Kansas Insect Newsletter

For Agribusinesses, Applicators, Consultants and Extension Personnel

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Spider Mites and Pyrethroid-Based Pest Control Materials

Pyrethroid-based pest control materials with the active ingredients bifenthrin, cyfluthrin, permethrin, tau-fluvalinate, esfenvalerate, and lambda-cyhalothrin are commonly labeled for control of spider mites in gardens and landscapes including the twospotted spider mite, *Tetranychus urticae*. However, these materials may actually cause an increase in spider mite populations. The indirect effect of pyrethroid-based pest control materials on twospotted spider mite populations may not simply be the result of eliminating natural enemies such as predatory mites or disrupting natural regulation. In fact, most pyrethroid-based pest control materials, which typically have repellent activity, may cause twospotted spider mite populations to disperse within and/or among plants thus possibly increasing spread within a landscape or garden. Twospotted spider mites tend to disperse away from treated surfaces and colonize locations or other plants that have received different concentrations or less spray solution. However, the response time is dependent on the rate applied and the pyrethroid-based pest control material used. Pyrethroids in themselves may not have miticidal properties but other factors (e.g. surfactants or carriers) may be responsible for "suppression" of twospotted spider mite populations. The effect of pyrethroid-based pest control material applications on twospotted spider mite populations may vary depending on the product used. For example, permethrin and bifenthrin may induce spider mite outbreaks whereas fluvalinate may not since it is a miticidal (or acaricidal) pyrethroid. This is likely due to different behavioral responses of twospotted spider mites to the repellent activity. However, this response is dependent on the rate used and host-plant fed upon by twospotted spider mites. Previous exposure and/or life stages (larvae, nymph, or adult) present may also impact how twospotted spider mite populations respond to applications of pyrethroid-based pest control materials. Furthermore, pyrethroid-based pest control materials may stimulate changes in plant physiology thus possibly enhancing the nutritional value to twospotted spider mite, which is similar to the situation we are observing with imidacloprid (e.g. Merit).

Emerald Ash Borer in Missouri

On July 25, 2008, APHIS (Animal and Plant Health Inspection Service) positively identified the emerald ash borer (*Agrilus planipennis*), at the Greenville Campground of Lake Wappapello Recreational Area in Wayne County, Missouri. Seven adult specimens were collected from a purple prism trap. Missouri is now the eighth state in the continental USA to confirm the presence of the emerald ash borer. It is also present in Michigan, Illinois, Indiana, Ohio, Pennsylvania, Maryland, and West Virginia. This means that the emerald ash borer is approximately 200 miles from Kansas. The emerald ash borer is a small (1/8-inch long), metallic green beetle native to Asia. The larvae tunnel into the bark of ash trees causing trees to starve and die. The emerging beetles leave 1/8-inch D-shaped exit holes. The beetle has already killed an estimated 30 million ash trees in the USA. It is primarily spread by firewood, which makes sense that the finds in Missouri were near a campground. For more information on emerald ash borer consult the following website: www.emeraldashborer.info. Also, the Kansas Forest Service has developed Emerald Ash Borer Detection Kits, which provide valuable information on signs and symptoms of the emerald ash borer, and ash tree identification. For information pertaining to these kits contact the Kansas Forest Service (http://www.kansasforests.org). It is very important to be educated in order to avoid mis-identifying every insect as the emerald ash borer.

Raymond Cloyd

HUGE PRAYING MANTIDS …….

In the 1954 movie thriller “Them”, ants subjected to radiation from the testing of atomic weapons in the Arizona desert mutate into 20-foot specimens which prey upon people. In 1957 production of “The Deadly Mantis”, a giant prehistoric praying mantid, after spending eons in suspended animation encased in Arctic ice, is freed and eventually works its way southward to New York and Washington where it threatens to eat people.

Image Credit:

Gunnar Bengtsson

Poetry Connection

Well, the “giant mantids” in Kansas are neither mutants nor prehistoric monsters. Rather, they are Chinese mantids. There can be no mistaking a Chinese mantid! Reaching up to 5-inches in length, they are more than double the size of the Carolina mantid which is the largest mantid species native to Kansas. So how did Chinese mantids come to be in Kansas?

The first question should be, “How did Chinese mantids come to be in the United States?” The answer is easy: ---- they were purposely introduced into the United States for (unspecified) pest control in the late 1890’s after which they spread throughout southern New England and the northeast United States.

Now back to the question, “How did Chinese mantids come to be in Kansas?” Another easy answer: ---- Kansas gardeners have (over many years) purchased mantid egg cases to distribute in vegetable gardens in efforts to control garden pests.

And, the rest is history ---- over time, newly formed Chinese mantid egg cases survived Kansas winters to produce subsequent years’ generations of Chinese mantids. Slowly at first but with ever increasing speed, populations escalated to the point of their (now) being very common in Kansas. And due to their population build-up, many people are (for the first time in their lives) encountering Chinese mantids which (to the uninitiated public) are impressingly large.

So now that Chinese mantids are well established in Kansas, does that mean that our garden pests will be “naturally controlled”? The answer is, “NO!” In the first place, it is doubtful that Chinese mantids ever provided any control of any major garden pest. Consider that praying mantids (of any species) are over-hyped as effective biocontrol predators. Are they out and about searching: (1) potatoes for Colorado potato beetles and aphids?; (2) cole crops for “cabbageworms” and cabbage aphids?; (3) snap beans for bean leaf beetles?; (4) cucumbers for striped cucumber beetles?; (5) newly emerging melons for both stripped and spotted cucumber

beetles?; (6) squash and pumpkins for squash bugs?; (7) sweetcorn for newly emerged corn earworm larvae moving from silks down into ears per se?; and (8) tomatoes for spider mites and hornworms?. To each of these questions, another resounding "NO!"

Praying mantids are very ineffective as predators of plant/vegetable pests. Unlike effective predators such as (for example) lady bird beetles and their larvae which hunt and eat 24/7, and specialize on aphids, small caterpillars and mites, praying mantids are sit-and-wait "generalist ambushers" ----- whatever passes in front of them becomes their food ---- whether a pest, beneficial or "neutral" species. Additionally, praying mantid nymphs do not hatch/emerge from egg cases early in the season when spring crops are in production. Praying mantids are slow-to-develop, producing but a single generation per year. These are all negative marks against praying mantids being useful effective predators.

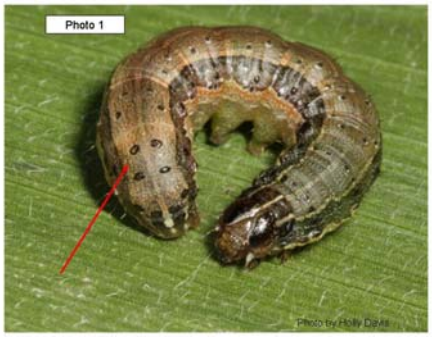
Perhaps the best that can be said for Chinese mantids is that they are fun to watch. As they sit in wait for prey, they will sort of follow your movements as the twist and crane their heads 300-degrees in either direction. And if offered a wiggly grasshopper or beetle, they are only to happy to snatch the offering from your fingers and munch away.

Bob Bauernfeind

Fall Armyworm on Corn and Sorghum

Fall armyworms have been very active on both corn and sorghum. These worms will probably continue to be a cause for concern until frost. Leaf feeding usually has little impact on yield and therefore treatment is not economically feasible unless 75% of the plants are infested with relatively small worms, for either corn or sorghum. Treatment timing is very critical. On silking corn, small worms may often be controlled prior to their entry into the ear or shank. However, once inside they are protected from insecticides. Some corn hybrids have genetic resistance to the fall armyworm. Sorghum head feeding may cause approximately 5% loss per head per worm much like corn earworm, but infestations need to be detected early to avoid potential damage. Head infestations may be controlled relatively effectively as the insects are fairly exposed while feeding on the grain, but again, they must be detected early before doing damage to the harvestable product.

See photo 1 for fall armyworm with the characteristic four dark spots arranged in a square near the rear of the larvae, and photo 2 for typical feeding damage.



Jeff Whitworth Holly Davis

Weekly Report from the Kansas State University Insect Diagnostic Laboratory:

The following samples were submitted to the Insect Diagnostician Laboratory from August 1st to August 7th.

August 04 2008: Douglas County – Potter wasp nests in White pine tree
August 04 2008: Pratt County – Lepidopteran eggs on rose bush
August 04 2008: Marion County – Lace bug nymphs on Sycamore Maple
August 04 2008: Cheyenne County – Possible spider mite damage on Juniper
August 04 2008: Scott County – Twospotted spider mites on Burning bush
August 04 2008: Cheyenne County – Twospotted spider mites on green beans
August 04 2008: Barton County – Drugstore beetles in kitchen
August 06 2008: Riley County – Yellowstriped fall armyworm in soybean
August 07 2008: Riley County – Dobsonfly – adult female found in home

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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