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Kansas Insect Newsletter

For Agribusinesses, Applicators, Consultants, and Extension Personnel

Department of Entomology
239 West Waters Hall
K-State Research and Extension
Manhattan, KS 66506-4027

Tel: 785-532-5891
Fax: 785-532-6258



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Lecanium Scale:

There have been numerous recent reports of scale insect infestations on many deciduous tree species in the Wichita vicinity. Invariably, the scales are described as “lecanium scale”. “Lecanium scale” is a commonly used name for over a dozen different commonly related scale species. Positive scale species identification is only possible by the microscopic examination of slide-mounted specimens by experts specializing in scale insects. Even then, scale insect specialists are unable to consistently identify (with certainty) which species are which. One complicating factor is “host-induced morphological variation” where the coloration, shape and size of the same scale species varies depending on its host.

Because most “lecanium” species have very similar seasonal life cycles and developmental rates, exact species determinations may be a moot point. In all likelihood, the “lecanium scales” in question are European fruit lecanium scales, *Parthenolecanium corni* (Bouche). This is based on the unlimited deciduous host range which includes most shade and fruit trees and woody shrubs and ornamentals.

Generalized life cycles and biological parameters have been determined for but a few of the more economically important species. The European fruit lecanium is one of these. As their generic name implies, European fruit lecanium scales mainly reproduce parthenogenetically. Males are uncommon. While the exact developmental sequences for European fruit lecanium scale have not been studied and documented for Kansas, the following description is likely to be fairly accurate.

European fruit lecanium scale overwinter as immobile immature females on the twigs of their host. They mature in early spring, and eggs are produced by the beginning of May. Eggs hatch by mid-to late May, producing motile 1st instar (instar = developmental stage) nymphs called “crawlers”. Crawlers move to leaves where they feed throughout the summer. In late summer, 2nd instar nymphs move back to twigs and branches where they settle. After inserting their stylet mouthparts into host vascular elements, European fruit

lecanium scales enter their third and final developmental stage. Lacking legs, they begin the sedentary portion of their life which leads into their overwintering phase.

Generally speaking, there are natural factors which keep scale insect populations “in check”. Climatological factors such as temperature and humidity regulate scale insect populations. Additionally, naturally-occurring populations of predatory and parasitic species aid in the suppression of scale insect numbers. When environmental factors favor the development of scale insects, especially when coupled with conditions/situations which adversely affect populations of beneficial insects, scale populations can erupt. Furthermore, stressed trees are more susceptible to feeding damage of uncontrolled scale populations. All of these factors are responsible for the current extensive outbreak of European lecanium scale.

The first indication of scale problems may be the thinning out and the chlorotic appearance leaves (Figure 1). Twig/branch dieback and an overall blackened look (Figure 2) may follow. Upon closer inspection, scale encrustations are easily observed (Figure 3). European fruit lecanium are “soft scales”, and as such, characteristically produce excessive amounts of sticky liquid excrements (“honeydew”) which coats twigs and branches. Honeydew is an excellent substrate which supports the growth of the sooty mold fungus which accounts for the “blackened appearance” (Figure 4, upper twig).



Figure 1



Figure 2



Figure 3

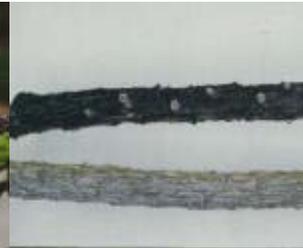


Figure 4

Massive scale population outbreaks are difficult to control. For 2003, the time has passed for the use of horticultural oil sprays as dormant-season applications. Horticultural oils may still be applied at rates (usually) half the concentration when used as dormant treatments. Oils are very effective against all scale life stages, but must directly contact the intended target. Applications are best applied to branches and twigs while crawlers are still confined to those areas. Control with oil treatments becomes more difficult after crawler populations become more dispersed, and is further complicated by their habit of feeding on the undersides of leaves where sprays are apt to miss. An additional impediment to achieving control is size of host. The larger the tree, the greater the area for scales to inhabit, and the more difficult to reach/apply treatments. Oils provide no residual control.

Traditional insecticides (which cause nervous system disruptions) are intended for use against the scale crawler stages. Therefore, it is essential that treatment applications be timed to coincide with the presence of active crawler stages. This requires that close observations be made for the purpose of determining when crawler activities begin. Once again, after crawlers have moved to leaves, efforts to control become more complicated for reasons previously presented.

Systemic insecticide treatments can be used for controlling soft scale species. Systemic insecticides can be directly injected into trees, or applied as drench treatments to or injections into the soil beneath trees/shrubs. In the latter two instances, the insecticide must be taken into tree/shrub root systems. Once inside, systemic insecticides circulate to all actively growing plant tissues, the very sources from whence scale crawlers and adult stages actively feed.. The cost and utilization of systemic insecticides is higher than that for traditional insecticides or oil treatments. However, with proper dosages, application techniques and moisture conditions, a higher degree of control is likely to be attained. In addition, injections and/or drench treatments can be applied under windy conditions when sprays cannot be applied. Another added benefit is that populations of beneficial predators and parasites are left intact, as opposed to the situation with insecticide sprays where non-target insects are inadvertently killed.

Robert J. Bauernfeind

FLY CONTROL NEWS

Ear tags for the **HORN FLY** control

Bayer company has introduced two new ear tags for controlling horn flies on beef and non-lactating cattle.

1. **CyLence® Ultra** contains 8% pyrethroid called beta-cyfluthrin and 20% synergist chemical piperonyl butoxide. This can be used for control pyrethroid susceptible horn flies, and it should help to manage face flies. Cost: \$ 1.50/tag
2. **Co-Ral® PLus** is based on two organophosphates (OP), diazinon (20%) and coumaphos (20%). This ear tag should control horn flies, including pyrethroid resistant horn flies and ticks (Gulf coast tick, Spinose ear tick). Cost: \$1.50/tag

My recommendations for using ear tags in general are:

- A. One ear tag per animal is good enough. (The difference in efficacy between two versus one ear tag per animal is very small).
- B. Not all animals need to be tagged to gain good horn fly control. Actually, tagging every third animal with one tag will provide good control. That's because horn flies do move between animals and eventually will take blood from an animal that has been tagged.
- C. Rotate tags: two years on OP -- one year on Pyrethroid -- two years on OP -- etc.....Don't pay your attention to colors or commercial name of the product. Read the label and find out if the active substance belongs to OP group or Pyrethroids.
- D. I recommend controlling/reducing face flies only if they show up in very large numbers or the cattle has pinkeye infection (caused bacterium *Moraxella bovis* that is transmitted by face flies).

New products for the **HOUSE FLY** control

Bayer has introduced a new bait for house flies **QuickBayt™**. It contains imidacloprid (0.5%), sugar, and two other attractants. This is available in

granular form in 5 lb (\$ 20-30) and 40 lb (\$125-170) buckets. It is labeled and effective against house flies (not stable flies or horn flies) around any animal production facility. It can be applied as a) scatter application on dry surfaces, b) Bait station - it can be placed in any bait station (it has to be inaccessible to animals, children, pets), c) Paint-on application (mixing 1.5 oz bait with 1 quart water) - it forms a paste that can be applied with a brush on the surfaces where house fly rest. Make sure you follow the label for use and safety.

Starbar has had [QuickStrike® Fly Abatement Strip](#) on the market for a few years that controls house flies quite well. It is based on nithiazine (1%) with sugar attractant. It works very quickly, it kills house flies in a few seconds. It is a strip (sold in package of two for \$16.00) and can be used anywhere you might have troubles with house flies (Garbage piles, feed bunks, parlors, kennels, poultry and swine houses, feedlots, restaurants, grocery stores etc.....).

House flies do not bite, they are a nuisance factor and can transmit food-borne and animal pathogens. They generate brown, yellow spots/specs on the walls and other surface they rest on (unlike stable flies that feed on blood and form dark red or black spots). House flies develop in any organic material (manure, garbage, spilled feed...) of any age.



Horn flies, both females and males, bite and feed on blood of animals. They are about a half size of the house fly. Horn flies usually aggregate on the shoulders, back, and sides of animals. During very hot days they move on the underside of the belly. Unlike most other flies they stay on the animal and leave only when disturbed or when females lay eggs into very fresh (several minutes old) animal feces.



Ludek Zurek

The following samples were submitted to the Insect Diagnostic Laboratory for the week of April 28-May 2, 2003:

4-30-2003, Riley County: Sawfly Larvae on Gooseberry leaves.
4-30-2003, Riley County: Seed Weevils on Stevia plant.
4-30-2003, Harvey County: Minute Scavenger Beetle in home.
4-30-2003, Harvey County: Hackberry Psyllids in home.
4-30-2003, Shawnee County: Red Mound Ants in hay meadow.
5-1-2003, Wabaunsee County: Winged Termites from garage.
5-2-2003, Lyon County: Ash Plant Bugs, Ash Midrib Gall Midge from trees.

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

Robert "Bobby" Brown

Brand names appearing in this publication are for product identification purposes only. No endorsement is intended, nor is criticism implied of similar products not mentioned.

Sincerely,

Robert J. Bauernfeind
Extension Specialist
Diagnostician
Horticultural Entomology

Ludek Zurek
Medical & Veterinary
Entomology

Bobby Brown
Entomology