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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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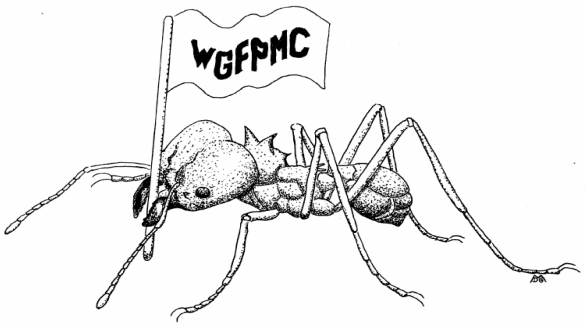
Announcement:

Entomology Seminar - All WGFPMC executive and contact representatives, industry, and TFS foresters are invited to attend the fall session of the East Texas Forest Entomology Seminar scheduled for October 28 & 29, 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 were presented in the last PEST newsletter (March 2004). Results from leaf-cutting ant control and systemic injection duration, rate, and new Denim®/fipronil studies are presented below.

Texas Leaf-cutting Ant

Volcano® Leafcutter Ant Bait has been highly effective in halting Texas leaf-cutting ant activity (TLCA) since its registration in Texas (1999) and Louisiana (2000). However, environmental concerns about the sulfluramid class of chemicals have lead to the scheduled phase out of Volcano® in 4 - 7 years (2008-11). Recently, a 'new' bait, Grant's Total Ant Killer Bait® (containing the active ingredient hydromethylnon) was registered in Texas. This bait is reported to be the same formulation as the 'old' Amdro® Leaf-cutting Ant bait that was only about 30% effective in halting ant activity when used in the mid–1990's. Two small trials were conducted in December 2003 and February 2004 to evaluate the efficacy of the Grant's bait in halting ant activity.

Three (Dec. '03) and five (Feb. '04) TLCA colonies were treated and monitored in central east Texas on land managed by Temple-Inland and Texas Forest Service. The level of TLCA activity was evaluated 2, 8, and 16 weeks post-treatment for each colony and compared to activity prior to treatment.

The Grant's bait was ineffective in halting the activity of any of the three colonies treated in December (Table 1). However, the activity of 2 out of 5 (40%) colonies treated in February was halted with a single application of bait. There was no activity observed after 2 and 8 weeks post-treatment

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Table 1. Efficacy of Grant's Total Ant Killer Bait (hydromethylnon) applied over central nest area to control the Texas leaf-cutting ant (*Atta texana*) in east Texas (Dec. 2003 and Feb. 2004).

Treatment	Period Colonies Treated	No. of Colonies Treated	Mean Nest Area (m^2)	Mean # Mounds @ Trt.	Mean % initial activity [a] (% inactive colonies): 2 wk		8 wk		16 wk	
Grant's Total Ant Killer Bait® spread over CNA @ 340g/ colony	12/15	3	46	95	----	----	69.7	(0)	65.2	(0)
	2/20 - 2/27	5	31	87	36.2	(60)	92.2	(60)	34.1	(40)
		8	37	90	36.2	(60)	85.3	(38)	51.9	(25)
Check (no treatment)	12/15	2	49	102	----	----	80.3	(0)	98.6	(0)
	2/20 - 2/27	3	24	90	139.0	(0)	160.5	(0)	46.8	(0)
		5	34	95	139.0	(0)	128.4	(0)	67.5	(0)

CNA = Central Nest Area

on a third colony, but some ant activity was observed after 16 weeks indicating the colony was recovering from the treatment.

The results observed this year are consistent with results observed for Amdro® in the mid-1990's. At that time, only about 30% of the colonies treated were halted with single application. The reason for the relatively poor efficacy of the hydromethylnon bait was/is attributed to the small size of the bait particles. Leaf-cutting ants appear to prefer bait particles >2 mm in diameter. More than 50% of Grant's and Amdro® bait particles are less than 2 mm; such small particles are likely to be 'lost' to the ants when spread over the central nest area.

Notes: Trials conducted by the WGFPMC have shown the Volcano bait to be far more effective (nearly 100%) than the Grant's/Amdro® bait in halting ant activity. However, last fall Red River Specialties had sold out of Volcano. No additional shipments of the bait have come in. Red River Specialties has been expecting a shipment "any day now" for the past two months. An announcement will be sent out as soon as I receive word that the bait is available.

Also, the word from Adrian Krygsman, BASF's registration manager, is that the internal reviews for the new BES-100 (fipronil) bait are due in June. We should expect to hear on EPA's decision about the BES-100 registration in July. I'll send word as soon as I hear something.

Systemic Injection

Trials conducted by the WGFPMC from 1999 and 2002 showed that injection of systemic insecticides using the high volume STIT injector (Helson 2001) could significantly reduce coneworm and seed bug damage compared to checks. Field tests were continued in 2003 to further evaluate the residual activity of high volume trunk injections of emamectin benzoate (Arise®) and thiamethoxam in reducing losses to coneworms and seed bugs, and to evaluate the efficacy of different application rates of emamectin benzoate and thiamethoxam applied in 2001. A decision was made by Syngenta late in 2002 not to pursue registration of the Arise® formulation in the U.S. Thus, a new trial was established in 2003 to evaluate the Denim® formulation of emamectin benzoate, the potential of fipronil for reducing cone and seed insect damage, and three injection systems for application of the treatments.

The field trials were conducted at the Texas Forest Service Magnolia Springs Seed Orchard in two blocks containing drought-hardy loblolly pine. For the duration trial, 5 ramets from 10 clones were selected. The 5 treatments consisted of:

1) Check
2) Emamectin benzoate (EB) 4% by STIT Injector in April '99, Group 1
3) EB 4% by STIT Injector in April '99 & '00, Group 2
4) EB 4% + Thiamethoxam (Thia.) 5% by STIT in April, '99, Group 1
5) EB 4% + Thia. 5% by STIT in April, '99 & '00, Group 2

For the rate study, 7 ramets from 10 clones were selected. The 6 treatments consisted of:

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1) Check
2) 20 ml emamectin benzoate (EB) 4% by STIT injector in April '01
3) 20 ml each of EB 4% + Thiamethoxam (Thia.) 5% by STIT
4) 10 ml each of EB 4% + Thia. 5% by STIT
5) 3 ml each of EB 4% + Thia. 5% by STIT
6) 20 ml Thia. 5% by STIT

For the Denim® / fipronil study, 8 ramets from 6-8 clones were selected. The 8 treatments consisted of:

1) Check
2) 16 ml Denim® (emamectin benzoate, 1.9%) by STIT in April '03
3) 16 ml Denim® by STIT
4) 16 ml Denim® by Arborjet's hydraulic system
5) 16 ml Denim® by Sidewinder's backpack system
6) 10 ml fipronil (experimental EC, 4%) by Arborjet or Sidewinder
7) 10 ml fipronil (Termidor®, 4%) by Arborjet or Sidewinder
8) Asana XL (foliar hydraulic) 5 times per year at 5 week intervals

For all three studies, the effects of treatments on 2nd-year cones were checked by evaluating damage on picked cones from each tree. Seed lots, from a subsample of apparently healthy cones, were radiographed to measure the extent of seed bug damage.

Duration Study: Evaluations of picked cones showed moderate coneworm damage (21%) on check trees in 1999 and 2000, but more extensive damage in 2001 (34%), 2002 (32%) and 2003 (27%).

Treatments that included emamectin benzoate continued to provide good protection against coneworm attack in 2003 – five years after initial injection (Fig. 1). Both emamectin benzoate alone

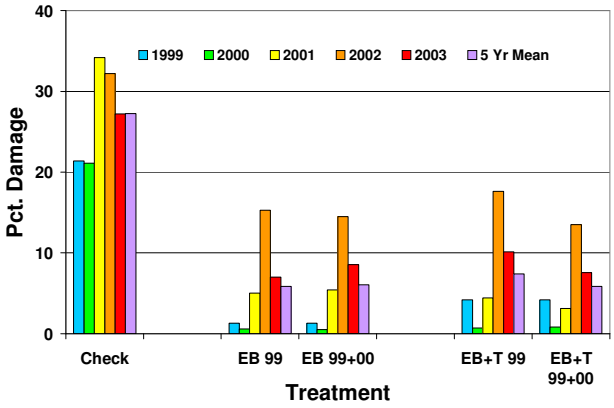

Figure 1. Coneworm infestation in picked cones from Magnolia Springs Seed Orchard, Texas from 1999 to 2003. EB = Emamectin benzoate; T = Thiamethoxam; 99 = injected '99 only; 99+00 = injected '99 & '00.

and emamectin benzoate + thiamethoxam reduced overall coneworm damage by 96+% in 2000, 84+% in 2001, 52+% in 2002 and 63+% in 2003, compared to the check. As in past years, two-injection treatments containing emamectin benzoate did not differ from single-injection treatments. Therefore, a single injection of emamectin benzoate is sufficient to protect trees against coneworm for at least five full growing season.

All injection treatments significantly reduced seed bug damage levels (by 33+%) in both 1999 and 2000 (Fig. 2). However, none of the treatment differed from the check from 2000 to 2003.

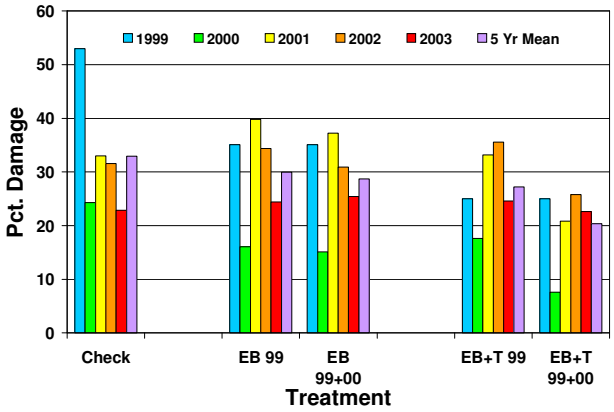

Figure 2. Seed bug damage in loblolly pine seed from Magnolia Springs Seed Orchard, Texas from 1999 to 2001. EB = Emamectin benzoate; T = Thiamethoxam.

This trial indicates that emamectin benzoate alone does provide some protection against seed bug. The addition of thiamethoxam did provide some improvement in efficacy during the first and second year. However, the marginal improvement over emamectin benzoate alone and the apparent need for yearly treatments suggests that thiamethoxam may not be cost effective.

Rate Study: Evaluations of picked cones showed similar levels of coneworm damage (33%) on check trees in 2003 compared to 2002 (34%), but lower than 2001 (46%) (Fig. 3). All injection treatments significantly reduced coneworm damage compared to

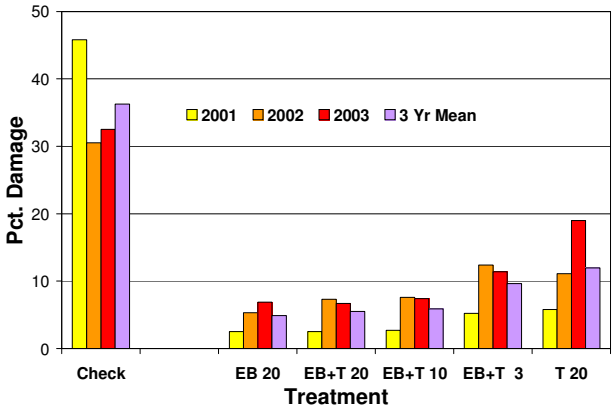

Figure 3. Coneworm infestation in picked cones from 2001 - 2002 Rate Study at Magnolia Springs Seed Orchard, Texas. EB = Emamectin benzoate; T = Thiamethoxam; AXL = Asana XL.

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check trees and, except for thiamethoxam alone, all showed improved efficacy compared to 2002. As in 2001 and 2002, emamectin benzoate alone and the higher rates (10 and 20 ml) of emamectin benzoate + thiamethoxam reduced coneworm damage to the greatest extent (77+%) compared to the check in 2003.

None of the treatments significantly reduced seed bug damage compared to the check in 2003 (Fig. 4). This follows the trend observed in the duration study that seed bug damage is not reduced past the second year after injection.

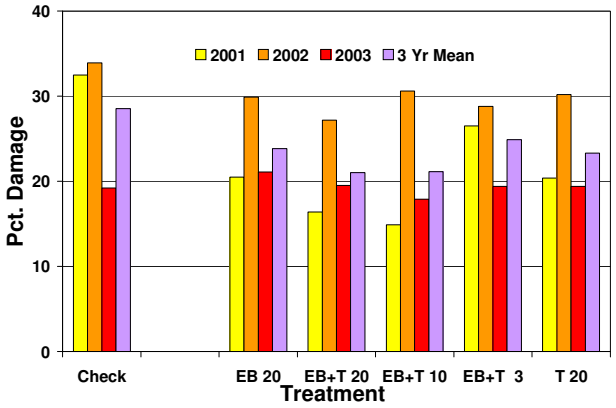

Figure 4. Seed bug damage in loblolly pine seed from 2001 - 2002 Rate Study at Magnolia Springs Seed Orchard, Texas. EB = Emamectin benzoate; T = Thiamethoxam; AXL = Asana XL.

Both the duration and rate studies showed improvements in emamectin benzoate treatment efficacy in 2003 compared to results in 2002. This indicates that the movement of emamectin benzoate in trees is variable year to year and is likely influenced by moist conditions in the soil.

Denim® / Fipronil Study: All three injection systems (STIT, Arborjet and Sidewinder) were used successfully to inject Denim® and two fipronil formulations. The injection times for Denim® were similar for all systems (20 – 40 minutes), but considerably longer than those observed when injecting Arise (5 – 10 minutes) as part of the duration and rate studies. Mostly likely the higher viscosity of Denim® and drought conditions prevalent in April contributed to the longer injection times.

No differences in damage levels occurred among the high rate (16 ml) Denim® treatments when applied with different injection systems or between the two fipronil treatments so the data were pooled for each chemical. All injection treatments significantly reduced early and late coneworm damage compared to the check (Fig. 5). Although damage was reduced, the amount of early season damage was fairly high (>7%) for all treatments. In contrast, both Denim® and fipronil, provided good protection against late season coneworm attacks. This lower level of first year efficacy compared to previous trials was most likely due to slow translocation of chemicals as a result of drought conditions. The high rate Denim® treatment had significantly higher proportions of healthy cones compared to the check.

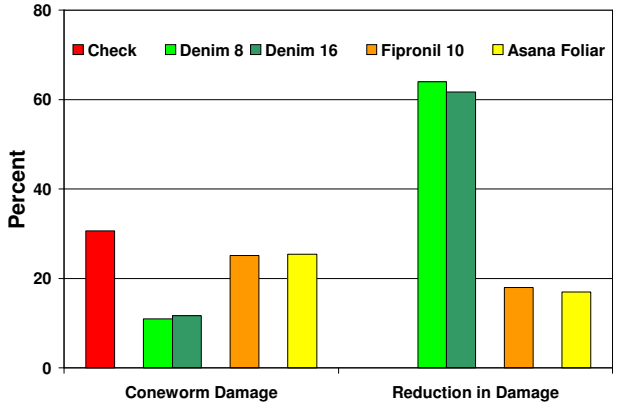

Figure 5. Percent coneworm damage and reduction in damage in picked cones from 2003 Denim/Fipronil Study at Magnolia Springs Seed Orchard, Texas..

None of the treatments, including Asana® XL, significantly reduced total seed bug damage (Fig. 6), nor did these treatments increase the number of full seeds per cone compared to the check.

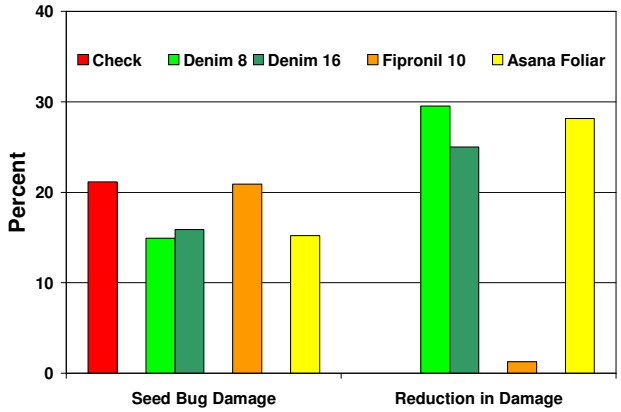

Figure 6. Percent seed bug damage and reduction in damage in loblolly pine seed from 2003 Denim/Fipronil Study at Magnolia Springs Seed Orchard, Texas.

This is the third study over six year period to demonstrate that emamectin benzoate is effective in protecting 1st and 2nd-year loblolly cones against coneworms. Unfortunately, because seed orchards use constitutes a very small market (only ~2,000 acres in the South), Syngenta has been reluctant to

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support an injection use registration. An effort is been made to encourage other researchers to test this active ingredient on other insect targets. Preliminary evidence indicate that injected emamectin benzoate is also very effective against forest tent caterpillar (Kentucky) and reproduction weevils (Virginia) and has moderate effects on Asian longhorned beetle (ALB). In light of this, a list of potential markets (pest targets) was prepared and submitted to Dave Cox, Syngenta. Arborjet™ is very interested in emamectin benzoate and is in negotiations with Syngenta to possibly obtain technical product to create a more injectable formulation. Also as a result of the weevil and ALB trials, there is interest to determine if emamectin benzoate has activity against other beetles include the emerald ash borer and southern pine bark beetles, particularly the southern pine beetle. A trial was established by the WGFPMC this spring to test the efficacy of single-tree injections of emamectin benzoate, fipronil, imidacloprid or dinotepheran for protection against *Ips* engravers.

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Southern Pine Beetle South-wide Trend Predictions for 2004

by Bill Upton and Ronald F. Billings (with data contributed by southern forest pest specialists)
(See http://texasforestservice.tamu.edu/pdf/forest/pest/SPB%20tbl1%2004.pdf)

The southern pine beetle (SPB), *Dendroctonus frontalis*, has a well-deserved reputation as the most destructive forest pest of pine forests in the South. In 2000, nearly 60,000 multiple-tree infestations were detected on federal, state and private forest lands throughout the South, resulting in the loss of millions of dollars of resources. The Texas Forest Service (TFS) has developed a reliable system for predicting infestation trends (increasing, static, declining) and levels (low, moderate, high, outbreak) that has been implemented across the South since 1986. This information provides forest managers with valuable insight for better anticipating SPB outbreaks and more lead-time for scheduling detection flights and preparing suppression programs.

Each spring, traps baited with the SPB attractant (frontalin) and southern pine turpentine are set out in pine forests when dogwoods begin to bloom. Dogwood blooms mark the primary dispersal season for populations of the destructive SPB as well as certain beneficial insects. The traps are monitored weekly for a 4-6 week period by federal and state cooperators. Of particular value for forecasting purposes are catches of clerids (also called checkered beetles), known predators of SPB. Using data on the average number of SPB captured per trap per day and the relative proportion of SPB to checkered beetles, infestation trends for the current year can be forecasted (see related article entitled "How to Forecast Southern Pine Beetle Infestation Trends with Pheromone Traps" http://texasforestservice.tamu.edu/pdf/forest/pest/tutorial_for_predicting_spb.pdf).

The results from the 2004 prediction survey (Table 1) indicate increasing populations in Mississippi and Alabama, and certain counties or ranger districts in Georgia, North Carolina and South Carolina. Overall, beetle activity is predicted to be declining from last year's moderate levels or remain low in most areas surveyed in other states. One notable exception is the Tiak Ranger District in Oklahoma, where high trap collections of SPB were recorded in at least one stand. Very few or no SPB infestations are expected again this year in Texas, Arkansas, Louisiana, Florida, Kentucky, Tennessee and Delaware.

Annual predictions of infestation trends have proven to be 75-85% accurate. Collectively, trend predictions from numerous specific locations provide insight into SPB population shifts within a given state as well as across the South. Also, comparison of trapping results for the current year with those from the previous year for the same localities provides additional insight into SPB population changes.

In general, average trap catches that exceed 30 SPB per day, especially those in which SPB make up more than 35% of the total catch (of SPB and clerids), are indicative of increasing or continued high SPB infestation levels in the current year. Conversely, when catches of predators far outnumber those of SPB and fewer than 20 SPB adults are caught per day, infestation trends are likely to decline or remain at low levels. It is uncertain whether the predator population is directly responsible for declines in SPB outbreaks. Most likely, predators are just one of many contributing factors.

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SPB predictions (continued from page 5)

The South-wide SPB survey results and trend predictions will also be posted on the Internet at http://www.srs.fs.usda.gov/4501/ . Appreciation is expressed to the many state and federal cooperators who provide the data for this annual survey. For additional information, contact Dr. Ronald Billings, Texas Forest Service, at (979) 458-6650 or by e-mail at rbillings@tfs.tamu.edu.

TABLE 1: SUMMARY OF SOUTHWIDE SOUTHERN PINE BEETLE TREND PREDICTIONS FOR 2004

State	No. of Infestations in 2003	No. of Locations Trapped	2003			2004			2004 Prediction Trend/Level	Most Likely Locations of SPB Activity
			% SPB	SPB/ trap/day	Clerids/ trap/day	% SPB	SPB/ trap/day	Clerids/ trap/day		
Oklahoma	0	2	0%	0.0	17.3	26%	17.3	18.9	Increasing/Low	Tiak R.D.
Arkansas	0	7	0%	0.0	11.6	6%	0.6	15.2	Static/Low	----------
Texas	0	17	0%	0.0	5.0	0%	0.0	5.3	Static/Low	----------
Louisiana	0	23	4%	0.2	3.4	0%	0.0	3.6	Static/Low	----------
Mississippi	65	10	26%	9.0	21.8	42%	32.8	41.0	Increasing/High	Chickasawhay and Desoto R.D., Oktibbeha and Winston counties
Alabama	206	6	28%	5.2	16.5	37%	15.0	21.2	Increasing/Low-Moderate	Oakmulgee and Shoal Creek R.D. and Tallapoosa County
Kentucky	NA	2	5%	2.7	49.8	0%	0.0	35.0	Static/Low	----------
Georgia	333	5	20%	12.3	43.1	17%	10.1	41.1	Declining/Low	Oconee R.D.
Tennessee	1,294	6	11%	1.6	17.4	9%	0.7	21.7	Declining/Low	Chester Co.
Virginia	50	4	33%	11.2	19.3	24%	8.8	21.2	Declining/Low	Buckingham and Cumberland counties
Florida	2	27	47%	1.9	2.5	21%	0.7	1.8	Static/Low	----------
South Carolina	9,514	34	38%	11.4	15.0	24%	5.9	18.4	Declining/Low	Long Cane R.D. and Dorchester. Edgefield, Horry, McCormick, and Saluda counties
North Carolina	181	14	32%	5.0	13.1	31%	5.2	13.8	Static/Low	Dare Bombing Range, Uwharrie R.D., and Wilkes County
Maryland	0	3	15%	0.2	1.3					----------
New Jersey	241	6	5%	0.9	32.0					----------
Delaware	3	4	24%	1.1	3.4	5%	0.1	2.2	Static/Low	----------
Southern States	11,889	170	18%	3.9	17.0	17%	6.9	18.6	Increasing/High in MS, Increasing/Low-Moderate in AL, Declining-Static/Low-Moderate elsewhere East, and Static/Low West	Mississippi, Alabama, South Carolina, North Carolina, and Oklahoma

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Thin to Win: Southern Pine Beetle Prevention Project Gains Steam in East Texas

By Ron Billings, Texas Forest Service

"In time of peace, prepare for war." Winston Churchill had the right idea, one that also applies to the southern pine beetle (SPB), the most destructive pest of pine forests in the southern U.S. and Central America. In 2001, the Texas Forest Service, with financial support from the USDA Forest Service, initiated the Southern Pine Beetle Prevention Project. Objectives of this on-going project are to evaluate the current hazard for SPB in East Texas, increase public awareness of SPB prevention practices, and provide incentives to forest landowners to "beetle-proof" their pine stands while SPB populations are at low levels.

The last SPB outbreak in East Texas peaked in 1993, when more than 13,000 acres of National Forest wilderness areas were devastated. Beetle populations declined in 1994 and no infestations have been detected since 1997. Historically, SPB outbreaks in Texas have been cyclic, with infestations reaching peak levels every 6-9 years. Dense, unthinned pine

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Thin to Win (continued from page 6)

stands, particularly those on poorly-drained, bottomland sites, are known to be most susceptible to the occurrence and spread of SPB infestations. Thus, pine forests in East Texas are overdue for another outbreak and thinning is the most effective prevention measure for commercial pine stands.

To minimize the impact of future SPB outbreaks, TFS has offered cost share incentives to qualified landowners in certain counties since September, 2003. Targeted counties include those considered most susceptible to SPB outbreaks, based on a recently-completed landscape–level hazard map for SPB based on the abundance and distribution of pine hosts.

According to the SPB hazard map developed by TFS, the 22 most beetle-prone counties, listed in decreasing order of susceptibility, are: Jasper, Tyler, Hardin, Panola, Trinity, Sabine, Marion, Angelina, Newton, Harrison, San Jacinto, Cass, San Augustine, Shelby, Polk, Walker, Nacogdoches, Gregg, Montgomery, Rusk, Cherokee, and Houston counties. Small private landowners with pulpwood stands in these counties qualify for cost shares if their pine stands meet the criterion of moderate or high hazard for SPB (see TFS Circular 249 entitled "*Southern Pine Beetle: Field Guide for Hazard Rating, Prevention, and Control*"). A pine stand located outside these specific counties would qualify only if it rates as moderate or high stand hazard **and** occurs in a TFS grid block (18,000 acre unit) rated as moderate, high, or extreme hazard to SPB, according to the SPB hazard map. If in doubt, the landowner should check with a TFS forester.

Cost shares consist of 50% of the costs for precommercial thinning up to $75/acre, plus up to $10/acre for consulting forester fees (if one is involved). For first thinning of merchantable pulpwood stands, landowners with an approved application receive a flat $50/acre and up to $10/acre for consulting forester fees. In the case of first merchantable thinnings, the federal cost shares are in addition to any profits made on the sale of extracted pulpwood. The maximum amount of cost shares any single landowner may receive is $8,500/year. The maximum is $17,000 for partnerships or trusts with 2 or more members.

As of June 1, the Texas Forest Service has received 91 cost share applications for SPB prevention and 84 (92%) have been approved for funding. Approved tracts consist of 1,037 acres of precommercial thinning and 6,393 acres of first thinnings of pulpwood-sized stands in 16 counties. The five counties with the most cost share cases to date are Angelina (9 cases), Hardin (9), Houston (11), Sabine (9), and San Augustine (9). A total of $398,325 of federal cost share funds has been encumbered to date, leaving some $450,000 of available cost share funds for the remainder of this fiscal year. These funds are provided through a grant from the USDA Forest Service and are administered by the Texas Forest Service.

The Texas Forest has employed two prevention specialists to help deliver the Prevention Project. Allen Smith, located now at the TFS office in Longview, works with TFS District Foresters in northeast Texas and Mike Murphrey, located at the TFS Forest Pest Management office in Lufkin, assists TFS foresters with the Project in southeast Texas. Dr. Ron Billings, TFS principal entomologist and SPB Prevention Project Director in College Station, is responsible for approving all SPB cost share cases received from TFS or consulting foresters.

Dr. Brad Barber with TFS has developed a data management system in College Station to track cost share applications and to maintain a summary of project accomplishments. Any landowner with young pine stands in need of first thinning should contact the nearest Texas Forest Service office for more information or to submit the required application forms. With your participation, we can be better prepared for the next SPB outbreak. In the meantime, by thinning your stands, you not only protect your investment by reducing the likelihood of bark beetle attacks, but also increase the growth and value of the stand. Furthermore, by thinning now, even though pulpwood prices are low, you will receive cost share incentives with an approved SPB prevention application. Truly, it is a thin-win-win situation.

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Sudden Oak Death: Status in Texas

by Kim Camilli and Ron Billings, Texas Forest Service, June 3, 2004.

Background: A disease known as Sudden Oak Death (SOD) was first reported in 1995 in coastal counties of California. Since then, tens of thousands of tanoaks (*Lithocarpus densiflorus*), coast live oaks (*Quercus agrifolia*), and California black oak (*Quercus kelloggii*) have been killed in California by a newly identified fungus, *Phytophthora ramorum*. On these hosts, the fungus causes a bleeding canker on the stem. The pathogen also infects (but usually doesn't kill) some 60 other species, including common landscape plants such as rhododendron, camellias, *Viburnum*, and *Vaccinium.*

Current Situation: Despite a quarantine on infected nursery plants, camellias infected with the sudden oak death pathogen were shipped in March 2004 from the Monrovia nursery in California to nurseries all over the Unites States, including various nurseries in Texas.

Surveys: There are four surveys occurring throughout the United States to ascertain the extent to which SOD occurs outside of California. Here is the current situation for Texas.

1) In 2003 there was a pilot survey done that surveyed random nursery locations throughout the state to detect if SOD was present in the nurseries. This was completed by David Appel and Sara Service at Texas A&M University. They created a website http://suddenoakdeath.tamu.edu) detailing information on the pathogen and their surveys.
2) APHIS in 2004 has had local state agencies perform surveys and collect samples within the nurseries that have received shipments from the Monrovia nursery out of California (Trace Forward Sites). These samples were collected and processed and Texas A&M University by Dr. Appel's lab and Larry Barnes Plant Diagnostic Center.
3) APHIS has included Texas in the national survey that will repeat the 2003 pilot survey this year.
4) The USDA Forest Service in 2004 is having state agencies as well perform perimeter nursery survey's that have received shipments from the Monrovia nursery out of California (Trace Forward Sites). Samples will be collected to see if the pathogen is on native vegetation adjacent to 112 nurseries in Texas. TFS pathologist Kim Camilli and Arnes Purdy (TFS seasonal employee) are conducting the 2004 perimeter surveys, with financial support from the USDA Forest Service. These samples also will be processed at Texas A&M University in Dr. Appel's lab.

Confirmed Locations: Based on the 2003 surveys by APHIS and state agencies there are 11 states that have been confirmed positive for SOD in nurseries. They include Colorado, Florida, Georgia, Louisiana, Maryland, North Carolina, New Mexico, Tennessee, Texas, Virginia and West Virginia

Confirmed in Texas: It has been confirmed in 5 nurseries in Texas to date, but, according to Dr. Appel, symptomatic host plants have been collected from a half dozen other nursery sites and these await confirmation of the disease. To date, no SOD has been found outside of nurseries in Texas. Due to high temperatures and other factors, Texas is considered low risk for the disease. Nevertheless, whether the disease will become established and spread in native trees outside of moist nursery environments in Texas remains to be determined.

Hosts: In Texas there are 10 plant genera that this pathogen are known to infect. They are *Acer, Aesculus, Arbutus, Pseudotsuga ,Quercus, Rhamnus, Vaccinium, Viburnum, Castanea* and *Fagus.* These are the suspect hosts in Texas that we are looking at for the perimeter surveys for those nurseries that have received nursery stock from Monrovia.

Symptoms:

For oaks the symptoms will include:

- Brown to black cankers on lower trunk and occasionally on branches
- Oozing dark red to black sap
- Cankers on some species may not bleed
- Healthy appearing crown in the early stages
- Later stages: thinning or complete browning of crown over a period of weeks
- Beetles and *Hypoxolon* fungus often move opportunistically into SOD weakened trees
- Twig dieback on some species
- Spontaneous drooping of new growth on some species (tanoak)
- When the outer bark is removed, a dark zone line is evident delimiting healthy tissue from necrotic tissue

Continued on Page 9

Sudden Oak Death (continued from page 8)

For foliar (non-oak) hosts, symptoms will include:

- Leaf spots
- Twig dieback
- SOD on foliar hosts can only be identified with certainty by laboratory analysis

Texas SOD Task Force: At the suggestion of Drs. Ron Billings (TFS) and Dave Appel (TAMU), an organizational meeting was held in Austin on June 3, 2004 to discuss the current status of SOD in Texas and future plans. As a result of this meeting, a Sudden Oak Death Task Force was initiated for purposes of coordinating state-wide efforts and increasing communication about the disease. Members of the Texas SOD Task Force include specialists and involved representatives from the USDA Animal and Plant Health Inspection Service (APHIS), Texas Department of Agriculture (TDA), USDA Forest Service, Texas Forestry Association, TAMU Department of Plant Pathology and Microbiology, TAMU Plant Diagnostics Lab, Texas Parks and Wildlife Department, and the Texas Forest Service.

Pictures and Further Information:

- http://suddenoakdeath.tamu.edu
- http://www.suddenoakdeath.org/
- http://camfer.cnr.berkeley.edu/oaks/
- http://www.forestpathology.org/dis_sod.html

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Thought You Might Be Interested to Know . . .

Membership Evaluation of WGFPMC Research and Technology Transfer Activities in 2003.

Activity	# of People Responding	Average Score *
Overall accomplishments of the WGFPMC:	8	4.10
Progress of primary research projects:		
Seed orchard systemic injection -	6	4.17
Tip moth impact -	8	4.38
Tip moth hazard rating -	8	4.00
Tip moth control -	8	4.25
Leaf-cutting ant control -	7	4.00
Transfer of information via newsletters, meetings, phone contacts and demonstrations:	8	4.38
Should there be an increase in the number of any mediums of transfer?	8	1-Yes; 7-No
Usefulness of information in PEST newsletter:	8	4.50
Usefulness of pesticide web site:	6	4.17
Benefit of on-site visits:	3	4.33
Usefulness of Executive Committee meetings:	2	4.00
Usefulness of Contact meetings:	4	4.25
Don Grosman's performance as coordinator of the WGFPMC:	8	4.63

WGFPMC contribution or activity that was most useful in 2003:

3 - fipronil (tip moth control), 3 - newsletter (information on status of pests and control methods & pesticide updates), 2 - seed orchard injection

WGFPMC contribution or activity that was least useful in 2003:

2- leaf-cutting ant control, exotic pests, tip moth hazard rating

Other pest species or problems of concern:

"tip dieback & pales", "aphids", "Expand the staff to include a full-time research technician or specialist"

Other Comments:

1. "I like what your doing a lot. My only reservation is that experiments sometimes seem to be poorly designed. The membership has tried to help on this and our input was well received. Keep up the good work."
2. "Overall performance good to excellent."
3. "We think you could send the newsletter electronically and discontinue the hardcopy."
4. "4 newsletters per year. Pesticide web page needs to be updated. Need to analyze tip moth hazard rating data."
5. " The primary exposure that I have to the WGFPMC is through the newsletter. I find it very informative and, at times, entertaining."

* Members were asked to rate activities or performance on the following scale: 1 (poor) to 5 (excellent).