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## Bean leaf beetle numbers hit the roof

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# Bean leaf beetle numbers hit the roof

## **Abstract**

Bean leaf beetle populations have reached economically damaging proportions in some parts of the state during the past 2 weeks. The largest populations appear to be in eastern Iowa (see map below showing bean leaf beetles per sweep), but reports of insecticide applications are coming from most of Iowa except the northern counties. Populations at this time are probably a mix of both the first- and second-generation beetles. You should expect second-generation bean leaf beetles to hang around until mid-September or until soybean plants start to turn yellow.

## **Keywords**

Entomology

## **Disciplines**

Agricultural Science | Agriculture | Entomology

# INTEGRATED CROP MANAGEMENT

## Bean leaf beetle numbers hit the roof

Bean leaf beetle populations have reached economically damaging proportions in some parts of the state during the past 2 weeks. The largest populations appear to be in eastern Iowa (see map below showing bean leaf beetles per sweep), but reports of insecticide applications are coming from most of Iowa except the northern counties. Populations at this time are probably a mix of both the first- and second-generation beetles. You should expect second-generation bean leaf beetles to hang around until mid-September or until soybean plants start to turn yellow. Large populations have reduced yields by 20-50 percent in past years so the importance of this insect should not be ignored.

Many fields contain noticeable, and sometimes dramatic, leaf defoliation from the beetles. This leaf feeding seldom causes yield loss. Most damage (economic yield loss) occurs when beetles feed on the developing pods. This yield loss can occur in several ways. Pods may be clipped from the plants, or plant diseases may enter the pod through the feeding sites, causing seeds to appear shrunken, discolored, and moldy. This injury reduces seed quality.

Beetles injure pods by feeding on the outside layer of the soybean pod, leaving a thin layer of tissue still covering the seed. They very rarely chew through the pod and into the developing seed. Grasshoppers also feed on pods, but they bite completely through the pod and destroy the seed.



**Bean leaf beetle injury to a soybean pod.**

[Enlarge](#) [1]

Bean leaf beetle also transmits the soybean pathogen bean pod mottle virus. Tony Weis, Iowa State University Extension crops specialist in Ida Grove, reports virus symptoms on near 100 percent of the plants in infected fields in his area. There is not much that can be done this late in the season to prevent additional losses by this virus. There may be more information to present on this topic at the *Integrated Crop Management Conference* in Ames this November.



**The yellow phase of the bean leaf beetle is the most common color variety.**

All soybean fields should be scouted now. Scout fields by walking 100 feet in from the field edge. Each field, and each variety within a field, should be scouted separately because bean leaf beetles sometimes concentrate in one variety while avoiding another variety. Scouting is no longer necessary after pods reach the R7 stage (yellow pod).

In 30-inch row soybeans, place a 3-foot-wide strip of cloth (stapled to two dowel rods) on the ground between the rows. Slide the cloth under the plants and try to keep plant disturbance to a minimum before the cloth is spread between the rows and you are ready to shake the plants. Bend the plants over the cloth, and shake them vigorously when the cloth is in place. Count the number of beetles on the cloth. Repeat this procedure four times for each 20 acres in the field. Determine the average number of beetles per foot of row and then consult the economic threshold table. The thresholds listed in the table are for fields that were not scouted in July or early August for first-generation beetles. **These thresholds basically are for fields that are now being scouted for the first time.**

In narrow-row soybeans, a sweep net will be easier to use than a drop cloth. Take 20 sweeps in each 20 acres across the field. Determine the average number of beetles per sweep and consult the economic threshold table. For narrow-row soybeans (8-inch rows) and a plant population of three plants per foot of row, multiply the economic thresholds by 0.7 to determine an approximate threshold in narrow-row fields.

If the average numbers of bean leaf beetles equals or exceeds the economic threshold, an insecticide application is necessary to prevent economic yield loss. The benefits (saved bushels of soybean) should exceed the costs (insecticide and application) and provide an economic return.

If the beetle population is less than the economic threshold, scout the field again 5 days later. More beetles could emerge from the soil, and the population could reach the economic threshold at that time. Stop scouting when 1) beetle counts start to decline, 2) soybean pods begin to turn yellow (R7 stage), or 3) the field is sprayed. A list of insecticides is in the [companion article](#) [3] in this issue.

One final thought--the red and yellow phase of a bean leaf beetle cannot be used to determine its age! There is a rumor to this effect that is being widely circulated. I thought you should know.

**Table 1. Bean leaf beetle economic thresholds in reproductive-stage soybeans.\***

Crop value (\$/bushel)	Treatment cost per acre (insecticide + application)								
	\$7	\$8	\$9	\$10	\$11	\$12	\$13	\$14	\$15
	beetles per foot of row								
\$5.00	5.5	6.3	7.1	7.9	8.7	9.5	10.3	11.0	11.8
\$6.00	4.6	5.2	5.9	6.5	7.2	7.8	8.5	9.2	9.9



[2] <http://www.ent.iastate.edu/imagegal/coleoptera/beanlb/0212.5yelblb.html>

[3] <http://www.ipm.iastate.edu/ipm/icm/thoughts.html>

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