

# Organic Solutions for Japanese Beetles and May or June Bugs

## A Factsheet from Toxic Free NC

### About Japanese Beetles

Several beetles in the Scarab family can damage crops in the garden, both above and below the ground. The most well known is the Japanese Beetle. Related beetles include the Green June Beetle and the European Chafer. They're often called May or June Beetles.

Managing all three species is similar. The grubs of these beetles eat the roots of grasses and crop plants and other organic matter. They can be a big problem in lawns, and may also eat the roots of vegetable and strawberry transplants, corn plants, and potatoes.

As adults, these beetles eat crop leaves, leaving a ragged, lacy or "skeletonized" leaf, where the veins are left intact but the leafy material between is eaten. Adults may also eat flowers and fruits. These beetles can weaken plants, damage fruit, or even kill the plant.

The tips below are designed to help you manage Japanese Beetle and May or June Beetle damage in your garden without toxic chemicals. Sustainable pest management strategies usually work best when used together. Think about your garden, your resources, and your time, and put several of these tips together for a plan that works for you.

### Identifying Japanese Beetles

All three types of adult beetles are blocky in shape and 0.5 - 1 inch long. The Japanese Beetle is metallic green with copper colored wings and has tufts of small white hairs along the sides of its body.

The Green June Beetle, or Junebug, is iridescent green. The European Chafer is a shiny brown color, and is bit more round shaped than the others.

The larvae of all three species are called "white grubs." They can be up to an inch long, with brown heads and plump, white, segmented bodies. They have three pairs of legs just behind their heads, and their tail-ends may look gray. They curl up into a C shape.



**Grubs.**

Photo Credit: David Cappaert, Michigan State University.



**Adult Japanese beetles on damaged leaf.**

Photo Credit: David Cappaert, Michigan State University.

## Life Cycle

The life cycles of these beetles can be from 1–4 years long depending on they type. Adults usually come out of the soil in swarms during late spring and early summer. They eat plant leaves for several weeks and then lay eggs in the soil during the summer. The eggs hatch in 2–3 weeks, and the larvae or grubs eat for a while before spending the winter deep in the soil.

In spring, the grubs come to the upper layers of soil to feed on roots and organic matter. Some types of grubs pupate in early summer and then come out of the soil as adults. Other types stay underground until winter when they will hibernate.

They can repeat the cycle of underground eating and hibernating for 1 to 3 years before the grub finally pupates and becomes an adult beetle.

## Prevention

**1) Grow healthy organic plants.** Strong plants can handle some beetle damage better than weak, struggling plants. Japanese Beetles and May & June Beetles may like the smell of sick or injured plants and attack them first. Make sure that your crops are getting enough sunlight and water and that the soil is well-drained and rich in nutrients and organic matter.

**2) Timing.** If your growing season is long enough and the weather allows, you may choose to plant some quick-growing plants in late summer after most adult Japanese beetles and May & June beetles have finished for the year.

**3) Use row covers.** Keep the adult beetles from finding your crop by covering your plants with a light weight “floating” row cover such as Reemay. This material (unlike plastic or heavier fabrics) lets water, air, and sunlight through. You can buy them at garden supply stores or order from seed catalogs. The covers can lie right on the plants (the plants will lift the cover as they grow), or you can support them with wire hoops.

The trick is to keep the edges of the covers tightly buried or weighed down so that the beetles cannot get in. If your crops require pollination by flying insects in order to produce food (squash and other cucurbits, for instance), you will have to remove the row covers periodically to pollinate by hand.

Covering your crop works best in soil where Japanese or May & June Beetles have not been a pest in the past. If you have grubs living in your soil already, row covers will keep them in instead of out!

**4) Avoid traps.** Pheromone traps are often recommended for Japanese Beetles, but in a small garden those traps can do more harm than good! Keep in mind that adult beetles can come out in very large numbers all at once, and they move fast. Traps might attract a lot more beetles to the area than they catch. For the same reason, light traps or trap crops are not recommended.



Adult green June beetle.

Photo credit: Clemson University - USDA Cooperative Extension Slide Series



European Chafer adult beetle.

Photo credit: Mike Reding & Betsy Anderson, USDA Agricultural Research Service

## Getting Rid of Japanese Beetles Without Toxic Chemicals

**1) Scout and hand pick.** You'll often see white grubs when you are digging or tilling the garden. When you do, crush them, snip them in half with scissors, or drop them into a pail of soapy water. Adult beetles can be hand picked from plants and crushed or dropped into soapy water. You can also put a drop cloth beneath your plants and then shake the beetles out and collect them on the drop cloth. Early morning is a good time to look for the adult beetles, because when they're cold they move more slowly.

**2) Attract natural enemies.** Some types of wasps and flies are predatory or parasitic to beetle eggs and white grubs. Ground beetles and some ants eat the eggs, and birds are good predators of adult beetles. You can welcome beneficial insects to your garden by planting wildflowers and herbs with small flowers for pollen and nectar. Perennial herb and flower beds and shrubs nearby the vegetable garden will provide a home for many other helpful creatures.

**3) Parasitic nematodes.** There are at least two species of parasitic nematodes you can buy that will attack the grubs of Japanese beetles and May & June beetles. Check garden supply and seed catalogs for the right species, and follow their instructions carefully.

**4) Milky disease bacteria.** Milky disease is type of bacteria that kills the white grub of the Japanese beetle. It may also work for May & June beetle white grubs. Milky disease is not harmful to other creatures. Spores of milky disease can be bought in products such as Milky Spore™, and applied to garden soil. It may be even more helpful to apply it to lawns, perennial beds, and other areas near the garden that you don't till. You can find it in garden stores or seed catalogs. Be sure to follow instructions carefully. The white grub eats milky disease bacteria, then dies and the bacteria spread into the soil, where they will help you control grubs for several years. Using milky disease can take a year or two to work, but once it does, it can last for several years. However, milky disease won't control adult beetles unless the whole neighborhood uses it! The adults can fly and move fast, so they finding their way from one garden to the next easily.

**5) Use Neem oil.** Neem oil is a natural product pressed from the seed of the Neem tree, which repels and kills many types of insects. As a last resort when beetles are eating the leaves of your plants, you might choose to spray the leaves with this least-toxic insecticide. Double check any Neem oil product on the Organic Materials Review Institute's list of products approved for certified organic farms. Neem oil can kill pollinators and other "good bugs" you want to keep in your garden, so you should use as little as possible. Try to spray in the early morning or late evening beneficial insects are less active. Obviously, even "organic" sprays come with risks and problems, so try the other tips here first, and you may be able to skip the sprays altogether.

## Sources

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*This factsheet was written with the needs of non-commercial home, school and community gardeners in mind. Certified Organic growers, or those seeking a certification, should check with their certifying agency before using ANY insecticide. Some organically acceptable insecticides are approved for use in Certified Organic systems only against certain pests or in certain situations.*