Kansas State University Extension Entomology Newsletter

For Agribusinesses, Applicators, Consultants, Extension Personnel & Homeowners

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Green June Beetles: Out-and-About

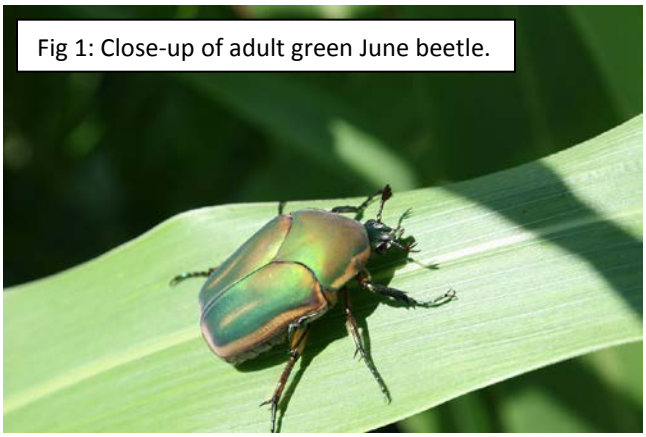

Fig 1: Close-up of adult green June beetle.

Green June beetle (*Cotinis nitida*) adults are actively flying around and "bumping" into people and objects. Adults are 3/4 to 1.0 inches in length, and velvety-green, tinged with yellow-brown coloration (Figure 1). Green stripes with yellow-orange margins extend lengthwise on the front wings. The underside of the body is distinctly shiny and metallic green or gold. Adults fly like "dive bombers" over turfgrass for several weeks in mid-summer. The green June beetle has a one-year life cycle, and overwinters as a mature larva (grub). Adults emerge in late-June and are active during the day, resting at night on plants or in thatch. The adults produce a sound that resembles that of bumble bees. Adults will feed on ripening fruits (Figure 2) and may occasionally feed on plant leaves. The male beetles swarm in the morning, "dive bombing" to-and-fro above the turfgrass searching for females that are

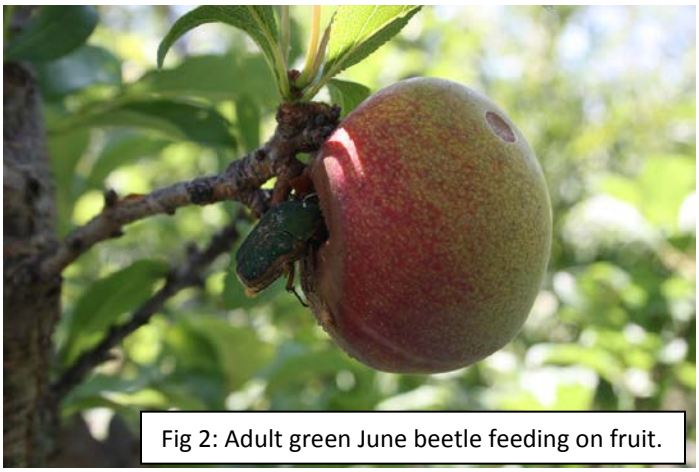

Fig 2: Adult green June beetle feeding on fruit.

Fig 3: Larva (grub) of green June beetle crawling on its back.

located in the turfgrass (they are desperately seeking a mate ☺). Females emit a pheromone that attracts males. Eventually, clusters of beetles will be present on the surface of the soil or turfgrass with several males attempting to mate with a single female (I think this qualifies as an "insect orgy" ☺). Mated females that have survived the experience lay a cluster of 10 to 30 eggs into moist soil that contains an abundance of organic matter. Eggs hatch in about 2 weeks in early August and the young larvae feed near the soil surface. The larvae feed primarily on organic matter including thatch and grass-clippings; preferring soils that are excessive moist. Larvae are 3/8 (early instars) to 1.5 (later instars) inches in length, and exhibit a strange behavioral trait—they crawl on their back (Figure 3) because that they have a constant itch ☺.

Raymond Cloyd

HOME

Japanese Beetles are Back!

Japanese beetle adults are out in full-force in certain regions of Kansas feeding on one of their favorite host plants…roses. The means of dealing with the adult stage of this insect pest are limited, however, and have been for many years, with the use of insecticides being the primary plant protection strategy. Japanese beetle, *Popillia japonica* is native to Japan and was first reported in the United States in 1916 in the state of New Jersey. Since then, Japanese beetles have spread throughout the country from Maine to Georgia with permanent establishments in nearly every state east of the Mississippi River and several western states west of the Mississippi River. Japanese beetles are established in eastern and central portions of Kansas and are slowly moving further west. The adult is one of the most destructive insect pests of horticultural plants in both landscapes and gardens. The larvae or grub is a major turfgrass pest in home lawns, commercial settings, and golf courses.

Japanese beetle adults are 9/16 inches long and metallic green with coppery-brown wing covers (Figure 1). There are approximately 14 tufts of white hair present along the median of the abdomen (Figure 2). Adult Japanese beetles emerge from the soil and live from 30 to 45 days feeding on plants over a four-to-six-week

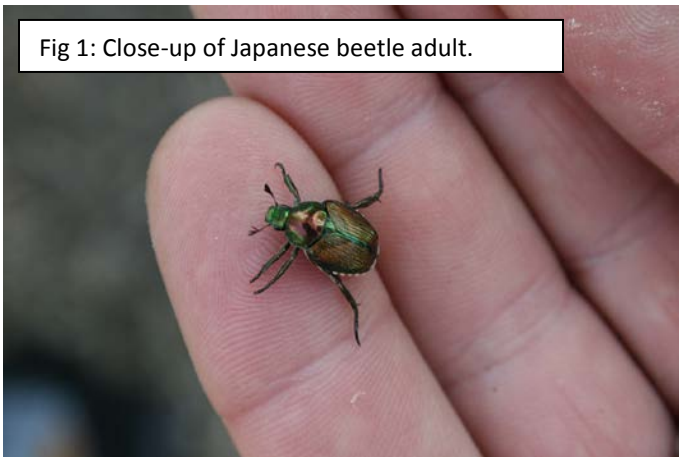

Fig 1: Close-up of Japanese beetle adult.

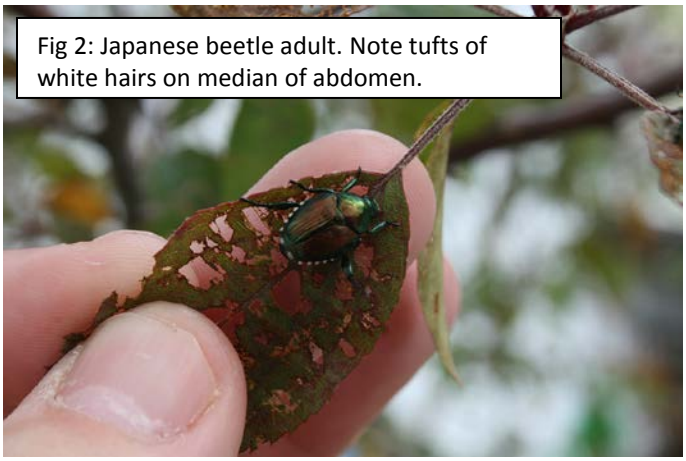

Fig 2: Japanese beetle adult. Note tufts of white hairs on median of abdomen.

period. They feed on many ornamental plants including trees, shrubs, vines, herbaceous annual and perennials, and of course—roses. Plant placement in the landscape and volatiles emitted by plants are factors that influence adult acceptance. Furthermore, Japanese beetle adults produce aggregation pheromones that attract individuals (both males and females) to the same feeding location. Adults may fly up to five miles to locate a feeding site; however, they tend to fly only short distances to feed and lay eggs.

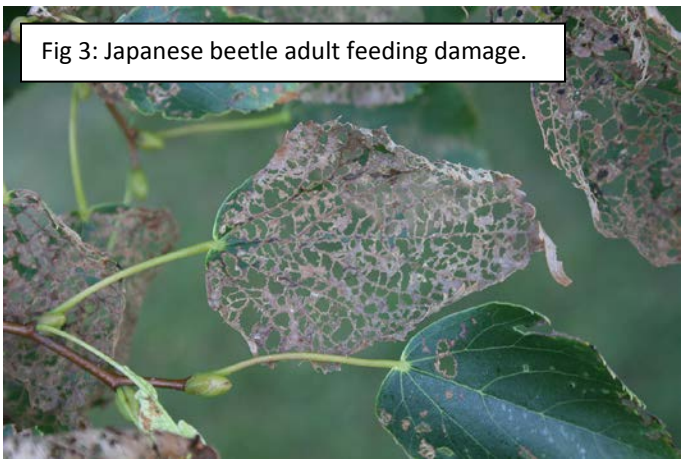

Fig 3: Japanese beetle adult feeding damage.

Japanese beetle adults feed through the upper leaf surface (epidermis) and leaf center (mesophyll), leaving the lower epidermis intact. They usually avoid feeding on tissue between leaf veins, resulting in leaves appearing lace-like or skeletonized (Figure 3). Adults are most active during warm days, feeding on plants that are exposed to sunlight throughout the day, which is likely why roses are a susceptible host plant because they require at least six hours of direct sunlight. Japanese beetle adults also start feeding at the top of plants, migrating downward after depleting food sources. Japanese beetle adults aggregate in masses on rose flowers (Figure 4). Although adult beetles feed primarily on flowers, they will also feed on leaves (Figure 5). Japanese beetle adults chew holes in flower buds, which prevent flowers from opening or cause petals to fall prematurely. Moreover, adults will consume entire rose petals, and feed on the pollen of fully-opened flowers.

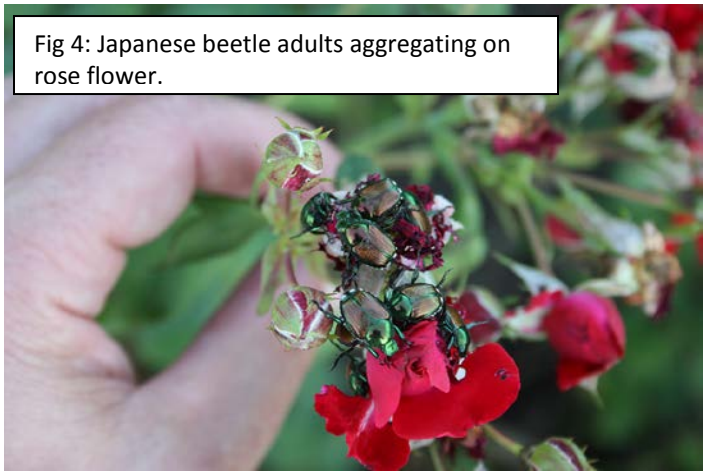

Fig 4: Japanese beetle adults aggregating on rose flower.

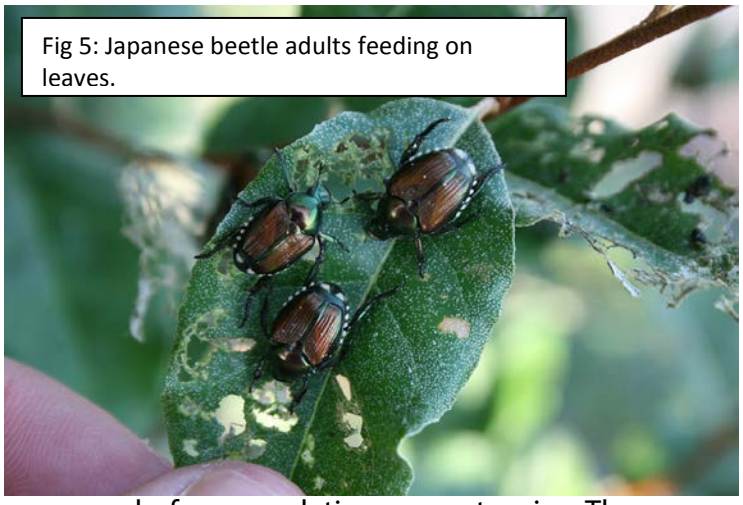

Fig 5: Japanese beetle adults feeding on leaves.

Japanese beetle adult management involves implementing a variety of plant protection strategies, including: cultural, physical, and insecticidal. Cultural involves maintaining healthy roses through proper irrigation, fertility, mulching, and pruning, which are important in minimizing any type of stress; thus possibly decreasing susceptibility. Also, removing weeds such as smartweed (*Polygonum* spp.) that are attractive to Japanese beetle adults will at least alleviate infestations. Physical is associated with hand-picking or collecting Japanese beetle adults from roses before populations are extensive. The appropriate time to hand-pick or collect adult beetles is in the morning when ambient air temperatures are typically "cooler." Adults can be easily 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, and fall into the liquid and are subsequently killed. This procedure, when conducted daily or every-other-day, particularly after adults emerge, may substantially reduce plant damage. The use of Japanese beetle traps is not recommended since the floral lure and synthetically-derived sex pheromone may attract more adult beetles into an area than would "normally" occur. Adult beetles may also feed on roses before reaching the traps, which increases potential damage.

Spray applications of contact insecticides will kill Japanese beetle adults. Repeat applications will be required; especially when populations are excessive. Furthermore, thorough coverage of all plant parts will increase effectiveness of the application. The insecticide carbaryl (Sevin) and several pyrethroid-based insecticides including those containing bifenthrin or cyfluthrin as the active ingredient may be used to suppress Japanese beetle adult populations. However, since most of these insecticides are also directly harmful to many natural enemies (parasitoids and predators) their continual use may lead to secondary pest outbreaks of other pests including the twospotted spider mite (*Tetranychus urticae*). Moreover, these insecticides are directly harmful to pollinators (honey bees and bumble bees). Therefore, applications should be conducted in the early morning or late evening when pollinators are less active. In general, systemic insecticides, are not effective because Japanese beetle adults have to feed on leaves and consume lethal concentrations of the active ingredient. If extensive populations are present, then damage to plants may still occur.

The battle or war against Japanese beetle adults requires patience, persistence, and diligence in order to prevent adults from causing substantial damage to roses and other susceptible plants.

For more information on Japanese beetle and other pests of roses consult the following publication:

Compendium of Rose Diseases and Pests (second edition). 2007. APS Press. The American Phytopathological Society, St. Paul, MN.

Raymond Cloyd

HOME

Two New Extension Publications: Squash Bug and Squash Vine Borer

There are two new extension publications available: one on squash bug and one on squash vine borer. Both publications contain up-dated information on management, and clear images of the different life stages of the insect pests and subsequent plant damage. The links for both are provided below:

Squash Bug PDF: http://bookstore.ksre.ksu.edu/pubs/MF3308.pdf
Squash Vine Borer PDF: http://bookstore.ksre.ksu.edu/pubs/MF3309.pdf

Raymond Cloyd

HOME

Volunteer Wheat:

Wheat harvest is completed, or at least real close, across the State. So, it is time to start thinking volunteer wheat control. As wheat producers know, volunteer wheat is very persistent. Every time it rains or the fields are irrigated, another flush or crop of volunteer wheat germinates. Thus, control needs to be just as persistent. Volunteer wheat can be a harborage for most wheat pests, especially bird cherry-oat aphids, Brown wheat mites, English grain aphids, greenbugs, Hessian flies, wheat curl mites, and many of the more common pathogens. Season-long control is always best, but rarely practical. So, volunteer wheat eradication at least 2 weeks prior to planting is the next best management practice.

Jeff Whitworth Holly Schwarting

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Insect Diagnostic Laboratory Report

http://entomology.k-state.edu/extension/diagnostician/recent-samples.html

Eva Zurek

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Sincerely,

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Kansas State University Agricultural Experiment Station and Cooperative Extension Service

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