Kansas Insect Newsletter

For Agribusinesses, Applicators, Consultants and Extension Personnel

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Revised Publication

2009 version of Wheat Variety Disease & Insect Ratings is now on the web at: www.oznet.ksu.edu/library/plant2/mf991.pdf. Printed copies should be available in a few days. This document discusses the disease and insect resistance of common wheat varieties and should be a useful resource when selecting which varieties to plant this fall. The document is revised yearly, since disease and insect ratings change over time as new biotypes develop.

Phil Sloderbeck

If you have not yet treated for bagworms, NOW IS THE TIME ……..

It seems like yesterday that the 2009 bagworm season began in the Manhattan area (likely earlier in southern counties). In KIN #10, the first appearance of newly hatched larvae occurred on May 14. It was also stated that bagworm egg hatch occurs over a 4-5 week period.

For people who undertook a "2-spray per season program" (Spray #1 applied the last week of May – first week of June), now is the time for the follow-up treatment. People who waited until the 2nd or 3rd week of June may question the need for the second application because their cedar /juniper plantings may appear fine (green and healthy). The second application could be eliminated if after closely inspecting those plantings, bagworms are absent or but few in number.

For people who opted for the 1-spray regimen NOW IS THE TIME FOR THAT SINGLE TREATMENT!

It is apparent when driving around town that there are trouble spots that have not received attention. As often happens in a line of plantings, the problem(s) may be confined to restricted areas (Figure 1).

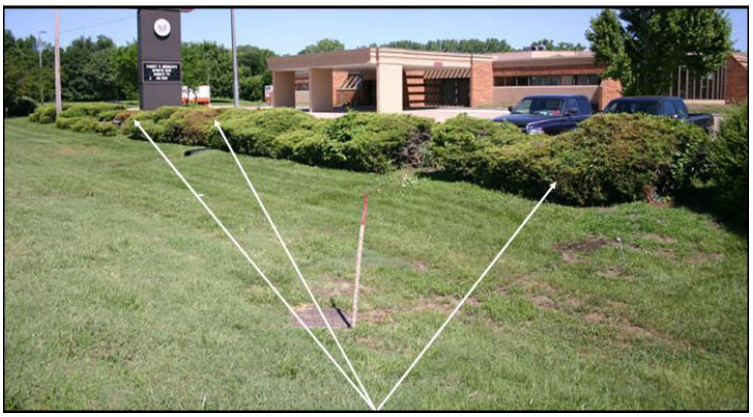


Figure 1

When zeroing in on a problem area (Figure 2),

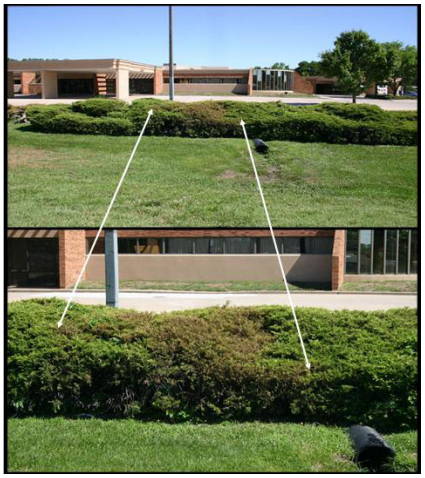


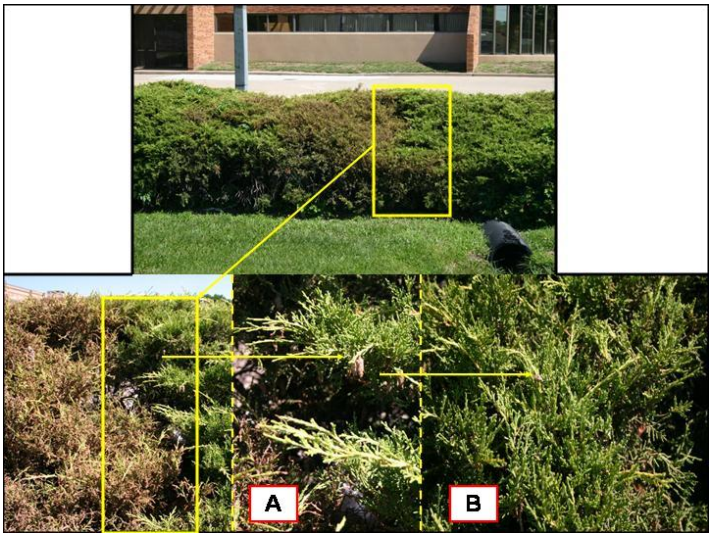
Figure 2

The brunt appearance is due to a near-complete absence of green foliage as compared to “healthy” areas (Figure 3).

Figure 3

It was interesting to note that despite there not being a whisper of a breeze, there was a lot of movement in the "burnt areas": alive with uncountable numbers of half-grown bagworms. It was apparent that this hedge planting had not been addressed the previous year as evidenced by the many "old bags" that were present ---- and obviously the source of the current bagworm population.

Comes the question: "If a groundskeeper were to apply an insecticide treatment, would the treatment need to be applied to the entire line of junipers?" The answer is, "No". These outbreaks are fairly well confined. In this type of situation, a person can determine the area(s) to which insecticide applications can be restricted. There is a clear delineation between the "hot spot" and transition area (Figure 4 – within the yellow box). In this instance, there is a bagworm movement onto the "healthy" neighboring host (Figure 4 – A), but the further removed from the source of the infestation, the fewer-to-no bagworms are found (Figure 4 – B). So treat to the point where the limit of their movement ceases.



Products containing any of the following active ingredients are especially effective against bagworms: acephate, bifenthrin, carbaryl, cyfluthrin, lambda-cyhalothrin and permethrin. There may be some concern that non-target insects including "beneficials" will also be eliminated because the above-mentioned active ingredients are broad spectrum insecticides. However whatever (undefined) beneficial species (against bagworms) might be present, it is obvious that they are not keeping the bagworms "in check". These current trouble spots require a quick knockdown rescue treatment to prevent further (and possibly permanent) damage.

Bob Bauernfeind

Lace Bugs

This is the time of year when lace bug nymphs and adults are present feeding on a variety of plant types. In general, lace bugs are considered an insignificant ornamental insect pest because they don't usually inflict direct harm to trees and shrubs. However, extensive populations may reduce the aesthetic appearance of certain plant types. Lace bugs feed on a wide-range of trees and shrubs including azalea, basswood, cotoneaster, flowering

quince, hawthorn, linden, oak, rhododendron, and sycamore. They will also feed on herbaceous plants such as aster, chrysanthemum, and scabiosa. The major plant-feeding lace bug species include *Stephanitis* spp. and *Corythuca* spp. *Stephanitis* spp. primarily feed on broad-leaved evergreens, whereas *Corythuca* spp. feed on deciduous trees and shrubs.

Lace bugs feed on the underside of leaves, using their piercing-sucking mouthparts to withdraw plant sap from individual leaf cells, which cause leaves to appear, stippled and bleached. Damage is very similar to that caused by spider mites and leafhoppers; however, lace bugs leave black, tar-spot like droplets of excrement on leaf undersides. The presence of the black excrement distinguishes lace bugs from spider mites and leafhoppers. Extensive lace bug populations (both nymph and adult) and feeding may reduce plant vigor, depending on plant age and size, creating undue stress that may increase susceptibility to other insect pests or diseases.

Adult lace bugs are very distinguishable and quite attractive with lacy, clear, shiny wings that are held flat over the body. The adults are 1/8 to 1/4 inch long (3 to 8 mm). They tend to move sideways when disturbed as opposed to flying. Female lace bugs lay between 20 to 50 eggs underneath leaves, which are placed primarily alongside leaf veins. The eggs are black and shaped like a wine flask. Eggs hatch into shiny black nymphs with spines. The nymphs undergo five instar stages before reaching adulthood. Shed cast-skins on leaf undersides are evidence of nymphs that have transformed into adults. It usually takes about 30 days to complete the life cycle (egg to adult).

Lace bugs may have as many as three generations per year, depending on temperature during the season. *Stephanitis* spp. overwinter as eggs that are cemented onto leaves, whereas *Corythuca* spp. overwinter as adults in bark crevices and branch crotches. Adult activity begins in the spring when leaves emerge. Lace bugs tend to occur in higher numbers on plants such as rhododendron and azalea that are located in sunny areas, more so than on plants in shady locations.

Management is generally not a concern because lace bugs are susceptible to a multitude of natural enemies including predators such as green lacewings, plant bugs, assassin bugs, minute pirate bugs, and spiders. If feasible, washing lace bugs off plants with a hard water spray may be effective. Additionally, this procedure preserves existing natural enemies. If warranted, pest control materials that may be useful in managing lace bugs on ornamental plants include acephate (Orthene), carbaryl (Sevin), cyfluthrin (Tempo), potassium salts of fatty acids (Insecticidal Soap), and clarified hydrophobic extract of neem oil (Neem Oil). As lace bugs are located on the underside of leaves, thorough coverage of leaf undersides is important.

Raymond Cloys

What Is The Impact Of Drought Stress On Plant-Insect Interactions?

As we proceed into the heat of summer, typically resulting in warm and dry conditions throughout the state, it is important to understand how these conditions oftentimes lead to drought stress, which may create more problems with plant-feeding insects and mites. Excessive heat accelerates insect and mite pest development so that it takes less time to complete their life cycles (egg to adult) or generation time. Also, the presence of natural fungi in the environment serves to regulate populations of caterpillars, aphids, beetle larvae, and many other insect and mite pests. These fungi are more prevalent and "aggressive" when the weather conditions are cool and moist; however, under warm and dry conditions, populations of these natural fungi decline, which allows insect and mite pests to survive.

Drought stress, which is commonly considered a temporary state, is the lack of sufficient moisture to maintain plant turgidity and reduces the plant's ability to conduct biochemical processes that allow cells to function. This typically occurs when the rate of transpiration from plant leaves and evaporation from the soil exceeds the capacity of roots to absorb water, due to a lack of sufficient irrigation or rainfall, leading to a decrease in plant water potential. The effect of drought stress varies, depending on the feeding behaviors of insect and mite pests. For example, insect pests with piercing-sucking mouthparts such as aphids, whiteflies, scales, and plant bugs usually benefit more from dry conditions than insects with chewing mouthparts including caterpillars, beetles, and sawflies. Furthermore, stress due to inadequate soil moisture, often increases susceptibility to wood-boring insects and bark beetles. Plants experiencing drought stress decrease the production of compounds such as oleoresin, which act to deter feeding by wood-boring insects—thus increasing susceptibility. In addition, water-deficient trees and shrubs may emit volatile chemicals such as ethanol and alpha-pinene, which are attractive to many types of wood-boring insects. Wood-boring insects use these chemical cues to help them locate plants in which the natural defenses have been compromised due to insufficient water availability. For example, a lack of moisture in the upper tree canopy may result in localized areas of cambium and phloem tissue degradation, which are attractive to wood-boring insects such as bronze birch borer (*Agrilus anxius*) females for egg laying. Moreover, the colonization success of bark beetles increases when trees are stressed due to a lack of moisture as this weakens the natural defenses of trees, which enhances their susceptibility.

Inadequate soil moisture can also lead to the incidence of higher populations of the twospotted spider mite, *Tetranychus urticae* because there is less moisture in the air from evaporation. Lower relative humidity and drier conditions tend to favor development and reproduction of twospotted spider mite. Also, twospotted spider mites increase their feeding activity under dry conditions as the dry air or low relative humidity allows them to easily acquire excess water (or higher moisture contents) in plant leaves, which is then excreted by the spider mites.

Insect and mite pests are influenced by drought or dry conditions by a number of mechanisms. First, dry conditions provide a favorable thermal environment for development of plant-feeding insects and mites. Second, drought-stressed plants (trees and shrubs) are more attractive and susceptible to insect pests. As plants lose moisture through transpiration, the water columns in the xylem cavitate or break apart, producing ultrasonic acoustical emissions that are sensed by many bark beetles, luring them to stressed plants. Third, drought-stressed or water-deficient plants are more suitable for insect pest growth (e.g. increased larval weight), survival, and reproduction because plant nutrients are more concentrated in areas where they feed. Furthermore, water-deficient plants are susceptible to insect pests due to a decline in the production of secondary metabolites or defensive compounds. Fourth, drought or dry conditions increase insect pest detoxification systems. For example, it has been hypothesized that insect pests feeding on drought-stressed plants are better able to break down certain plant allelochemicals or defensive compounds that would normally negatively affect them. Overall, drought stress induces changes in plant quality, which improves the performance, in most cases, of plant-feeding insects and mites.

Raymond Cloyd

Burrowing bugs, *Sehirus cinctus*

We receive several calls every year about "hordes" of small black bugs, usually in soybeans, but can be in any crop. They closely resemble stinkbugs, but in all the visits I've made to these locations they have turned out to be burrowing bugs (see photos of nymph and adult). These bugs feed primarily on weeds, especially henbit, but when this food source is killed with an herbicide, they move to the next available host. Sometimes there can be so many of them that it looks, literally, as if the ground is moving. This is usually not a field-wide phenomenon but only occurs in those spots where weeds are abundant. They may crawl all over several plants in the area but I have never seen or heard of them actually causing any permanent damage. They seem to just naturally disperse as they become adults and cannot be found aggregating on the plants afterwards. There is no treatment recommendation.

Jeff Whitworth Holly Davis

Potato Leafhoppers

Sampling recently swathed alfalfa fields in North Central Kansas indicated substantial populations of potato leafhoppers. Most plants were in the 4-6 inch range, which indicated a treatment threshold of 0.5 hoppers per sweep. We sampled several locations in each field with 10 sweeps per location, and in each case, we stopped counting at 50 leafhoppers per sample and there were many more left uncounted in the bag. So, that equates to at least 5 times the treatment threshold. For control recommendations please see 2009 Alfalfa Insect Recommendations at:

http://www.oznet.ksu.edu/library/ENTML2/MF809.pdf

Green Stinkbugs

Anyone with a substantial infestation of green stinkbugs on whorl-stage corn, or corn that is just setting ears, please call Holly or I. My number 785-532-5656 (office); 785-565-2371 (cell); or e-mail at jwhitwor@ksu.edu; holly3@ksu.edu.

Jeff Whitworth Holly Davis

Change in Commercial Pesticide Applicator Certification Exam Fees

Starting July 1, 2009, the exam fees for Commercial Pesticide Applicators will be changed to $45 for each exam. That is $45 for a General exam, $45 for each category or subcategory exam and $45 for each exam retake. One consideration that will remain the same is that the applicant has one year to become certified from the date they started testing. The applicant must pass both the General exam and a category or subcategory exam in that year. After that year has passed, the applicant starts over, even if they have passed one of the exams. The Commercial Applicator Certification Exam Schedule is listed on the web at: http://www.ksda.gov/includes/document_center/pesticides_fertilizer/Certification/examschedule.pdf.

For those already certified the recertification training programs are listed on the web at: http://www.ksda.gov/includes/document_center/pesticides_fertilizer/Certification/RecertTraining.pdf

Phil Sloderbeck

Report from the Kansas State University Insect Diagnostic Laboratory:

The following samples were submitted to the Insect Diagnostician Laboratory from June 26th to July 1st.

June 26 2009 Rawlins County – Mites in home
June 26 2009 Pratt County – Argid sawfly on hollyhocks
June 29 2009 Logan County – Wolf spider with spiderlings in yard
June 29 2009 Geary County – Springtails around water cooler
June 29 2009 Ottawa County – Millipedes in home
June 30 2009 Osage County – Carpet beetle larvae in home
July 01 2009 Riley County – Dwarf spider in home
July 01 2009 Ford County – *Lasius* sp. ants in lawn
July 01 2009 McPherson County – Leaf beetle (*Rhabdopterus*) on rhubarb
July 01 2009 Norton County – Carabid beetle on outside of building and geraniums

July 01 2009 Leavenworth County – Springtails in homes (2 samples)
July 01 2009 Norton County – carpet beetle larvae 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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