

Japanese Beetles Expand Their Distribution Across Missouri

By Wayne Bailey

During the past three weeks numbers of Japanese beetles have increased and can now be collected from many corn and soybean fields in Missouri. They also are being collected in high numbers from several pheromone traps located throughout the state. Adult Japanese beetles typically feed on green silks and tassels in corn, foliage feed on soybean, and damage the foliage and fruit of over 400 flower, shrub and tree species. Although low numbers of beetles are present on many of these host plants this summer, some corn fields undergoing pollination have received economic damage and required insecticide applications to control this pest. Beetle numbers also are building in some soybean fields and may need to be treated if defoliation reach or exceed 30% during vegetative stages.

This beetle was first found in the United States in 1916, following its accidental introduction from its native country of Japan. Japanese beetles are approximately 1/2-inch in length, metallic green in color with bronze or copper colored wing covers. A diagnostic characteristic is the presence of several white tufts of hair or bristles located around the edge of the shell. Without magnification, these

structures are seen as white dots. Japanese beetles can be confused with adult green June beetle, but are smaller in size. Adult beetles emerge from the soil in late May, June, and July to feed for approximately 60 days. During this time the beetles mate and females deposit eggs in the soil. Each female may lay 40 to 60 eggs in groups of 1 to 8 with larvae emerging in about 2 weeks. Larvae will feed on plant roots and decaying material before overwintering in the soil as 3rd instars. The following spring larvae quickly finish development, pupate, and emerge as adult beetles beginning in May.

Feeding damage of Japanese beetles is often observed as a lace-like pattern of defoliation of host plant foliage as beetles avoid leaf veins when feeding. Beetles often gather on host plants which exude strong odors to feed from the top of plants downward. Tassels and silks of corn can be severely damaged by adult feeding, whereas foliage feeding is common on soybean and many other plants. Feeding on corn silks can disrupt pollination and result in substantial yield losses. Foliage feeding on soybean is less damaging, although small double-crop soybean may sustain economic damage. The grub stage

of this pest will feed on plant roots of both corn and soybean with most feeding occurring in late June, July and August. Damage to plant root hairs may result in poor uptake of water and nutrients or be more severe and cause reduced stands through plant mortality.

In field corn, an insecticidal treatment is justified if during the silking period there are an average of 3 or more beetles present per ear, silks have been clipped to 1/2 inch or less in length, and pollination is less than 50% complete. For soybean treatment is justified if foliage feeding exceeds 30% prior to bloom and 20% from bloom through pod fill. The following insecticides are recommended for control of Japanese beetles in field corn and soybean in Missouri.

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Table 1. Japanese Beetle Adults - Corn

Japanese Beetle Adults - Corn			
Comments: Treatment of Japanese beetle is justified if 3 or more beetles are present on green silk, silks are eaten to 1/2 or less in length, and pollination is less than 50% complete.			
Common Name	Trade Name	Rate of formulated material per acre	Placement
esfenvalerate	*Asana XL	5.8 to 9.6 fl. oz.	Broadcast
cyfluthrin	*Baythroid XL	1.6 to 2.8 fl. oz.	Broadcast
bifenthrin	*Brigade 2 EC	2.1 to 6.4 fl. oz.	Broadcast
chlorpyrifos + gamma-cyhalothrin	*Cobalt	38 to 42 fl. oz.	Broadcast
bifenthrin	*Fanfare 2EC	2.1 to 6.4 fl. oz.	Broadcast
zeta-cypermethrin	*Mustang Max	3.2 to 4.0 fl. oz.	Broadcast
microencapsulated methyl parathion	*PennCap-M	2 to 4 pt.	Broadcast
lambda-cyhalothrin	*Proaxis	2.56 to 3.84 fl. oz.	Broadcast
carbaryl	Sevin XLR Plus	2 to 4 pt.	Broadcast
lambda-cyhalothrin	*Warrior	2.56 to 3.84 fl. oz.	Broadcast

* Designates a restricted-use pesticide. Use is restricted to certified applicators only. Regardless of the formulation selected, read the label to determine appropriated insecticide rates, directions, precautions, and restrictions.

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Table 2. Japanese Beetle Adults - Soybean

Japanese Beetle Adults - Soybean			
Comments: Treat when defoliation reaches 30% before bloom and 20% between bloom and pod fill.			
Common Name	Trade Name	Rate of formulated material per acre	Placement
permethrin	*Ambush 25W	3.2 to 6.4 fl. oz.	On foliage
esfenvalerate	*Asana XL	5.8 to 9.6 fl. oz.	
cyfluthrin	*Baythroid XL	0.8 to 1.6 fl. oz.	
bifenthrin	*Brigade 2 EC	2.1 to 6.4 fl. oz.	
chlorpyrifos + gamma-cyhalothrin	*Cobalt	19 to 38 fl. oz.	
zeta-cypermethrin +	*Hero	4.0 to 10.3 fl. oz.	
zeta-cypermethrin	*Mustang Max	2.8 to 4.0 fl. oz.	
microencapsulated methyl parathion	*PennCap-M	2 to 3 pt.	
permethrin	*Pounce 3.2EC	2.0 to 4.0 fl. oz.	
lambda-cyhalothrin	*Proaxis	3.2 to 3.84 fl. oz.	
carbaryl	Sevin XLR Plus	1 to 2 pt.	
lambda-cyhalothrin	*Warrior	3.2 to 3.84 fl. oz.	

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