PENNSTATE College of Agricultural Sciences
Department of Entomology
Entomological Notes

Insect Pests of Soybeans in Pennsylvania

Soybean production has been increasing in Pennsylvania, with approximately 100,000 acres grown in 1982. Fortunately, insect pests have not been of much concern or importance to soybean production to date. However, there are a number of insect species that could become problems of economic importance. Growers should be aware of these pests and learn how to recognize them so control measures can be applied when necessary.

Insects posing the greatest potential damage to soybean crops are defoliators. Fortunately, soybean plants can tolerate up to 35 percent defoliation prior to bloom; about 20 percent while pods are small and soft; and about 35 percent when the seeds are filling. Defoliation below these levels has not adversely affected yields. Soybean fields in the state seldom reach these levels of defoliation; thus, insect pests can be considered of minor economic importance.

Green Cloverworm

Image of green cloverworm on stalk of plant.

Larvae of this species feed on the leaves and, when abundant, can cause heavy defoliation of the bean plants. Although some larvae are present every year, rarely are populations high enough to cause yield losses.

The adult moths winter in buildings and hay bales, and under trash and other protected sites. There are two generations per year. The first generation develops on alfalfa, clover, and other legumes during May and June. The larvae of the second generation are active from late June to early August and occasionally are serious pests to soybeans.

The larvae are pale green with two narrow white strips along each side of the body. They are bare, slender, about 1 1/4 inches in length when fully grown, and fairly east to distinguish from other insect larvae by the number of prolegs on the abdomen (the short, fleshy legs along the middle of the body). Cutworms and armyworms have four pairs, loopers have two pairs, while the green cloverworm larvae have three pairs of prolegs.

Fortunately, green cloverworms usually are controlled by a fungal disease. High humidity with warm temperature, favorable for the development of the fungus, may be sufficient to reduce a high population of green cloverworms.

Pesticide spray applications are not profitable unless infestations reach eight or more larvae per linear foot of row.

Japanese Beetle

Large numbers of Japanese beetles frequently gather in soybean fields during late July and August. The brown, skeletonized leaves resulting from their feeding are fairly obvious. Actual yield losses, however, are minor to nil; therefore, control measures seldom are warranted.

Japanese beetle adults feeding on corn silk.

Mexican Bean Beetle

Image of beetle injury to soybean leaf © Iowa State University Extension 1992 - S35

Mexican bean beetle larva on a soybean leaf. © Iowa State University Extension 1992 - S34

Image of adult Mexican bean beetles on leaf. © Iowa State University Extension 1992 - S53

Although it is not yet a major pest of soybeans, leaf damage from the Mexican bean beetle was evident in a number of fields in the southeastern section of Pennsylvania during the past several seasons. As soybean acreage increases and production intensifies, this insect is expected to develop into an important pest.

The insect winters under trash and in protected sites as an adult beetle. There are probably two generations per year. Very little damage is done to soybean fields before August or until the second generation becomes active. Both adult beetles and larvae feed on the leaves.

Adult beetles are slightly over 1/4-inch long and terrapin shaped. They are yellow to coppery with 16 small black spots. Clusters of 40 to 50 yellow eggs are deposited on the undersides of soybean leaves. The larvae are yellow and covered with numerous branched spines.

Although skeletonized leaves resulting from the insect's feeding are easily seen, growers should be alert to the amount of defoliation a soybean plant can tolerate before yield losses occur.

Seed Corn Maggot

Seedcorn maggot lavae on sprouting soybean seed. © Penn State University

On rare occasions, stand losses can be high from seed - and root-infesting maggots that feed on the sprouting seeds and tender seedlings. Damage is most evident in fields where soils contain high organic matter and under extended periods of cool, humid weather.

Planter box seed treatment is a relatively low-cost option can be used to help prevent maggot damage.

Control

If a pest becomes abundant enough to cause yield losses or crop failure, and control with pesticides is warranted, information on what pesticides to use is available at the *Penn State Agronomy Guide* website or consult with your pesticide supplier or county agent for details of pesticide use.

Warning

Pesticides are poisonous. Read and follow directions and safety precautions on labels. Handle carefully and store in original labeled containers out of the reach of children, pets, and livestock. Dispose of empty containers right away, in a safe manner and place. Do not contaminate forage, streams, or ponds.

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