Kansas Insect Newsletter

For Agribusinesses, Applicators, Consultants and Extension Personnel

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Clover Mites

There have been a number of inquires associated with homes being invaded by populations of the clover mite, *Bryobia praetiosa*. In fact, this is the time of year when clover mites are crawling around and entering homes, apartments, and office buildings; in which they can invade buildings in large numbers. Clover mites, in general, enter buildings from the sunny side or southwest exposures. They are primarily a nuisance pest because they don't bite humans. However, clover mites will leave a red stain when accidentally or purposely crushed.

Clover mite populations consist of only females since males have never been found. Adult clover mites are slightly larger than a pinhead (1/30-inch long), red in color, with extremely long, pink front legs, which may be used to distinguish clover mites from other mite pests. They overwinter as eggs in protected locations. There is usually one generation per year. Clover mite adults feed on over 200 plant types including clover, grasses, ivy, honeysuckle, apple, and elm. They will build-up to extensive numbers in well-fertilized turfgrass, and their feeding will cause turfgrass to appear silvery or frosty. There has been an increase in clover mite inquires, which may be associated with housing developments and the installation of well-fertilized turfgrass growing near the foundation of homes.

Management options that may be implemented to avoid having to deal with clover mites include 1) remove turfgrass near building foundations; 2) place an 18 to 36-inch wide band of an inorganic mulch around the foundation; 3) mow and trim turfgrass as short as possible; 4) avoid over-fertilizing turfgrass, especially with soluble nitrogen-based fertilizers; 5) remove weeds growing near the foundation of buildings; 6) remove ivy or other host plants growing around the foundation and walls; 7) use foundation plants that are not typically attractive to clover mites such as marigolds, petunia, geranium, arborvitae, and/or yew; and 8) caulk or seal cracks or openings in the foundation. Clover mites detected inside can be vacuumed up; however, be careful to not crush them. Soapy water will kill clover mites on contact. Consult a pest management professional for recommendations regarding perimeter treatments of pest control materials that will keep clover mites from entering homes or buildings.

Dealing With Caterpillar Pests

This is the time of year when a variety of caterpillar pests including imported cabbage worm and cabbage looper may be found feeding on vegetable crops. So what can you do? There are a number of pest control materials that can be used to alleviate damage caused by caterpillars including *Bacillus thuringiensis* spp. *kurstaki* or BtK (Dipel, Thuricide, and BT Worm Killer), spinosad (Captain Jack's Deadbug Brew and Lawn and Garden Spray), and pyrethrin (Pyrethrin Garden Insect Spray). BtK is a soil-borne bacterium that is only active on caterpillars. Caterpillars have to ingest the material in order to be killed—it has not contact activity. It is important apply when caterpillars are small since they don't have to consume as much material in order to be killed. When caterpillars are larger, more material has to be consumed and as such the caterpillars can still cause plant damage. Since BtK is only active on caterpillars there is less direct impact on natural enemies. The material is susceptible to ultra-violet light degradation and rainfall so repeat applications may be needed.

Spinosad is composed of spinosyns A and D, and is derived from the micro-organism *Saccharopolyspora spinosa*. This material is active on a wide-range of different caterpillar pests. It works as both a contact and stomach poison; however, it is most effective when ingested. Spinosad kills caterpillars quickly and is most active on young caterpillars. Wet sprays of spinosad may be harmful to certain natural enemies; however, toxicity decreases once spray residues dry.

Pyrethrin is a botanically-derived insecticide derived from the flowers of certain chrysanthemum species. Pyrethrin kills caterpillars quickly by contact activity only and has very short residual activity (<24 hours), so repeat applications may be required. When using any of these three insecticides, thorough coverage of all plant parts is important. Also, read the label to determine the appropriate rate that should be used.

Raymond Cloyd

Armyworms in Field Crops

We have received a few calls regarding armyworms in wheat. These pests feed on many different crops but prefer grasses, i.e. wheat, corn and sorghum. Feeding in wheat usually does little to affect yield at this time of year unless they are feeding on plants as the leaves dry down and then start feeding on the beards, sometime clipping the heads. Fortunately, this doesn't happen often and usually only along border areas. But it can be more pervasive and should be monitored. It generally requires more than 5 larvae/ft^2 to justify treatment. If treatment is warranted, pay close attention to the pre-harvest interval for the chosen product as we are fast approaching harvest in parts of the state.

Also, monitor corn and sorghum fields adjacent to maturing wheat fields. Armyworms sometimes migrate to these more succulent seedling plants where they may be quite destructive.

Jeff Whitworth

What's the Buzz? Periodical Cicadas?

Historically, Kansas has been home to Brood IV 17-year periodical cicadas. These unique insects require 17 years for nymphal development before emerging as adults. Their adult life span is but brief --- approximately 1 month. Males die shortly after mating. Females use their serrated ovipositors to create slits in twigs in which they deposit eggs. This being accomplished, they also perish. Within 6 – 10 weeks, nymphs emerge from eggs and fall to the ground. They immediately burrow in to the soil and begin their long 17-year developmental cycle during which time they derive nourishment from sap/juices which they suck from the root systems of deciduous trees/shrubs/plants.

Periodical cicadas all have an unmistakable appearance which separates them from (what are commonly called) "dogday" or "annual" cicadas which are present on a yearly basis in Kansas. Of note are the periodical cicada's "blood-red" eyes, black bodies and orange-veined wings (Figure 1).

Figure 1

The designation of "annual" (for cicadas appearing yearly in Kansas) is a misnomer because their development from egg to adult requires (possibly) up to four years. They have overlapping developmental cycles, and thus their emergence patterns are termed asynchronous --- some appear every year. In contrast, periodical cicadas do not have overlapping developmental cycles --- entire populations develop at the same rate, and thus emergence patterns are synchronous --- entire populations in a given location/locale appear in the same year.

As already mentioned, Kansas' periodical cicadas have a 17-year developmental cycle. Other periodical cicadas have a 13-year developmental cycle and are therefore designated 13-year periodical cicadas. Different geographical regions in the United States have their respective periodical cicada populations which are characterized by the different years in which they emerge. To differentiate between populations and their times to emerge, periodical cicadas are categorized/pigeonholed into "Broods" which are identified with Roman Numerals.

You already know (from the first sentence in this article) that Kansas is home to Brood IV periodical cicadas (Figure 2 – red box) (of 12 active Brood Classifications, those between I through XIV have 17-year developmental cycles). There are but 3 active broods of 13-year periodical cicadas: Broods XIX, XII and XIII (Figure 2).

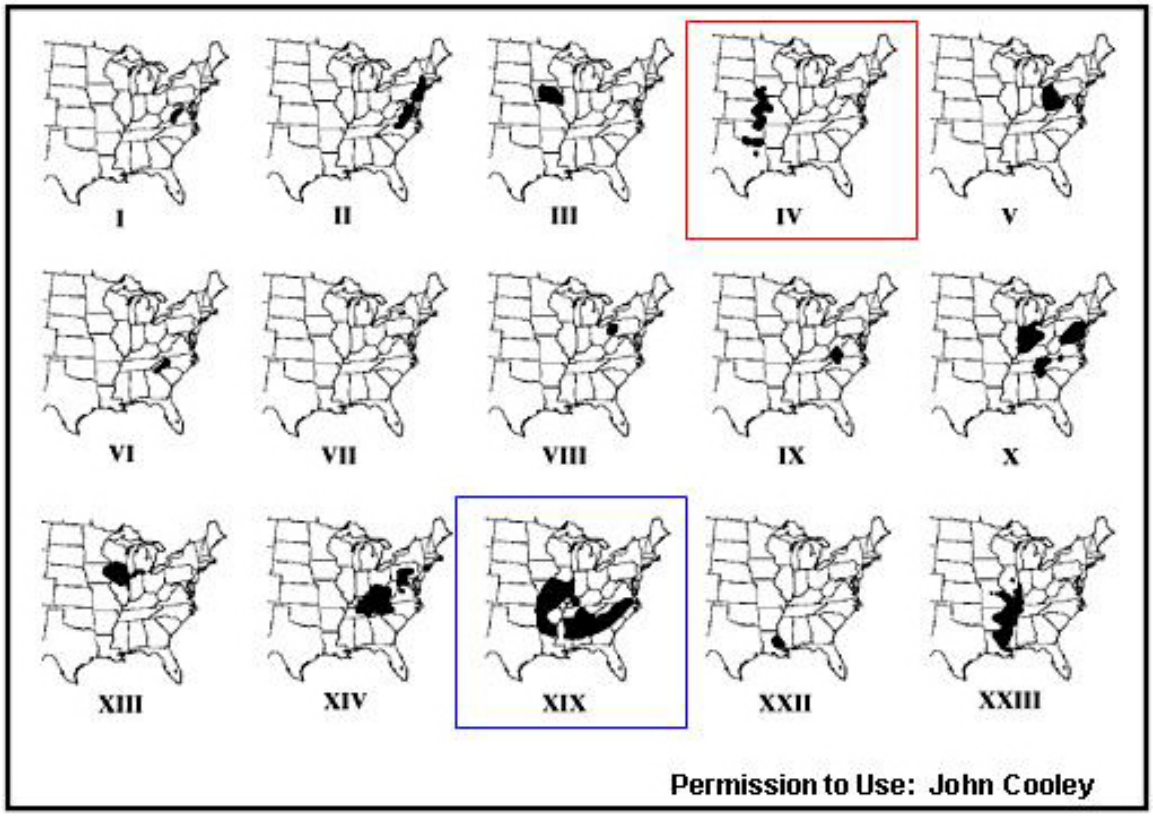

Figure 2

The only expected periodical cicadas scheduled to emerge in 2011 are Brood XIX ----- 13-year periodical cicadas. As seen in Figure 2 (blue box), Kansas is not included "as home" to Brood XIX periodicals. But their home range certainly abuts Kansas. Is it possible, then, that the periodicals currently being heard/seen/captured are, in fact, part of Brood XIX? Possibly, "No". Possibly, "Yes"

There is a situation called "straggling". This term is used to describe situations when the clock-work of periodicals is out-of-sync. Unpredictably, they emerge either before or after their scheduled time-to-appear. Most common are small numbers of 1-year stragglers, or (second in occurrence) larger numbers of 4-year stragglers. Whereas our last Brood IV emergence occurred in 1998, and the next scheduled Brood IV emergence is set for 2015, is it possible that the current periodicals are nothing more than early-bird 4-year stragglers?

Or, are they (in actuality) Brood XIX periodicals? An authority on periodicals states the difficulty of differentiating between 13- and 17-year broods when their ranges abut and/or overlap one another. He also states that we will have to wait until 2024 (the next scheduled appearance of Brood XIX) to designate (after the fact, but with certainty), that the current periodicals are (in fact) Brood XIX. This would be definitive because there will be a five-year separation between the 2024 Brood XIX and 2029 Brood IV, thus no interference with "4-year stragglers".

There is, of course, much more to periodical cicadas than presented here. For instance, periodical cicada is an umbrella term: there are 7 different described species, all unique onto themselves. But for general purposes, when people report sightings of periodical cicadas, they are indeed encountering periodical cicadas! If they have further interest in additional information on these wonders-of-nature, you can direct them to the following website: **magicicada.org** On that website is an interactive map upon which current sightings in the US are being recorded, included those in Kansas.

Other tidbits:

There are indicators of periodical cicada emergences. In most instances, emergence holes riddle the ground (Figure 3).

Figure 3

Occasionally, a “mud” chimney (Figure 4A) is formed with an exit hole at its terminus (Figure 4B).

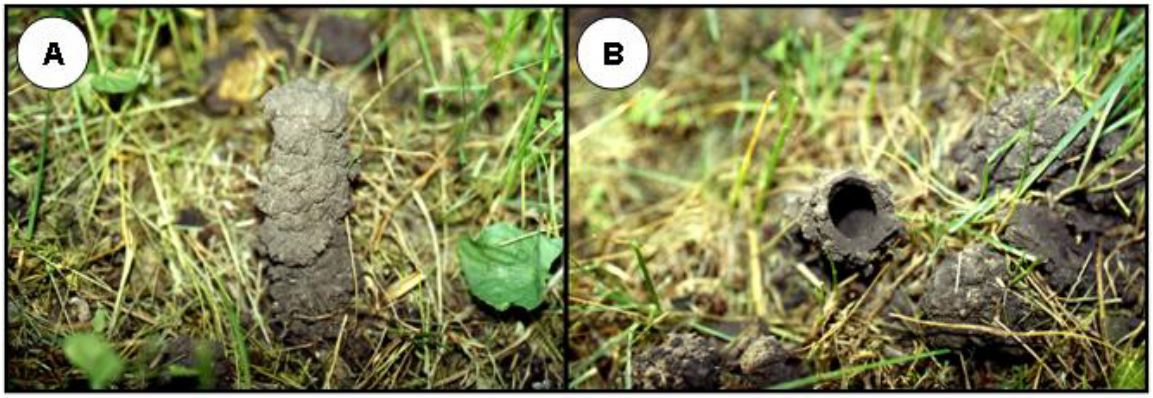

Figure 4

Many shed nymphal skins/casts/exuvia may litter the ground (Figure 5A) or be clinging to any available substrate (Figure 5B).

Figure 5

The emergence process begins with a nymph leaving the ground (Figure 6A). Soon thereafter, the new adult emerges from a slit along the back of the nymph (Figure 6B).

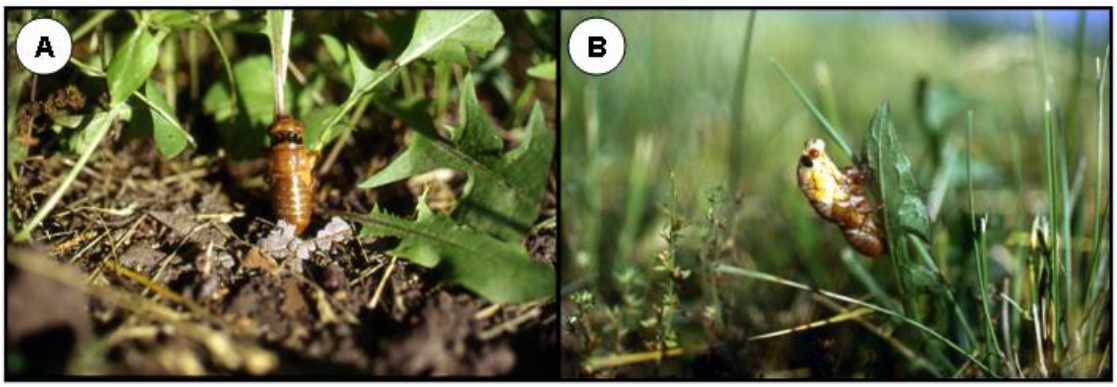

Figure 6

The newly emerged adult is very soft and pale in color (Figure 7A). They quickly darken in color, and their exoskeleton somewhat hardens. During a teneral period (approximately 4-6 days depending on air temperatures), adults are inactive until they complete the hardening process (Figure 7B).

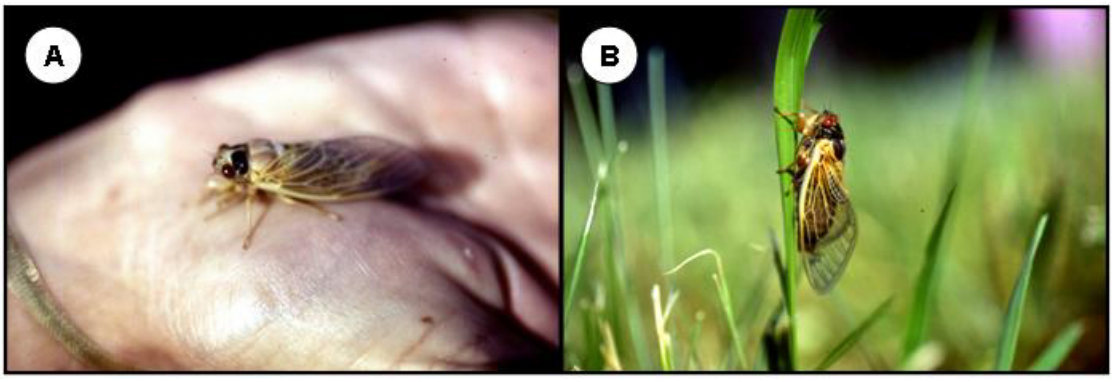

Figure 7

Active adult activities consist of feeding and mating. Feeding is accomplished by cicadas inserting their piercing/sucking mouthparts through thin and tender bark to withdraw their sap diet. While this may be accompanied by "bleeding" (Figure 8), it is inconsequential to the growth and vigor of the tree/host plant.

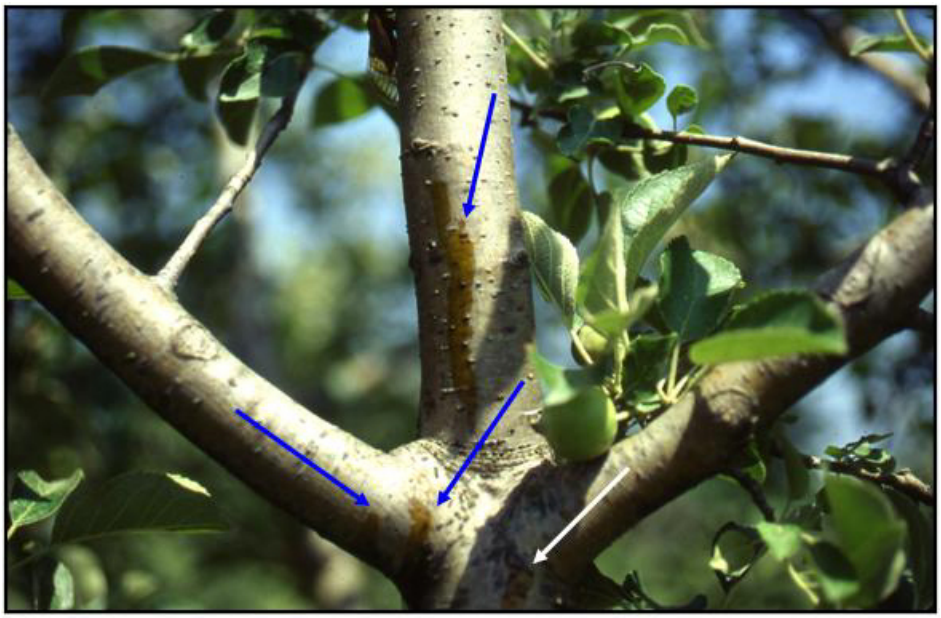

Figure 8

Periodical cicadas congregate in response to the sounds produced by males (Figure 9). Thus with many males and females in close proximity, mating is assured.

Figure 9

Female cicadas create slits in twigs into which they deposit clusters of eggs just beneath the bark. Visible ovipositional scars (Figure 10A) provide evidence of egg-laying. Depending on the number of slits per twig coupled with twig diameter, twigs may die thus giving the host a "damaged appearance" (Figure 10B). This is of aesthetic concern only.

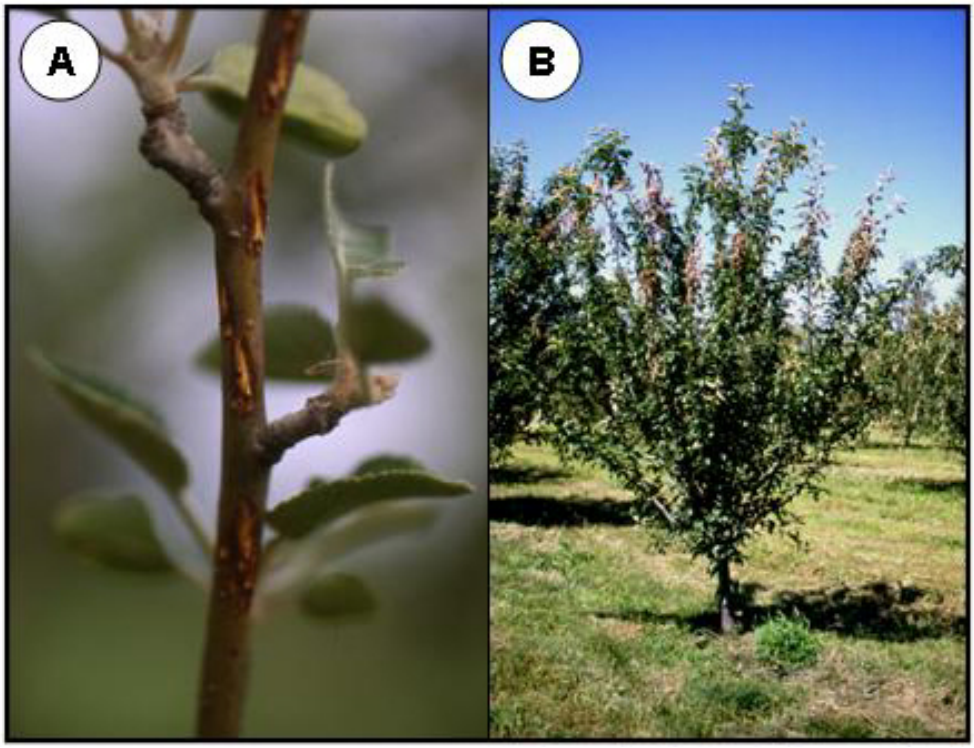

Figure 10

To complete the cycle, as previously mentioned, nymphs emerge from eggs and fall to the ground into which they immediately burrow and begin long 17-year (or 13-year) developmental cycle during which time they derive nourishment from sap/juices which they suck from the root systems of deciduous trees/shrubs/plants.

Bob Bauernfeind

Report from the Kansas State University Insect Diagnostic Laboratory:

The following samples were submitted to the Insect Diagnostic Laboratory from May 26th to June 2nd.

May 26 2011 – Neosho County – Moth pupa under a maple tree, possibly Noctuidae
May 26 2011 – Butler County – Seed bugs in stored products
May 26 2011 – Sherman County – Insect boring and woodpecker damage to Mugo pine
May 31 2011 – Phillips County – Termites in flower boxes
May 31 2011 – Sumner County – Scorpion found around home
May 31 2011 – Miami County – Millipedes in home
June 1 2011 – Geary County – Bed bugs in home
June 1 2011 – Anderson County – Carpet beetle larvae
June 2 2011 – McPherson County – Chalcid wasps in home
June 2 2011 – Leavenworth County – Spittle bugs in brome
June 2 2011 – Douglas County – Periodical cicada

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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