.

e. Enhance habitat for natural enemies. General predators such as lady beetles, spiders, and lacewings may provide some control, but do not completely control the Colorado potato beetle. There are also some fly parasites, and a small wasp that parasitizes the eggs, but they are usually not abundant enough to give control.

Pesticides registered for use in the home garden in New York State in 2009 include: carbaryl, insecticidal soap (potassium salts of fatty acids), kaolin clay (suppression only), neem oil, permethrin, pyrethrins with other ingredients, or spinosad. Beetles may be resistant to synthetic insecticides. Check that the label states that the product may be used for Colorado potato beetle on potato plants. Applications should begin as soon as egg hatch starts, to control the young larvae. Spray or dust weekly if needed.

Prepared 7/1974 by:
Carolyn Klass, Senior Extension Associate, Dept. of Entomology, Cornell University
and Arthur A. Muka, Dept. of Entomology, Cornell University
Revised 1/1990 by Carolyn Klass
Updated 12/2009