Kansas Insect Newsletter

For Agribusinesses, Applicators, Consultants and Extension Personnel

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Garden Webworm

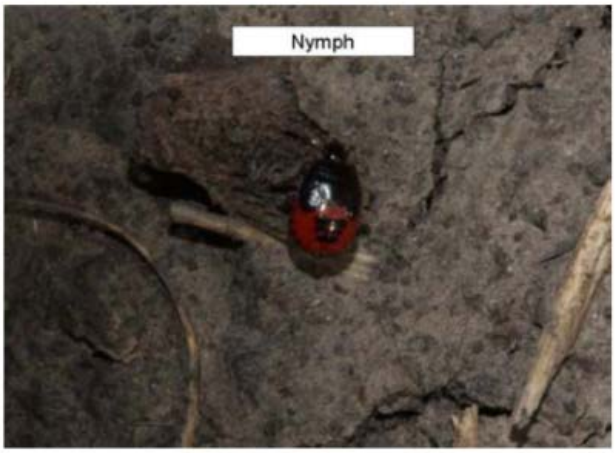
Garden webworms, mostly just called webworms, but are sometimes called alfalfa or soybean webworms depending upon which crop they infest. Anyway, it is probably the same species. The larvae are unique little worms that often produce webbing (hence the name webworm) which they often inhabit the interior of, which helps keep them safe while feeding mainly on the leaves of plants. The larva itself is relatively small (up to 1 inch long when mature), and greenish to brownish in color (Photo 1). However, the easiest identifying characteristics are the six black spots on each segment. Upon closer inspection, sometimes magnification is needed, each spot has a little hair coming out of it. The moth is a non-descript little brown 'grass moth' that generally flies up in front of you as you walk through the beans or alfalfa but flies only a short distance and lands quickly back in the vegetation (Photo 2). The larvae can defoliate / skeletonize soybean plants fairly quickly, especially up to about the 3rd trifoliate stage. However, please remember it takes considerable defoliation to actually reduce a stand or hurt yield. Young soybean plants are relatively resilient and can thus withstand considerable defoliation without lasting effect, especially under good growing conditions. For more information on webworm management, or any other soybean pests, please refer to the KSU 2014 Soybean Insect Management Guide, available at:
http://www.ksre.ksu.edu/bookstore/pubs/Mf743.pdf

Photo 1

Photo 2

Burrowing Bugs

Calls will probably start coming in relative to burrowing bugs, mainly in soybeans. Usually, soon after spraying weeds, in soybeans especially where there is considerable henbit, the bugs will appear in such numbers that they will cause some concern. Typically, there are considerable numbers of the nymphs (red spotted and not the same color as the adults – see photos) and as the weeds die the bugs move out and often aggregate on soybean plants, fence posts, barns, etc. These will eventually disperse without really causing any crop damage…just concern.



Potato Leafhoppers

Potato leafhoppers are evident in soybeans in NC and SC, KS. They may cause some leaf rolling/cupping or yellowing but probably no real damage. However, they are in alfalfa also where it is a different story. All these collected this week were adults. The alfalfa is currently being swathed, or is ready to be, in these 2 areas of the state. Therefore, any eggs will be removed with the stems, and it may be that the timing is right to significantly reduce the adults also so they won't cause much of a problem in the future. However, the alfalfa needs to be closely monitored for the next 6-8 weeks as potato leafhoppers can stress plants by withdrawing fluids during the hottest part of the summer, and inject a toxin as they feed. For potato leafhopper management, as well as most other alfalfa pests, please consult the KSU 2014 Alfalfa Insect Management Guide, available at: http://www.ksre.ksu.edu/bookstore/pubs/mf809.pdf

Potato Leafhopper

Jeff Whitworth Holly Davis-Schwarting

HARLEQUIN BUG

If you are growing any cole crops such as broccoli, you may encounter a very beautiful insect with black and orange coloration. This is the harlequin bug (*Murgantia histrionica*), which is a very destructive insect pest of vegetable crops. Both adults and nymphs may be present in vegetable gardens. Harlequin bugs are 1/2 to 5/8 inches long and shield-shaped as they are a type of stink bug. They feed on cole crops such as broccoli, Brussels sprouts, cabbage, cauliflower, and kohlrabi. Additional plant hosts that harlequin bugs will feed upon in the absence of cole crops include asparagus, bean eggplant, okra, radish, potato, and tomato.

Adults emerge in early summer and feed on weeds such as wild mustard. After finding a suitable host plant, adult females lay eggs on the undersides of leaves. Eggs appear as uniform rows of tiny white barrels with distinctive black hoops. Each female can lay 30 clusters—containing approximately 12 eggs—of 300 to 500 eggs. Nymphs emerge from eggs and feed in the same location where eggs are laid. Nymphs take 5 to 6 weeks to develop into adults with 5 to 6 nymphal instars. Nymphs resemble adults but are smaller, more rounded in shape, and lack wing covers. Adults and nymphs have piercing-sucking mouthparts that are used to withdraw plant fluids. Harlequin bug feeding causes plant stunting and leaf distortion, and yellow to brown spotting on

leaves. They can cause plant death depending on severity of the infestation and plant size. Adults or nymphs feeding on fruit may cause scarring or "cat-facing." Harlequin bug overwinters as an adult in plant debris. There may be several generations per year.

Harlequin bug populations can be suppressed by hand-picking adults and nymphs, and then placing them into a container filled with soapy water. It is recommended to wear gloves as harlequin bugs will emit a foul odor when being handled. Weed management in and around the garden will reduce the potential for alternative hosts and overwintering sites. Harlequin bugs can be trapped by placing "old" turnip or cabbage leaves on the ground. Harlequin bugs will congregate underneath the leaves. The next day, leaves can be destroyed along with the harlequin bugs. Insecticides can be used to deal with harlequin bug populations; however, the nymphs are more susceptible than the adults. There are a variety of insecticides commercially available that may be used to suppress harlequin bug populations including pyrethrins, carbaryl (Sevin), pyrethroid-based insecticides, and potassium salts of fatty acids (insecticidal soap). Be sure to read the label of all insecticides to ensure they are legal to use on a specific crop and that "bugs" are on the label. In order to enhance the effectiveness of the insecticide application it is essential to target the nymphs and make repeat applications, and thoroughly cover all plant parts in order to kill as many harlequin bugs as possible before plant damage occurs.

There is an extension publication available on harlequin bug with the details provided below:

Cloyd, R. A. June 2014. Harlequin bug. Kansas State University Agricultural Experiment Station and Cooperative Extension Service. MF-3135. Kansas State University, Manhattan, KS. 4 pages.

Raymond Cloyd

2014 JB Activities in Kansas

The first Japanese beetle of 2014 was trapped on Wednesday, June 18, in Manhattan. The cited accumulated $GDDs_{50}$ for JB is 900-1200. As of June 17, 1180 $GDDs_{50}$ had been accumulated. As stated in past Kansas Insect Newsletter articles, insect-specific GDDs are rough guidelines as to the initiation of seasonal activities. JB have yet to be recovered from trap sites in Shawnee, Douglas, Johnson and Osage counties (1197 and1297.5, 1190, 1106.5, 1191.5 accumulated $GDDs_{50}$, respectively).

Extension Publication MF3151, Japanese Beetle (June 2014) is electronically available.

MF2151

Home and Horticultural

PESTS

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Japanese Beetle

Japanese beetle, *Popillia japonica* Newman, is a major pest in Kansas landscapes. Beetles feed on shade trees and ornamental shrubs. Originally from Japan, introduction of this species has been traced to a shipment of iris roots that arrived in the United States in 1912. Aided by favorable climate, adequate turf for grub development, numerous host plants, and few natural enemies, by 2012 it had become firmly established in 35 states, including Kansas. Although Japanese beetles were first detected in Kansas in 1949, they were inconsequential until large quantities of infested nursery stock entered the state in 1991. The Kansas Department of Agriculture (KDA) declared Japanese beetles to be established in Kansas in 1992. With populations firmly established eradication became impossible. This publication focuses on identification of Japanese beetle, its damage, and management as a landscape pest.

Figure 1. Japanese beetle adult.

Identification

The Japanese beetle (Figure 1) is oval, slightly flattened and approximately 7/16- to 7/16-inch long. It is unmistakable because of its brilliantly colored, metallic green body and wing covers (elytra), which vary from copper (red-pink) to bronze (yellow-brown). Elytra do not cover the entire abdomen, leaving five distinct tufts of white hair visible along each side. Another pair of tufts adorn the back of the last abdominal segment. Fine grey hairs appear on the underside of the body. Male and female beetles can be differentiated by comparing the apical tibial spurs of the forelegs (Figure 2).

Figure 2. Males can be distinguished from females by the spurs on the forelegs.

Japanese beetle undergoes complete metamorphosis: egg, larva, pupa, and adult. Eggs, which are small and hidden in the soil, are rarely seen. Color varies from translucent white to cream. Newly emerged first-instar grubs possess a head capsule equipped with chewing mouthparts; three thoracic segments, each with a pair of legs; and 10 abdominal segments. All three grub stages (instars) are c-shaped. First-instar grubs are 1/16 inch long when they hatch. They grow to 3/8 inch. Second-instar grubs grow to 3/4 inch. Mature third-instar grubs reach just over 1 1/4 inches. The Japanese beetle grub can be identified based on the arrangement of 6 to 7 short spines that form a "v" on the ventral surface of the last abdominal segment. The mature grub prepares an earthen cell in which to overwinter. Actual pupation occurs in late spring, with beetles emerging to repeat the cycle.

Seasonal Life History

Japanese beetles produce a single generation per year. In Kansas, beetle emergence begins in late June and is completed by mid-September, with beetle activity peaking in July and August. Beetles live from 1 to 1½ months (Figure 3). Both males and females feed on available host plants. Mating is continuous. After mating, the female burrows 2 to 4 inches into loose, moist soil and deposits a small cluster of eggs. Using her ovipositor, she creates a depression into which she deposits a single egg. She does this 4 to 5 times before reemerging from the soil to resume feeding. The female repeats this activity until 40 to 60 eggs have been deposited.

Moisture is critical for embryo development, which is also regulated by temperature. Under optimal conditions, eggs hatch after 8 days. Grubs feed on the roots of available host plants. In autumn when soil temperatures dip to 59° F, both second- and third-instar grubs begin to burrow deeper into the soil. At 50°F, they halt their descent and prepare a cell (usually 4 to 8 inches below the soil surface) in which to overwinter. They are inactive during the overwintering phase.

In spring, with the return of warmer soil temperatures, grubs ascend and resume feeding and development. Mature third-instar grubs prepare an earthen cell in which to pupate. One to three weeks later beetles emerge but remain in the earthen cocoon for several days to 2 weeks until the shell (cuticle) hardens, pigmentation occurs, wings develop, and sexual organs mature. When fully developed, beetles emerge to repeat the cycle.

Host Plants

Japanese beetles are particularly troublesome because they are harmful in two life stages (adult and larva), have a wide host

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

Bob Bauernfeind

Insect Diagnostic Laboratory Report

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

Eva Zurek

Sincerely,

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Kansas State University Agricultural Experiment Station and Cooperative Extension Service

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