Japanese Beetles and Birch Trees

Investigating beetle feeding preferences

Japanese beetles (*Popillia japonica*)

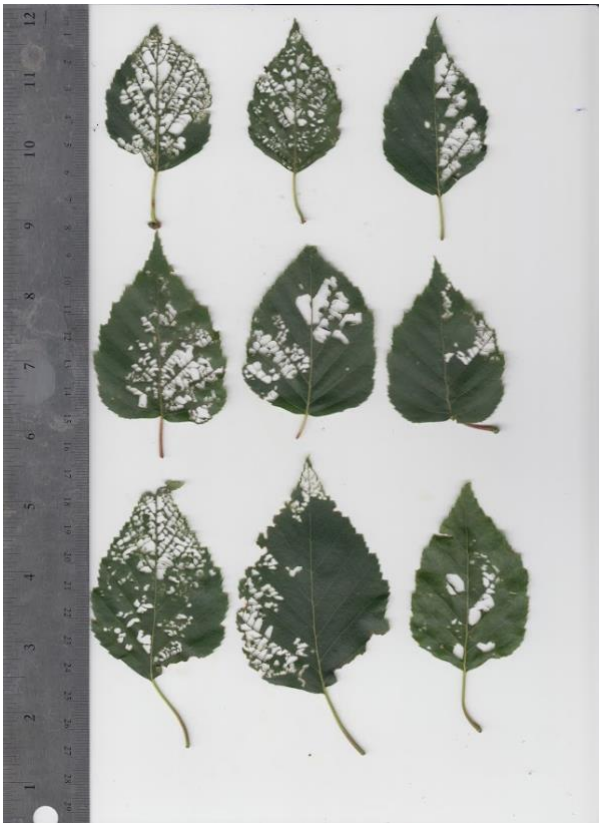
Japanese beetles (JB) are a non-native, invasive insect that destructively feed on more than 300 ornamental, agricultural, and non-cultivated plant species.

Researchers discovered JB in Minnesota in 1968. The number of beetles increased dramatically in the early 21st century. Homeowners, industry professionals, and researchers have observed widespread feeding on plant foliage and flowers. Although beetle feeding on foliage is rarely severe enough to kill the plant, the damage can reduce plant vigor and appearance.

Japanese beetle feeding on a birch tree in Minnesota and pictured in a close-up insert on top of a 0.5 cm grid scale.

Beetle feeding

JB grubs feed primarily on the roots of turf grasses, which can cause damage to lawns and golf courses. JB adults begin to emerge from the soil in late June. The adults feed on flowers, foliage, and occasionally fruit. As the beetles feed, they leave behind the vascular tissue of the leaves which gives the leaf a skeletonized appearance.



Example of Japanese beetle feeding on birch leaves. The adult beetles feed on the leaf tissue and leave the leaf veins behind, resulting in a "skeletonized" leaf that has a lace-like appearance.

Although JB can feed on many plant species, the amount of feeding can vary among and within these species. For example, rose flowers and basswood leaves tend to be preferred food sources, whereas conifers, dogwoods, magnolias, and other plants are less favored.

Highly susceptible plants

- Apple and crabapple
- Basil
- Basswood/linden
- Birch
- Grape
- Irrigated turf grass
- Mountain ash
- Norway and Japanese maple
- Purple-leaf plum
- Rose

Less susceptible and non-host plants

- Boxwood
- Clematis
- Conifers including arborvitae, firs, hemlock, junipers, pines, spruces, and yews
- Dogwood
- Forsythia
- Hickory
- Ironwood/hophornbeam
- Musclewood
- Magnolias
- Oaks
- Red maple

Managing beetles

Beetles are present for six to eight weeks, beginning at the end of June and gradually tapering off by September in Minnesota. **Targeting beetles as they emerge** is recommended to reduce the number of eggs, grubs, and beetles in the following year.

For small areas or to protect specific plants, **physically removing** the beetles and placing them in a container with soapy water can be an effective method for disposing them. **Fine mesh netting** can be installed over individual plants or garden rows to prevent the beetles from eating the leaves.

Do not use pheromone traps because they can attract more beetles to a location than they catch.

Selecting less susceptible plants can reduce the impact of JB to the area that is being managed. The University of Minnesota is currently investigating birch trees and grape vines for JB feeding resistance.

Chemical insecticides can be used if other management strategies are not suitable. However, these chemicals can pose significant risks to people and the environment. Remember to always read and follow the label to choose a product registered for Japanese beetles and the intended plant species.

To learn more about Japanese beetles, and the research at the University of Minnesota to manage them, please visit the Extension webpage at https://extension.umn.edu/yard-and-garden-insects/japanese-beetles and the Minnesota Invasive Terrestrial Plant and Pest Center at https://mitppc.umn.edu/research/research-projects/harnessing-host-plant-resistance-japanese-beetle-control-measures.

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