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Kansas Insect Newsletter

For Agribusinesses, Applicators, Consultants, and Extension Personnel

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Impact of Cold Weather on Plants:

The warm weather we experienced in early spring and then the sudden decline in temperatures in April was quite a shock to most plants as demonstrated by the damage to the new expanding growth. What is the impact of this “stress” on plants and how will it affect their susceptibility to insects? First of all, when plants are “healthy” they typically allocate resources for growth, defense, and storage. This balance allows plants to grow and minimizes problems from arthropod pests since plants are able to produce secondary compounds or metabolites, which are used to defend plants against herbivores, particularly wood-boring insects. Most wood-boring insects, both beetles and caterpillars, are opportunistic, and tend to only attack plants when they are unable to defend themselves. However, when a plant experiences “stress” such as when there is a sudden change in temperature, then resources are allocated toward maintenance growth (or survival growth) at the expense of the production of secondary metabolites. This can result in increased susceptibility to wood-boring insects.

So, what should you do? Well, be sure to avoid fertilizing plants unless needed since an abundance of fertilizer, especially nitrogen-based fertilizers, will increase a plant's susceptibility to wood-boring insects. Maintain proper irrigation, pruning practices, and mulching. In regards to mulching, avoid placing, especially a fine mulch, up against the base of plants since this will result in suffocation and provide a conducive environment for rodents such as voles to thrive. The voles will girdle the plants when feeding on the bark. Allow at least a 3 to 4 inch “gap” between the bark and mulch.

If there are concerns regarding the potential for problems with wood-boring insects then applications of imidacloprid (Merit) may be warranted; however, the active ingredient will only migrate up the vascular tissues if the plant is “healthy.”

If you have any questions or comments please feel free to contact me.

Raymond Cloyd

Accumulated GDD's: March 1 – April 25

Baxter Springs – 485.5; Clyde – 287; El Dorado – 364.5; Elkhart – 232; Ellsworth – 336; Emporia – 370.5; Garden City – 242; Hays – 241.5; Hiawatha – 303; Hutchinson – 348; Independence – 461.5; Kansas City – 347.5; Lawrence – 342.5; Manhattan – 330; Newton – 322.5; Olathe – 338; Pittsburg – 482.5; Saint Francis – 133.5; Salina – 336; Topeka – 374; and Wichita – 364.

Ash/lilac borer.....

To reiterate the introduction to GDD's set forth in KIN#3, the onset of current season activities for specific pests do not happen at a specific GDD number, but within a range of GDD's. As determined by pheromone trapping in the Manhattan area, the 2007 ash/lilac borer activities are underway. They were within the cited GDD guidelines of 275-500. As of April 18, 235.5 GDD's (approximately 40 GDD short of the low-end 275 GDD's) had accumulated. Their appearance after the April 24 morning flight period followed the previous day's 311 accumulated GDD's. Based on the Manhattan numbers and trap catch, ash/lilac borer activities likely are underway at most Kansas locations. Look to the above-listed accumulated GDD's for your location's status.

To treat or not to treat? The usual scenario is to consider control measures after it is established that an insect pest is present. For ash/lilac borers, if insecticide treatments are being considered, initiation should be 10 days after "first detection" which could be: the capture males in "sticky" pheromone traps; protruding pupae on ash, lilac or privet; the actual sighting of ash/lilac borer moths; and/or the observation of empty pupal cases.



Male Ash/lilac moths in pheremone sticky trap



Ash/lilac borer pupa



Ash/lilac Borer Moth



Empty pupal case

Lacking visual evidence, look to the accumulated GDD's to determine "the time frame" for the onset of ash/lilac borer activities. Trunk wraps or preventative insecticide treatments are especially warranted on newly transplanted as well as smaller ash trees which would be most susceptible ash/lilac borer feeding damage. Because large established trees are more able to withstand feeding damage because of their sheer size, trunk wraps are impractical and preventative treatments less critical. Yet, as an "insurance" against ash/lilac borer damage, preventative treatments are up to the discretion of the tree owner.

The active ingredient permethrin has been formulated into over 600 products registered for use in Kansas. Some of those are marketed for homeowner use against borer insects. Be sure to read entire product labels to ensure their legal use against the intended target pest. For instance, although a product marketed as "Uncle Joe's Borer Killer" might contain permethrin and seem to be the product-of-choice, the only borers included on that label might be the lesser peachtree borer, peach twig borer and European corn borer. In Kansas, one permethrin product listing "borers" (and specifically lilac borer ---- the same as ash/lilac borer) with wide distribution is Indoor/Outdoor Broad Use Insecticide. But others are available through various local retail outlets.

Bob Bauernfeind

Predicting the level of itch mite populations:

Entomologists are often asked for their predictions on how severe will populations of a particular pest insect be the upcoming season. If we could be so effective in making these predictions, I think many of us would have moved long time ago to more lucrative fields (e.g., the stock market). Thus, this is the time of year, early spring, when we start getting questions about how bad the populations of itch mites will be this year, although the mites will not be making their presence felt until late July – early August. To review the life history of these mites: They are predaceous on midges responsible for leaf marginal roll galls and smooth vein pocket galls in pin oaks and red oaks. But it isn't until July – August that the midge larvae are big enough to support a female mite to the phasogastric stage (fully gravid with a round, distended abdomen).

Critical to the colonization of an oak tree by midge larvae is the timing of adult midges emerging from their overwintering site (soil) to coincide with the oak leaves in a very early stage of formation to allow for the larval salivary secretions to perform their gall making function. We have been monitoring midge activity in trees in the Manhattan area and have documented leaves in the one-inch stage with numerous midge eggs; but a recent hard freeze has killed the new leaf growth. Thus this is a safe prediction to make, with a high probability level, that wherever the death of this new growth has occurred, it will result in very low populations of itch mites.

Alberto Broce

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Sincerely,

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