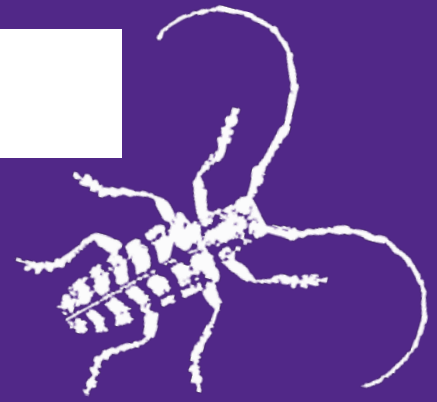


Kansas State University Extension Entomology Newsletter

For Agribusinesses, Applicators, Consultants, Extension Personnel & Homeowners

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Japanese Beetle Adults

Japanese beetle, *Popilla japonica*, adults are one of the most destructive insect pests of horticultural plants in landscapes and gardens. Japanese beetle adults are present throughout Kansas feeding on many plants including: roses, *Rosa* spp., littleleaf linden, *Tilia cordata*, oak, *Quercus* spp., Virginia creeper, *Parthenocissus quinquefolia*, apple, *Malus* spp., and grape, *Vitis vinifera*. The plant protection strategies implemented to manage Japanese beetle adult populations are limited, and have been for many years. The primary strategy has been spraying contact insecticides to kill adults, which will reduce plant damage.

Japanese beetle adults are 3/8 to 1/2 inch long, metallic green with coppery-brown wing covers, and approximately 14 tufts of white hair along the edge

Figure 1. Japanese Beetle Adults Feeding On Leaf (Raymond Cloyd, KSU)



Figure 2. Japanese Beetle Adults Feeding On Grape Leaf (Raymond Cloyd, KSU)

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of the abdomen (Figure 1). Japanese beetle adults live up to 45 days feeding on plants over a four-to-six-week period. Adults feed on many horticultural plants including trees, shrubs, vines, herbaceous annual and perennials, vegetables, fruits, and grapes (Figure 2). Japanese beetle adults produce aggregation pheromones that attract males and females to the same feeding location, resulting in a 'massive orgy,' which enhances mating (Figure 3). Adults can fly up to five miles to locate a host plant; however, adults tend to only fly short distances to feed and for females to lay eggs.

Japanese beetle adults feed through the upper leaf surface (epidermis) and leaf center (mesophyll), leaving the lower epidermis intact. In general, adults will not feed on tissue between leaf veins. Feeding on tissue between the leaf veins causes the lace-like or skeletonized appearance (Figure 4). Adults are primarily active on warm days, feeding on plants exposed to full sun, which may be why roses are a susceptible host plant because

Figure 3. Japanese Beetle Adult Males And Females Mating (Raymond Cloyd, KSU)

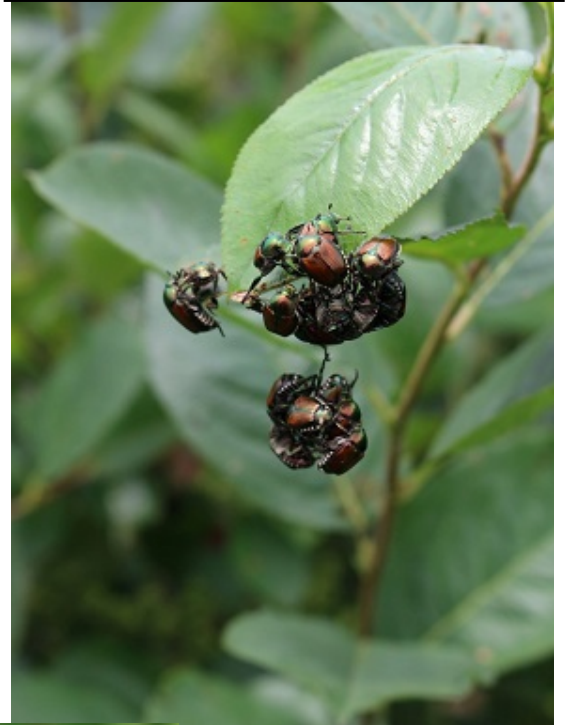


Figure 4. Japanese Beetle Adult Feeding Damage On Leaf (Raymond Cloyd, KSU)



roses require at least six hours of direct sunlight to flower. Japanese beetle adults start feeding at the top of plants, migrating downward as food sources are depleted. Japanese beetle adults will also feed on flowers (Figure 5), chewing holes in flower buds, which prevents flowers from opening or causes petals to fall prematurely.

Figure 5. Japanese Beetle Adults Feeding On Rose Flower (Raymond Cloyd, KSU)



Managing Japanese beetle adult populations involves implementing a variety of plant protection strategies, including: cultural, physical, and applying insecticides. Cultural control includes proper irrigation, fertility, mulching, and pruning that are important in minimizing plant stress, which may decrease susceptibility to

Japanese beetle adult feeding. Furthermore, removing weeds attractive to Japanese beetle adults such as smartweed, *Polygonum* spp., may help to alleviate infestations. Physical control such as hand removing or collecting Japanese beetle adults before populations are extensive may help minimize plant damage. The best time to remove or collect adults is in the morning when ambient air temperatures are typically cooler. Adults can be collected by placing a wide-mouthed jar or bucket containing rubbing alcohol (70% isopropyl alcohol) or soapy water underneath each adult, and then touching them. Adults that are disturbed fold their legs perpendicular to the body, fall into the liquid, and are subsequently killed. The procedure may reduce plant damage when conducted daily or every-other-day, for up to four weeks.

The use of Japanese beetle traps in landscapes or gardens is not recommended since the floral lure and synthetically derived sex pheromone (Figure 6) may attract more adults into an area than would occur



Figure 6. Floral Food Lure (Bottom) And Synthetically-Derived Sex Pheromone (Top) Associated With Japanese Beetle Trap (Raymond Cloyd, KSU)

normally. In addition, Japanese beetle adults may feed on plants before reaching the traps, which increases potential plant damage.

Spray applications of contact insecticides will kill Japanese beetle adults. However, repeat applications are required, especially when high numbers of adults are present. Pyrethroid-based insecticides containing permethrin, bifenthrin, or cyfluthrin as the active ingredient, will suppress Japanese beetle adult populations. However, these

insecticides may also directly harm many natural enemies (parasitoids and predators) and continual use may result in outbreaks of other pests including the twospotted spider mite, *Tetranychus urticae*. Furthermore, these insecticides are directly harmful to pollinators including honey bees and bumble bees. Therefore, apply insecticides in the early morning or late evening when bees are less active.

For more information on how to manage Japanese beetle refer to the following extension publication:

Japanese Beetle: Insect Pest of Horticultural Plants and Turfgrass (MF3488 March 2020)
<https://www.bookstore.ksre.ksu.edu/pubs/MF3488.pdf>

Click Beetles

Click beetles (fig 1) are becoming very active and this activity will continue for at least the next month. There are several species of click beetle in Kansas that can be a pest of crops. The larvae of these species are generally called wireworms and may feed on roots, root hairs, germinating seedlings, etc. In other words, just about any plant parts found underground including seeds can be damaged by click beetle larvae. The adults, of all species, are often attracted to lights at night or may be found under plant residue in fields. Insecticide seed treatments do really well at protecting seeds and seedlings, from planting up to about 28 days post-planting, from wireworm attack.



Figure 1. Click beetle (picture by Cody Wyckoff)

Alfalfa Caterpillars

Alfalfa caterpillars are currently very common in both alfalfa and soybean fields. They are shy and extremely well camouflaged (see fig 2) and therefore rarely noticed. They are voracious leaf feeders, however, populations rarely reach densities in either crop to warrant an insecticide application. These larvae are the feeding stage of the common yellow or white butterflies often seen flying around either soybean or alfalfa fields where they can be seen often dipping down into the canopies to deposit eggs or gathering around water to drink. This activity, coupled with often large numbers of these butterflies, sometimes causes concern to growers. However, the larvae rarely reach densities that cause any impact on the plants.



Figure 2. Alfalfa caterpillar (picture by Cody Wyckoff)

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Bug Joke of the Week

Q: What Did One Girl Firefly Say To The Other?

A: You Glow Girl!

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