Progress

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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).

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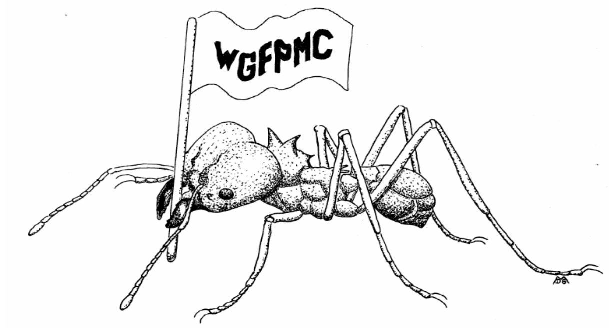
Announcement:

Entomology Seminar - All WGFPMC executive and contact representatives, industry, and TFS foresters are invited to attend the spring session of the East Texas Forest Entomology Seminar scheduled for May 6-7, 2004. The meeting will begin at 1:00 PM on Thursday 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. Registration is $20, which includes an evening meal. 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

Summary of 2003 WGFPMC Research Projects

In 2003, three research project areas – tip moth, leaf-cutting ant, and systemic injection - were continued from 2002. Summaries of the results from the tip moth studies are presented below. Results from leaf-cutting ant control and systemic injection duration, rate, and new Denim® studies will be presented in the next PEST newsletter (June 2004).

The WGFPMC established a three-faceted research project directed at pine tip moth in 2001 to: 1) evaluate the impact of pine tip moth on tree height and diameter growth, 2) identify abiotic factors that influence the occurrence and severity of pine tip moth infestations, and 3) evaluate the potential use of systemic insecticides to protect pine seedlings for one or more years after planting. All facets of this project were continued and expanded upon in 2003.

Pine Tip Moth Impact

In 2001 and 2002, 23 study plots, in 12 plantations, were established in Texas, Louisiana and Arkansas. Treatments were continued on 7 second-year sites established in 2002. Ten additional (first year) study plots were established on 6 more sites in 2003. In each plantation, one or two areas were selected and divided into two plots each; each plot contained 126 trees (9 rows X 14 trees). Treatments were randomly assigned to a plot in each area. The treatments included: 1) Mimic® 2F applied once per generation at 0.08 oz / gal. and 2) Check (untreated).

For the 17 plots established in 2002 and 2003, pesticides were applied by backpack sprayer to all trees within the plot (treatment area). Application dates were based the optimal spray periods predicted by Fettig et al, 2003. Plots established in 2001 were not protected in 2003. Just prior to each spray date, the tip moth damage level was determined in each plot by surveying the internal 50 trees. Each tree was ranked on the extent of tip

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Tip Moth Projects (Continued from Page 1)

Table 1: Mean percent of pine shoots (in top whorl) infested by Nantucket pine tip moth on one- and two-year old loblolly pine trees following treatment with Mimic® after 4 - 5 generations; Arkansas, Louisiana and Texas sites - 2001 to 2003.

	Planted 2001 (N =16)		Planted 2002 (N = 7)		Planted 2003 (N= 10)	
Treatment	Year 1	Year 2	Year 1	Year 2	Year 1	Year 2
Mimic®	1.7	3.8	1.5	3.8	1.2	
Check	22.4	21.9	7.5	15.5	12.2	
% Reduction	92	83	80	75	90	

moth damage. Trees also were surveyed a final time in November 2003. At this time, data also were collected on tree height and diameter.

Tip moth infestation levels remained low in 2003. They were slightly higher overall (12% of shoots) on first-year check trees in 2003 compared to first-year check trees in 2002 (7%) (Table 1). In contrast, tip moth damage was somewhat lower (16% of shoots) on two-year old sites in 2003 compared to year 2 sites in 2002 (22%).

The Mimic® treatments provided good to excellent protection against tip moth in 2003 - reducing infestation levels by >75%. Nearly all third-year Mimic®-treated plots continued to show significantly greater tree growth compared to the neighboring untreated trees (Table 2). Overall, the exclusion of tip moth on treated trees for the first two years has improved tree height, diameter and volume index by 10%, 17% and 38%, respectively, compared to untreated trees. However, due to lower tip moth population levels in sites planted in 2002, growth parameters have not been improved with the application of Mimic® in 2002 and 2003. Although tip moth levels were low on first-year sites in 2003, the protection provided by the Mimic® sprays was better than in 2002. As a result, 5 of 10 sites saw significant gains in tree growth on Mimic® plots compared to untreated trees. Overall, tree height, diameter and volume growth were improved during the first year by 13%, 13% and 25%, respectively, compared to untreated trees. The study will be continued in 2004.

Table 2: Mean tree volume and percent growth gain of one-, two- and three-year old loblolly pine following treatment with Mimic® after 4 - 5 generations; Arkansas, Louisiana and Texas sites - 2001 to 2003.

	Planted 2001 (N =16)			Planted 2002 (N = 7)			Planted 2003 (N= 10)		
Treatment	Year 1*	Year 2*	Year 3	Year 1*	Year 2*	Year 3	Year 1*	Year 2*	Year 3
Mimic®	201	2824	6465	131	2343		141		
Check	138	2053	4680	149	2393		113		
% Gain	45.6	37.5	38.1	-12.2	-2.1		25.3		

* Mimic treatments only applied during the first two years after establishment.

Pine Tip Moth Hazard Rating

WGFPMC members selected from 1 to 7 first-year plantations (many were the same as those used in the impact study). A plot area within each plantation was selected; each plot contained 50 trees (5 rows X 10 trees). The 44 Western Gulf sites (20 - 1st year & 24 - 2nd year plots) were used to collect site characteristic data in 2003 that included:

Soil - Texture and drainage, percent organic matter, soil description/profile (depth of 'A' and to 'B' horizons; color and texture of 'B' horizon), depth to hard-pan or plow-pan, depth to

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gleying, and soil sample (standard analysis plus minor elements and pH).

Tree - Age (1-2), percent tip moth infestation of terminal and top whorl shoots after of 4 - 5 generations, and height and diameter at 6 inches at end of 2nd year.

Site - Previous stand history, site index (at 25 yrs), silvicultural prescription (for 2-year monitoring period), topography (slope, aspect, and position), competing vegetation: (proportion of bare ground, grasses, forbes, and woody stems after 2nd and last generation each year), rainfall (on site or from nearest weather station), and acreage of susceptible loblolly stands (< 20 ft tall) within 1/2 mile of study stand boundary.

Tip moth infestation levels were determined in each plot by surveying the internal 50 trees during the pupal stage of each tip moth generation in the same manner as in the impact study. Data on tree height and diameter at 6 inches were collected in November or December on 2ndyear sites.

Most data have been collected from each of the 61 plots established from 2001 through 2003. Mr. Andy Burrow, Temple-Inland, will use the data set to develop a regression model as means to identify the most important abiotic factors influencing tip moth occurrence and severity.

The 17 plots evaluated through 2002 and the 24 plots evaluated through 2003 have now been phased out. The 21 new plots will be monitored through 2004. Additional plots will be established yearly through 2005.

Pine Tip Moth Control

Seedling Treatment Trial: A study initiated in 2002 evaluated the potential of loading seedlings with one of several reported systemic chemicals (emamectin benzoate, imidacloprid, thiamethoxam and fipronil) prior to planting for control of tip moth for one or more years. The results showed that fipronil was best, reducing tip moth damage for five tip moth generations. The study was continued into 2003 to determine the duration of treatment efficacy.

Two plots had been established in 2002 within a second-year plantation in the Fairchild State Forest, Cherokee Co., TX. Each plot contained 350 trees (5 rows X 70 trees). Ten seedlings from each treatment were planted on each of five beds. The treatments included:

1) Emamectin benzoate (0.12% ai) - root soak of bare root seedlings for 2 hours prior to planting
2) Fipronil (0.157% ai)- root soak for 2 hours
3) Imidacloprid (0.53% ai)- root soak for 2 hours
4) Thiamethoxam (0.17% ai) - root soak for 2 hours
5) Tebufenozide (Mimic®) – foliar spray 5X at 0.8 oz/gal
6) Check - Bare root seedlings (lift and plant)

Tip moth damage was evaluated in 2003 after each tip moth generation (3-4 weeks after peak moth flight) in the same manner as in the impact and hazard rating studies. Each tree was measured for diameter and height in the fall (November) following planting.

Table 3. Effect of systemic chemical treatments on tip moth damage to loblolly pine shoots (top whorl), volume growth and form after two growing seasons on **Plots 1 & 2**, Evans Tract, Fairchild State Forest, Cherokee Co., TX, 2002 - 2003.

		Pct. Shoots Infested (% Reduction Compared to Check)				Volume Growth (cm^3) (% Gain Compared to Check)				% Trees Forked in
Treatment §	N	2002		2003		2002		2003		2003
EB (0.12% ai)	100	31.1	(34)	17.5	(8)	27.3 **a**	(-27)	1083.3 **a**	(-17)	16.8 **b**
FIP (0.146% ai)	100	4.5	(90)	14.1	(27)	47.6 **b**	(27)	1678.2 **c**	(28)	1.0 **a**
IMID (0.532% ai)	100	30.7	(40)	18.7	(5)	47.6 **bc**	(27)	1687.7 **c**	(29)	16.3 **b**
THIA (0.17% ai)	100	23.0	(56)	19.5	(-9)	47.4 **b**	(26)	1551.6 **bc**	(18)	19.2 **b**
Mimic® (foliar)	100	2.5	(92)	1.1	(94)	60.6 **c**	(61)	2189.9 **d**	(67)	4.0 **a**
Check	100	40.5		20.4		37.5 **ab**		1312.4 **ab**		18.4 **b**

§ EB = emamectin benzoate, FIP = fipronil, IMID = imidacloprid, THIA = Thiamethoxam.
* Means followed by the same letter in each column are not significantly different at the 5% level based on Fisher's Protected LSD.

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Tip Moth Projects (continued from page 3)

All chemical treatments showed significantly lower tip moth damage levels after the first two tip moth generations in 2002 compared to check trees. However, only the fipronil soak and Mimic® foliar spray treatments essentially eliminated tip moth damage through the 5th generation (Table 3). Only the Mimic® treatment significantly improved tree height, diameter and volume growth compared to check trees (Table 3). Fipronil still showed activity in 2003, reducing tip moth damage by 27%. In addition, this treatment resulted in significantly greater volume growth and lower incidence of forking compared to the checks.

<u>Fipronil Technique and Rate Trial:</u> A new trial was initiated in 2003 to further evaluate the potential of fipronil for extended protection of pine seedlings against tip moth. The intent was to evaluate this active applied at different rates to nursery beds, lifted bare root seedlings, and plant holes.

One research plot was established within each of 3 second-year plantations in Angelina Co., TX. Each plot contained 450 trees (5 rows X 90 trees). A randomized complete block design was used in each plot with beds serving as blocks, i.e., each treatment was randomly selected for placement along a bed. Ten seedlings from each treatment were planted on each of five beds. The treatments included:

1) Fipronil (T*) – 1 treatment of furrows in nursery bed (Oct.)
2) Fipronil (T) – 2 trts of furrows in nursery bed (Oct & Dec)
3) Fipronil (0.3% T) + Terrasorb™ root dip
4) Fipronil (0.003% T) - 2 hr root soak
5) Fipronil (0.03% T) - 2 hr root soak
6) Fipronil (0.3% T) - 2 hr root soak
7) Fipronil (0.3% R*) - 2 hr root soak
8) Fipronil (6.5% T) - 30 ml applied to plant hole
9) Check - Bare root seedlings (lift and plant)

* T = Termidor®, R = Regent®

Loblolly pine bare root seedlings from the Texas Forest Service nursery at Alto, TX were used in this study. Fifty seedlings from each treatment were planted (6 X 10 ft spacing) on each of the three sites.

Tip moth damage was evaluated after each tip moth generation (3-4 weeks after peak moth flight) in the same manner as in the impact, hazard rating and other control studies. Each tree was measured for diameter and height in the fall (November) following planting.

Pine seedlings treated with fipronil (Termidor®) using plant hole, root dip with Terrasorb™, root

Table 4. Effect of fipronil treatments on tip moth damage to loblolly pine shoots (top whorl), volume growth and survival after one growing season on three sites in east Texas, 2003.

Treatment §	N	Pct. Shoots Infested (Pct. Reduction Compared to Check)		Volume Growth (cm^3) (Pct. Gain Compared to Check)		% Survival
T Fip Furrow 1	150	15.0	(18)	117.6 *	(39)	98 *
T Fip Furrow 1+1	150	17.5	(13)	88.8	(5)	96 *
T Fip + TerraSorb Dip	150	3.3	(79)	129.1 *	(52)	99 *
T Fip Soak 0.003%	150	16.5	(23)	86.5	(2)	92
T Fip Soak 0.03%	150	13.3	(33)	93.9	(11)	94
T Fip Soak 0.3%	150	7.1	(67)	83.9	(-1)	97 *
R Fip Soak 0.3%	150	5.0	(77)	140.0 *	(65)	98 *
T Fip Plant Hole 6.5%	150	0.9	(86)	110.7	(31)	76 *
Check	300	18.5		84.8		90

§ T = Termidor, R = Regent
* Means followed by an asterik are significantly different from checks at the 5% level based on Fisher's Protected LSD.

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Tip Moth Projects (continued from page 4)

soaks (0.003 - 0.3%) and single in-furrow techniques had significantly lower tip moth infestation levels after 2 or more generations in 2003 compared to check trees. Overall, reductions in damage for these treatments ranged from 18 – 86% (Table 4). Seedlings soaked with Regent® consistently had less tip moth damage than seedlings soaked in Termidor® at the same rate. Root soak (0.3% Regent), and root dip (0.3% Termidor + Terrasorb) treatments resulted in the greatest improvement in tree growth compared to checks. Increasing rate from 0.003% to 0.3% significantly improved protection provided by fipronil (Termidor®) root soaks. The effect of chemical rate on tree growth was inconsistent. Seedlings treated with the highest fipronil concentration (6.5% in plant holes) experienced significantly lower seedling survival compared to check trees. In contrast, seedlings treated with moderate fipronil rates had significantly higher survival. This trial will be continued into 2004 to evaluate the duration of treatment efficacy.

Operational Planting Trial: A second trial was initiated in 2003 to determine the efficacy of fipronil in reducing tip moth infestation levels in loblolly pine plantations.

Four plantations (3 TX and 1 LA; 19 – 38 acres in size) were each divided in half. Half of each plantation was planted with seedlings soaked in 0.3% fipronil for 2 hours and the other half planted with untreated seedlings. Also in each half, a 100-tree plot was established with the reverse treatment (the plot in the treated half had untreated seedlings and the plot in the untreated half had treated seedlings). Ten 10-tree plots were evenly spaced with each of the half plantations to monitor tip moth damage levels in these areas.

Tip moth damage was evaluated in each 100- and 10-tree plot after each tip moth generation (3-4 weeks after peak moth flight) in the same manner as in the impact, hazard rating and other control studies. Observations were made as to the occurrence and extent of damage caused by other insects, e.g., weevils, coneworms, aphids, sawflies, etc. Each tree was measured for diameter and height in the fall (November) following planting.

Fipronil-treated seedlings in both treatment areas consistently had lower tip moth damage levels compared to check areas throughout the growing season. Overall, fipronil reduced damage by >83% (Table 5). Treated seedlings also had significantly less damage caused by regeneration weevils and reduced infestation by aphids. Volume growth was improved by fipronil in both treated areas.

Reference:

Fettig, C.J., J.T. Nowak, D.M. Grosman and C.W. Berisford. 2003. Nantucket pine tip moth phenology and timing of insecticide spray applications in the Western Gulf region. USDA Forest Service So. Res. Stat. Res. Pap. SRS-32. 13p. or http://www.srs.fs.usda.gov/pubs/rp/rp_srs032.pdf

Table 5. Effect of operational planting of fipronil-treated seedlings on infestation by tip moth, weevils and aphids, volume growth, and survival during the first season on four sites in east Texas or Louisiana - 2003.

	Pct. Shoots [TM] or Trees [Weevil & Aphid] Infested (Pct. Reduction Compared to Check)				
Treatment	Tip Moth (5 Gen Avg.)	Weevil (May)	Aphid (May)	Volume Growth (cm^3) (Pct. Gain Compared to Check)	Pct. Survival
Fipronil 10 X 10	1.5 (85)	0.0 * (100)	3.9 * (81)	57.5 * (13)	84.8
Check 10 X 10	9.8	1.0	20.1	50.7	83.5
Fipronil 100	1.8 (83)	1.1 * (85)	3.5 * (71)	64.7 * (46)	81.0
Check 100	10.8	7.4	12.2	44.4	83.8

* Means followed by an asterik are significantly different from similar checks at the 5% level based on Fisher's Protected LSD.

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Spotlight – Pine Diseases

Disease problems generally have been few and far between for a number of years mainly because the weather has been dry. However, we have experience more normal rainfall the past couple of years and this spring has been particularly wet (Lufkin, TX had 3X its normal rainfall in February). I've noticed (I'm sure you have as well) an increase in the occurrence of a number of fungal pathogens. Some of these include fusiform rust, pitch canker, needle rust, and needle cast. Sooty mold, not a true disease pathogen, also has become common this spring. A brief overview of some of these 'diseases' is provided below. Needle cast disease was covered last year (PEST, June 2003) so it will not be addressed here.

Fusiform rust infections (caused by *Cronartium quercuum* f. sp. *fusiforme*) that occur on the main stem within the first 5 years of a pine's life normally cause tree death. Infections that occur later in the life cycle of the tree weaken the stem, resulting in wind breakage at the canker or quality loss at rotation. Losses in individual nurseries can exceed 80 percent. Slash and loblolly pine are the most susceptible species. Longleaf is fairly resistant, while shortleaf pine is highly resistant. Oak is the alternate host.

Identifying the fungus - The fungus produces orange spores on the surface of fusiform-shaped pine galls in the spring. Orange spores are produced on the lower surface of the oak leaves. Later, hairlike structures are also produced on the leaf.

Identifying the Injury - Spindle-shaped swellings or galls develop on the branches or main stem (see above). Main stem infections on older trees are somewhat depressed on one side. Trees commonly break at the canker. In the spring, the galls turn orange. Infection on the oak host produces orange leaf spots and hair-like telia, which can cause cupping and curling of the leaf.

Biology **-** Orange-yellow blisters form on the pine gall: the blisters produce aeciospores. In late spring, uredia are formed on the underside of young oak leaves. During late spring or early summer, brown, hair-like structures (telia) form on the oak leaves. Spores produced on the telia infect the pine.

Control - The control strategies for fusiform rust are complex for forest stands and nurseries, and are too numerous to discuss here. The user is referred to the management strategies developed by Anderson and Mistretta (1982). Discuss this with a forest pest management specialist for more information.

Pitch canker (caused by *Fusarium moniliforme* var. *subglutinans*) can damage many pine species, including all of the commercially important southern pines. In forest stands, only plantations of slash, and occasionally loblolly pine, are seriously affected. The disease can be common in certain families in pine seed orchards. While mortality can result from abundant cankering, losses in growth are more common.

Identifying the Fungus - Pinkish fruiting bodies (sporodochia) containing fungus spores are produced on cankered shoots in the needle scars and on the outer surface of bark. Microscopic features of the sporebearing structures aid in identification.

Identifying the Injury - Infected trees exhibit shoot dieback of the current year's growth, and abundant resin flow from the affected area. The wood beneath cankers is resin-soaked. The main terminal and upper laterals are most often affected (see below).

Biology **-** Fungus spores are airborne and spread in the summer during windy, wet periods. The spores infect wounds. The eastern pine weevil, which breeds in dying trees and feeds on the phloem of

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Spotlight (continued from page 6)

young branches, can transmit the disease. Spores are abundant in the litter beneath diseased stands, and fruiting bodies persist for months on diseased shoots.

Control - No specific control procedures are available for pitch canker. Forest practices which maintain stand vigor -for example, thinning- may minimize disease hazard. Harvesting of heavily diseased stands is recommended. Genetic resistance to the disease exists and should be included in future pest management strategies.

Pine needle rust (caused by *Coleosporium* sp.) is most prevalent on young trees. The disease usually does not seriously damage trees, and is of most concern in Christmas tree plantings and nurseries. Most two- and three-needle pines throughout the South are susceptible. Goldenrod, asters, and other plants serve as the alternate hosts.

Identifying the Fungus - The fungus has four stages. The aecial stage on the pine needles looks like small, white-orange "sacks" (see above). Aeciospores infect the alternate host, which results in orange, powdery spores on the leaves. Later, orange, cushionlike objects, called telia, are produced on the underside of the leaf. The last stage (pycnial) looks like frosty, orange droplets on the pine needles.

Identifying the Injury - Infected pines often have white-orange blisters on the needles. Although these are actually fruiting structures of the fungus, they are an obvious feature of infection.

Biology **-** Pycniospores form on pine needles in the spring; then orange, aecial blisters form. The spores from the aecial blisters infect the alternate hosts and urediospores are produced on the leaf. These spores reinfect the alternate host, but not the pine. Later, telia form on the leaves. These produce orange-yellow spores, which infect the pine.

Control - No control is needed in forest stands. The alternate host can be reduced through mowing or the use of herbicides. This would only be justified around high-value areas, such as nurseries.

Sooty mold can cause a sooty, gray-black, velvety, often crust-like coating to develop on leaves or needles and branches of hardwoods and pines. The coating is actually the growth of one or more species of dark fungi. Sooty molds grow only on the plant surface and will not kill plants. Under extreme cases, it is possible for the black growth to block enough sunlight to interfere with photosynthesis. In such instances, leaves or needles and new shoots may be smaller or less intensely colored. Respiration may be reduced through the physical closure of stomates by the molds' vegetative growth.

Sucking insects (aphids, soft scales, mealybugs, whiteflies, leafhoppers, planthoppers and psyllids) are the primary cause of sooty mold growth. When feeding on leaves and stems of trees and shrubs, they often produce excessive, watery excrement (honey dew) that is rich in sugars, amino acids, proteins minerals and vitamins. Excreted honeydew often falls on leaves, needles, branches and anything else immediately under the infested area of the plant. It is on this excretion that the sooty mold fungi grow.

Control of sooty molds is accomplished by controlling the honeydew-producing insect. Chemical control is most commonly used to manage sucking insect pests. However, it is important to properly identify the insect before selecting a registered insecticide. Read the label!

Reference:

Anderson, R.L. & P.A. Mistretta. 1982. Management strategies for reducing losses caused by fusiform rust, annosus root rot and littleleaf disease. USDA Forest Service Agric. Handbook 597. (http://www.forestpests.org/MS4RL/MS4RLInt.html)

USDA Forest Service. 1989. Insects and diseases of trees in the South. USDA Forest Service So. Reg. Protection Rep. R8-PR 16.

Thought You Might Be Interested to Know . . .

Pounce®-Treated Seedlings also Available from Weyerhaeuser

In the December 2003 issue of PEST, Don Grosman had written an article "A Reminder: Pounce on those Weevil Before They Pounce on Your Seedlings." In this article, he mentioned that Pounce®-treated seedlings were/are available from International Paper and Texas Forest Service nurseries, but failed to mention that Weyerhaeuser also could provide Pounce®-treated seedlings at all four of their nurseries. The Weyerhaeuser nurseries are located in Magnolia, AR - Pine Hill, AL, Aiken, SC and Washington, NC.

Disposal of Hazardous Waste

(Source: Georgia Pest Management Newsletter, Mar. 2004)

Here is an interesting web site that can help you properly dispose of hazardous materials. The site earth911 is recommended by EPA (in Texas use http://texas.earth911.org/usa/master.asp; for other states, exchange the state name for texas). You can enter your zip code; the web site will tell if there is a nearby location that will accept the item(s) that you need to dispose of safely. The site includes a range of materials from adhesives (waste adhesives can really stick around) to used tires.

Other Pesticide News

(Source: Illinois Pesticide Review, Jan. and Mar. 2004)

ONYX (bifenthrin)—FMC—A new formulation to control various insects in lawns and ornamentals. It is especially effective on borers in ornamental trees. **Note**: It is the only product currently registered and proven effective for protection of pines against the southern pine beetle.

QUICK SILVER IVM (carfentrazone-ethyl)—FMC—A new formulation to control various weeds in rights-of-way, fence rows, utility areas, and industrial areas.

*ARABESQUE (*Muscodor albus *strain QST 20799)—Agra Quest*—A new biological fungicide being developed for use on postharvest citrus, pome and stone fruit, cut flowers, and fruiting vegetables, and as a growing media and seed treatment to control root rot, damping off, and wilt diseases.

CRUISER (thiamethoxam)—Syngenta—Added to their label the use as a seed treatment to control various insects on succulent shelled and edible podded beans and sunflowers.

CHLOROPICRIN—This soil fumigant is now being manufactured and marketed by Arvesta in the United States.
AKARI (fenproximate)—Sepro—Currently registered to control mites in greenhouses; an outdoor nursery label is expected by early next year.

HURRICANE (mefenoxam/fludioxo-nil)—Syngenta—A new fungicide combination being developed for use on ornamentals to control Pythium, Rhizoctonia, and other diseases.

New Bait Blower to Aid Fire Ant Control

(Source: AgNews, Dec. 2003)

Technology developed by Texas A&M University to combat red imported fire ants has been adapted and is now commercially available.

Herd Seeder Co. of Logansport, Ind., has developed an air-assisted bait blower from a concept and prototype developed by Dr. Charlie Coble, a retired Texas A&M professor of agricultural engineering. The bait is metered into an air stream and distributed through an outlet system, dispersing the bait from 30 to 50 feet.

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Bait Blower (continued from page 8)

The new development is actually a combination of a leaf blower that employs a small gasoline-powered engine and a conventional Model GT-77 Herd Seeder. The bait blower's air stream is generated by the leaf blower and delivered through a directional shoot.

Both the seeder and blower are mounted to a structure that swivels and allows the user to direct the application to either side of the vehicle. The seeder produces a 20-foot swath from the center, which is ideal for applications to pastureland, sod farms, golf courses, large landscapes, and park land. It avoids applications to roadways and can apply the correct rate of product while traveling up to 20 miles per hour for large-scale treatments.

Bait-formulated fire ant insecticides are the most cost-effective and least environmentally disruptive products available to eliminate red imported fire ant problems in larger treatment areas.

Reports of development and demonstration of the prototype bait blower device at Texas A&M University can be found on the Web site, http://fireant.tamu.edu.

For the complete story, go to http://agnews.tamu.edu/dailynews/stories/ENTO/Dec1703a.htm

Pest Alert: Sudden Oak Death

What is it? It's a canker disease caused by a fungus, *Phytophothora ramorum*, that has killed thousands of oaks in California.

Where is it found? California, Oregon, & Europe

What species are affected? Species that are killed include coastal oaks and tan oaks. It is found on many other species of trees and shrubs but appears not to kill those species. Greenhouse seedling studies have shown that northern red oak and pin oak are susceptible. On other hosts, *P. ramorum* causes a range of leaf spots, shoot dieback, and branch dieback but may not kill the plant. Viburnum, huckleberry and rhododendron can be killed by the pathogen. This site http://cemarin.ucdavis.edu/symptoms.html (exit DNR) has a listing of the various species that can be infected and pictures of the symptoms on those plants.

What does the disease look like? http://www.na.fs.fed.us/spfo/pubs/pest_al/sodeast/sodeast.htm (exit DNR) shows what the bleeding cankers look like and some other oak problems that might look similar. How could it get here? *P. ramorum* can be transported on nursery stock, seedlings, logs, wood products, firewood, soil, and water. It commonly infects rhododendron and may be moved on landscape plants.

Will it get to the Western Gulf Region? Sudden Oak Death has not been found outside of 10 counties in California and Oregon to date. There are currently quarantines in place in CA & OR to try to stop the movement of infected materials out of the current infected areas. Scientists warn that the disease could pose a threat in the east, as northern red oaks and pin oaks seem to be susceptible to the disease. Red and pin oaks have a combined range that spreads from northeastern Texas to Nova Scotia and are dominant in those forests.