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Bean Leaf Beetle Activity Noticed in Soybean

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Abstract

Last week, I heard a few reports of bean leaf beetle adult feeding in soybean. Because cold temperatures last winter were extremely hard on overwintering adults, there was some question if bean leaf beetles would be a problem this year. Since Iowa is slightly behind in degree days, some areas of the state are experiencing delayed first generation feeding damage as fields are coming into bloom.

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Bean Leaf Beetle Activity Noticed in Soybean

Erin Hodgson, Department of Entomology

Last week, I heard a few reports of bean leaf beetle adult feeding in soybean. Because cold temperatures last [winter were extremely hard on overwintering adults](#), there was some question if bean leaf beetles would be a problem this year. Since Iowa is slightly behind in degree days, some areas of the state are experiencing delayed first generation feeding damage as fields are coming into bloom.

Life Cycle. Bean leaf beetles have two generations per year in Iowa. The overwintering generation attack emerging soybean in the spring, and lay eggs that produce the first generation that usually emerges in late June and July. These first generation populations usually peak in the late vegetative or the early reproductive soybean stages. It is the second generation adults that peak and feed during the pod-fill stage in late summer can be very significant. The red and yellow phase of bean leaf beetles is not an indication of age, although this rumor is widely circulated.



Scouting for bean leaf beetles can help prevent economic loss, even with patchy populations this year.

Sampling. Soybean fields in the reproductive stages can be sampled for bean leaf beetle by using either a drop cloth or a sweep net. Here are the procedures for each method.

Drop cloth

- Walk 100 feet in from the field edge and scout each field and each variety separately.
- Place a 3-foot wide strip of cloth on ground between the rows.
- Bend the plants on one row over the cloth and shake them vigorously.
- Count the number of beetles on the cloth and determine the average

number of beetles per 3-foot of row.

- Repeat the procedure four times for each 20 acres of the field.
- Consult Table 1 for the number of beetles per 3-foot of row necessary to justify insecticide treatment.
- If the number of beetles is below the economic threshold, sample your fields again the following week and a third week if necessary.

Sweep net

- Walk 100 feet in from the field edge and scout each field and each variety separately.
- Take 20 sweeps and determine the number of beetles per sweep.
- Repeat the procedure four times for each 20 acres of the field.
- Table 1 shows the average number of beetles per sweep that justifies insecticide treatment for the second generation adults.
- If the number of beetles is below the economic threshold, sample your fields again on following week and a third week if necessary.

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

Management Cost (\$/acre)								
	\$10	\$11	\$12	\$13	\$14	\$15	\$16	\$17
\$/bu	Adult beetles per sweep							
\$7	4.45	4.89	5.34	5.78	6.22	6.67	7.11	7.56
\$8	3.89	4.28	4.67	5.06	5.45	5.84	6.22	6.61
\$9	3.46	3.80	4.15	4.50	4.84	5.19	5.53	5.88
\$10	3.11	3.42	3.73	4.05	4.36	4.67	4.98	5.29
\$11	2.83	3.11	3.40	3.68	3.96	4.24	4.53	4.81
\$12	2.59	2.85	3.11	3.37	3.63	3.89	4.15	4.41
\$13	2.39	2.63	2.87	3.11	3.35	3.59	3.83	4.07
\$14	2.22	2.45	2.67	2.89	3.11	3.33	3.56	3.78

**Economic thresholds are based on a row spacing of 30 inches and a plant population of eight plants per foot of row. For narrow-row soybeans (8-inch rows) and a plant population of three plants per foot of row, multiply the above economic thresholds by 0.7.*

Management. Bean leaf beetle feeding on soybean pods can lead to significant reductions in seed quality and yield throughout Iowa. It is important to [recognize bean leaf beetle injury](#). There are clearly defined economic thresholds for various plant stages. However, managing bean leaf beetles in soybean during the pod set and pod fill can be frustrating to growers and crop advisers because adults may be feeding on pods for a couple of weeks before the population reaches the economic threshold. In this situation, some loss in seed quality and quantity occurs before an insecticide application can be economically justified. There are several products registered in Iowa for bean leaf beetle (Table 2). Follow label directions and pay attention to spray guidelines.

Table 2. Insecticides labeled for bean leaf beetle adults in soybean.

<i>Product (active ingredient)</i>	<i>Application rate</i>	<i>Preharvest interval</i>
Adjourn (esfenvalerate)	5.8-9.6 oz/ac	21 days
Ambush (permethrin)	3.2-6.4 oz/ac	60 days
Asana XL (esfenvalerate)	5.8-9.6 oz/ac	21 days
Baythroid XL (beta-cyfluthrin)	1.6-2.8 oz/ac	45 days
Endigo ZC (lambda-cyhalothrin + thiamethoxam)	3.5-4.5 oz/ac	30 days
Leverage 2.7 (imidacloprid + cyfluthrin)	3.8 oz/ac	45 days
Lorsban (chlorpyrifos)	1-2 pints/ac	28 days
Pounce (permethrin)	3.2-6.4 oz/ac	60 days
Proaxis (gamma-cyhalothrin)	1.92-3.2 oz/ac	21 days
Sevin XLR (carbaryl)	1-2 quarts/ac	21 days
Warrior II (lambda-cyhalothrin)	0.96-1.6 oz/ac	21 days

Portions of this article originally appeared in previous ICM News articles ([2007](#) and [2000](#)).

Erin Hodgson is an assistant professor of entomology with extension and research responsibilities. She can be contacted by email at ewh@iastate.edu or phone (515) 294-2847.

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