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KENTUCKY PEST NEWS

ENTOMOLOGY • PLANT PATHOLOGY • WEED SCIENCE
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WATCH FOR:

GIANT BARK APHIDS twigs of sycamore and other deciduous trees; **APHIDS** in wheat; Fallen twigs from **TWIG GIRDLERS**; Nuts infested with **PECAN** or

FORAGE

GREEN JUNE BEETLES IN ESTABLISHING FORAGES
by Lee Townsend

Green June beetle grubs look like typical white grubs but have a unique behavior that makes them occasional but serious pests in fall and spring forage seedings. Most white grubs remain below the soil surface where they feed on plant roots. In contrast, green June beetle grubs frequently travel to and on the surface while feeding on decaying organic matter. The grubs can occur in virtually any field but are most abundant where there is some rotting hay, silage, or animal manure. Fields under an intensive grazing regime or where poultry litter is spread are at higher risk.

Seedlings are uprooted as the grubs backstroke along, plowing the soil surface. They churn the top 4 inches of soil breaking root- soil contact which kills seedlings, creates dead spots or unacceptably thin stands, and produces bare areas that allow weed emergence. Numbers can be high in established grass or alfalfa fields but the damage potential is not as great.

The green June beetle grub is dirty white with a reddish brown head and legs. They may be found just below the surface in areas where the soil has been disturbed. The grubs typically move on the surface at night but may be forced up by heavy rain or flooding. The presence of 3 to 4 grubs per square foot can disrupt new stands, heavy infestations can have densities of 15 to 20 grubs per square foot. Grubs can move 60 feet or more along the surface in search of higher concentrations of organic matter.

Since green June beetle grubs move to and across the soil surface, they are susceptible to an insecticide application. They tend to die and rot on the surface, which produces a very unsatisfactory situation. In addition, birds feeding poisoned grubs may be poisoned. There is nothing to gain from a treatment at this time.

In Kentucky, green June beetle adults begin to emerge from the soil in late June. The population peaks in the last half of July and most are dead by mid-August. Females lay clusters of about 40 eggs a few inches below the soil surface of soil rich in organic matter. The eggs hatch in about two weeks and the larval stage is present until pupation in late May or early June. The pupal stage occurs in a earthen cell in the soil and lasts 2 to 3 weeks. There is one generation per year.

SHADE TREES & ORNAMENTALS

APRIL FREEZE DAMAGE REVISITED
by John Hartman

The effects of the "Easter freeze" in early April have been apparent most of the growing season and are still being observed on many landscape trees. Most readers may recall that a particularly warm spring featured March and very early April temperatures 9 to 13 degrees above normal with 13 to 25 days having temperatures 70 degrees or above. Some locations had as many as 12 days above 80. These warm temperatures broke winter dormancy and accelerated flowering and shoot growth so that plant development was advanced by 2 or 3 weeks. A record-setting Easter-time freeze dropped temperatures drastically; indeed, in some Kentucky locations, the temperature dropped from 80 to 29 degrees on April 5. This was followed by 5 consecutive days with low temperatures

below 30 degrees statewide, with lows of about 22 degrees for several nights, and with some locations falling to 18 degrees F.

Many tree species had green, elongating shoots appearing before the cold arrived. Due to the freeze, many of these tender shoots drooped, died, and shriveled up with some dead shoots remaining on the tree most of the summer, though most dropped after a few weeks. Most landscape trees and shrubs that lost foliage sent out new shoots from latent buds, but at a cost of stored energy reserves. In addition to shoot dieback, hidden injury to cambial tissues occurred and much of this damage was not noticed for several more weeks or months.

Trunk damage - loss of bark. In spring and certainly by mid-summer, large chunks of bark were seen to be loosening and falling from maples, crabapples, and other species. This phenomenon was observed almost exclusively on relatively young trees, trees transplanted into the landscape or nursery only a few years before. The foliage of affected trees emerged and developed because xylem tissues were still functioning. Some of these trees died in mid-summer and others, because of the bark damage, developed chlorotic or scorched leaves. Where cambium is still active, and trees are alive, affected trees are producing new bark from the edges of the missing patches.

Trunk damage - vertical cracks. Vertical cracks in the bark were visible Easter morning on some species such as crepe myrtle where, with freezing temperatures, ice ribbons developed all up and down the trunk and main limbs. These small trees died and later in the simmer produced new growth from the below-ground root system. A collection of bur oaks, planted during recent years in Louisville, showed decline symptoms including branch dieback, epicormic shoot growth, and sometimes tree death. All trees had numerous vertical cracks on the trunk, and where trees were recovering, new woundwood was forming at the margins of the cracks. From several oaks, samples from bark and wood tissues surrounding these cracks were cultured in the Plant Disease Diagnostic Laboratory for possible infectious fungi. A number of fungal saprophytes were isolated, including at least three different species of *Fusarium*, an isolate of *Trichoderma* sp., and at least in one case, a culture consistent with the oak wilt pathogen, *Ceratocystis fagacearum*.

Limb and branch dieback in spring. Japanese maples were especially noted for permanent loss of foliage on branches and limbs, sometimes clear back to the trunks. By the middle of the season, tree owners were having to drastically prune their trees so that the trees could develop a new branch system from trunk and limb sprouts.

Twig and branch cankers. In mid-to-late summer, leaves on small twigs of some pin oaks and red oaks were seen to develop dieback. Dieback likely developed due to cankers which appeared as dark, slightly sunken lesions on the twigs. The fungus *Botryosphaeria* was associated with these dead twigs though other fungi could be involved. Ash, redbud, and dogwood trees also developed similar cankers and many species of trees showed numerous dead branches and limbs by late summer. Trees weakened by the spring freeze were vulnerable to canker-causing fungi that prey on stressed trees. Prolonged and severe drought this summer would also have increased vulnerability of landscape trees to canker diseases.

Thus, landscape trees have suffered greatly from adverse weather conditions in 2007, beginning with the April freeze. Tree owners will want to provide good growing conditions, by providing adequate water and pruning out dead wood to assist stressed trees to survive. Additional fertilizer is probably not helpful in most cases. We can also hope for more favorable weather for landscape tree culture next year so trees can rebuild their energy reserves.

TWIG GIRDLERS
by Lee Townsend

Twig girdlers are species of longhorned beetles that have a very distinctive approach to laying their eggs. Females select twigs about the diameter of a fat pencil and chew deep, narrow grooves that leave about a 2 foot-long section attached by only a slender piece of heartwood. The brown beetles crawl along the terminal portion and make small notches in which the eggs (about 5 to 20) are placed. Girdled twigs, which contain eggs and white legless larvae, soon break and fall to the ground. The results of this handiwork can be seen littering the ground under a variety of trees including hickory, pecan, and oak. Twig pruning produces growth deformities that affect the shape and appearance of small trees.
Collection and destruction of fallen twigs is the most effective means of reducing the potential infestation for next year. Application of insecticides to control these insects has not been very satisfactory.

HOUSEHOLD

THE LADYBUGS ARE COMING
by Mike Potter

Clients soon may be calling about lady beetles congregating on the sides of homes and infesting buildings. This phenomenon has become an all-too-common autumn event throughout Kentucky and much of the United States. The culprit is the Asian lady beetle, *Harmonia axy-*

ridis, in search of protected places to spend the winter. In Kentucky, movement into buildings typically begins in mid-October, continuing through mid-November.

Detailed information on this perennial problem is contained in ENT-64, *Asian Lady Beetle Infestation of Structures*. Key points include:

1. Lady beetle flights are heaviest on warm sunny days (after a period of cold weather) when temperatures climb above 60 degrees F. They tend to congregate initially on the sunnier, southwest sides of buildings in mid-afternoon. Structures that are shaded and not brightly illuminated by afternoon sun are less likely to attract the beetles.

2. Once the beetles alight, they attempt to enter crevices and other dark openings in search of hibernation sites. These locations may be anywhere on the structure, but especially beneath exterior siding, around window and doorframes, soffits, fascia boards, and through weep holes and attic or crawl space vents. Sealing exterior cracks and openings with caulk, screening, weather stripping, etc., is the most effective long-term, prevention against beetle entry. (See ENTFACT-641 *How to Pest-Proof Your Home.*)

3. Once the beetles are indoors, the best way to remove them is with a vacuum cleaner. When brushed or handled the beetles often secrete a yellowish-orange fluid, making vacuuming a better option for indoor removal than brooms, mops, etc. Insecticides applied indoors tend to be ineffective and may stain or leave unwanted residues on walls, counter tops, and other surfaces.

4. While sealing exterior openings is the more permanent means of denying ladybug entry, pest proofing is time-consuming and impractical for many clients. If a household or business continues to be troubled by lady beetles, owners may want to enlist the services of a professional pest control firm. Some companies offer pest proofing services and many offer insecticide treatment of the building exterior, which helps to prevent pest entry. Fast-acting, "professional strength" pyrethroid formulations (e.g., Demand, Suspend, Talstar, Tempo) tend to be most effective, and can be applied around eaves, attic vents, windows, doors, underneath siding, and other likely points of entry.

Homeowners insistent upon applying exterior treatments themselves will usually get the most for their efforts using over-the-counter versions of these products such as Spectracide Triazicide or Bayer Advanced Powerforce Multi-Insect Killer. Purchasing the concentrated formulations of these products that can be diluted will enable the homeowner to mix up and apply larger volumes of material with a pump-up or hose-end sprayer. *In order to have any benefit, exterior treatments must be applied before the beetles enter buildings to overwinter.*

5. When all else fails, customers should be reminded that lady beetle entry into buildings is a relatively short-term event which generally runs its course by mid-November. The beetles sometimes emit a foul odor, stain indoor surfaces, and occasionally give a "nip" if they land on one's skin. They do not breed or reproduce indoors like fleas or cockroaches, and constitute a nuisance mainly by their presence.

PESTICIDE NEW & VIEWS

POTENTIAL REPLACEMENT FOR METHYL BROMIDE RECEIVES A 1-YEAR REGISTRATION IN U.S.

by John Hartman, Kenny Seebold, and Paul Vincelli

The U.S. Environmental Protection Agency recently granted approval to Arysta LifeScience for the use of iodomethane, also known as methyl iodide, for one year on strawberries, tomatoes, peppers, ornamentals, turf, trees, and vines. Iodomethane is an alternative to methyl bromide, an extremely volatile soil fumigant that was widely used as a pre-plant treatment to control soil-borne plant pathogens, nematodes, weeds, and insects prior to implementation of the Montreal Protocol. The latter stipulates that many uses of methyl bromide, including agricultural applications, be phased out due to the ozone-depleting nature of this compound. Currently, many uses of methyl bromide have been discontinued and others, such as pre-plant pest control for tomatoes, and peppers, are covered under "critical use exemptions" granted to certain states, including Kentucky. Critical use exemptions allow application of a limited amount of methyl bromide on high-value crops in situations where acceptable alternatives to the fumigant have not been identified; exemptions are granted on year-by-year basis. The cost of methyl bromide, consequently, has risen as supplies have diminished.

The combination of strong pest control and low environmental risk has put iodomethane at the top of the list of potential replacements for methyl bromide. Iodomethane is a close chemical relative of methyl bromide and shares many of its characteristics, including acute toxicity. However, the new material does not pose same threat to the ozone layer of our atmosphere as does methyl bromide. The reason for this is that bromine is extremely reactive with ozone, and can persist in the upper atmosphere for up to two years, while iodine is degraded in the lower

atmosphere within 12 days of its release. In terms of efficacy, iodomethane's performance has been similar to methyl bromide across numerous trials.

The temporary registration that EPA granted for iodmethane contains very strict provisions to minimize potential risks associated with its use. The commercial formulation of iodomethane, called Midas, will be classified as restricted use. Buffer zones will be imposed to reduce off-target exposure, and size of zones will be based upon soil type, application rate, application method, and type of tarp (cover) used by the applicator. No more than 40 acres can be treated by an applicator per day, and the user must take measures to prevent re-entry into buffer zones for 48 hours (five days for treated fields) after application. Iodomethane cannot be used within 0.25 miles of schools, day-care facilities, hospitals, nursing homes, playgrounds, or prisons. Applicators and associated workers must wear appropriate protective equipment, including respirators, during the treatment process. At the end of the one-year registration period, iodomethane will be evaluated in terms of the effectiveness in mitigating risks to people and the environment along with other soil fumigants and full registration will depend upon the outcome of the evaluation.

The arrival of iodomethane has been welcomed by most producers, who see this compound as a safe and environmentally friendly replacement for methyl bromide. On the other hand, the EPA's announcement has aroused concern among some scientists. In the weeks before the EPA granted approval to iodomethane, a group of scientists that included several Nobel laureates drafted a letter to the agency expressing concern over wide-scale use of iodomethane and recommending that registration not be granted. High on the group's list of grievances was the acute toxicity of iodomethane, which the scientists believe poses an unacceptable risk to pregnant women, children, the elderly, and farm workers, and carcinogenicity. The EPA has countered that its decision was based upon extensive testing over a four-year period and thorough analysis of potential risks, and believes that risk-mitigation requirements are adequate to ensure safe use of iodomethane.

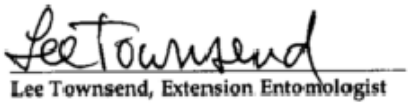
How this all plays out remains to be seen, but it appears that the EPA has taken extra precautions to minimize human exposure. Growers who use soil fumigants are aware that methyl bromide is also very toxic to humans and that extreme care is needed for its use. It would appear that introduction of iodomethane is merely substituting one widely used, but valuable, toxic chemical for another, but this time, one less harmful to the ozone layer.

DIAGNOSTIC LAB-HIGHLIGHTS

by Julie Beale and Paul Bachi

Over the past two weeks, we have diagnosed charcoal rot on soybean; crown gall, drought stress and spider mite injury on grape; Pythium stem rot on broccoli; anthracnose on gourd and pumpkin; blossom end rot on gourd and pepper; bacterial soft rot on cabbage and ryegrass straw (used as substrate for commercial mushroom cultivation); and leaf spot on turnip (Cercosporella).

On ornamentals and turf we have diagnosed Pythium root rot on poinsettia; anthracnose on yarrow; Volutella blight/canker on pachysandra and boxwood; black root rot on holly; Cytospora canker on Douglas fir and hemlock; Botryosphaeria canker on redbud; normal fall needle drop on white pine; tip blight on pine; bacterial leaf scorch on oak; and Curvularia leaf spot on zoysiagrass.



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