



# Agronomic Alert

## Mid and Late Season Bean Leaf Beetle

- Bean leaf beetles may have one to three generations per year, depending on location.
- The most damage occurs to the soybean plant from adult feeding on foliage or pods.
- The time period left before anticipated harvest of a field may dictate the insecticide chosen.

### Description

The bean leaf beetle (*Cerotoma trifurcate*) is native to North America and common in soybean growing areas. Depending on location, beetles may have one to three generations per year. Adults emerge in the spring and may initially infest available hosts such as alfalfa. As the season progresses, beetles migrate to soybean where they feed on leaf and pod tissue. Beetles deposit eggs in the soil near the base of plants. Eggs hatch in about one week and larvae feed on soybean roots and nodules.

### Pest Identification

The adult is about 1/4-inch long with variable coloration. The most common bean leaf beetle color is light yellow or tan; however, some are green, orange, or red. All, regardless of coloration, have a black triangle just behind the head. Additionally, they usually have four black spots with stripes along the body edges; however, these markings may be absent (Figure 1).

### Soybean Plant Damage

The most damage occurs to the soybean plant from adult feeding on foliage or pods. Pod feeding results in the greatest damage because it affects both the quality and the yield potential of the plant. Adults also transmit bean mottle virus (Figure 2) which causes green stem syndrome potentially delaying harvest.

The percentage of defoliation and stage of soybean development are both factors considered in economic thresholds for soybean defoliation. Soybean plants can generally withstand 35 to 40% defoliation during vegetative growth stages (or before bloom). The threshold decreases to 20 to 25% during the critical stages of bloom through pod fill. A good place for obtaining information on how to calculate your economic threshold is on your local university and extension websites.

### Management

Mid and late season defoliation from first and second generation beetles must be assessed to determine whether a control application is necessary. Determine the percentage defoliation level for individual plants in five separate areas of the field and estimate the average percentage defoliation level for the field as a whole. Sampling in the mid-morning, after the dew has dried or early evening is best.



Figure 1. Bean leaf beetle with spots (left) and without spots (right). Note the characteristic black triangle behind the head on both.

Late in the season, observe whether beetles are feeding on the pods. This damage results in a white paper thin membrane which covers the seed. Do not confuse this with grasshopper damage that extends past the membrane to the seeds. Randomly select two plants in five different areas



Figure 2. Soybean leaf mottling of the field and count the number of pods per plant that show insect damage (ten total plants). Figure the percentage of damaged pods per plant for the field as a whole.

There are numerous foliar insecticides to select from if treatment is needed. When applying a late summer treatment for prevention of further pod feeding, growers should be aware of pre-harvest intervals for many of the insecticides, which range from 14 days to 60 days. The time period left before anticipated harvest of a field may dictate the insecticide chosen.

Sources: <sup>1</sup> Bean leaf beetle. Purdue University. Field Crops IPM. <http://extension.entm.purdue.edu>.

<sup>2</sup> Cook, K. 2003. Defoliators abundant in many soybean fields. University of Illinois. <http://bulletin.ipm.illinois.edu>.

<sup>3</sup> Ratcliffe, S.T., Gray, M.E., and Steffey, K.L. 2004. Bean leaf beetle. University of Illinois Extension. Integrated Pest Management. <http://www.ipm.illinois.edu>.

<sup>4</sup> Hammond, R.B., Michel, A., and Easley, J.B. 2009. Bean leaf beetle on soybean. Ohio University Extension. FC-ENT-0023-09. <http://ohioline.osu.edu>.

<sup>5</sup> Holshouser, D. 2009. Green stem syndrome in soybeans. Virginia Cooperative Extension. 2912-1430. <http://www.ext.vt.edu>. Web sources verified 5/4/15.

For additional agronomic information, please contact your local seed representative. Developed in partnership with Technology, Development & Agronomy by Monsanto.

Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible. **ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS.** Monsanto and Vine Design® is a registered trademark of Monsanto Technology LLC. All other trademarks are the property of their respective owners. ©2015 Monsanto Company. 140728093522 050415CRB.