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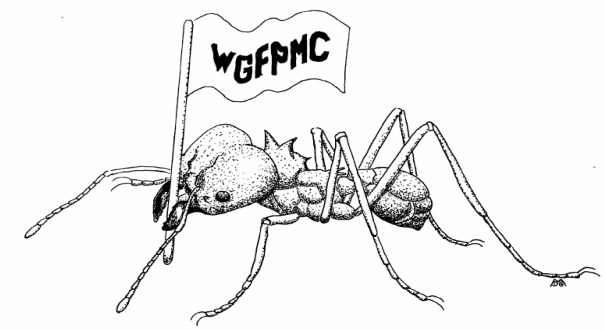
Quarterly Newsletter on Western Gulf Forest Pest Management Issues

Western Gulf Forest Pest Management Cooperative



Texas Forest Service, Forest Pest Management,
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PEST is a quarterly newsletter that provides up-to-date information on existing forest pest problems, exotic pests, new pest management technology, and current pesticide registrations in pine seed orchards and plantations. The newsletter focuses on, but is not limited to, issues occurring in the Western Gulf Region (including, Arkansas, Louisiana, Mississippi, Oklahoma, and Texas).

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Announcement:

Hancock Joins WGFPMC – I would like to take this opportunity to welcome Hancock Forest Management (HFM), Inc. into the WGFPMC. HFM is a timber investment management organization and subsidiary of Hancock Timber Resources Group. HFM currently manages 3.3 million acres in the U.S. and abroad and, of that, 1.7 million is managed in the Southeast (AL, AR, FL, GA, LA, MS, NC, OK, SC, TX, and VA). Mr. Bob Cassell (bcassell@hnrg.com), Western Forest Manager out of Silsbee, TX, will serve as their Executive Representative, and Lee Wise (lwise@hnrg.com) and Steve Marietta (smarrietta@hnrg.com) as their Plantation contact and Seed Orchard contact, respectively.

Pest Spotlight:
Pine Seed Bugs, *Leptoglossus* and *Tetyra* spp.

In pine seed orchards of the southeastern U.S., seed bugs are one of the most important groups in the insect complex that limit seed production. Seed bugs are sucking insects that feed upon the developing cones. The southern pine seed bug, (*Leptoglossus corculus* Say), is the most important species, but the shield-backed pine seed bug (*Tetyra bipunctata* H.-S.), also is very destructive in orchards established to provide genetically-improved seed. This pest spotlight is a review of the biology, impact, and currently recommended pest management options for these two seed bug species.

Southern Pine Seed Bug

The southern pine seed bug, *Leptoglossus corculus,* occurs throughout the eastern U.S. All species of pine grown in seed orchards in the South are hosts. Other pine species, native or introduced, are also likely hosts. Both the adults and nymphs are reddish-brown to gray and have long legs. Adults are about 3/4 inch long, with a white zigzag line across the wings and flattened, leaflike hind tibiae (see below). The large adults readily take flight with a loud buzzing sound when disturbed. They overwinter in the duff and other protected spots and emerge to begin breeding at flowering time (April). Eggs are laid end to end in a line along a single needle. There are several generations per year in the South.

Adult southern pine seed bug w/ eggs

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Pine Seed Bugs (Continued from Page 1)

Nymphs and adults have sucking mouthparts that they insert into conelets and cones to penetrate the developing ovules and seeds. Attacked cones show no external damage symptoms. In early life stages, nymphs are gregarious and feed upon the needles and conelets. Second-stage nymphs destroy ovules in conelets, and extensive ovule destruction causes conelet abortion. Third-, fourth-, and fifth-stage nymphs and adults feed primarily on seeds within second-year cones. Seeds damaged in late summer and fall can be detected on radiographs. These seeds appear to be undeveloped, collapsed or hollow, or they may retain residues of tissue. In seed orchards, losses are often reflected by poor survival of conelet crops, high numbers of empty seeds, poor seed viability, and low yields of sound seeds per cone.

Shield-backed Pine Seed Bug

The adult of the shield-backed pine seed bug, *Tetyra bipunctata,* is shield-shaped, about 1/2 to 3/4 inch long, and from yellowish to dark reddish-brown with black markings. Like the southern pine seed bug, this seed bug attacks all pines grown in seed orchards throughout the southern U.S. The adults overwinter in the duff, but usually remain inactive until summer. The eggs are dark green and about a dozen are laid in two alternate rows along a single needle. Nymphs of all stages are gregarious. First-stage nymphs do not feed, but later stages and adults (with sucking mouthparts) feed upon the seeds of developing cones. In the fall, the new adults become gregarious, often appearing in large numbers on a particular tree or group of trees, where they feed on mature cones. This species has a single generation per year.

Adult shield-backed pine seed bug on cone.

Impact of Seed Bugs

The southern pine seed bug may well be the single most destructive insect in seed orchards. Data for three years indicate that 10% of seed from loblolly and 15% from slash pine seed orchards were destroyed by seed bugs. These percentages reflect only seed damage detectable by radiography. Additionally, only about 1/2 of the total potential seed yield per cone was attained. Much of this loss is attributed to seed destruction by the southern pine seed bug in spring to early summer before seedcoats harden. Abortion is a major cause of conelet loss under natural conditions. Although it is not possible to place all blame for conelet abortion on this seed bug, shortleaf and loblolly conelets seldom abort when protected in cages.

Since the shield-backed pine seed bug delays activity and reproduction until summer and produces only one generation per year, its damage to host seeds is more limited than that of the southern pine seed bug. Its habit of feeding gregariously in seed orchards in the fall has been reported frequently. Such aggregations likely contributed to late season seed damage.

Methods of control to reduce seed bug damage are currently limited to the aerial or ground applications of insecticides. Currently, bifenthrin (Capture), esfenvalerate (Asana XL), and permethrin (Ambush, Pounce) are registered for use against pine seed bugs. Recent systemic insecticide injection trials indicate that emamectin benzoate can reduce seed bug damage by 30% compared to untreated controls, but the residual effects fade rapidly in the second year after injection. A new WGFPMC trial is planned for 2007 that will evaluate several new chemicals alone or in combination with emamectin benzoate for extended protection against seed bugs and coneworm.

References

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Acknowledgement

L. corculus image by Scott Cameron, International Paper Co.. and *T. bipunctata* image by Larry R. Barber, USDA Forest Service. Both borrowed from www.forestryimages.org

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Comparison of Independent, Online Pesticide-Label Services

Bruce Paulsrud, Illinois Pesticide Review, July 2006

What's the best source of information when trying to decide which pesticides may be used in a particular situation? The answer: "On the label that came with the pesticide you purchased." It's just that simple.

However, there are many valid reasons why we turn to additional resources such as traditional pest management ("spray") guides and online pesticide-label services. Whether it's agricultural, horticultural, or yard-and-garden-use products, most pesticide registrants now have their product labels available online in some way. Some registrants utilize independent, online label services, others have developed their own proprietary label service, and many use a combination of the two.

The purpose of this article is to examine and compare the features of three independent, online pesticide-label services:

- Greenbook (www.greenbook.net), by Vance Publishing Corporation, Lenexa, KS
- CDMS (www.cdms.net), by Crop Data Management Systems, Inc., Marysville, CA
- KRS Network (www.kellysolutions.com/IL/pesticideindex.asp or search within states other than Illinois at www.kellysolutions.com/nasdamap.htm), by Kelly Registration Systems, Covington, GA

Details

I have used these three services for a number of years now and have discovered that some pesticide registrants don't include all of their registered and available products and formulations within Greenbook and CDMS. It may be necessary to visit the registrant's own Web site to see their full product line; this is especially true for specialty and niche-market pesticides.

When searching by pest or by site, realize that it is easy to overlook products because the pest names are not always standardized, and the wide variety of site names can be overwhelming. For example, when searching the KRS Network database for a fungicide labeled to control cedar-apple rust, you would need to search each of the following variations to find all of the labeled fungicides: rust [gymnosporiangium], hawthorn rust [gymnosporangium], cedar-apple rust [gymnosporangium], and cedar gall rust [gymnosporangium]. Similarly, when searching for a foliar pesticide to use on field corn, you would need to search each of the following sites and perhaps more to find all of the labeled pesticides in the database: corn, corn [foliar treatment], corn [field], and corn [field] [foliar treatment].

The Greenbook database uses a fairly standardized list of pest names, and the sites are logically lumped together, making the search process perhaps less precise but certainly less difficult.

Summary

- If you simply want to visit one site to view or print labels, either Greenbook or CDMS will meet your needs. Supplemental labels (for example, Section 18, 24c, and 2ee) can generally be found on these Web sites as well, but you may need to visit the registrant's own Web site to find very recent additions.
- If you need access to labels, as well as robust and relatively intuitive search features, Greenbook will meet your needs.
- If you need to search by EPA registration number, or if you need to verify precise registration details, KRS Network will meet your needs.
- If you are searching for homeowner/yard-and-garden-use products, they will be listed on KRS Network; but you will need to visit the registrant's own Web site or a garden center to view labels.

If you need localized information regarding product efficacy; application timing; and pest identification, importance, and biology, there is no substitute for the information you'll find in the various pest management handbooks available from the University of Illinois Extension (for details, refer to the May 2005 issue of this newsletter online at www.pesticidesafety.uiuc.edu/newsletter/html/200503d.)

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Thought You Might Be Interested to Know . . .

Fall East Texas Forest Entomology Seminar.

All WGFPMC executive and contact representatives, industry, and TFS foresters are invited to attend the fall session of the East Texas Forest Entomology Seminar scheduled for October 12 - 13, 2006. The meeting will begin at 1:00 pm on Thursday at the Kurth Lake Lodge and continue from 8:00AM to noon on Friday at the Arthur Temple College of Forestry at SFASU in Nacogdoches. Registration is $25, which includes an evening meal. For additional information and/or an agenda, contact Ron Billings at 979/458-6650 or rbillings@tfs.tamu.edu.

Drift Retardants

(Source: AgAnswers; June 8, 1999 via Agnet; Chemically Speaking; July. 1999)

Money spent on pesticides will not do the applicator much good if wind blows the product from the intended site to a neighboring field or garden. Spray additives or "drift retardants" (spreaders, stickers) can help keep the pesticide on target. Drift retardants increase viscosity, which helps enlarge droplets to the larger range of the nozzle's spectrum while reducing the portion of the spray volume contained in small, drift-prone droplets. Larger droplets are less vulnerable to air currents and are more likely to stay on target. However, with 40 drift retardants on the market, choosing the right one can be a challenge. Tests using various products revealed that all drift retardants scrutinized had the desired effect on droplet size, but they were not equally effective due to differing amounts of active ingredients. To make the right choice, it is suggested that the user check the concentration of the active ingredients. If two products have the same price, buy the product with the highest concentration of active ingredient. Typically, the least effective product turns out to be the one with the lowest sale price by volume.

Can You Get Better Control from Your Pesticides?

(Source: Texas AgriNEWS, May 3, 1999)

Have you ever been disappointed with the results of a pesticide spray? There may be any number of reasons for what is perceived as a lack of control by a pesticide, but one that may be overlooked is high pH of the spray water. When the pH exceeds 7.0, the water is considered to be alkaline, or to have a high pH. Certain pesticides will undergo alkaline hydrolysis or chemical breakdown, and the higher the pH, the faster alkaline hydrolysis will occur.

Hydrolysis occurs when a compound is split by water in the presence of ions. Alkaline water has a greater concentration of hydroxide ions than water that has a neutral pH (pH = 7.0). Thus, alkaline hydrolysis will increase as the pH of the spray water increases. Much of the water in Texas has pH levels at or above 8.0.

Several pesticide products known to be adversely affected by alkaline spray solutions include: Benlate®, Captan®, Carzol®, Dimethoate®, Ethrel®, Imidan®, Kelthane®, and Mitac®. The half-life of Captan® at a pH of 8.0 is 10 minutes, and the half-life of Benlate® at a pH of 7.0 is one hour. If the spray water has higher pH levels than these, the half-life is even shorter. Products such these, that are seriously affected by alkaline hydrolysis, should be buffered or at the very least, sprayed immediately upon mixing if a buffering agent is not used.

The following are some guidelines to prevent or reduce problems with alkaline hydrolysis:

1. Determine the pH of the spray water. Check it more than once per spray season, since the pH of water from wells varies over time and with rain fall events. You also should run pH tests on your most commonly used spray solutions after the pesticides have been mixed in the tank, as the chemicals added to the tank can change the pH of the spray solution.
2. Determine the optimum pH for the pesticide(s) being applied, and adjust the spray solution accordingly.
3. In general, consider using buffering agents to adjust the pH of spray solutions that exceed 8.0, or when mixing pesticides that are highly sensitive to alkaline hydrolysis. Add a buffering agent if you unexpectedly experience a long delay in spraying a tank load might be affected by high pH. Chemical products whose labels caution against mixing with alkaline materials would benefit from adjusting the pH to 6.0 or lower. However sprays containing fixed coppers, lime, or lime sulfur should not be acidified because of phytotoxicity at low pH levels.
4. Spray a tank of finished spray solution with as little delay as possible.

Lindane Cancellation

(Source: Federal Register, Aug. 23, 2006 via OK Coop.Ext. Serv. Pesticide Reports, September 2006)

EPA announced the request for voluntary cancellation for the remaining uses of lindane. This would include the technical registration and the remaining seed treatment registrations. Lindane had been a widely used insecticide for the protection of ornamental conifers against several bark beetle species. However in 1998, the registrants voluntarily canceled many lindane uses, including ornamentals, as well as direct treatment of livestock, pet products , home lawns, fallow areas, commercial food processing facilities and storage areas, wood treatment, etc. Presently, it is EPA's intention to allow the use of existing stock according to the existing labels. That would be for the **seed use** only.

Carbofuran Cancellation

(Source: Federal Register, Aug. 3, 2006 via Wisconsin Dept. Nat. Res., NE Forest Pest Update, Aug. 15, 2006)

EPA has also announced that most uses of Carbofuran (a carbamate insecticide, tradename Furadan) will be removed from the label. The cancellation is immediately effective for the main uses of carbofuran: alfalfa, corn, cotton, potatoes and rice. Its use will be phased out over four years for other minor uses including artichokes, chili peppers in the southwest, cucumbers, spinach for seed, sunflowers and **pine seedlings**.

Splat! Name That Dead Bug on Your Windshield

(Source: Star-Telegram, Fort Worth, TX, 6/15/06 via The Label, July 2006)

It's easy to identify bugs when they're flitting around flowers, buzzing your face or munching on your picnic. The rules are simple: Houseflies are black, bees are yellow and black, ladybugs are red and black, and cockroaches are just dis ... gust ... ing. But how do you identify them when they're plastered to your windshield? Dr. Mark Hostetler has the answer.

A professor of wildlife and conservation and author of 'That Gunk on Your Car: A Unique Guide to Insects of North America,' Hostetler is a self-professed "splatologist" who has made it his mission to unlock the secrets on your windshield. "There's a lot of variability in bugs," Hostetler said. "If it's yellow or creamy in color ... it was a butterfly. And they tend to be dragged up the windshield because of their big wings." Forget Da Vinci. This summer's blockbuster is the detritus code ... so to speak. Hostetler, who teaches at the University of Florida, got his start in splatology while on a road trip a decade ago.

"I was at a gas station and this guy in a pickup truck that was covered in dead bugs turned to me and said, 'What the #@!*@# is all this?'" Hostetler said. "He asked the right person." An entomologist – or in professional circles, "bug guy" – Hostetler determined the type of bugs stuck to the truck's grill: lovebugs. He also discovered a new way to get people interested in insects -- his passion. "They provide a service beyond just appearing on your windshield," Hostetler said. "They pollinate fruit and vegetables, for instance."

So he took a long road trip to study bugs and their impact on society, among other things. He stopped at 10 Greyhound bus depots and studied the grills and windows of more than 50 buses. "They're so big and flat that they got a lot of bugs," he said. "The night buses get hit a lot." He also strapped a net to the roof of his car. After seeing a large splat, he would inspect the net to see what bounced off his windshield.

While not an exact science, the study of bugs and windshields is done throughout the country by anyone who's ever been on a road trip or washed a car afterward. Spotting and identifying bugs is one thing. Cleaning them off your windshield is another matter.

Name that splat! Entomologist Mark Hostetler says bugs can be identified from windshield splatter: Red splats are female bugs, most likely mosquitoes. Only female mosquitoes eat blood, so a red stain on your windshield offers an important clue. Yellow or creamy spots that slide upward are typically butterflies or moths. Look for fluttering scales or powder. The smallest splats are usually midges, or "no-see-ums." "Glowing" splats are fireflies. Lovebugs love exhaust pipes, which smell like perfect places to lay eggs. Tremendously loud splats are usually cockroaches.

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