Kansas Insect Newsletter

For Agribusinesses, Applicators, Consultants and Extension Personnel

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Sowbugs and Pillbugs

Sowbugs and pillbugs are classified as crustaceans and are distributed worldwide. The most common species are *Porcellio laevis* and *Armadillium vulgare*, respectively (I bet you didn't know this!). In Europe, sowbugs and pillbugs are commonly called woodlice. Both are oval or convex in shape, segmented, and are flattened underneath the body. They are black, gray, or brown in color depending on age, and 5 to 8 mm in length. Sowbugs possess two small, tail-like appendages located at the end of the body; pillbugs do not have appendages. Pillbugs are able to roll-up into a ball whereas sowbugs cannot. Sowbugs and pillbugs are always found in moist environments since they cannot control the loss of moisture from their bodies. They primarily feed on decaying organic matter since they possess weak chewing mouthparts; however, they may occasionally feed on the stem and/or roots of young seedlings. Both sowbugs and pillbugs actively feed at night (nocturnal) but they may be observed during the daytime after rains or during cloudy conditions. Adults can live up to 2 years or more. The best way to avoid dealing with sowbugs and pillbugs is through proper sanitation—removing debris and weeds that serve as hiding places during the day. The use of pest control materials is not warranted. Children and cats love playing with sowbugs and pillbugs.

Walnut Caterpillar

The walnut caterpillar (*Datana integerrima*) is present throughout Kansas feeding on trees and shrubs including black walnut, pecan, birch, oak, and hickory. The caterpillars (or larvae) are reddish-brown (third and fourth instars), with cream-colored lines that extend the length of the body. Mature caterpillars are distinctly black and approximately 2.0 inches long, and covered with long, white to gray hairs. Adults are light-brown moths with wavy, dark-brown, transverse lines on the wings. Eggs are laid on leaf undersides, which hatch into larvae that feed in clusters at the end of branches consuming all the leaves on one branch before moving on to another branch; however, they do not form webbing. When disturbed, the caterpillars arch their backs in order to defend themselves against predators. Eventually, groups of walnut caterpillars will congregate on branches or twigs, and molt simultaneously leaving a patch of fur-like hairs or molting skins. There may be two generations per year: one in June and July, and one in August and September. Extensive feeding damage may increase plant susceptibility to wood-boring insects.

Management of walnut caterpillars involves either pruning out localized infestations, hand-picking and placing caterpillars into a container of soapy water, or using insecticides. At this time of year, the product of choice is spinosad (Conserve), which is very effective against Lepidoptera (caterpillar) pests. Another option is the pyrethroid-based insecticides; however, these products are extremely harmful to natural enemies, particularly parasitoids that attack walnut caterpillar eggs. The caterpillars are oftentimes attacked by a parasitic fly, *Archytas metallicas*.

Cicada Killer

For some of you that have ventured outdoors lately you probably have noticed hordes of large wasps flying around. These are primarily the eastern cicada killer, *Sphecius speciosus*, which is actually considered a beneficial insect because it regulates cicada populations. This wasp gets its common name from the fact that it hunts and provisions each cell within its nest with a cicada, which becomes the food source for young cicada killers. Cicada killers are an urban nuisance pest, especially when nesting, sometimes in large numbers, in a bare area or area around a structure. People get concerned because cicada killers resemble giant yellowjackets.

Cicada killers are approximately 2.0 inches in length and black to red in color, with yellow-banded markings on the abdomen. The head and transparent wings are reddish brown. They are not dangerous, but they are intimidating. Cicada killers are solitary wasps, with the female digging a 6 to 10-inch burrow (1/2 inch in

diameter) in the ground. These diggings are usually seen in sandy or loose soil. A pile of soil or sand, depending on the soil type, typically surrounds the entrance. The female locates and stings a large insect such as a cicada or katydid and then brings the "prize" back to the burrow. She then places the paralyzed insect into a chamber and lays an egg on the surface of the paralyzed insect; sometimes she places two paralyzed insects in a burrow but lays an egg on only one. The female cicada killer eventually covers the burrow, digs another, and repeats the process. The egg hatches into a grub-like, legless larva that consumes the paralyzed insect. Full-grown larvae overwinter in the burrow, pupate in the spring, and emerge as an adult during the summer—usually July and August.

Male cicada killers establish aerial territories and patrol for intruders. A male cicada killer wards off other males that enter his territory and attempt to mate with females. Anyone else, such as a human, walking into the territory is typically confronted by a very large wasp, which hovers in front of the face and "zips" to the side and back. However, after determining that the "intruder" is not a rival, the male cicada killer ignores the individual. Unfortunately, as a person walks across a lawn, fairway, or other area where these wasps are nesting, the process is repeated through each male's territory. Cicada killers are unlikely to sting a person. Wasp and bee stingers are modified egg-laying devices (=ovipositors), so males are unable to sting. Females may sting if crushed, either by being stepped on with bare feet or grabbed with bare hands.

Cicada killers are more common in areas with bare soil, so mulching, planting ground covers, or sodding may reduce associated problems. Cicada killers become a major problem when nesting in areas accessible to or frequented by the public. Applying carbaryl (Sevin) or a pyrethroid-based insecticide (e.g. permethrin, bifenthrin, deltamethrin, and/or cyfluthrin) to the burrowed area should kill females in golf course sand traps. Once the females are gone, males eventually leave. In home yards, sandboxes should be covered with a tarp when not in use since this deters cicada killers (and also keeps cats out). Sand below swings, jungle gyms, or other playground equipment can be replaced with bark mulch or shredded tires.

Managing cicada killers in volleyball courts and baseball infields is more of a challenge because people with minimal clothing and much exposed skin are diving and sliding onto the ground. This makes it difficult to recommend using an insecticide on a volleyball court. In these cases, the use of weed or other barriers beneath the sand may create enough of a disturbance to cause cicada killers to leave. Of course the recommendations mentioned above will only be effective if cicada killer populations are not excessive.

Raymond Cloyd

Don't mistake corn leaf aphids for greenbugs on whorl-stage sorghum

Around this time of year we frequently get called to look at greenbugs on sorghum only to find out they are actually corn leaf aphids. The distinction is very important. Corn leaf aphids can build to relatively high populations without causing any economic damage to sorghum, whereas greenbug feeding causes chlorosis and can kill plants or severely reduce yield. Because corn leaf aphids tend to establish early on whorl stage sorghum and usually disappear around the time the panicle emerges, they serve to attract a wide range of aphid predators and parasitoids early in the season.

Greenbugs begin to colonize sorghum plants in later stages of development after many aphid natural enemies have completed a generation feeding on corn leaf aphids. By then, numerous beneficial species are well-positioned to eliminate greenbug colonies before they establish. Because corn leaf aphid infestations actually provide 'insurance' against greenbugs by encouraging the early immigration of biological control agents into the crop, any pesticide treatment mistakenly applied to control them can actually increase the chance of a greenbug problem developing.

There are many features that distinguish the two aphid species. Greenbugs have antennae almost as long as the body, green legs, and a dark medial stripe down the back (Fig. 1). Corn leaf aphids range from pale yellow to dark blue-green but always have short antennae, black legs, and no medial stripe (Fig. 2). Greenbugs feed on the undersides of lower leaves along the midribs and cause reddish brown discoloration (Fig. 3). Corn leaf aphids feed on the upper surfaces of upper leaves and in the whorl and do not cause discoloration around their feeding sites (Fig. 4).

Fig. 1. University of California Statewide IPM Project.

Fig. 2. University of Florida

Phil Sloderbeck

J.P. Michaud

Fig. 3. Phil Sloderbeck

Fig. 4. J.P. Michaud

Sorghum

Cattail caterpillars are currently very active and highly noticeable in many sorghum fields throughout North Central KS. These insects annually infest sorghum but not to the extent or in the numbers we have seen this year. These are quite unique worms. They are a mottled black with a fairly distinct black midline, two white stripes along each side, cross rows of orange, and are relatively hairy (see photo 1). The head has an inverted v-shaped marking that may be white with some orange or orange bars between the v lines (see photo 2). The adult is a dusky white, rather nondescript moth (see photo 3).

These larvae seem to feed primarily on the leaves and around the whorl which causes concern to growers and consultants. However, sorghum is fairly tolerant of this type of leaf injury without causing an impact of yield (see photo 4). There are no established treatment thresholds/ economic injury levels as these insects have not been a consistent enough pest to collect the data needed to determine the need for treatment. Most of the larvae seem to be fairly mature, thus most of the "damage" has probably been done and these insects will start pupation. If small larvae reappear in the next 2-3 weeks or evidence of feeding continues, please call or e-mail us as we have not seen evidence of these insects after this generation.

Corn Leaf Aphids

Sorghum whorls again this year have been noted with varying populations of corn leaf aphids(photo 1).These are bluish green, ca. 1/16" long aphids(photo 2) and usually pose no threat to yield unless they occur in sufficient numbers to interfer with head emergence or on the head itself soon after mergence. Actually, the presence of these aphids may help by providing a food source for beneficial insects which may help control other potential pests later in the season and on other crops.

Jeff Whitworth Holly Davis

3 for 3…….

If it walks like a duck (1), quacks like a duck (2) and looks like a duck (3), it is a duck.

If it flies like a bumble bee (1), buzzes like a bumble bee (2) and looks like a bumble bee (3), it is a bumble bee. Well, the current flier (1) creates a very audible buzz (2), but in no way do they resemble bumble bees. Rather, they are **green June beetles**, and they are likely active throughout Kansas.

Clustered Green June Beetles – Note color variations

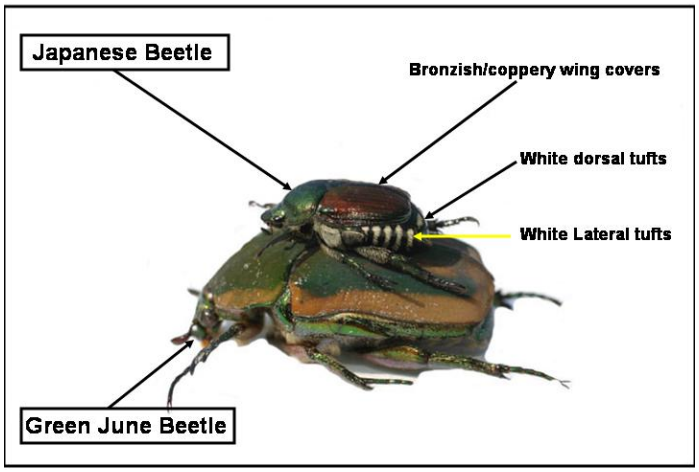
In the Manhattan area, green June beetle flights began Friday, July 18, following the previous night's downpour which extended into the early A. M. Given the previous "dry time" from the end of June through July 17, the crusted soil surface may have deterred emergence of the beetles "waiting underground". After the rain, the green June beetles had an easy time emerging through the softened soil.

Green June beetles can be seen skimming over grassy areas as they search out mates. Beetles deposit eggs indiscriminately in grassy areas, but preferably seek ovipositional sites high in organic matter. Green June beetles may be menacing to people who erroneously think that these are bumble bees looking for somebody to sting, especially if beetles bump into a person who might view this as "an attack".

Other than the nuisance factor associated with their aerial antics, green June beetles do not constitute a threat to garden crops. They are, however, attracted to tree fruits (notably peaches), especially those with over-ripe and possibly fermenting fruit. Vine crops such as grapes are also targeted.

Green June beetles do not attack ornamentals. People may mistake green June beetles for Japanese beetles which are known defoliators of ornamental plants. While there are pocket populations of Japanese beetles established in Kansas, they have a very restricted distribution as opposed to green June beetles which occur (as earlier mentioned) throughout the state. In a side-by-side comparison, there can be no mistaking the smaller Japanese beetle for the much larger green June beetle. Additionally, Japanese beetles have distinctive bronzish

or copper-colored wing covers, and possess tufts of white hairs along the lateral sides of their abdomens with a similar pair on the dorsum of the posterior abdominal segment.



And what about bagworms?.....

Bagworms have been previously addressed in earlier issues of the Kansas Insect Newsletter. But now is a good time to re-visit bagworms. **WHY?**

Where efforts to manage/control bagworms have not been implemented, evergreens are showing bagworm damage.

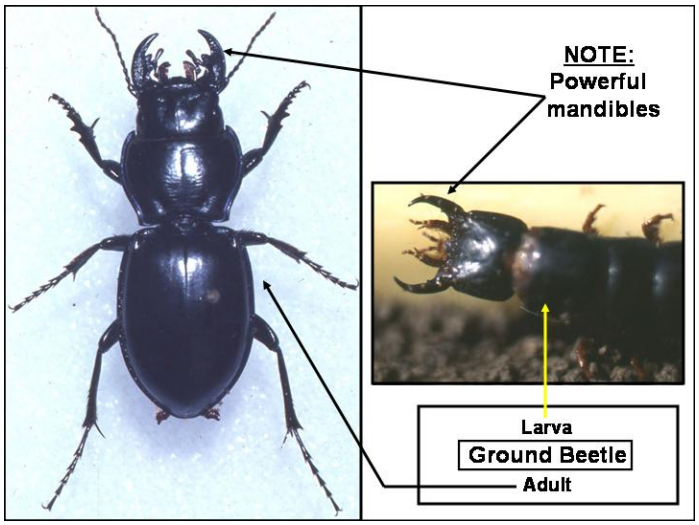
Currently, bagworms are only half-grown……..

And with another 2-3 weeks of feeding yet to be done, their increasingly ravenous appetites will result in increased amounts of damage which could cause "dead spots" in slow-to-recover evergreen plantings. Therefore it is imperative that immediate actions be taken to reduce/eliminate bagworms.

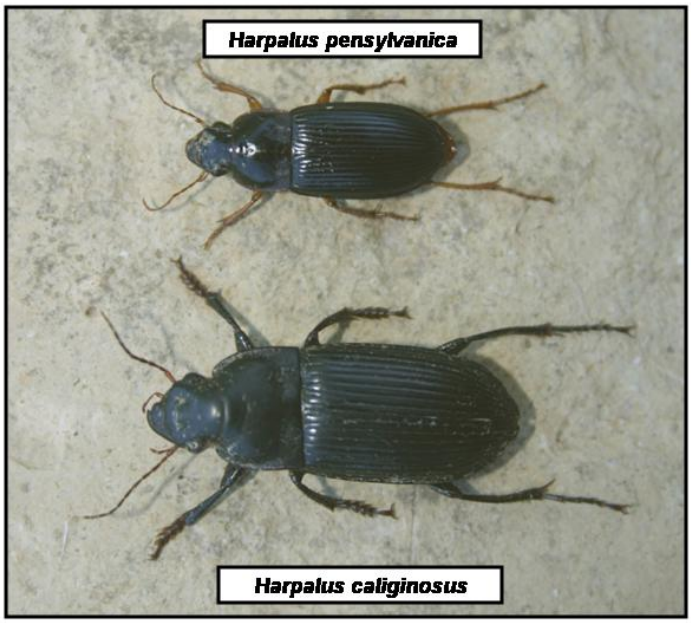
Selecting an insecticide for use against bagworms can be a dizzying experience. According the Kansas Department of Agriculture data base, 481 products currently are registered for use (in Kansas) against bagworms. While two microbial active ingredients (*Bacillus thuringiensis* spp. and spinosad) and the botanical AI pyrethrin provide "organically acceptable" routes against bagworms, a multitude of synthetic AI's are used in the majority of bagworm insecticide products targeted towards use by homeowners. The AI's include: organophosphates (acephate, disulfoton and malathion); a carbamate (carbaryl); and pyrethroids (bifenthrin, cyfluthrin, deltamethrin, lambda-cyhalothrin and permethrin). While there are pro and con aspects to the various AI's, end-users must make the final decision on the product of choice which ultimately may be guided by price, product formulation and type of equipment used to apply treatments.

And coming soon? .....

Ground beetles (commonly referred to as carabids) exhibit varying degrees of size, form and coloration. Nearly all species (plus their larvae) are predators and therefore capable of the rapid movement necessary for chasing and capturing prey. Both larvae and adults possess well developed mandibles.



Year after year, ground beetle species inundate homes and business establishments. The two most common species are *Harpalus pensylvanica* and *H. caliginosus*:



H. pensylvanica is the smaller of the 2 averaging 5/8 inch in length versus 1-inch for *H. caliginosus*. These beetles are very active at night with great numbers being attracted to and congregating beneath lights. Thus, especially businesses (which are lit up at night) are faced with the daily chore of sweeping up and disposing of large aggregations.

Once again, light trap catches provide a heads-up on imminent insect activities: in this instance, the aforementioned ground beetles. And over the last several nights, their numbers are on the increase. Little can be done to head them off other than turning off lights (which may not be an option for businesses due to

security issues). Exclusion by plugging/caulking/weatherstripping portals of entry may offer some relief by denying them indoor access. Similarly, some relief may be achieved by applying outside perimeter insecticide treatments. But again, results may be disappointing because overwhelming numbers "win out". The best news is that beetle activities are short-lived, and after the main surge of activity, generally fade away to be soon forgotten.

Bob Bauernfeind

MP3 files available for your computer or iPod

AGRICULTURE TODAY is a daily program hosted by Eric Atkinson and distributed to radio stations throughout the state. From time to time Eric interviews members of our department on timely entomological topics. Links to these entomology interviews are posted on our web site on the current topics page: http://www.entomology.ksu.edu/DesktopDefault.aspx?tabid=14 or you can find links to all of the radio programs at: http://www.oznet.ksu.edu/radio/agtoday.htm. Recent topics covered included: Cattail caterpillar on sorghum (July 23, 2008, Jeff Whitworth) www.oznet.ksu.edu/radio/StreamingArchives/AGTODAY/at072308-live.mp3 , soybean aphids (July 17, 2008, Jeff Whitworth) www.oznet.ksu.edu/radio/StreamingArchives/AGTODAY/at071708-3.mp3 , grasshoppers (July 15, 2008, Phil Sloderbeck) www.oznet.ksu.edu/radio/StreamingArchives/AGTODAY/at071508-2.mp3 .

Phil Sloderbeck

Honey Bee News

I suspect that many of you are like me and are interested in news about honey bees and maybe even have people asking you questions about recent stories concerning honey bees. Two items that I have been wondering about this spring were reports that I had heard about seed treatments killing bees in Europe and the continuing problems with honey bee losses throughout the United States.

On the issue of the honey bee kills associated with the use of neonicotinoid insecticides, I was having trouble trying to figure out why this had happened in Europe, but did not seem to be a major issue here. This week, Sharon Dobesh shared an article from PSEPWIRE a monthly e-Bulletin of the Pesticide Safety Education Program that helped to shed some light on this issue. The honey bee kills this spring in Germany were evidently the result of a combination of factors that came together to allow an inadvertent exposure of bees to clothianidin. The factors included the cropping system, the formulation of the pesticide, weather conditions and the type of application equipment. The problem was not from bees pollinating a crop grown from seed treated with the seed treatment but from the seed treatment drifting on to a nearby crop that happen to be in bloom when the seed was being planted.

• Normally, corn is planted before canola blooms and attracts bees. Because early, heavy rains delayed the corn planting in Germany, the seeds were sown later than usual when nearby canola crops were in bloom and bees were present.

• The formulation use to treat the seed corn where the problem occurred in Germany did not include a polymer seed coating known as a "sticker." This coating makes the pesticide product stick to the seed. In the U.S. it is typical practice to use "stickers" on corn seed in the US.

• A particular type of air-driven equipment used to sow the seeds apparently blew clothianidin-laden dust off the seeds and into the air as the seeds were ejected from the machine and into the ground.

• Finally, dry and windy conditions at the time of planting blew the dust into the neighboring canola fields that were in bloom and where honey bees were foraging

Together, these factors helped create the circumstances under which this incident occurred.

Thus, this situation appears to be kind of a freak situation. However the EPA is currently examining label requirements for seed treatment pesticides and will revise them as necessary to prevent the types of exposure that led to the bee deaths. Their initial focus will be on seed treatment pesticides that are know to be toxic to bees and whether the use of stickers or coatings should be required. In many situations, the use of pesticide-treated seeds results in less human and environmental exposure than would occur if the pesticides were applied, after the crop is growing. They want to make sure that seed treatment is done according to best practices that minimize human and environmental exposure.

After looking at this article I decided that it might also be a good time to catch up on the current status of Colony Collapse Disorder (CCD). As you probably know honey bee populations have seen a major decline the last two years. A recent article from Penn State reported that: A recent survey by the Apiary Inspectors of America found that losses nationwide topped 36 percent of managed hives between September 2007 and March 2008, compared to a 31 percent loss during the same period a year earlier. (http://aginfo.psu.edu/news/2008/5/beeresearch.html). The same article indicates that Meanwhile, Penn State researchers are making progress in pinning down the cause or causes of Colony Collapse Disorder, a mysterious ailment that threatens the beekeeping industry and the crops and native plants that rely on honey bees for pollination. In fall 2007, a team led by Diana Cox-Foster, professor of entomology, reported a strong correlation between CCD and the presence of Israeli acute paralysis virus, making the pathogen a prime suspect in the disease. Since that time, researchers have introduced IAPV to healthy honey bee colonies in a controlled greenhouse environment in an effort to induce a collapse. "Within one week of introducing the virus, we observed dramatic bee mortality, with bees dying outside the colonies across the room in the greenhouse," says Cox-Foster. "Bees were found on the floor with paralytic-type movements, and guard bees were observed removing paralytic bees from colonies and flying across the room. The majority of these 'twitcher' bees were found to have IAPV." Cox-Foster notes that within a month, infected colonies had declined to small clusters of bees, many of which had lost their queens. "These data indicate that IAPV is a highly pathogenic virus," she says. "But they do not yet support a finding of IAPV as the sole cause of Colony Collapse Disorder. We still suspect that additional stresses are needed to trigger CCD."

Ok if IAPV is not the cause what are the other stressors? Among the potential triggers being investigated are environmental chemicals. Penn State scientists analyzing pollen, wax, adult bees and brood (larvae) have found the presence of dozens of chemicals, including pesticides used by agricultural producers to protect crops and by beekeepers to control hive pests such as parasitic mites. Which lead me to another article "What Have Pesticides Got to Do with It?" http://maarec.cas.psu.edu/CCDPpt/WhatPesticidesToDoWithItJune08ABJ.pdf. Which found "pesticides" in nearly all of the pollen and wax samples they tested. Not too surprisingly two of

the most common insecticides found are contained in products used to control varroa mites. So mites may be having even more of an impact than just their direct impact on the colonies if the insecticides used for their control are providing additional stress on the bees.

Thus it looks like we are a long way from solving the honey bee problem, but there is some very interesting research taking place and maybe there will be some answers soon.

Phil Sloderbeck

Weekly Report from the Kansas State University Insect Diagnostic Laboratory:

The following samples were submitted to the Insect Diagnostician Laboratory from July 18th to July 24th.

July 18 2008: Dickinson County – Walnut caterpillars in Pecan tree
July 18 2008: Sedgwick County – Large milkweed bugs and Lace bugs in garden
July 21 2008: Shawnee County – American dog tick – adult male
July 21 2008: Sedgwick County – Small hive beetle and Carpophilus sp. from bee hive
July 21 2008: Meade County – Mealybugs on red cedar.
July 21 2008: Pratt County – Hedge with leaf spots but no signs of insect damage
July 22 2008: Harper County – Pine needleminers
July 23 2008: Osage County – Sphecid sand wasp swarm around quarry sand pile
July 23 2008: Harvey County – Larder beetles found in home
July 23 2008: Jackson County – Spotted cucumber beetle, Colorado potato beetle and squash bug in pumpkins

If there are any questions regarding these samples or about the identification of any arthropod please contact the Insect Diagnostician at (785) 532-4739 or GotBugs@ksu.edu.

Holly Davis

Sincerely,

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