QUESTEX MEDIA
FOR CLIENT REVIEW ALL RIGHTS RESERVED QUESTEX MEDIA GROUP INC 2005

2004 termiticide report

The Forest Service continues to improve operations to meet the high demand for testing

By Drs. Terry Wagner, Chris Peterson, Joe Mulrooney and Thomas Shelton • Contributors

Termiticide registrations have been newsworthy for years now, as highlighted in some of the recent USDA Forest Service termiticide reports published in this magazine. One issue driving the changes in pesticide registrations is the length of time required to bring new active ingredients to the market. This is one of several issues that affect the number of safe and effective products available, and therefore it's important to everyone.

Product development time is controlled by several factors, including the registration process itself. For example, a battery of toxicological, environmental impact and efficacy tests are required to register new termiticides. Termiticide efficacy tests alone require six to eight years to complete.

Once completed, registrants submit data registration packages to the U.S. Environmental Protection Agency. The agency has a growing backlog of pending actions, which has further slowed registrations. To expedite decision-making and reduce the backlog, the Pesticide Registration Improvement Act (PRIA) was implemented in March 2004. This legislation allows EPA to collect fees from registrants to help expedite the process. It places registration actions on strict timelines to create more predictable evaluations associated with specific decision review periods. It also promotes shorter review periods for reduced-risk products.

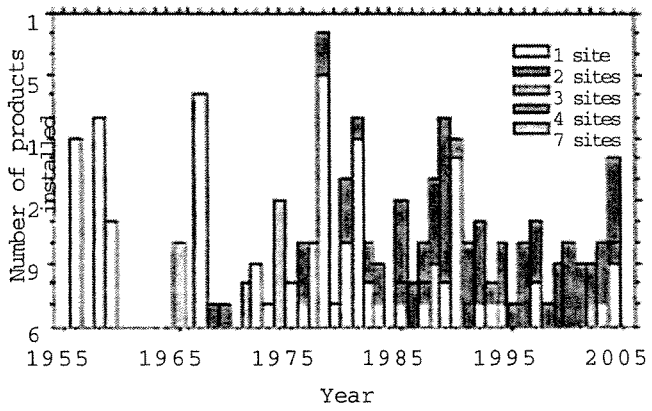


Figure 1: Total number of new products installed by USDA-FS at varying test sites per year.

The USDA-FS has implemented changes to its termiticide testing program to increase efficiencies and productivity. These changes keep pace with the growing demand for testing, as illustrated in Fig. 1. This demand will continue through 2005, judging by the numerous requests received for product installations.

REACHING THE GOALS

Two goals of the USDA-FS have been to make the testing program more self-supporting and independent of other research activities within the project. These goals were partially realized during the last year by increasing the fees charged to registrants for testing. For example, between 1990 and 2001, testing fees were nominal and stable, averaging about $21,000 for the typical six-year field trial. In 2002, fees were increased sharply to offset rising costs, and today the typical cost of evaluating a termiticide for six years is $180,000.

Testing funds have accumulated over the last couple years, and in 2004 the Forest Service hired several employees devoted primarily to these activities. These added personnel created a separate testing program for the first time, albeit still dependent on the contributions of other project members hired to conduct independent research (Fig. 2). Contractors were also hired in 2004 to assist with product installations on a per-site basis. They were obtained from other USDA-FS units in Arizona and South Carolina, plus a private contractor from Mississippi State University to assist at the Florida and Mississippi sites.

continued on next page

QUESTEX MEDIA
FOR CLIENT REVIEW. ALL RIGHTS RESERVED. QUESTEX MEDIA GROUP INC. 2005

TABLE 1. Number of years that termiticides remained effective in concrete slab (CS) and ground board (GB) tests at four field sites applying the EPA guideline and Florida efficacy rule.† Fractions of years occurred when products were installed out of cycle. Control = percentage of all control plots attacked over the life of the study.

		Arizona		Florida		Mississippi		South Carolina		FL SE States
% A.I.	Test	EPA	FL	EPA	FL	EPA	FL	EPA	FL	
Bifenthrin - Biflex TC (est. 1986)										
0.031	CS	0	9	4	11	2	5	2	4	4
0.062"	CS	16	16	18	18	7	7	10	16	10
0.125"	CS	10	15	9	18	2	7	18	18	9
0.25	CS	18	18	18	18	16	17	18	18	18
0.5	CS	6	18	18	18	18	18	18	18	18
0.031	GB	6	7	4	5	2	2	3	4	4
0.5	GB	10	11	14	18	12	15	8	11	14
Control	CS	54%		72%		59%		64%		-
Control	GB	64%		85%		80%		88%		-
Cypermethrin (est. 1982)										
0.125	CS	1	4	0.5	1.5	1	3	2	2	2
0.25"	CS	4	4	10.5	12.5	3	5	4	4	4
0.5"	CS	4	5	4.5	9.5	7	14	12	12	11.5
1	CS	8	10	7.5	21.5	6	15	12	16	15
1	GB	3	6	4.5	4.5	5	5	5	6	5
Control	CS	63%		67%		56%		65%		-
Control	GB	75%		76%		87%		90%		-
Permethrin - Dragnet (est. 1978)										
0.25	CS	8	10	2	2	1	2	0.5	0.5	1
0.5"	CS	13	19	4	4	5	6	4.5	4.5	4.5
1"	CS	15	15	15	25	5	8	10.5	11.5	10.5
1"	GB	9	11	6	6	2	3	0.5	3.5	3
Control	CS	50%		55%		60%		53%		-
Control	GB	43%		78%		86%		84%		-
Permethrin - Torpedo (est. 1980. Controls same as cypermethrin)										
0.25	CS	9	9	3	7	2	2	0.5	0.5	1.5
0.5"	CS	11	13	6	9	3	5	1.5	4.5	5
1"	CS	19	24	24	24	3	7	6.5	7.5	7
0.5"	GB	4	4	4	4	1	1	1.5	1.5	1.5
1"	GB	8	9	5	5	2	2	1.5	1.5	1.5

†EPA: years with no soil penetration through treated soil in any plot.
FL: years with no damage worse than ASTM 9 to test blocks in 90% or more of the plots per site.
FL SE States: years with no damage worse than ASTM 9 to test blocks in 90 percent or more of the plots for all southeastern sites.

The USDA-FS implemented a third strategy in 2004. For the first time, three registrants contributed to the installation of their own products. These installations were conducted under Forest Service supervision using regulator-approved procedures to assure the independence of tests. The Forest Service will be responsible for reading, summarizing and reporting the results of these tests during the following five years.

continued on page 46

TABLE 2. Number of years that termiticides remained effective in concrete slab (CS) and ground board (GB) tests at four field sites applying the EPA guideline and Florida efficacy rule.† Fractions of years occurred when products were installed out of cycle. Control = percentage of all control plots attacked over the life of the study.

	Arizona		Florida		Mississippi		South Carolina		FL SE States
% A.I. Test	EPA	FL	EPA	FL	EPA	FL	EPA	FL	
Imidacloprid - Premise 75 WSP (est. 1992)									
0.025 CS	12	12	12	12	1	1	3	4	2
0.05" CS	12	12	6	12	2	2	10	10	6
0.1" CS	12	12	12	12	2	4	5	12	8
0.15 CS	12	12	12	12	3	4	5	12	5
0.2 CS	12	12	12	12	2	5	5	5	5
0.25 CS	12	12	12	12	2	2	8	9	8
0.3 CS	12	12	12	12	5	5	5	11	12
0.4 CS	12	12	12	12	5	9	5	12	12
0.1" GB	3	7	2	2	1	1	2	2	2
0.2 GB	8	12	2	2	2	2	2	2	2
0.3 GB	5	6	2	2	2	2	1	2	2
0.4 GB	5	7	2	3	2	2	4	5	2
Control CS	34%		79%		78%		44%		-
Control GB	40%		97%		97%		76%		-
Fipronil - Termidor 80 WG (est. 1994)									
0.0625"CS	10	10	10	10	10	10	10	10	10
0.125" CS	10	10	10	10	10	10	10	10	10
0.25 CS & GB	10	10	10	10	10	10	10	10	10
0.5 CS & GB	10	10	10	10	10	10	10	10	10
1 CS & GB	10	10	10	10	10	10	10	10	10
Control CS	13%		21%		3%		4%		-
Control GB	9%		7%		13%		14%		-
Fipronil - Termidor SC (est. 1999)									
0.06"CS & GB	5	5	4.5	4.5	5	5	5	5	4.5+
0.125"CS & GB	5	5	4.5	4.5	5	5	5	5	4.5+
0.25 CS	5	5	4.5	4.5	5	5	5	5	4.5+
0.25 GB	0	5	2.5	4.5	2	2	5	5	4.5+
Control CS	2%		42%		72%		58%		-
Control GB	45%		95%		77%		87%		-
Chlorfenapyr - Phantom (est. 1996)									
0.125" CS	8	8	1	7	1	1	6	7	1
0.25" CS	8	8	8	8	2	5	5	8	6
0.5 CS	8	8	8	8	4	4	8	8	8
0.75 CS	8	8	1	1	5	5	8	8	8
1 CS	8	8	8	8	5	7	8	8	7
2 CS	8	8	8	8	1	8	8	8	8
0.25" GB	8	8	0	0	2	6	5	8	6
0.5 GB	5	8	1	8	4	4	8	8	5
0.75 GB	8	8	4	7	5	8	8	8	8
1 GB	8	8	8	8	5	8	8	8	8
2 GB	6	8	8	8	8	8	8	8	8
Control CS	24%		45%		95%		56%		-
Control GB	40%		84%		97%		99%		-

†EPA: years with no soil penetration through treated soil in any plot.
FL: years with no damage worse than ASTM 9 to test blocks in 90 percent or more of the plots per site.

While the three strategies allowed the USDA-FS to install more products this past year, they were not perfect solutions to the manpower shortages in the project — each has its own administrative and management challenges. For example, the three employees hired during 2004 have two-year temporary appointments, and it's clear that this approach will not provide long-term stability to the program. One of the employees has already taken a permanent position elsewhere, an event likely to recur with the continued use of temporary employees. This position will be refilled.

There were also some scheduling and logistical problems associated with the use of contractors and registrants, but otherwise these strategies worked fairly well. They will be used in the future. We continue to examine alternative solutions to help stabilize the workforce.

National test sites change with the times

In September 2004, Hurricane Ivan came ashore and moved between the Mississippi and Florida test sites. Fortunately, no damage was done. We installed products in an expanded 10-acre site in Arizona in 2004, and we continue to work toward expanding the site in South Carolina to meet future demands for testing. We also established a new site near Starkville, Miss., to accommodate requests to satisfy Florida registration requirements.

INSTALLATION CHANGES

The Forest Service also extended its capabilities in other ways. Typically, products are installed at the four test sites at the same time each year because they are evaluated annually on a schedule determined by the installation dates. Installation generally occurs in February at the Florida site, April in Arizona, June in Mississippi, and September in South Carolina.

To simplify program administration and management, each product in the past was installed at all four sites in one calendar year. Those products not ready to go to the field in February waited another year for installation. This "all sites or none" policy changed in 2004 to accommodate requests to install products at some, but not all of the sites. These requests reflect the concerns of registrants over the protracted registration times.

The Forest Service has also been working hard to improve communication with registrants. One improvement involves timelier reporting of results among ongoing tests. During the mid- to late 1990s, it took months to gener-

continued on next page

QUESTEX MEDIA
FOR CLIENT REVIEW ALL RIGHTS RESERVED QUESTEX MEDIA GROUP INC 2005

FOR CLIENT REVIEW Q
ALL RIGHTS RESERVED QUESTEX MEDIA GROUP INC 2005

Circle #122

ate annual reports after the last site visit in September. Today it takes about six weeks. Registrants are now requesting more frequent updates on product performance. To accommodate these requests, we are examining the use of computerized data recording to reduce the time of data collating and reporting. The goal is to quickly download electronic data into standardized tables that could be sent to registrants as needed.

STANDARD TEST METHODS

Two standard field methods are used to test soil-applied liquid termiticides: ground boards and concrete slabs. These methods are specified in EPA's Product Performance Test Guidelines, OPPTS 810.3600.

The ground board test consists of a pine board centered in a 17- by 17-inch plot of exposed treated soil, replicated 10 times at each test site. The concrete slab test consists of a 17- by 17-inch plot of treated soil covered by a 21- by 21-inch concrete slab. A covered 4-inch pipe extends through the center of the slab and contains a pine block placed on the treated soil. Both tests apply termiticides to the soil at an equivalent preconstruction rate of one gallon per 10 square feet.

Data are collected annually on the amount of damage to the wooden blocks and the presence of termites and mud tubes in the attacked plots. Damage is read using the Gulfport scale, where 0 = no damage, 1 = nibbles to surface etching, 2 = light damage with penetration, 3 = moderate damage, 4 = heavy damage, and 5 = block failure.

LATEST TEST RESULTS

In 2004, the USDA-FS collected efficacy data on five termiticides in the laboratory and 27 termiticides and five impregnated barriers in the field. Four new termiticides were installed at all four national test sites, one was installed at two sites (Mississippi and South Carolina), and another was installed at one site (South Carolina). Installations of the latter two products will be completed at the remaining sites in 2005. In addition, two termiticides were installed at the new site near Starkville, Miss. These generic termiticides are being tested for registration in Florida.

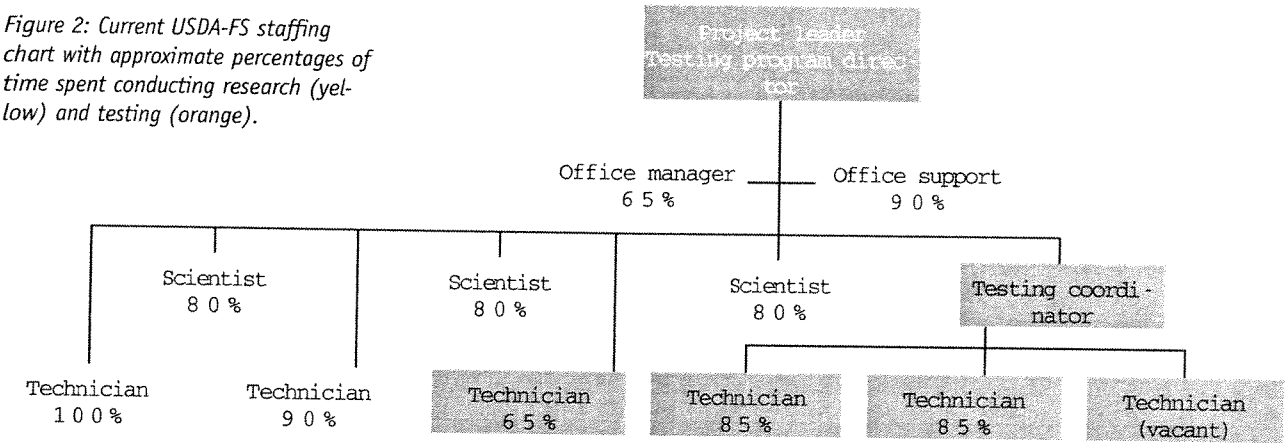
This year's report evaluates termiticides using EPA's Product Performance Test Guideline (OPPTS 810.3600) and the Florida Termiticide Efficacy Rule (5E-2.0311, FAC). The OPPTS guideline is used by EPA to determine acceptability of both pre- and post-construction use directions for a product. The Florida Efficacy Rule specifically applies

QUESTEX MEDIA
FOR CLIENT REVIEW. ALL RIGHTS RESERVED. QUESTEX MEDIA GROUP, INC. 2005

FOR CLIENT REVIEW Q
ALL RIGHTS RESERVED. QUESTEX MEDIA GROUP, INC. 2005

Circle #123

Figure 2: Current USDA-FS staffing chart with approximate percentages of time spent conducting research (yellow) and testing (orange).



to preventative treatments for subterranean termites for new construction.

According to federal guidelines, termiticides remain effective during the period that they prevent termites from penetrating treated soil in all test plots. Under the Florida rule, termiticides remain effective during the time that they prevent damage worse than ASTM 9 (Gulfport 1) to wooden blocks in at least 90 percent of the test plots. Termiticides must satisfy these criteria for at least five years to become registered, and they must do so at four national test sites using the concrete slab, ground board or stake tests (federal guidelines) or at one or more of the southeastern sites containing a minimum of 10 concrete slab plots (Florida rule).

Results for repellent and non-repellent termiticides are presented in Tables 1 and 2, respectively. The Florida rule applied to individual sites yielded longer (65 percent) or identical (35 percent) product performance periods than the federal guidelines (excluding paired comparisons of products that never failed). Florida, however, does not apply its rule on a site-by-site basis

continued on next page

QUESTEX MEDIA
FOR CLIENT REVIEW ALL RIGHTS RESERVED QUESTEX MEDIA GROUP, INC 2005

FOR CLIENT REVIEW Q
ALL RIGHTS RESERVED QUESTEX MEDIA GROUP, INC 2005

Circle #124

if data exits from multiple southeastern sites; rather, it combines data from all sites. Given this analysis, in 53 percent of the cases the Florida rule yielded longer performance periods than the EPA guidelines, in 23 percent of the cases it yielded shorter performance periods, and in 24 percent identical durations were observed (excluding paired comparisons that never failed and data from the Arizona site).

Four termiticides did not satisfy the minimum 5-year efficacy requirement at one or both of the registered rates applying the federal guideline (Tables 1 and 2). In fairness, most termiticides presented in this report were registered before the guideline was written. Because EPA's primary mission is to protect human health and the environment, it places greater weight on toxicology and environmental impact than efficacy. Therein lies the distinction between a guideline and a rule — the former may be subject to interpretation while the latter is not.

Two termiticides did not satisfy the minimum 5-year efficacy requirement under the Florida rule, each at the lowest registered rate. Florida is reviewing one of these compounds, cypermethrin. The other, chlorfenapyr, was not submitted for consideration for preconstruction use in Florida. Phantom, the brand name for the BASF termiticide containing chlorfenapyr, is registered for post-construction use in all states including New York, where it is the only approved nonrepellent termiticide.

LIMITED INTERIOR LABELS

EPA approved Termidor 80WG and Termidor SC label amendments in October 2004. These Exterior Perimeter/Localized Interior (EP/LI) treatment labels require a continuous treatment zone around the perimeter of structures and localized interior treatments where evidence of termite activity is found.

This use pattern is the first of its kind, marketed by BASF under the trade name PerimeterPlus. As part of its stewardship program, BASF is requiring all Termidor partners to complete training on the new use directions.

Similar labels from other product manufacturers are expected. For example, at press time Bayer has a limited interior-use label under review by EPA for Premise. These general-use patterns are expected to reduce pesticide exposure in residential settings. They have generally met favorable reviews, but some states have concern over the lack of mandatory reinspection after treatment. Several are considering restrictions on the new labels or conditional label approval that will require pre- and post-treatment inspections. **PC**

Wagner is project leader of the USDA Forest Service Wood Products Insect Research Unit in Starkville, Miss. Peterson, Mulrooney and Shelton are research entomologists with the research unit. Contact them at pccontributor@advanstar.com.

QUESTEX MEDIA
FOR CLIENT REVIEW ALL RIGHTS RESERVED QUESTEX MEDIA GROUP INC 2005
FOR CLIENT REVIEW Q
ALL RIGHTS RESERVED QUESTEX MEDIA GROUP INC 2005

Circle #125