

BETWEEN THE ROWS

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JAPANESE BEETLES IMPACTING CORN AND SOYBEAN FIELDS

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Background

High populations of Japanese beetles already are occurring across the Midwest corn and soybean production areas. Feeding by adults can be a serious problem in both corn and soybeans. Thus scouting is crucial, especially during the reproductive stages of both crops.

Mild winters and early planting generally promote higher populations of this insect. Heavily infested areas with white grubs, which are the larval stage, do not guarantee severe injury from adult beetles in the same area. Adults can reduce yield potential by interfering with pollination in corn and damaging leaf tissue and pods in soybeans.

Life Cycle and Identification

Adults emerge from the ground starting in late May and early June, with peak emergence occurring 4 to 5 weeks later. Following emergence they mate, and lay eggs soon after. Females burrow 2 to 4 inches into the soil and lay 1 to 4 eggs every 3 to 4 days for several weeks. An adult beetle generally lives 30 to 60 days. The grubs grow quickly to full size, about 1 inch long. Grubs feed on living plants and then overwinter. When soil temperature climbs above 50° F in the spring, the grubs begin to move up to the soil surface again, pupate and remain there prior to emerging as adults.



Adult Japanese beetles are approximately ½ inch in length, have a metallic green head and neck region, and reddish to bronze wing covers with a row of six bunches of white bristles along the side of their abdomen.

Corn Scouting and Thresholds

The adults feed on leaves, tassels, silks, and pollen. Corn leaves may appear skeletonized, but leaf feeding is rarely of economic importance. Economic damage can occur when the beetles prevent pollination by early silk clipping. When the silks are clipped before or during pollination the ears may be only partially pollinated. Silk clipping after pollination does not affect yield potential.

When scouting for Japanese beetles, always evaluate a representative portion of the field. If sampling only occurs near field edges, where populations of Japanese beetles are usually clumped together, populations across the field could be overestimated. An insecticidal treatment should be considered during corn silking stage if:

1. There are 3 or more Japanese beetle adults per ear, and
2. Silks have been clipped to less than ½ inch, and
3. Pollination is less than 50% complete, and
4. Japanese beetles are still present and actively feeding.

Soybean Scouting and Threshold

Although Japanese beetles can cause extensive defoliation, soybean plants have the capability to compensate for the damage and it seldom affects yield potential. Scout flowering fields for the presence of Japanese beetles and the extent of defoliation. Estimate the percent defoliation on the randomly selected leaves in at least five different areas of the field. Insecticide applications should be considered if:

1. Thirty percent defoliation occurs prior to bloom, or
2. Twenty percent defoliation occurs during flowering or pod fill, and
3. Beetles are present and actively feeding.



Control

Insecticides recommended for control of Japanese beetles in corn and soybeans can be found in the table below. Damage from Japanese beetles can add to other stresses the crop is experiencing. This, along with higher commodity prices, should be taken into consideration when using thresholds to determine if insecticide treatment is needed.

Insecticides labeled for control of Japanese beetle adults in corn and soybeans³		
Insecticides	Rate/acre in corn	Rate/acre in soybeans
Adjourn ^{TM*}	——— ^A	5.8 to 9.6 oz
Ambush 25W*	———	6.4 to 12.8 oz
Asana [®] XL*	5.8 to 9.6 oz	5.8 to 9.6 oz
Baythroid [®] XL*	1.6 to 2.8 oz	1.6 to 2.8 oz
Bifenthrin 2EC ^{TM*}	2.1 to 6.4 oz	——— ^B
Endigo ZC ^{®*}	———	3.5 to 4.5 oz
Leverage [®] 2.7*	———	3.8 oz
Proaxis ^{TM*}	2.56 to 3.84 oz	3.2 to 3.84 oz
Warrior II with Zeon technology ^{®*}	1.28 to 1.92 oz	1.6 to 1.92 oz
* use restricted to certified applicators		
^A product not labeled for this use in corn		
^B product not labeled for this use in soybeans		

³ E. Hodgson. 2009. Japanese beetles expanding range in Iowa. Integrated Crop Management, Iowa State University Extension, <http://www.extension.iastate.edu> (viewed 7/13/2011).