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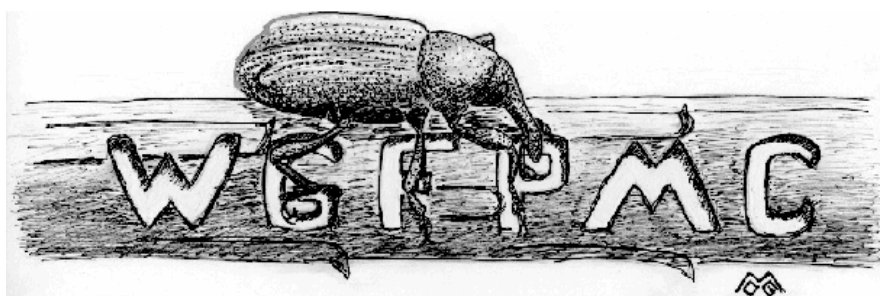
**Quarterly Newsletter
on Western Gulf
Forest Pest Management
Issues**

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).

Early Announcement:

30th Anniversary Meeting - All WGFPMP executive and contact representative and industry and TFS foresters are invited to attend the 30th Anniversary of the East Texas Forest Entomology Seminar scheduled for Apr. 23, 24 & 25, 2003. The meeting will begin at 1:00 PM on Wednesday at Kurth Lake Lodge, north of Lufkin, and continue until noon on Friday at the Arthur Temple College of Forestry (Room 117) at SFASU in Nacogdoches. For additional information and/or an agenda, contact Ron Billings at 979/458-6665 or rbillings@tfs.tamu.edu.

Western Gulf Forest Pest Management Cooperative



**Texas Forest Service, Forest Pest Management,
P.O. Box 310, Lufkin, Texas 75902-0310**

WGFPMP Forestry Pesticide Website is Now Online

The Western Gulf Forest Pest Management Cooperative (WGFPMP) is proud to announce the arrival of the "Forestry Pesticides" web page (http://tfsfrd.tamu.edu/pest/ASP/pesticide_intro.htm) in the Texas Forest Service web site. The Forestry Pesticides web page was developed by the WGFPMP to provide professional foresters and private landowners with up-to-date information on the registration, selection, application and safe and proper use of forestry-related chemicals. Cultural pest control tactics, biological control products, and natural pest suppression systems also are included. As of January 1, 2003, the diseases, insects, and weeds pesticide lists are, for the most part, complete ("bugs" are being removed). These lists contain over 500,000 pest cases. The vertebrates list is under construction.

The registration of chemical products is constantly changing. The information provided in the Forestry Pesticides web page is based on the information obtained from manufacturers' labels. It is not our intent to list all products that are legally registered, but the list is as comprehensive as possible given the constant registration of new chemicals and withdrawal of old ones. It is suggested that pesticide users regularly check this web site for updated information. Copies of chemical product labels often can be obtained from the manufacturer (most have their own web sites) or from several label databases, including CDMS and C & P Press' Greenbook.

The information presented in the web site is intended only as a guide for preliminary planning when considering the use of pesticides for the control of the pests cited.

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Forestry Pesticides (Continued from Page 1)

Use the drop down menus to select the pest group of interest, i.e., 1) insects, mites and nematodes, 2) diseases, 3) weeds or 4) vertebrates. Next, select the specific pest, host and site that best describes your search criteria (pest case) and press the search button.

Be aware that when searching for herbicide products to control weeds there is no host, so select "none" under host.

The search should provide a list of product(s) that are registered for the designated pest case along with information on recommended application rates and techniques and a link to information about the product manufacturer.

If no matches are found, try selecting more generalized criteria and run the search again.

To find all products registered for a particular forest pest regardless of host and site, select the pest and then select "any host" and "all/any sites." Check the label(s) to determine if the product(s) is registered for use on the host and/or site of interest.

NOTE: REGARDLESS OF THE INFORMATION CONTAINED IN THIS WEB SITE, THE PESTICIDE APPLICATOR MUST ALWAYS REFER TO THE PRODUCT LABEL AND/OR ACCOMPANYING MANUFACTURER'S PRODUCT INFORMATION FOR GUIDANCE IN APPLYING A GIVEN PRODUCT.

Controlling Deer Damage with Repellents

White-tailed deer may inflict significant damage to forestry, agricultural or horticultural crops, home gardens, and shrubbery. Repellents are the most commonly used method of preventing unwanted deer browsing on small acreages. Both home remedies and commercial repellents have been used with varying degrees of success. There are 2 general types of repellents: 1) area repellents that produce a noxious odor and 2) contact repellents that are offensive-tasting to deer. Both types of repellents are more effective if applied before deer browsing begins. It is much easier to discourage deer from feeding on certain plants than to interrupt established feeding patterns. A variety of repellents are available for discouraging deer, but most are effective only on small acreages such as home gardens. Expense, inconsistent effectiveness, and limitations on application make most repellents a poor choice for large-scale agricultural crops.

Home Remedy Repellents

Human Hair

Human hair is used by some as a repellent, however its' effectiveness is uncertain and/or short-lived. Hair should be placed in mesh bags or socks and suspended from plants to be protected or hung around the perimeter of

cultivated areas. Bags containing about 1 handful of hair are placed at a height of 2 to 3 feet and spaced about 3 feet apart. Bags should be replaced several times during the growing season. Hair can be obtained easily and inexpensively from barbershops or beauty salons.

Milorganite

Milorganite is partially composted sewage that has been dried at an intense heat. It is also a high quality, slow-release fertilizer. Apply about 5 lbs per 100 square feet at two to four week intervals. It is reported to work well in spring and summer, but may be less effective in winter. Milorganite may be purchased from most landscape and garden supply stores.

Animal By-Products

Animal wastes or by-products, such as rotten meat scraps, blood meal and feather meal are placed in cheesecloth, nylon bags or such and suspended from plants or posts. These substances also can be spread on the ground or mixed with water for direct spray-application. Blood meal will act as a deer repellent and can fertilize your plants at the same time. Some success has been reported but many of these

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Deer Repellents (Continued from Page 2)

substances are found in nature and their effectiveness is uncertain.

Eggs and Egg Mixtures (including garlic and cayenne pepper)

About 4 to 6 raw eggs thoroughly mixed with one gallon of water can be sprayed directly on plants to repel deer. This simple, inexpensive treatment is often very effective, particularly for ornamentals, nursery stock, or small gardens. Try mixing raw eggs with liquid soap, hot cayenne pepper and garlic. Be sure to strain the mixture carefully before running it through your garden sprayer. Always test the mixture sparingly on a plant before making a wholesale application. The mix may damage some tender plants.

Soap

Some orchards have discouraged deer browsing by hanging bars of soap from trees or shrubs once per season. One paper-wrapped, motel-sized bar of deodorant soap per tree or shrub will work for individual trees. Drill a hole in the soap, tie a string or fishing line to the hole and suspend soap from a limb so that it hangs about 4 feet above the ground. Effective area of protection is about 3-feet. Irish Spring soap hung in a nylon stocking seems to be a popular favorite, but any scented soap probably will work. Deer may be more repelled by the animal fats used in soap making than with the actual perfume scent of the soap. Scented soap melted in water and sprayed directly on plant leaves also is reportedly effective.

Naphthalene/Ammonia

Mothballs (naphthalene) or flakes also may be suspended in mesh bags or spread on the ground as area repellents. Mothballs should be replaced as they evaporate. Their effectiveness is questionable outdoors because the odor dissipates rapidly. Household ammonia is a general wildlife repellent. Rags are saturated with ammonia and put into milk jugs with cutout holes. These jugs are placed around the perimeter of a garden or small orchard and may serve to repel deer.

Commercial Repellents

All commercial repellents should be used only in accordance with label instructions. Repellents are more effective when applied before browsing begins and effectiveness of all repellents can be increased by use of a commercial sticker/spreader. Effectiveness of repellents will vary depending on weather conditions, amount of deer pressure, type of plants to be protected, and persistence and ingenuity of the applicator. Scientific testing of repellents recently concluded that those emitting a sulfurous odor (e.g. predator urine, meat proteins, garlic, eggs) were most effective. Read labels carefully to determine both active and inert ingredients. Many repellents are effective for the first few days following application but fail to reduce browsing over long periods of time unless reapplied often. Taste repellents (typically containing bittering agents) often are less effective when compared to odor repellents. A combination of different techniques including repellents and scare tactics is usually the most reliable, temporary deterrent to deer browsing. However, hunting and electric fencing have proven to be the most cost effective deer protection in the long-term.

Hinder®

Hinder® is an ammonia-based odor and taste repellent that has proven quite effective and inexpensive in scientific tests and field use for a short period of time (1 or 2 weeks). It was highly rated by Consumer Reports in a repellent test. It can be applied directly to plants as an aerial or ground spray or painted on with a brush. Hinder® protects vegetable and field crops, gardens, ornamentals, fruit trees, vines and nursery stock. It is approved for use on food and feed crops during the active growing season. Hinder® is sold as a concentrated liquid and is applied in a mixture of 4 to 6 ounces per gallon of water. It is applied once every 1-2 weeks.

Deer Away®

Deer Away® (BGR-Big Game Repellent) is an odor repellent derived from rotten eggs. This

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Deer Repellents (Continued from Page 3)

repellent comes in liquid and powder forms. The powder form is more effective than liquid and lasts for an entire growing season. This product is commonly used by the timber industry to protect tree seedlings. It is effective when used once per season on conifers, hardwoods, and ornamentals. Fruit and citrus trees should be treated before flowering and after harvest. Properly mixed, Deer-Away® protects about 400 plants that are 2-4 feet tall.

Miller Hot Sauce

Miller Hot Sauce is a taste repellent with an active ingredient of capsaicin, a concentrated derivative of hot peppers. A mixture of 2 tablespoons Hot Sauce with 8 ounces Vapor Guard® in 12 gallons of water applied with standard sprayers is reported to be effective. Vapor Guard® is a sticker used to extend the effective period of Hot Sauce. This product is recommended for commercial use on ornamentals, fruit trees, nursery stock, and other crops, not residential use. When used on fruit trees or food crops, it should be applied before fruit sets or edible portions begin to form.

RO-PEL®

RO-PEL is an extremely bitter tasting repellent that has limited effectiveness in reducing deer browsing. RO-PEL® is nontoxic to plants and animals, but is extremely irritating to humans if tasted or inhaled. The liquid is applied at full strength with a brush or as a spray. The repellent is weather resistant, however, annual reapplication is recommended. It should not be used on edible plants or crops.

Deer Off®

Deer Off® is a mixture of putrescent whole egg solids, capsaicin, and garlic. It is a combination odor and taste repellent. One quart of concentrate treats up to 400 ornamentals 4-feet tall or approximately 4,000 square feet. It can be used on flowers, grass, bulbs, shrubs, plants, seedlings and trees. One application per season is recommended.

Deer Stopper®

Deer stopper® is a new repellent composed of eggs, vinegar and other ingredients, which has

shown some promise in recent tests. It deters deer by both smell and taste and will dry clear and odor free on all plant material. This repellent can be applied to all shrubs, flowers, edible crops, forest, and fruit trees.

Liquid Fence®

Liquid fence® is a new repellent composed of eggs, garlic and other ingredients. Like many of the egg-based products, it has proven quite effective in recent testing. It deters deer by both smell and taste. It can be used on landscaping, gardens, flowers, shrubs, trees and vines. Under normal weather conditions, it should be reapplied once per month.

Plantskydd®

Plantskydd® is composed of 87% edible animal protein (blood meal). It has proven effective in recent tests for 4-6 months when applied to tree seedlings, flowers, shrubs and ornamentals. Plantskydd repels by odor which is reportedly not unpleasant to people.

Garlic Oil Dispensers

Garlic is a component of many commercial deer repellents. This dispensing system utilizes the repellent characteristics of garlic in a convenient, easy-to-use system. Dispensers simply are clipped on the plant to be protected and may last up to 6 months. Each dispenser will only protect a single plant.

A comparison of 20 commercial deer repellants

In the fall of 1998 and the spring of 1999, twenty commercial deer repellants were tested for their effectiveness by the Animal and Plant Station, USDA, in Olympia Washington. Tests were conducted in five pastures, each containing five or six captive black-tailed deer. Each pasture varied from two to five acres with natural habitat consisting of Douglas fir, alder and associated understory vegetation. Western red cedar seedlings were planted in 21 plots scattered evenly across each pasture. Seedlings were planted just before treatment with repellent. A separate plot was used for each repellent, with one plot of untreated seedlings serving as a control.

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Deer Repellents (Continued from Page 4)

Cedar seedlings were examined for browse damage at 24 hours, 48 hours, and 1 week after planting, and then at 1-week intervals for 18 weeks. Damage was determined by counting numbers of bites taken from each seedling. Seedlings pulled from the ground were considered destroyed and recorded as having 25 bites, and no more than 25 bites were recorded because seedlings were generally defoliated by then.

The results of the winter test showed that cedar seedlings averaged fewer than 5 bites for *Plantskydd*®, *Deer Away*® *Big Game Repellent* (powder), *Deerbusters*® (sachets) and *Bye Deer* (sachets) at 12 weeks. At 18 weeks, the most effective repellents were *Deer Away*® *Big Game Repellent*, *Plantskydd*®, *Bye Deer*®, *Get Away*® *Deer and Rabbit Repellent* and *Deerbuster*®.

Two of these products (*Big Game Repellent* and *Plantskydd*) outperforming the others by repeatedly, and quite effectively, protecting plants for 6-8 weeks when directly applied.

A copy of this deer repellent study, which includes more information that in this article, can be obtained by writing to Andy Trent, Project Leader, USDA, Forest Service, MTDC, Bldg. 1, Fort Missoula, Missoula MT 59804-7294; phone 406-329-3912; Fax 406-329-3719; or E-mail: atrent@fs.fed.us.

Sources:

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A Comparison of 20 commercial deer repellents. Forest Insect and Disease Newsletter, Nov. 2002. <http://www.dnr.state.mn.us/fid/november02/elsewhere.html>.

Pest Spotlight

Seedling Debarking (or Pine Reproduction) Weevils

Adult seedling debarking weevils, primarily pales weevil (*Hylobius pales* Herbst.) and pitch-eating weevil (*Pachylobius picivorus* Germar), can cause serious damage to pine seedlings in the southern United States by feeding on the stems and roots of seedlings. This pest highlight is a review of the biology, impact, and currently recommended pest management options for these two weevil species.

Pales Weevil

The pales weevil is a robust, reddish brown to black weevil about 1/4 to 3/8 inch in length. The adults are covered with small scattered patches of yellowish scales. This weevil infests young coniferous trees, particularly pines. Preferred hosts include white, loblolly, shortleaf, and pitch pines. The insect is distributed throughout the eastern United States from Maine to Florida and westward to Texas and the Great Lakes states.

Injury caused by the pales weevil is most severe on seedlings. The first evidence of attack is a series of small holes or pits on the stem resulting from feeding by adults. If weevil feeding is light, the holes fill in with oleoresin and eventually the wounds heal. Heavy feeding results in girdling of the stem above and/or below the ground., which often kills the host. In some cases, adults feed on the terminals, twigs, or buds of sapling-size trees.

The life history varies to a certain extent depending on the region. In the North, winter is spent as adults beneath litter or as larvae in roots. In the South, adults may be active throughout the winter (or most of it) but are in reproductive diapause. Depending on the location, adults emerge from hibernation from March to June and fly to sites which have been recently harvested or where the hosts have been damaged or disturbed.

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Weevils (Continued from Page 5)

It is presumed that the weevils are attracted to oleoresin emanating from the host material. Adults are active at night or on cloudy days. On sunny days they hide in the soil and litter around seedling and saplings on which they have fed. After feeding briefly, the adults mate and the females oviposit in roots of cut stumps, weakened trees, or pine slash buried during site preparation. Adult weevils may burrow 12 inches into the soil to find oviposition sites. After the eggs hatch larvae tunnel and feed in the phloem region underneath the bark and pupate in individual "chip cocoons" in the outer sapwood. Pupation and emergence of adults may take place in the late summer or fall; or the larvae may overwinter with pupation and emergence occurring in early summer the following year. In the North, there is one generation a year, although some adults may live for 2 years. In the South, there may be a partial second generation if weevils emerging in late summer or fall oviposit before winter. Adult populations peak in March through May and again in July and August.

Pitch-eating Weevil

The pitch-eating weevil is very similar in appearance to the pales weevil, being dark brown or black, robust, and covered with small patches of yellow to reddish scales. The insect is distributed throughout the eastern United States, but is most common in the South. It is commonly found with pales weevil and attacks the same pine hosts.

The life history of the pitch eating weevil follows the general pattern described for the pales weevil. Two population peaks have been reported in Georgia. In east Texas, 6-11 months are required for brood development, depending on the season in which the broods were established. It also has been reported that damage by the pitch eating weevil is indistinguishable from that of the pales weevil.

Impact of Seedling Debarking Weevils

The seedling debarking weevils are rarely a pest in naturally regenerated stands, although their

occurrence in these stands is common. The problem centers on seedling mortality following harvest and site preparation. Factors that contribute to the problem are as follows: (1) weevils are attracted to freshly cut areas where there are abundant sites for brood establishment in pine stumps, weakened trees, and in buried slash; (2) site preparation to remove slash and brush frequently prolongs attractiveness to the harvested area; and (3) forest owners are usually interested in planting new seedlings in harvested areas soon after site preparation. These factors often result in a large number of both parent and brood adult weevils being present at the same time there are many seedlings that are favored for host material.

In the South it has been found that the amount of seedling mortality resulting from weevil feeding is related to timing of planting following harvest. In general, areas logged in the winter and spring can be safely planted the following winter, because weevils are no longer present in great abundance. Areas logged in the summer are moderately vulnerable to attack. Severe seedling mortality can occur in plantations established in the winter after logging in the fall. Surveys of forest land in Arkansas and eastern Oklahoma indicated that seedling mortality in plantations established during the winter was 6% for sites prepared during the previous spring, 20% for sites prepared in the summer, and 58% for sites prepared during the fall.

Several strategies have been proposed for reducing losses caused by seedling debarking weevils, including: (1) dispersing harvest areas; (2) restricting harvest to spring months; (3) delaying planting after harvest, and (4) using seedling protective treatments. Most emphasis has been placed on the use of insecticide treatments because economic constraints make the other options difficult to justify.

One of the more commonly used and effective products to protect pine seedling against seedling

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Weevils (Continued from Page 6)

debarking weevils is Pounce® 3.2EC (permethrin, FMC). Studies conducted by the WGFPNC in 1997 and 1998 showed that Pounce® can protect seedling for nearly six months and can reduce weevil-caused seedling mortality by 75% in protected plantations compared to unprotected plantations. Pounce® has 24C (Special Local Need) registrations in most Southern states including, AL, AR, FL, GA, MD, NC, SC, TX, and VA. The 24C registrations restrict the application of this chemical to pine seedlings grown in certain conifer nurseries in these states. Contact your local seedling nursery to determine the

availability of Pounce®-treated seedlings in your area.

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Pesticide News

Heads up if you care about dimethoate. The EPA is finalizing its risk assessment. Of particular interest to the forestry arena include critical non-food crops such as Douglas fir seed orchards, cottonwoods for pulp, and Christmas trees.

The Risk/Benefit Summary for these uses include unacceptable handler risks; no dietary exposure. USDA has already been heavily involved in efforts to retain these uses. Limited acreage. Douglas fir seed orchards are only in OR and WA.

The Mitigation Starting Point (not to be construed as agency position) indicates that MOEs are low enough to justify deleting these uses but will need to explore mitigation. Cheminova is not supporting these uses. (Georgia Pest Management Newsletter, Dec. 2002)

EPA issues final rule amending accelerated phaseout of methyl bromide. On January 2, EPA published in the Federal Register a Final Rule ("Protection of Stratospheric Ozone: Process for Exempting Quarantine and Preshipment Applications of Methyl Bromide"), amending the accelerated phaseout

regulations that govern the production, import, export, transformation and destruction of substances that deplete the ozone layer, such as methyl bromide (a widely used crop fumigant), under the authority of the Clean Air Act (CAA). The amendments incorporate an exemption permitted under the Montreal Protocol on Substances that Deplete the Ozone Layer and required by changes in the CAA. Specifically, the Agency is creating an exemption from the consumption and production phaseout for quantities of methyl bromide that are used for quarantine and preshipment applications.

For more information on this action, consult the January 2 Federal Register <http://a257.g.akamaitech.net/7/257/2422/14mar20010800/edocket.access.gpo.gov/2003/02-32986.htm> or call Kate Choban at 202-564 3524; e-mail: Choban.Kate@epa.gov.

According to a recent email from Dr. John Taylor (USFS), "Ken McNabb and his group at Auburn University are heavily engaged in trying to find some relief for the use of methyl bromide fumigation in southern pine forest tree nurseries, possibly by securing an exemption status for seedlings." Cross your fingers that we can get this exemption.

