

Soybean Insects

Loopers

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Classification and Description: Two kinds of loopers often infest soybeans grown in Tennessee. The cabbage looper (*Trichoplusia ni*) and soybean looper (*Pseudoplusia includens*) both belong to the same family of insects (Lepidoptera: Noctuidae) and are difficult to distinguish from each other. The moths of both species range from brown to black with a wing span of about 1 1/3 inches. The forewings of both species are normally mottled, often with a gold or bronze sheen and prominent silver markings near the center. Eggs are typically laid singly and are similar in size and appearance to bollworm or tobacco budworm eggs, although slightly more flattened. Loopers often lay their eggs on the undersides of leaves. Larvae are typically green, with a longitudinal white stripe that runs the length of the body on either side. Larvae are tapered toward the head and move



with a characteristic inch-worm, looping fashion. Both soybean and cabbage loopers can be distinguished from other caterpillars commonly found in soybean because they have three pairs of prolegs on the abdomen (one pair at the tip of the abdomen and two additional pairs). Unlike the larvae of cabbage loopers, soybean loopers often have black true legs (located behind the head) and/or black spots on the body.

Hosts and Distribution: Both species of loopers have a relatively wide host range and may be found on a number of wild hosts, vegetables and other field crops such as cotton. Cabbage loopers are native to most of North America. Soybean loopers are subtropical in origin, and infestations in Tennessee result from the migration of moths from southern latitudes. Consequently, soybean looper infestations are more common in states bordering the Gulf Coast and during late season in Tennessee.

Life History: Eggs take three days to hatch, and the larvae develop through five or six instars, reaching a maximum length of about 1 1/4 inch. Cabbage loopers pupate in the soil; soybean loopers usually pupate on the undersides of leaves. Soybean looper larvae spin



a loose, white silken cocoon in which they pupate. It takes about 25 to 30 days for development from egg to adult. Female moths lay 600 to 700 eggs.

Pest Status and Injury: In Tennessee, loopers may occasionally cause economic damage to soybeans by feeding on leaves. Excessive defoliation can indirectly impact yield by reducing the amount of photosynthate produced by leaves for seed development. Cabbage loopers may be found in small numbers throughout the season. Large populations of soybean loopers are usually observed during late season. Thus, later-maturing beans are at greater risk to infestation. Beneficial arthropods and diseases are important in reducing the likelihood of looper outbreaks. Outbreaks, particularly for soybean looper, may be more likely following insecticide applications that reduce populations of natural enemies.

Management Considerations: Insecticide treatments are prescribed when larvae threaten premature defoliation, and other defoliating insects need to be

considered (e.g., green cloverworm). Defoliation thresholds vary from 20 to 30 percent, depending upon the stage of crop development. Populations of approximately 75 larvae per 100 sweeps are generally sufficient to cause 20 percent or more defoliation. Specific threshold and insecticide recommendations are listed in the *Tennessee Insect Control Recommendations for Field Crops (PB 1768)*. Soybeans are most susceptible to defoliation during peak pod filling (R1-R6 developmental stages). However, in Tennessee, high populations are uncommon until late August and September. Once fields reach physiological maturity (R8 developmental stage), they are less susceptible to defoliation, and insecticide treatment is not justified. Soybean loopers are more difficult to control with insecticides than cabbage loopers, in part because resistance has developed to pyrethroid insecticides.

Reference:

Handbook of Soybean Insect Pests, L. G. Higley and D. J. Boethel (eds.), Entomological Society of America, 1994.



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