Check soybeans for leaf feeding insects

NEWARK, Del. — Once soybeans begin active growth, producers can expect to see many different insects feeding on the foliage. Green cloverworms, Mexican bean beetles, grasshoppers, Japanese beetles, and bean leaf beetles all will attack this crop.

It's not unusual to find several of these defoliators in most soybean fields, says University of Delaware extension pest management specialist Joanne Whalen. So she advises growers to use defoliation estimates and population counts when making control decisions.

Soybeans can generally tolerate considerable amounts of defoliation without yield loss. But research has shown that tolerance varies with the stage of plant growth, plant vigor, and overall growing conditions.

"Plants that are actively growing can compensate for foliage loss by adding new leaves and increasing food production in the lower leaves," Whalen says. "Beans under moisture stress can't compensate as well, so defoliation thresholds should be adjusted."

She advises farmers to take care to correctly estimate defoliation during pod and seed development stages, as severe yield reductions can occur if defoliation exceeds 20 percent. Once plants have reached maturity, leaf loss will no longer affect yield.

Whalen offers the following life histories so growers will know when to scout for these defoliators.

• Green cloverworms: Overwintering moths migrate northward in late spring to lay their eggs on clover and alfalfa. Larvae begin to feed on soybeans in July and peak larval feeding occurs in early August. High populations of this insect are generally controlled by disease organisms.

Mexican bean beetles: Overwintering adults move directly to early planted soybeans where they feed for a few days before laying eggs. In Delaware, three generations develop each year. Economic infestations are most likely to occur on early or late planted soybeans.

Grasshoppers: Overwintering eggs start to hatch in early April. Immature and adult forms generally move into soybean fields in mid to late June. Economic outbreaks are most likely to occur in no-till soybeans, double cropped beans, and in fields next to recently harvested small grains.

Japanese beetles: Adults emerge in late June and cause most of their damage in early July. Rapidly growing soybeans often outgrow this damage.

Bean leaf beetles: Overwintering adults enter fields when soybeans emerge to feed and lay eggs in the soil. First generation adults emerge and feed in mid to late July.

Start looking for defoliating insects when soybean plants reach the second trifoliate, and continue scouting on a weekly basis until the pod fill stage. Whalen says to consider the level of defoliation, stage of plant maturity, pest population as well as the presence of natural control agents when making a control decision.

Base defoliation estimates on a random sample of 20 leaflets taken in five locations throughout a field. The following thresholds represent an insecticide is needed. (Please refer to Graph A).

Graph A

Plant Stage	Defoliation Threshold
Prebloom (first trifoliate to bloom)	35 percent
Bloom (flower to pod set)	20 percent
Pod-fill (small, fully formed beans)	20 percent
Bean Maturity (bean hardening)	35 percent

Since the decision to spray also should be based on insect population levels, the specialist advises using a 3-foot by 3-foot shake cloth in the same five areas to sample and count the number of insects found per 3 feet of row. Use the following guidelines in combination with defoliation thresholds in deciding whether or not to treat: (please refer to Graph B).

Graph B

Insect Species	No. of Insects/3 ft. of Row from Prebloom to Pod-Fill Stage
Bean Leaf Beetles	48
Grasshoppers	12-18 (or 1 pegr sweep)
Green Cloverworms	60 (wide row beans)
	42 (narrow row beans)
Japanese Beetles	20
Mexican Been Beetles	20 or more (prebloom)
	16 or more (bloom to pod set)

Spray sweet corn late in day to protect bees

NEWARK, Del. — Sweet corn growers should wait until late in the day to apply insecticides in order to protect honey bees, according to recent research at the University of Delaware Agricultural Experiment Station.

Field studies by insect ecologist Dr. Charles E. Mason show that honey bees forage sweet corn for pollen primarily during the morning hours. So spraying in the afternoon, evening or at night is safer for them.

This information should make it easier for commercial growers who use integrated pest management programs to time pesticide applications, Mason says. Sweet corn plants don't benefit from bee pollination, but honey bees collect corn pollen for food in order to maintain colony strength. Consumer demand for insect free ears requires sweet corn producers to spray plants frequently.

Reminder: Delaware residents can get further information on inseason pest activity by calling the University of Delaware's crop

The number is 1-800-

Fruit growers to meet

LECK KILL — A Twilight Fruit Growers meeting sponsored by the Schuylkill County Cooperative Extension Service will be held at Zimmerman Bros. Orchards, Pitman and Felix Masser Orchards, Leck Kill, on Tuesday at 6:30 p.m. The meeting will start at the Zimmerman Bros. orchard.

Guest speakers will be James Travis, Penn State Plant Pathologist, giving an update on the disease problems found in orchards. Robert Crassweller, Penn State Extension pomologist, will discuss abnormal conditions found in orchards throughout Pennsylvania this year along with tree training. For additional information contact George P. Perry, Jr., County Agent - Horticulture, Schuylkill County Cooperative Extension Service, P.O. Box 250, Schuylkill Haven, PA 17972.