

# Japanese Beetle Control for Homeowners

# HANDOUT

The adult Japanese beetle, *Popillia japonica* Newman, is about 3/8-inch long. It is metallic green in color with copper colored wing coverings. The beetle has five small white tufts under the wing covers on each side and one more pair projecting from the tip of the abdomen which distinguish it from similar beetle species.



Japanese beetle adults utilize a wide variety of plants as food sources and have been known to feed on more than 400 plant

species but only about 50 species are preferred. From the carefully manicured roses in your garden to the poison ivy you've been trying to clear out, they have quite a varied appetite. Japanese beetles feed on leaf tissue between veins giving damaged leaves a skeletonized appearance. Adults are also very mobile. They invade new areas rapidly and can re-infest plantings that were treated successfully several days earlier. They feed on ripe fruits as well as broadleaf foliage, especially fruit that is in full sunlight. Their tendency to cluster together often results in clumps of severely damaged fruit or leaves near other completely undamaged portions of the same plant.

The adult Japanese beetle will be present for four to six weeks after emergence, with peak activity occurring in most areas from June through August. When the Japanese beetles emerge and mate, the females will lay eggs in the ground. The eggs hatch after about 2 weeks and spend the next 10 months developing as white grubs, the larval stage of Japanese beetles. White grubs feed on grass roots and may become a problem in managed turf areas.

Controlling Japanese beetle adults depends on the magnitude of the problem. Small numbers of beetles can be removed by hand; simply shake the plant early in the morning when the beetles are least active and collect them in a bucket of soapy water. If the problem persists or the concentration of beetles becomes too high, other methods of control may be necessary. One method that has become popular in recent years uses baited traps that attract the beetles. However, this has proven to be more effective in large-scale area-wide situations; one or two traps in an individual garden may attract more beetles than they control.

When an infestation is apparent, the use of an insecticide labeled for Japanese beetles will provide control and provide some protection for your plants. There are several insecticides that can be used to help control damage by adult Japanese beetles (See Table below). These individual insecticides vary in how long they can persist and control beetles, what plants they can be used on, whether they move systemically in the plant, and in their hazard to desirable insects like pollinators.

**Table. Insecticides for Controlling Japanese Beetle Adults on Foliage and Flowers**

Common Name (Insecticide Class)	Trade Names	Persistence of control	Labeled Uses on Food Crops	Pollinator Hazards, Cautions
acetamiprid (neonicotinoid)	Tristar, Ortho Flower, Fruit, and Vegetable Insect Killer	Moderate persistence; provides control of damage for days-week. Moves systemically within plants.	Label allows use on some fruits and vegetables.	Can be used on plants that are in blossom but cannot be applied at times when bees are visiting (i.e., dusk, dawn applications allowed).
azadirachtin (unspecified botanical origin)	BioNeem, Azasol, AzaGuard, AzaMax, others	Short persistence; provides control of damage for a couple of days.	Uses allowed for essentially all food crops.	Hazardous to bees if directly sprayed. Can be used on plants that are in blossom but cannot be applied at times when bees are visiting (i.e., dusk, dawn applications allowed).
bifenthrin (pyrethroid)	Ortho Max Insect Killer for Lawns and Gardens, Talstar, Onyx	Persistence moderate-long; provides control of damage for about a week.	No food crop uses are allowed.	High hazard and can kill bees for days after application. Cannot be used on plants bees visit that are in bloom.
carbaryl (carbamate)	Sevin, Carbaryl	Persistence moderate-long; provides control of damage for about a week.	Label allows many food crop uses.	High hazard and can kill bees for days after application. Cannot be used on plants bees visit that are in bloom.
chlorantraniliprole (anthranilic diamide)	Acelepryn SC	Persistence moderate-long; provides control of damage for about a week.	No food crop uses are allowed.	Very low hazard to bees. Can be applied to plants that are in flower and are being visited by pollinators. Not marketed for retail.
beta-cyfluthrin pyrethroid)	Tempo, Bayer Advanced Rose and Flower Insect Killer (with imidacloprid), Bayer Advanced Vegetable and Garden Insect Spray	Moderate persistence; provides control of damage for days-week.	Some uses allowed for products that solely contain beta-cyfluthrin formulations with imidacloprid do not allow food crop uses.	High hazard and can kill bees for a day or two after application. Cannot be used on plants bees visit that are in bloom.
gamma-cyhalothrin (pyrethroid)	Triazicide Insect Killer for Lawns and Landscapes	Persistence moderate; provides control of damage for days-week.	Labeled for use on many vegetable and most fruit crops.	High hazard and can kill bees for days after application. Cannot be used on plants bees visit that are in bloom.
imidacloprid (neonicotinoid)	Merit, Mallet, Zenith, Bonide Systemic Insect Spray, Bayer Advanced 2-in-1 Systemic Rose & Flower Care, Bayer Advanced Tree & Shrub Protect & Feed (with chlothianidan), Bayer Advanced Fruit, Citrus and Vegetable Insect Killer Hi-Yield Systemic Insect Granules, Ortho Bug B Gon Year-Long Tree & Shrub Insect Control, Ferti-lome Tree & Shrub Systemic Insect Drench, others	Moderate persistence; sprays can provide control of damage for days-week. Moves systemically within plants.	Variable, depending on formulation. Many products that have imidacloprid as the sole active ingredient also allow use on some fruits and vegetables.	High hazard to bees. Do not apply when bees are foraging. Do not apply to plants that are flowering. Only apply after all petals have fallen off.
permethrin (pyrethroid)	Bonide Eight Insect Control Vegetable, Fruit & Flower; Bayer Advanced Complete Insect Dust for Gardens; Ace House & Garden Bug Killer2, Astro, Permethrin, others	Short to moderate persistence. Provides control of injury for a few days.	Label uses include most vegetable and many fruit crops.	High hazard and can kill bees for a day or two after application. Cannot be used on plants bees visit that are in bloom.
pyrethrins (botanical)		Pyrenone, PyGanic, many retail formulations	Very short persistence; provides control for a day or two.	Uses allowed for essentially all food crops.

If Japanese beetles are damaging flowering plants, the potential for hazard to pollinators, is very important in determining what type of insecticide to choose.

Insecticides that are highly toxic to bees and have long residual activity are hazardous to pollinating insects that visit the flowers. These include products with the active ingredients carbaryl, bifenthrin, beta-cyfluthrin, gamma-cyhalothrin, permethrin, and imidacloprid. These insecticides normally have label instructions to prohibit their use when there are flowers in bloom that are attractive to bees.

Some insecticides, listed in the Table above are less toxic to bees or persist for only a short period of time, and can be used on plants that are in flower if applications are made during times of the day (early morning, dusk) when bees are not active and visiting plants. Examples include pyrethrins, azadirachtin, and acetamiprid.

One insecticide product, chlorantraniliprole (Acelepryn), does not have restrictions for use on plants in bloom because it has very little, if any, toxicity to bees. However, this product is not marketed for homeowner use and is only marketed for commercial/agricultural uses.

**All chemical information provided is given with the understanding that no endorsement of named products is intended, nor is criticism implied of similar products that are not mentioned. Individuals who use pesticides are responsible for ensuring that the intended use complies with current regulations and conforms to the product label. Before purchasing or using any pesticide, always read and carefully follow the label directions.**

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