Early-Season Bean Leaf Beetle Management

KEY POINTS

- Bean leaf beetle can cause damage to cotyledons and foliage of soybean seedlings.
- Early planted soybean fields should be monitored closely for injury from bean leaf beetle.
- Management of early-season bean leaf beetles may be accomplished with use of seed treatments as well as foliar insecticides.

What to Watch For:

Bean leaf beetle (BLB) overwinters as an adult and damage to soybean foliage and/or developing pods can be found throughout most of the growing season.

There are generally two to three generations of BLB every season, depending on geographical location (two generations are typical in the north central region). The adult beetle is small (about 1/4 inch long). Colors and spot patterns of BLB can range considerably. The most reliable diagnostic feature is the prominent black triangle at the front of the wing covers. This marking is always present and distinguishes BLB from other beetles in soybean.

Impact on Your Crop:

BLB overwinters as an adult in woodlots and fencerows and are attracted to the earliest emerging soybean fields. Mild winters favor the survival of overwintering BLB. Seedling damage is most likely to occur in early plantings, and especially in fields that are the first planted in the area. Early planted fields should be monitored closely, especially after a mild winter when potential survival of overwintering BLB adults is high.

BLB will feed on emerging cotyledons, stems, unifoliate, and emerging trifoliate leaves of soybean. Potential for economic damage may occur when BLB feeding damages the growing point or cotyledons before the unifoliate leaves emerge. Although it can appear quite severe, feeding by the overwintering and first-generation BLB does not usually result in economic yield losses as seedlings often recover.

In addition to the early foliar feeding, BLB is also a vector of bean pod mottle virus (BPMV). Virus infection can occur at any growth stage, but early infection poses the greatest risk for yield loss due to reduced seed size and pod set. Early planting often coincides with high populations of overwintered BLB adults moving into soybeans to feed and lay eggs. This can increase the chance for BPMV transmission. Soybean products vary in susceptibility to BPMV. For assistance in diagnosing BPMV, please see the

Tips to Manage:

There are several methods that you can use to assess BLB damage. Early in the season, it’s easiest to examine plants by hand and count beetle numbers. Be careful not to disturb the plants since beetles will drop

Figure 1. Bean leaf beetles can vary in color (light yellow or tan is most common) and are about 1/4 inch long. They can have 2 or 4 black spots on their backs, and a black border on the outside of each wing cover; however, these markings may be absent. Note the characteristic black triangle behind the head on both beetles above.
from the leaves and hide within soil cracks and debris. You should sample five feet of row at five field locations and divide the number of beetles found by 25 to determine the number of beetles per foot of row. In addition to number of beetles, percent defoliation should also be estimated as well as any damage to the growing point.

After plants become larger, it will be easier to use a drop cloth or sweep net.

**Drop Cloths:** Place a cloth of known length between the row. Bend the plants from one row over the cloth and shake them vigorously so beetles fall onto the cloth. Count the beetles on the cloth and divide by the total number of feet examined (the length of the cloth) to get the number of beetles per foot of row. Do this in five different locations throughout the field to get a representative sample.

**Sweep Nets:** Sweep net sampling recommendations usually call for sets of 10-20 sweeps at each of five different locations throughout the field. The average number of beetles per set of sweeps is determined by adding the number of beetles in the net at all five locations and dividing by 5.

For defoliation, treatment thresholds vary depending on crop value and treatment cost. Management recommendations can be found in your local University Extension publications or can be obtained by contacting your Extension entomology specialist.

Insecticidal seed treatments can help protect seedlings from early-season BLB feeding. If the beetles appear to be injuring or clipping the cotyledons and growing points, and an insecticide seed treatment was not used, then a foliar insecticide treatment may be warranted. Several foliar insecticides (pyrethroid, carbamate, organophosphate) are labeled for BLB management.

Treatment thresholds for BPMV are not yet available. Were yields the previous season lower than expected and unexplainable? Were virus symptoms (leaf mottling, discolored seed, etc.) present? If so, BPMV may be a concern for the coming season. To prevent BPMV transmission, a two-pronged approach is suggested. The first step is to protect young soybean seedlings from overwintering BLB adults by using an insecticidal seed treatment. If seed treatments aren’t used, a foliar insecticide application should be applied soon after crop emergence when BLB are present. A second application should be made at the first sign of first generation BLB, generally in July.

For additional information on BLB or early season soybean management, please see the following resources:

**Bean Leaf Beetle Mid to Late Season**
**Soybean Emergence and Early Growth**

**Sources**
Web sources verified 02/01/18.