



Maine Potato IPM Program

COLORADO POTATO BEETLE

Leptinotarsa-decemlineata (Say)

#201

HISTORY

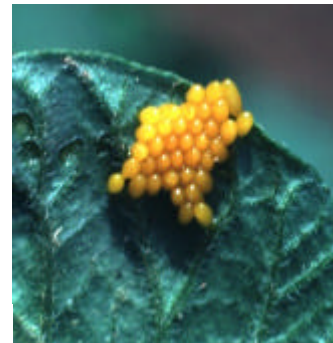
The Colorado potato beetle, a yellow insect with ten black stripes down its back (Figure 4), is probably one of the best known insects in the United States today. This insect was first discovered in the Rocky Mountains feeding on a common weed called buffalo bur (*Solanum rostratum*). However, as pioneers settled the area and started planting new crops, especially potatoes, the insect migrated to this new and much more available food source. By the 1870s, the beetle had literally eaten its way, via potatoes, to the eastern coast of the United States.

LIFE CYCLE

The insect overwinters in the adult stage a few inches beneath the soil surface. In the spring the one-half inch beetle emerges from the soil and searches for a suitable host. Once a suitable host has been located, the beetles feed, mate and lay their eggs on these plants. The yellowish-orange eggs (Figure 1) are deposited on the undersides of leaves of host plants and nearby weeds. Over a 4 – 5 week period, each female beetle lays eggs in batches of 20 – 35. A total of 400 – 600 eggs may be deposited by one female.

The eggs hatch in 4 – 10 days, depending on weather conditions. The newly hatched (Figure 2) red and black larvae immediately start feeding on the host plant. The larvae (Figure 3), which are humpbacked in appearance with two lateral rows of black spots and range from tan to pink to red in coloration, feed for 2 – 3 weeks before crawling down the plant and onto the soil; they then construct a small chamber in the soil and pupate. The insect spends 5 – 10 days in the pupal stage.

After this period, the adults emerge, find a suitable host, and begin a new generation. There are one to three generations per year, depending on the insect's range in the area in which the observation is made.



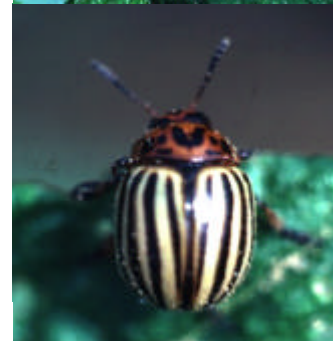
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ALTERNATIVE HOSTS

The Colorado potato beetle has been found on several hosts. In addition to buffalo bur and potato, the insect feeds on pepper, eggplant, tomato, nightshade, tobacco, and several other plants of less economic significance.

MONITORING TECHNIQUE

Crop plants, volunteer plants, and cull piles should be examined regularly beginning early in the spring for the presence of this beetle. If beetles are found, the undersides of leaves should be examined to determine if eggs are present. The plant should also be checked for the presence of larvae. To assist in the detection of these insects, a small, white drop cloth can be positioned at the base of the plant; then gently tap the plant to dislodge any insects that may be present. When scouting for Colorado potato beetles, record the number of insects present and their distribution throughout the plot and note any areas of particularly high insect population levels. The area should be rechecked every 2 – 3 days.

MANAGEMENT

Chemical controls should be employed only if insect populations are large enough to warrant chemical intervention.

Block rotation techniques have proven to be an effective method of reducing Colorado potato beetle populations. In some situations, trap crops and plastic-lined trenches have also been proven to be effective methods of reducing beetle populations. The use of genetically enhanced potato plants has also been an effective method of controlling Colorado potato beetles. There are strains of Bt that have been effective in controlling Colorado potato beetles.

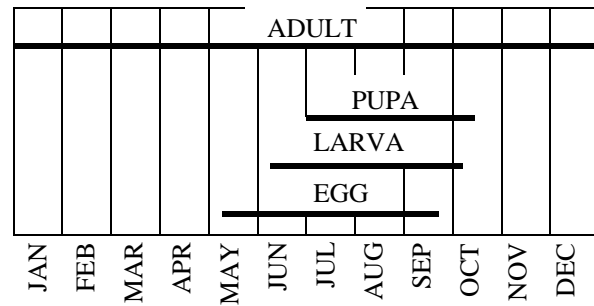
The Colorado potato beetle has been steadily gaining resistance to the insecticides commonly employed to control this insect. There are, however, several materials that provide satisfactory control of this insect. For a list of recommended materials, please contact your local Cooperative Extension office.

If the population distribution permits, spot treatments can be applied to reduce insect numbers. Timely intervention will enhance insecticide effectiveness and provide better pest suppression.

Late season pesticide applications to reduce overwintering adults are not cost effective and contribute greatly to increasing insecticide resistance.

One of the best control measures available for small potato plots is to hand pick the CPB and drop it into a container partially filled with detergent and water. A small hand held vacuum cleaner is also effective. The plot should be rechecked every 2 – 3 days, and all Colorado potato beetle life stages should be removed.

COLORADO POTATO BEETLE OCCURRENCE OF LIFE STAGES IN MAINE



Revised by James D. Dwyer, Crops Specialist, James F. Dill, Pest Management Specialist, and Hannah S. Carter, Potato Pest Management Professional. Photographs by James F. Dill. Revised April 2001: Replaces Potato IPM Fact Sheet #101.

If you require additional information, please contact the Potato IPM Program, P.O. Box 727, Presque Isle, ME 04769 or the Pest Management Office, 491 College Ave., Orono, ME 04469-1295.

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