

Green Cloverworm on Dry Beans and Soybeans



Green cloverworm, *Hypona scabra*, overwinters south of 41° N latitude, and migrates north in spring. They can at times be found in dry beans, soybeans, and alfalfa in Manitoba. Other hosts include clover, raspberries and strawberries. They make holes in the leaves, and upon quick examination the feeding would be easy to misdiagnose as grasshopper feeding or hail damage. Shaking the plants over a tarp, tray, net, or something to catch the larvae would reveal the caterpillars if they are present.

Identification and Life Cycle

Larvae: There are 6 larval instars. Newly emerged larvae are pale yellow and eventually turn light green. Fully grown larvae are approximately 2.5 cm (1 inch) long, pale green with two horizontal stripes along each side of the body. The larvae have three pairs of legs near the head, three pairs in the middle of the body, and one pair at the hind end of the body (Fig. 1). Green cloverworm will loop when they walk, so it is easy to mistake them for alfalfa looper. One difference though is that green cloverworm will rapidly wiggle when disturbed.



Figure 1. Green cloverworm larva



Figure 2. Green cloverworm moth

The green cloverworm typically produces two generations in Manitoba.

Monitoring and Thresholds

Soybeans

Assessing whether management of green cloverworm is likely to be economical in soybeans can be based on defoliation (and larvae present), or on the number of larvae per foot of row.

Defoliation thresholds: When cloverworms are actively feeding, percent defoliation can be used to determine if control is required. The defoliation due to green cloverworm should be considered together with the damage inflicted by other defoliating insects (such as grasshoppers and thistle caterpillars), wind damage, etc. to make a

management decision. Soybeans are most susceptible to defoliation during peak pod filling (stages R1-R6). Thresholds based on percent defoliation of the whole plant (not individual leaves) are:

- At pre-bloom stage, 40 per cent defoliation.
- From bloom to pod fill, 20 per cent defoliation.
- From pod fill to harvest, 35 per cent defoliation.

When assessing feeding by green cloverworm, consider the amount of defoliation to the whole plant, and whether pods are being fed on. In soybeans, green cloverworm will preferentially feed at the top of the plant, so defoliation will be worse there, and can make it appear as though there is more defoliation than there really is.

Also note any parasitized or diseased larvae found. This will help determine if the population is being significantly impacted by these natural controls.

A 40 percent leaf loss during any vegetative stage will result in a 3-7 percent yield reduction. Defoliation of 20 percent during the pod-forming and pod-filling stages will result in similar yield reductions. Yield losses from leaf feeding are low because soybean plants typically produce excess leaves. In addition, when leaf loss becomes too great, plants can help compensate for losses by retaining older leaves and maintaining high levels of photosynthesis. Usually, gaps in soybean stands are filled by additional growth and branching of the remaining plants.

An average of four to eight larvae per foot of row typically causes 20 to 30 per cent defoliation.

Dry Beans

An action threshold for green cloverworm in dry edible beans is more than 5 larvae per 30 cm (12 inches) of row.

Management

Biological Controls: Green cloverworm field populations are usually well regulated by predators, parasitoids, and pathogens. In years with heavy green cloverworm populations, a fungal pathogen can reach sufficiently high levels within the green cloverworm population and induce a population collapse. Pathogen development is favored by high humidity and warm temperatures.

Chemical Controls: There are no insecticides registered for green cloverworm in Canada.

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