Kansas State University Extension Entomology Newsletter

For Agribusinesses, Applicators, Consultants, Extension Personnel & Homeowners

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Japanese Beetles

Japanese beetle, *Popilla japonica*, adults are present in most regions of Kansas feeding on different plant species, including: roses, *Rosa* spp.; littleleaf linden, *Tilia cordata*; and Virginia creeper, *Parthenocissus quinquefolia*, among many other plant species. The ways to manage populations of the adult stage of Japanese beetle are limited, and have been for many years, with the use of insecticides still being the primary strategy. Japanese beetle adults are one of the most destructive insect pests of horticultural plants in landscapes and gardens. Furthermore, the larva or grub is a turfgrass insect pest in home lawns, commercial settings, and golf courses.

Fig 1. Japanese Beetle Adults Feeding On Leaf (Auth--Raymond Cloyd, KSU)

Japanese beetle adults are 9/16 of an inch long, metallic green with coppery-brown wing covers, and about 14 tufts of white hair are present along the edge of the abdomen

(Figure 1). Adult Japanese beetles emerge from the soil and 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 of course—roses. Plant placement in the landscape and the volatiles emitted by plants are factors that affect adult acceptance. In addition, Japanese beetle adults produce aggregation pheromones that attract males and females to the same feeding location. Adults can fly up to five miles to locate a host plant; however, they tend to only fly short distances to feed and for females to lay eggs.

Fig 2 Japanese Beetle Adult Feeding Damage On Leaf (Auth--Raymond Cloyd, KSU)

Japanese beetle adults feed through the upper leaf surface (epidermis) and leaf center (mesophyll), leaving the lower epidermis intact. Adults avoid feeding on tissue between leaf veins, resulting in leaves appearing lace-like or skeletonized (Figure 2). They are most active during warm days, feeding on plants exposed to full sun throughout the day, which is likely why roses are a susceptible host plant because roses require at least six hours of direct sunlight to flower. Japanese beetle adults start feeding at the top of plants, migrating downward after depleting food sources. Japanese beetle adults will also feed on flowers (Figure 3), chewing holes in flower buds, which prevents flowers from opening or causes petals to fall prematurely.

Fig 3. Japanese Beetle Adults Feeding On Rose Flower (Auth--Raymond Cloyd, KSU)

Managing Japanese beetle adult populations involves implementing a variety of plant protection strategies, including: cultural, physical, and applying insecticides. Cultural control is affiliated with maintaining healthy plants through proper irrigation, fertility, mulching, and pruning, which are important in minimizing 'stress', and may possibly decrease susceptibility. Moreover, removing weeds that are attractive to Japanese beetle adults such as smartweed (*Polygonum* spp.) may help to reduce infestations. Physical control involves hand-picking or collecting Japanese beetle

adults from plants before populations are extensive. The best time to hand-pick or collect adults 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, for at least three weeks, particularly after adults emerge, may substantially reduce plant damage. A study reported that collecting Japanese beetle adults daily at 7:00 pm had the greatest impact on populations and reduced subsequent damage.

In general, the use of Japanese beetle traps (Figure 4) in a landscape or garden is not recommended since the floral lure and synthetically-derived sex pheromone may attract more adults into an area than would 'normally' occur. Japanese beetle adults may also feed on plants before reaching the traps, which increases potential damage.

Fig 4. Japanese Beetle Adult Trap (Right) And Container Full Of Japanese Beetle Adults (Left) (Auth--Raymond Cloyd, KSU)

Spray applications of contact insecticides will kill Japanese beetle adults. However, repeat applications are required; especially when populations are excessive. Several pyrethroid-based insecticides; such as those containing permethrin (Sevin®), bifenthrin or cyfluthrin as the active ingredient, will suppress Japanese beetle adult populations. However, most of these insecticides will also directly harm many natural enemies (parasitoids and predators) and continual use will result in secondary pest outbreaks of other pests including the twospotted spider mite, *Tetranychus urticae*. In addition, these insecticides are directly harmful to honey bees and bumble bees. Therefore, applications should be conducted in the early morning or late evening when bees are less active. In general, systemic insecticides are not effective against Japanese beetle adults because they have to feed on leaves and consume lethal concentrations of the active ingredient. If extensive populations are present, plant damage can still occur.

The battle against Japanese beetle adults requires diligence, patience, and persistence, to prevent adults from causing substantial damage to plants in landscapes and gardens.

Raymond Cloyd

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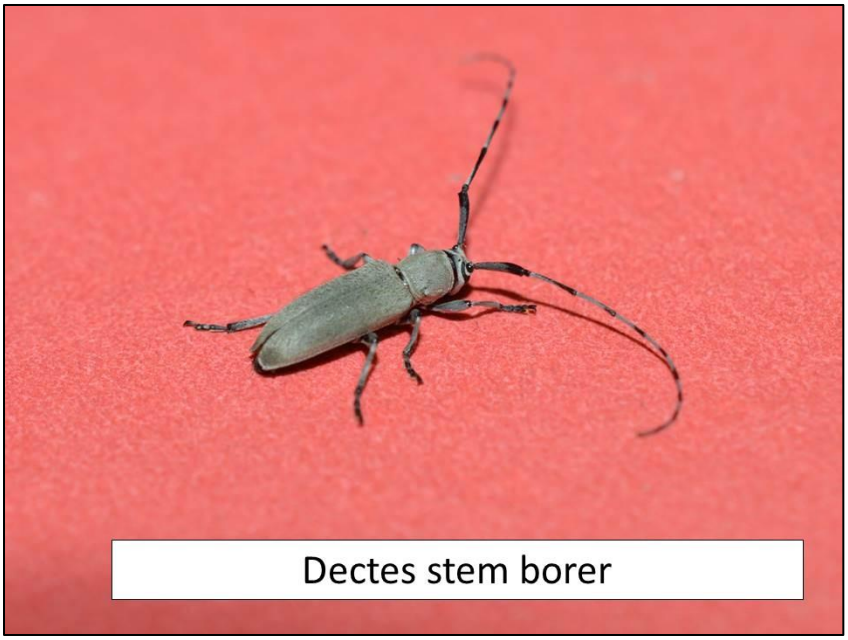
Dectes Stem Borers

Dectes stem borer adults continue to emerge throughout north central Kansas. These adults are currently aggregating mainly around field borders and most commonly on ragweed. They will start dispersing into soybean fields within the next week to 10 days, as they do every year, to begin oviposition. The adult females are relatively mobile and move from plant to plant inserting eggs into, or just below, the petioles of many plants. This oviposition period may last for four weeks or more and may be spread throughout the field! This is one reason why controlling dectes stem borers with an insecticide is so difficult – timing of application.



Eggs hatch in the stem and the small larvae start feeding/boring their way to the main stem and then down this stem to the soil surface. They usually reach the soil line in late August and larvae girdle their way around the inside of the stem, weakening the stem and often leading to lodging, especially if there are strong winds. This lodging is responsible for most yield loss. For more information regarding dectes stem borers, please see Dectes Stem Borer, MF2581: https://www.bookstore.ksre.ksu.edu/pubs/MF2581.pdf

For more information on soybean pest management, please refer to the KSU Soybean Insect Management Guide: https://www.bookstore.ksre.ksu.edu/pubs/MF743.pdf

Jeff Whitworth Holly Davis

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MORE – Japanese Beetles

Japanese beetle adults have also been emerging over the past week or two. These adults will feed on just about any pollen, nectar, or succulent plant source for a few days then disperse to begin ovipositing into the soil. The adults may attack emerging silks in corn or new succulent leaves in soybeans, but typically only around the edges of fields.

Jeff Whitworth Holly Davis

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New Extension Publication

We have a new extension publication available entitled, **Scale Insect Pests**

This new extension publication provides information on the biology, scale types, plant damage, and offers strategies for managing specific types of scales. There are color images of the scale insect pests found in Kansas and surrounding states. The extension publication is available from the following website:
https://www.bookstore.ksre.ksu.edu/pubs/MF3457.pdf

Raymond Cloyd

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Bug Joke of the Week

Q: Why do ants smell so good?

A: Because they use Deodor-ANT!

Raymond Cloyd

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Sincerely,

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