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Kansas Insect Newsletter

For Agribusinesses, Applicators, Consultants, and Extension Personnel

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Further Comments Regarding "Scale Insects"

Information on "Lecanium scale" was presented in Issue #6 of the 2003 Kansas Insect Newsletter. In this current issue (#8), additional comments are presented for the purpose of promoting a further understanding of scale insects and some of the hurdles which impede attempts to control them.

The strategy expounded by scale experts and cited in various literature sources is a "do-nothing-approach". It is their stance that natural control will occur after predators and parasites eventually move into infested areas, and rapidly increase their populations to sufficient levels to bring scale populations "under control". However, they acknowledge that this is a "hard sell" in situations where (for instance) massive scale populations infesting trees in an entire neighborhood are causing sticky 'honeydew" rain, blackened twigs and branches caused by buildups of sooty mold, yellowed foliage and (sometimes) twig and branch dieback.

Therefore, chemical controls become the method-of-choice when attempting to quash out-of-control scale populations. However, successful control with insecticide sprays applications is neither a simple task nor a quick fix.

Consider a single individual "street tree" which is heavily encrusted with European fruit lecanium scale (the scale species most likely to be causing the current concern). European fruit lecanium are very prolific (in one study, females produced between 951 to 3,142 eggs). Multiply this by (conservatively) the thousands of females infesting a tree. Next, consider the difficulty of achieving total coverage of exposed surfaces of branches, twigs and foliage of large 45 year-old pin oak, to say nothing about getting insecticides into microenvironments ----- cracks/crevices/nooks/crannies ----- where microscopic migrating scale crawlers would be protected at the time short residual insecticides are being applied. Take into account the necessity of applying treatments when crawlers are active (little achieved by untimely applications when still in the egg stage) and emerging from beneath the protective "test"/shell/covering of the dead female as they move to leaves where they settle and feed during summer. Add to this that crawler emergence/activities are not all simultaneous, and therefore an additional follow-up spray (or two) may be required. Lastly, multiply this single tree by the number of "street trees"

in an entire neighborhood (this does not even include other trees and shrubs and woody ornamentals on individual properties which likely have scale infestations which would serve as reinfestation sources). THUS, THE COMPLEXITY OF SPRAY APPLICATIONS CAN BE SEEN AND APPRECIATED!

Applications of systemic insecticide treatments may seemingly be "the magic wand" that people are looking for when attempting to control scale insects, especially "soft scales" such as "lecanium" scale. Certain trunk injectable insecticides are restricted use products RUP's), and as such, can be used only by certified arborists, who then must remain by their injector units until their removal after all of the insecticide has been taken into the tree. Uptake into trees may be slow-to-occur, and therefore trunk injections are not the seemingly simple process for quickly treating many trees. In addition, certain products may have a short residual period of activity, and therefore are most effective after scale crawlers have settled and are actively feeding on the foliage.

As opposed to being directly introduced into trees via trunk injections, some systemic products are labeled for application as soil drench or soil injection treatments. The insecticide is taken into a tree via its root system, and then circulated/distributed throughout the tree. The systemic insecticide (in this case) reportedly provides long-term (12-months) control. Therefore the timing of it's application is less restrictive. Because of it's mode of application, its uptake and distribution in trees is not immediate as compared to direct trunk injections. However, within 45 days after treatment application, its distribution within the tree/foliage should be complete. Thus scale crawlers will be killed as they feed on leaves.

Systemic treatments are not foolproof. Some investigators report that test results vary from being very effective to somewhat effective to having little effect. There are factors which influence systemic insecticide movement including soil types, soil moisture, placement of treatments, health and vigor of individual trees and temperature and air movement as effect transpiration rates and subsequent movement of liquids to replace transpiration losses. Also, systemic insecticides may not be equally distributed within an individual tree. This has been used to explain effective control of scale insects on one branch while scales were unaffected on an adjacent branch.

A period of time (months after application) may be required to assess the effectiveness of scale control. People incorrectly associate the continued presence of "old dead females tests/skins/covers" as an indication of control failure. At the time that insecticides were applied, those females were already dead after having produced their eggs. Throughout the course of the summer, most of those covers will flake off.

To assess scale control, individual leaves must be collected and examined for crawler activity. This requires a knowledge/picture of what crawlers look like, and also a hand magnifier or microscope to see/observe the small crawlers. Or, in the fall of the year, branches and twigs can be inspected for the presence of crawlers which have returned (from summer feeding sites) and are preparing to overwinter.

In no instance will there be a dramatic event signaling the end of a scale infestation. The cessation of "honeydew rain" should not be erroneously mistook as an indication of

treatment effectiveness. Rather (and simply) active feeding and honeydew production ended when females died off after producing their eggs. Blackened twigs and branches will remain darkened until such time that sooty mold buildups are washed away by rains, and winds and wind-borne dust particles. Dead branches and twigs do not spring back to life. The control of scale insects requires patience on the part of tree owners, and a realization/understanding that a period of time is required for trees to regain their desirable appearance.

Robert Bauernfeind

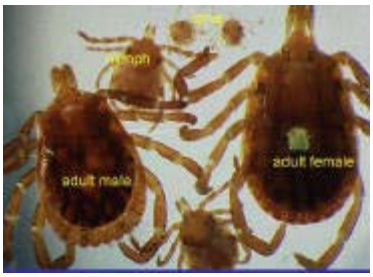
TICK SEASON HAS STARTED

With the warm temperatures and plenty of rainfall, ticks have become active and started seeking their hosts. Ticks are wingless, slow moving parasites with piercing-sucking mouthparts which they use to penetrate the host skin and suck blood. All stages (with the exception of eggs), including larvae, nymphs, and adults need blood to develop and survive (blood of animals or people is the only source of food/nutrients for ticks). Ticks are usually present in grass and plants around bushes, forest edges, and any other grassy areas which are protected from direct sunlight and maintain a relatively high humidity. Ticks always get on their host from the ground - they move from the grass onto the legs of the host and up to the other body parts. Ticks do not drop/jump down on the host from the trees. In Kansas, people get usually bitten by Lone star ticks (by all stages, larval stages are sometimes called “seed ticks”) or American dog ticks (by adults only). Occasionally, adults of the Brown dog tick or the Black-Legged Tick are also found on people. Ticks can transmit several human pathogens, including Borrelia burgdorferi and B. lonestari (causing Lyme disease), Francisella tularensis (tularemia), and Rickettsia spp. (ehrlichiosis). However, the number of disease cases caused by these pathogens within the past several years in Kansas is very low. Therefore, there is no reason to panic if you find a tick attached to your skin. Nevertheless, it is important to remove the tick as soon as you find it. If the tick is removed within 24 hours of the attachment, the chance of a pathogen transmission is extremely low.

American dog tick

Black legged tick - female

Brown dog tick



Lone star tick

How to remove attached tick: · Use tweezers or forceps with fine tips, grasp the tick as close to your skin as you can and slowly pull directly away from the skin surface. · Wash the bite area with soap and water and apply an antiseptic such as alcohol. · Do not pull sideways or twist. · Do not use heat, petroleum jelly, irritants, burning cigarette. IF you develop flu-like symptoms, headache, fever, or skin rash around the bite within 14 days after the tick bite, see your physician as soon as possible. If you saved the tick, take it with you for identification or send it to your local County Extension Agent or to K-State Entomology.

Personal protection: • If you live close to or go to a potentially tick infested area, it is a good idea to apply a repellent. Any product containing DEET (N,N diethyl-meta-toluamide) or Permethrin is an effective repellent against ticks (and also mosquitoes). Follow the instructions on the product label. • Examine your clothing and body if you have been in a potentially tick infested area. Wearing light-colored clothing makes ticks easier to see. • Cutting grass short will reduce a tick population on your yard/property • If you have a high tick infestation on your property, contact your local County Extension Agent or K-State Entomology.

Ludek Zurek

Soybean Aphid

Since soybean planting is well underway this is a good time to remind everyone about this potential soybean pest. As last year, we're interested in any fields infested with this aphid or any fields suspected of having an infestation. If you do have, or suspect you have, soybean aphids please call us ASAP (785-532-5891). We're attempting to track this infestation in KS and conduct insecticide evaluation trials under a variety of field conditions, as we have no insecticide data from KS at the present time. A brief background of the soybean aphid to refresh your memory. It was first detected in the U.S. in the summer and fall of 2000 with confirmed infestations in the upper Midwest, i.e., Michigan, Minnesota, Wisconsin, etc. By 2001 it had spread to our neighboring states Missouri and Iowa. Soybean aphids were first detected in KS in August of last year (2002) by the KS Dept. of Agriculture and have been recorded from five counties: Douglas, Franklin, Miami, Geary and Riley. Soybean aphids are the only aphids in North America to colonize and develop large numbers on soybeans. They are relatively small, light green aphids but the most distinctive feature are the black "tailpipes" (cornicles) at the tip of the abdomen. Infestations are first seen at the outer canopy on newer leaves and can start at any time from early vegetative through bloom. This aphid can transmit many

virus diseases which, depending upon the disease, may be exhibited by a mosaic or yellowing and green mottling of leaves or leaf distortion, and later may cause deformed pods, fewer pods or discolored seeds. No treatment thresholds or economic injury levels currently exist in KS. However, natural enemies are known to help control these aphids from other infested areas within the U.S. Information regarding the soybean aphid will be posted as it becomes available at http://www.oznet.ksu.edu/entomology/insectinfo/soybeanaphid.htm.

Jeff Whitworth

Russian Wheat Aphid Concern

Colorado has warned us to be on the lookout for Russian wheat aphids damaging Russian wheat aphid resistant wheat varieties, including Halt, Prairie Red, Prowers, 99, Yumar and Stanton. If anyone finds Russian wheat aphid damage in any of these varieties in Kansas, please contact us as soon as possible as we would like to obtain samples of the aphids to run tests and document the distribution of this phenomenon. An excellent place to look would be variety and demonstration plots.

Phil Sloderbeck and JP Michaud

Armyworm Alert

Oklahoma is reporting problems with armyworms from western OK. They are ranging from 1/2 to nearly an inch long, from 4-12 per foot of row. The following is from our 2003 wheat insect management guide.

Armyworms are vegetative feeders, and prefer plants in the grass family. Barley is readily attacked, but lush stands of wheat are also susceptible, especially in places where lodging is present. Larvae feed mostly at night. Look for signs of leaf destruction and for the worms in the debris around the base of the plants.

The worms vary from green to black, marked with stripes of various colors. The head capsule is light to medium brown and honeycombed with darker markings. Research is limited on infestation levels necessary to produce economic injury. Infestation levels may range from fewer than one to more than 20 per foot. Treatment at levels of less than four to five per foot usually is not considered necessary. The need for treatment is probable at infestations of five to eight per foot, but may vary depending upon larval maturity in relation to crop maturity. Higher infestation levels are likely to be damaging, assuming that larval development is not near completion by the time the infestation is discovered.

Experience suggests that wheat is likely to suffer loss in yield if the flag leaf is destroyed before the soft dough stage is completed. This point should be considered in making treatment decisions. At times worms may be forced to complete their food requirements by feeding on the beards and clipping the heads. Head clipping is serious in barley and should be prevented. Wheat, while less likely to be damaged in this manner, should be watched where worms are present and forced to feed on the upper parts of the plants.

Watch for the possibility of worms migrating out of nearly mature small grain fields into adjacent fields of corn and sorghum.

Treatment recommendations can be found in wheat insect management 2003 at: http://www.oznet.ksu.edu/library/ENTML2/MF745.PDF and in an article by Tom Royer at: http://entoplp.okstate.edu/Pddl/2003/PDIA2-10.pdf

Phil Sloderbeck

The Insect Diagnostic Laboratory received the following samples for the week of May 12 to May 16, 2003:

5-12-2003, Johnson County: Moth egg masses around home and yard.
5-13-2003, Geary County: Bark Beetles from home.
5-13-2003, Geary County: Dealated Winged Termites in home.
5-13-2003, Johnson County: No arthropods found in sample.
5-14-2003, Republic County: Bark Beetles in Red Cedar.
5-14-2003, Cheyenne County: Flatheaded Borers in Cedars.
5-15-2003, Norton County: Carpet Beetles in home.
5-15-2003, Anderson County: Horntail Wasps in Maple Tree.
5-16-2003, Washington County: Spiny Galls on plant.
5-16-2003, Sherman County: Metallic Wood Boring Beetle Pupae from trees.
5-16-2003, Leavenworth County: Male Combfooted Spider from home.

If there are any questions regarding these samples or the identification of any arthropod please contact the Insect Diagnostician (Bobby Brown) at 785-532-6154 or at bbrown@oznet.ksu.edu.

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Sincerely,

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