

Kansas Insect Newsletter

For Agribusinesses, Applicators, Consultants and Extension Personnel



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If You Plant It, They Will Come – Whitelined Sphinx Moth Larvae

This is to paraphrase the quoted line, “If you build it, He will come”, from the movie, Field of Dreams.

In 2012, I bought some “clean” sterilized potting soil mix for use in a couple of planters. It may have been sterilized, but clean? NO! Many common purslane seedlings popped up. Although considered a nuisance “weed”, I thought of a use: transplant them to quickly fill in a small patch of bare ground. I also thought of a possible side benefit: to attract whitelined sphinx moths which would deposit eggs and the eventual production of whitelined sphinx moth larvae.



Whitelined sphinx moths are the very common “hummingbird moths that people often see at dusk as they hover over flowers, unfurling their long proboscis which they thrust into flowers to “sip” the nectars.



Photo Credit: Terry Curtis – Bugwood.org

To my disappointment, no whitelined sphinx moth larvae appeared in my purslane patch. But to my surprise, purslane sawflies (which I did not know of) and their larvae provided a prime example of the biological control of a weed by a naturally occurring insect species. Prior to their being eliminated, the purslane did what purslane does: reseeded itself.

Last year, a thick purslane patch became established. Again, I hoped for WLSM, or maybe a repeat of purslane sawflies. NOTHING! Of course, more seed production resulted in a fresh batch of a purslane planting for this year.

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This past weekend, my granddaughter pointed out “big worms”. While I had not specifically been watching for them, my originally hoped-for whitelined sphinx moth larvae appeared. They displayed the variations in appearance (color and body markings) that people often report.



As for my small purslane patch, just these and a few other caterpillars have wiped it out. In nature, whitelined sphinx moth larvae (as other caterpillar species) must wander in search of an additional source of food upon which to feed in order to complete their growth and development. Luckily for these larvae, Papa Bob will provide them “fresh purslane” cuttings so they can grow into plump and mature larvae. I am hoping that they will pupate and successfully overwinter, and that in 2015, moths will emerge to be freed to contribute to the next generation.



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On the subject of Caterpillars ----- Rearing

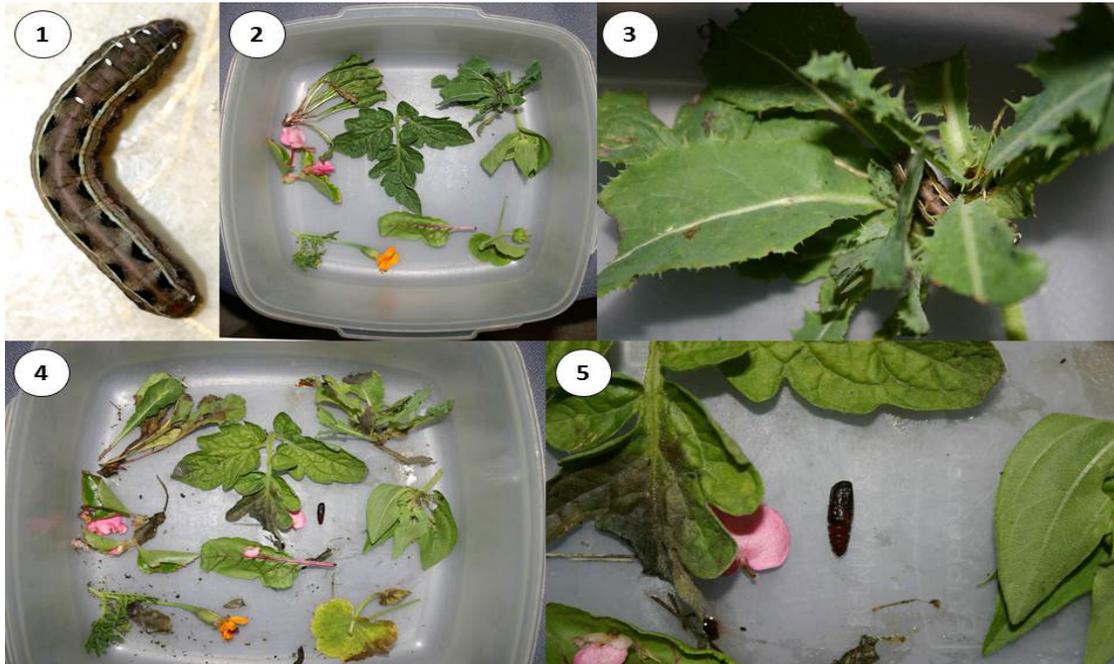
Often times, people encounter caterpillars and wonder what type of caterpillars they are. What will they become? Small caterpillars are difficult to identify. And their appearances dramatically change as they grow and develop. Picture keys show mature caterpillars in their final form.

If a caterpillar (or caterpillars) are found feeding (thus their preferred food source is known), they can be caged and provided with adequate amounts of fresh plant material to satisfy their feeding requirements. So sated, they can then transition into their pupal stage, culminating with the emergence of the adult stage (there are many picture keys for adult butterflies and moths).



Unfortunately, most times, a wandering caterpillar is found. In these situations, their preferred food source is unknown. People sometimes think that simply providing “grass” will adequately satisfy a captured caterpillar’s appetite. This will likely prove to be disappointing. Rather, a better method to possibly determine the type of plant that a caterpillar might prefer would be to set up a simple arena with different plant materials found near where the wandering caterpillar was found.

In the following sequence: #1 is a yellowstriped armyworm larva. If I already know what it is, why do I want to rear it? Look closely and you will see some white tachinid fly eggs attached to it. #2 is an array of 8 plant materials (yellowstriped armyworms have a varied host range). #3 shows that it selected/preferred the “weed” offering in the upper left hand corner of the arena. #’s 4 and 5 show that the caterpillar completed its feeding stage and transformed into its pupal stage. However, the effort to recover even a single tachinid fly was futile. And the pupa itself may not be viable. But the point of this example was to illustrate a possible approach to determine what a caterpillar’s identification be based on the hope of the adult form to emerge.



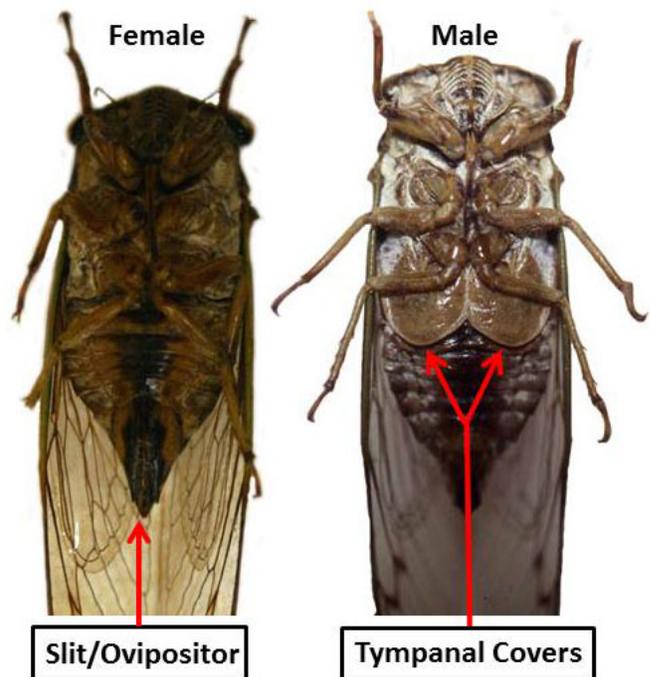
Cicadas and Cicada Killer Wasps

This might be considered entertainment: listen to “Annual cicadas”, and watch cicada killer wasps.

“Annual cicadas” is somewhat of a misnomer because the word annual implies a 1-year life cycle. Actually, the “common cicadas” that we see and hear each summer have a 4-year developmental cycle ---- but there are staggered emergences thus giving the impression of a 1-year “annual” life cycle.

Female and male cicadas can be differentiated by examining the bottom sides of their abdomens. Females have a slit and ovipositor whereas males possess a pair of tympanal covers.

Only males are “noisemakers”. Beneath the covers is a hollow chamber housing a pair of tympanal organs --- essentially a pair of membranes which are vibrated to produce distinctive sounds unique to the individual species.

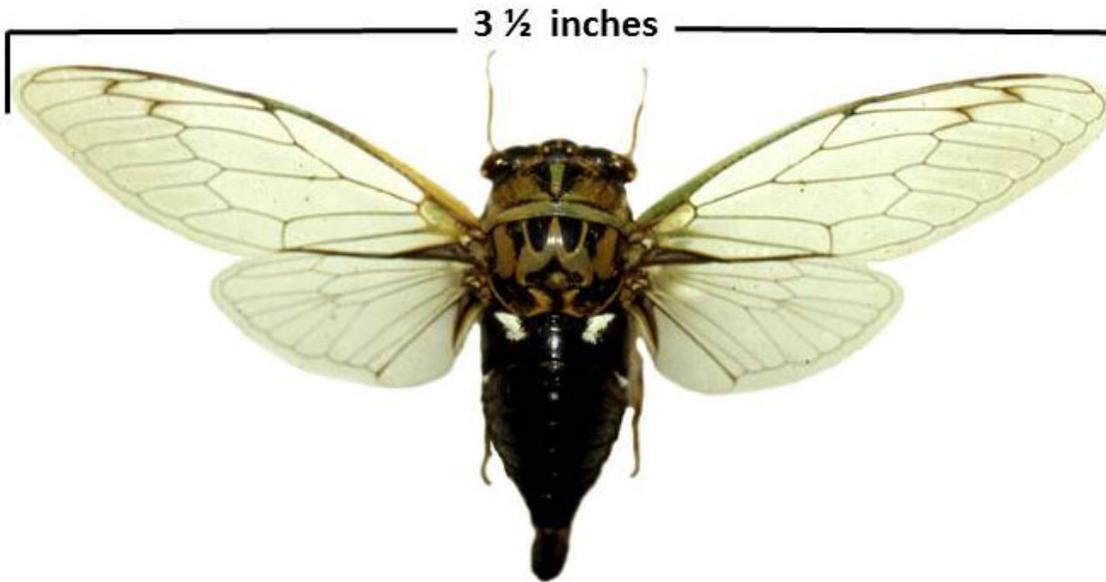


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Of the approximately 17 species of cicadas found in Kansas, only few are “commonly encountered”. The four species currently active now through late Fall can easily be distinguished by their appearances, habits and distinctive “calls” which (with but a little practice) can be easily and quickly learned.

The most familiar and numerous cicadas are *Tibicen pruinosus*. With a statewide distribution, the first call that I noticed (in Manhattan) was on July 3. Populations of *pruinosus* tend to be gregarious. They usually are out-of-sight, preferring resting sites high up in tree canopies. Usually silent during daylight hours, they begin vocalizing after sunset. In total night darkness, the chorusing of this species is one of the most pleasant sounds-of-the-evening. They are drawn to blacklight traps. And often in the early morning, they can be found lying in the ground beneath trees, especially after cooler evenings which caused them to lose their grip and fall. The cicada “skins” commonly found on the sides of trees are those of *Tibicen pruinosus*.



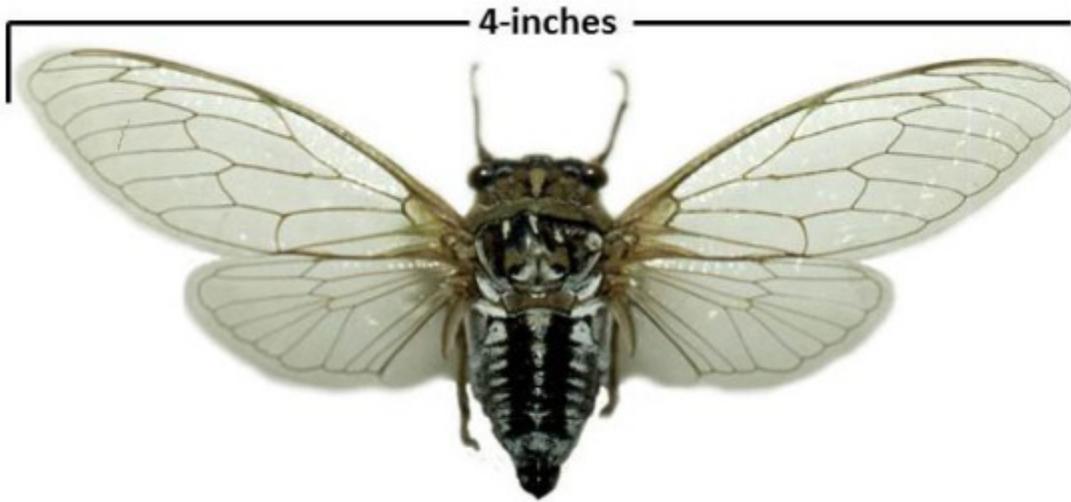
Zzuhwhee Zzuhwhee Zzuhwhee Zzuhwhee

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Tibicen walkeri and *Tibicen dealbatus* (the former with a northern distribution in Kansas, the latter in southern Kansas) both produce the same “call”. This year, I heard my first *walkeri* on August 2. They tend to be more solitary, thus a person can hone in on their location. Early in the morning, during the day and into the evening, their distinctly loud and rapidly repeated zwick is a give-away as to their presence. They often are found low enough in smaller trees that they can be slowly and silently approached and observed. As they vocalize, they sort of scoot backwards, bringing them within range of manually grasping or collecting via a net.

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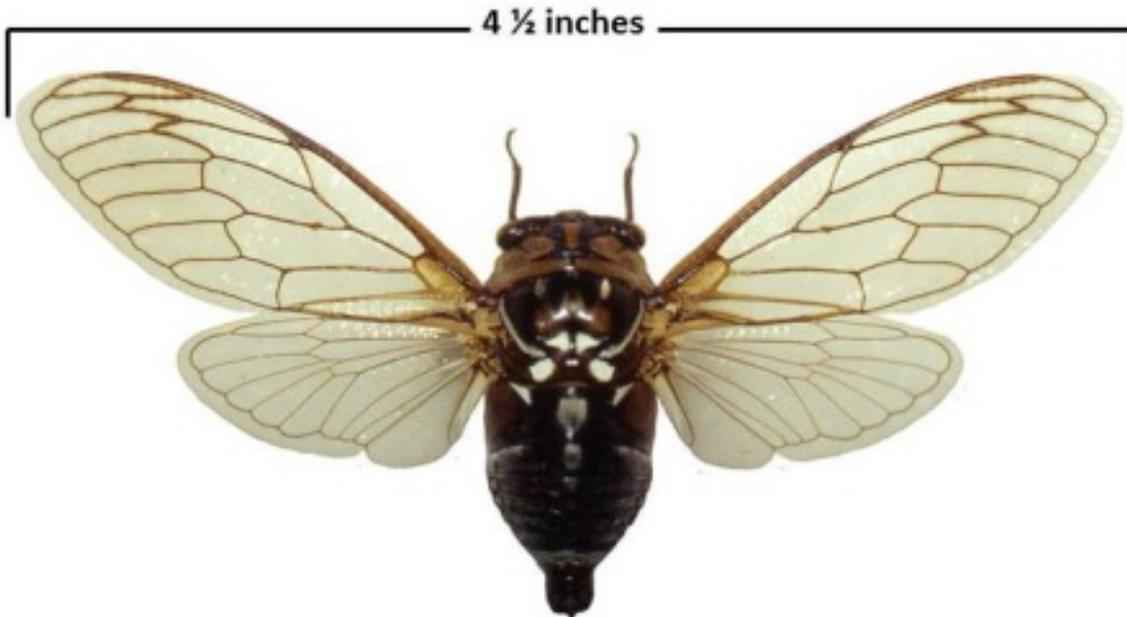
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Zwick Zwick Zwick Zwick Zwick

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Tibicen dorsatus has several distinctions. It is the largest and bulkiest of the common *Tibicen* species. It has a statewide distribution. Its coloration is overall shades-of-brown species, but with white markings which may or may not be distinctive depending on wear-and-tear. I heard my first *dorsatus* August 11. A solitary but abundant species, *dorsatus* prefers open areas. Commonly called bush cicadas, they are found resting on low shrubs and tall native grasses. Their call is unmistakable and a give-away as to their presence.



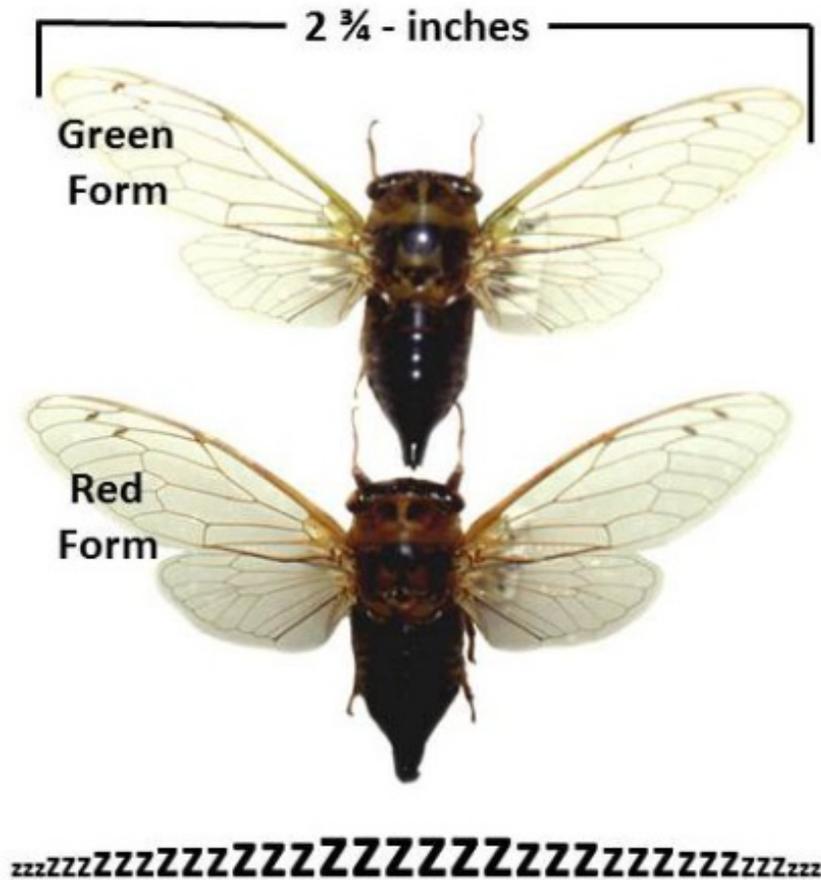
Very loud coarse rolling raspy buzz

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They are quite “wild” ---- usually taking flight when being approached. Males give a quick “scolding chirp” when disturbed whereas females silently take-to-wing. By following their flight and watching where they land, one can sneak up on the resting individual and capture them with a quick sweep using an aerial net.

Tibicen aurifera is smaller in size than the aforementioned species. It is the species commonly referred to as a dog day cicada given its appearance at this time of year and being active during the heat-of-the-day. I noted my first *aurifera* August 16. Its call is a very piercing high pitched searing unwavering buzz which slowly builds to a high point before diminishing to silence. There are 2 color forms (green and red/golden). Like *dorsatus*, *aurifera* is a close-to-the-ground open area species. While they can be “flighty”, they also will allow one to slowly/cautiously approach --- with a quick swiping motion, they can be cupped/caught by hand.



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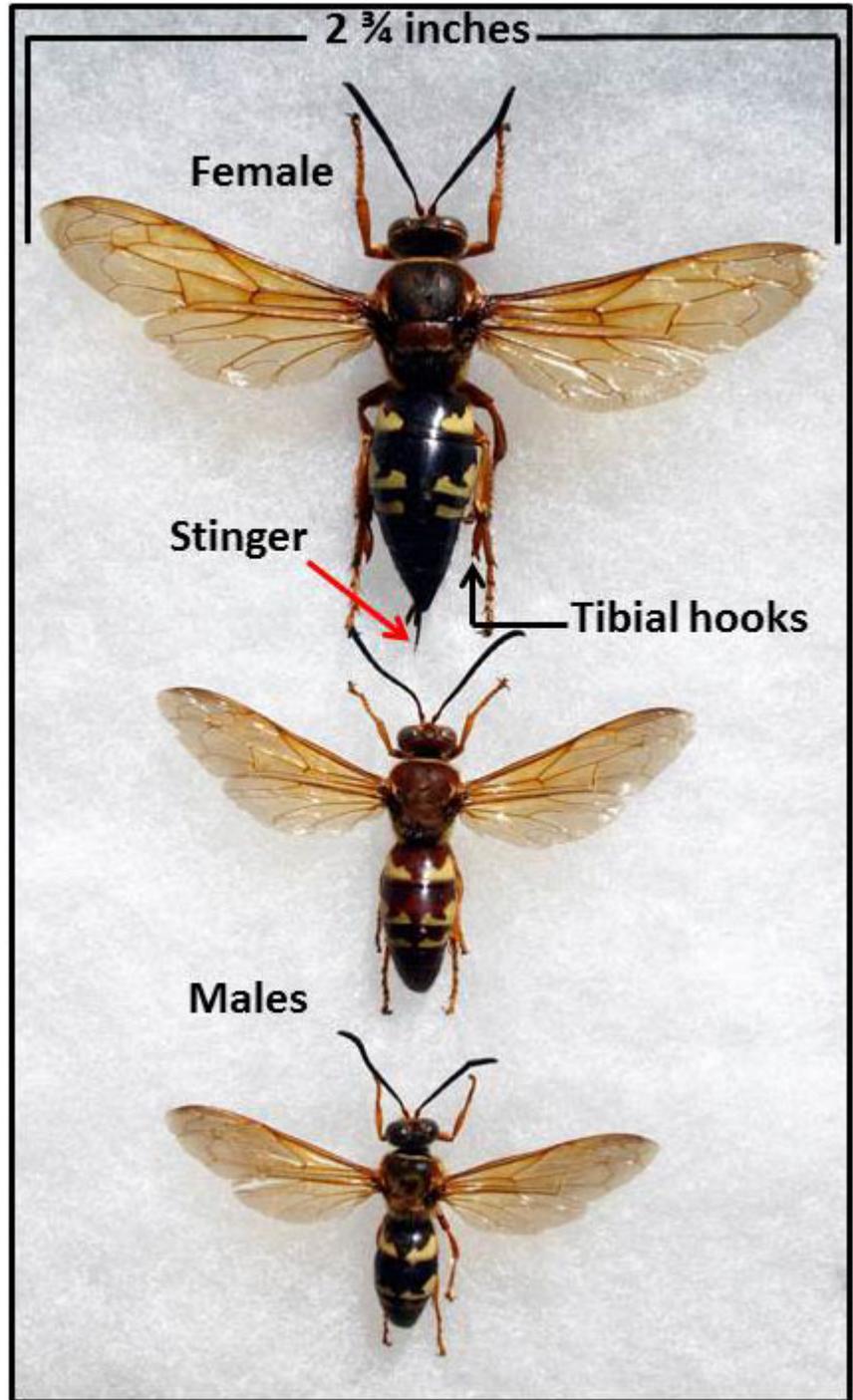
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Accompanying cicadas are a type of solitary wasp commonly referred to as “cicada killers”. Although large in size, they are not aggressive, as opposed to “colony wasps” such as yellow jackets, paper wasps and hornets which aggressively defend their colonies/homes should a person accidentally get to close.

People sometimes fear being stung by swarms of cicada killer wasps ----- these are males which do not possess a stinger. Rather their “crazy flights” are territorial antics also intended to attract female wasps.

Although female cicada killers are capable of delivering a sting, they are more intent on digging and excavating underground gallery systems (a central tunnel lined with separate side chambers).



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The entertainment value of cicada killer wasps? It comes down to the industrious females who are the “work horses” (the contribution of male wasps being but “mating services”). Given their docile tendencies, you can get up close and personal. Watch her busily dig and move soil as she constructs her “nest”. Watch her repeated departures and eventual returns with paralyzed captive cicadas which she drags into her tunnel. What you cannot observe is the actual placement of cicadas into individual brood chambers, the depositing of a single egg per chamber and then sealing the chambers. After all of the brood cells have been provisioned, she exits the nest and fills in/blocks the tunnel entrance. And then she is gone.

Back in the brood chamber, a newly emerged larva feeds off of the paralyzed cicada(s). After maturing, it forms a cocoon in which it spends the remainder of the summer, the fall and winter. Late in the ensuing spring, the larva pupates. The “new” cicada killer wasp emerges in early summer to repeat the 1-year life cycle.

With all of this being said, instead of letting nature-run-its course, people may have-the-desire/feel-the-need to do something to disrupt the activities of cicada killer wasps. The best procedure would be to observe and identify the locations of nest openings are. Wait until the female departs. Between that time and when she returns, apply an insecticide into the entryway. According to the NSPIRS system, there currently are 836 products registered for use in Kansas against wasps. Shop-the-shelves at local retail outlets for product availability. When the female wasp returns, contact with the insecticide will probably lead to her demise. Whether the insecticide will kill the developing larvae is questionable because they are protected by the dirt walls closing off their underground incubation chambers.

Bob Bauernfeind

Sorghum Headworm/Soybean Podworm

Sorghum sampled in NC Kansas this past week still has different developmental stages (i.e. sizes) of both corn earworms (aka sorghum headworms) and chinch bugs (see photos). Both are still at about the 25-30% infestation level. Sorghum headworms will start pupating next week and this will continue over the next 2 weeks. Pupation occurs in the soil, moths emerge, mate, and lay eggs in sorghum, most commonly between flowering and soft dough. If sorghum is not yet flowering or is already past the soft dough stage the moths will probably oviposit in any nearby soybean fields. Thus, sorghum should continue to be monitored for

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headworms, as they can cause about 5% loss per worm per head, but are relatively well controlled by an insecticide application as they are fairly exposed while feeding in the head. Headworms can also cause damage quickly in soybeans because they feed directly on the seeds within the pod. In soybeans they are often called podworms. Treatment thresholds vary due to price of the marketable product however, generally about three small podworms/10 row ft. will pay for the cost of control. As in sorghum, they are relatively well controlled in soybeans because they are feeding on the younger, more tender beans in the top part of the canopy. For treatment recommendations and insecticides registered for earworm/headworm/podworm control please refer to the KSU Sorghum and/or Soybean Insect Management Guides:

<http://www.ksre.ksu.edu/bookstore/pubs/Mf742.pdf>

<http://www.ksre.ksu.edu/bookstore/pubs/Mf743.pdf>



Jeff Whitworth

Holly Schwarting

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Insect Diagnostic Laboratory Report

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

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