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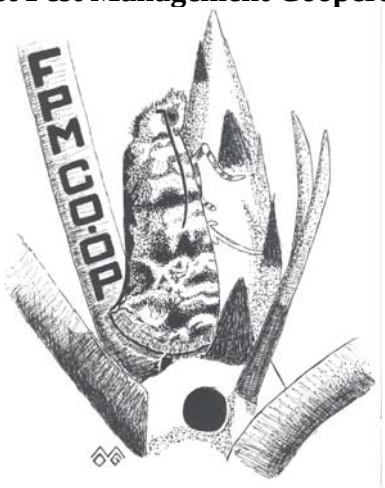
Quarterly Newsletter on Forest Pest Management Issues

Forest Pest Management Cooperative



Nantucket Pine Tip Moth, *Rhyacionia frustrana* (Comstock)

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

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 related to seed orchards and plantations. The newsletter focuses on, but is not limited to, issues occurring in the South (Texas to Florida to Virginia,).

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Announcement:

Entomology Seminar - All FPMC executive and contact representatives, industry, and TFS foresters are invited to attend the spring session of the East Texas Forest Entomology Seminar scheduled for April 22-23, 2010. 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 $30, which includes an evening meal. For additional information and/or an agenda, contact Ron Billings at 979/458-6665 or rbillings@tfs.tamu.edu.

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Summary of 2009 FPMC Research Projects

In 2009, three primary research project areas – leaf-cutting ant, tip moth, and systemic injection - were continued from 2008. We also revisited control of regeneration weevils and took a stab at fire ants. Summaries of the results from the leaf-cutting ant, fire ant and weevil studies are presented below. Results from systemic injection and tip moth impact, hazard-rating and control studies will be presented in the next two *PEST* newsletters (June and Sept. 2010).

Ant Control

Leaf-cutting Ants: Until last December, Amdro® Ant Block bait was the only product labeled for control of the Texas leaf-cutting ant (TLCA). Unfortunately, Amdro treatment results are less than satisfactory, ~30% effective with a single application. Now however, based on FPMC trials conducted in 2009, PTM™ Insecticide (BASF) also has been approved by EPA for use against these ants (*PEST* 14.4).

A new potential LCA bait is being developed and evaluated by FPMC in cooperation with Central Garden & Pet. The new bait (Amdro™ LCA or Schirm 1 & 2) was created by running the Amdro™ Ant Block bait with a small amount of water through a pellet mill and then allowing it to dry over two days. These baits, along with PTM™, were tested for effectiveness in four trials during winter, spring, summer and fall of 2009.

During each season, 32-41 LCA colonies were selected in east Texas on land owned by Hancock Forest Management, The Campbell Group, Rayonier and private landowners. Six to eleven colonies were treated with bait at 0.75 lbs per colony (regardless of colony size) in the winter or 10g/ m^2 in the spring, summer or fall. Six to eleven more were treated with PTM™ at 1 gal of insecticide solution per 300 ft^2 of central nest area in winter or 40ml per entrance hole in the other seasons. Additional (6-8)

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Leaf-cutting Ant Control – Continued from Page 1

colonies were monitored as untreated checks. All colonies were evaluated for ant activity at 0, 2, 4, 8 and 16 weeks post-treatment.

The PTM™ treatment was highly effective in halting ant activity during the winter and spring trials, but less effective in summer and fall trials (Figures 2, 3, 4 & 5). It is unclear what caused the reduced efficacy in the latter trials. One hypothesis is that the leaf-cutting ants tend to shift the position of the colony from sunny areas to more shady areas in the summer to help regulate temperatures within the colony. Perhaps this movement reduced exposure to the chemical (fipronil) and thus efficacy of the treatment.

The modified baits (Amdro™ LCA and Schirm 1 & 2) were quickly retrieved by the ants (Figure 1) on most colonies and reduced ant activity (80 - 100%) compared to initial activity within 2 weeks after treatment (Figures 2, 3, 4 & 5). Bait treatments were highly effective (83 – 100%) in halting activity even after 16 weeks in the winter and spring trials. However, similar treatments were less effective (33 - 70%) in the summer and fall when the bait was competing for the ant's attention with other plant sources. The FPMC is continuing to work with Central Garden & Pet to refine the new LCA bait. Also, a bait station is being developed and evaluated that would allow the use of the new LCA bait in residential, citrus and agricultural sites, where exposure of children, pets and livestock to broadcast bait is a concern. Central Garden & Pet expects to submit a registration request for the modified Amdro LCA bait to EPA by summer 2010. The turn-around for EPA is expected to be 4 months and an additional 1-2 months to get approval by the states (TX and LA). Thus, we hope the bait will be available by early winter 2010.

Figure 1. Texas leaf-cutting ant carrying modified Amdro LCA bait.

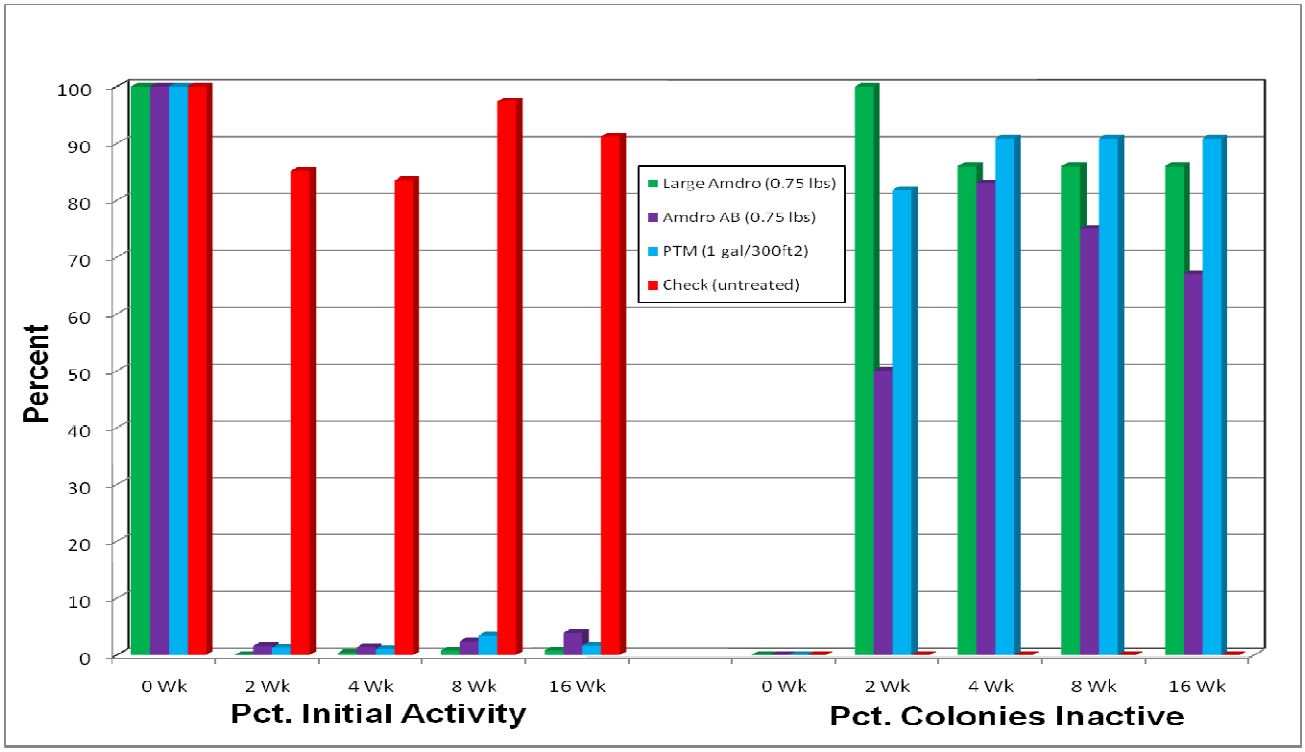

Figure 2. Efficacy of modified (large), unmodified (Ant Block) Amdro™, and PTM™ soil injections for reducing and halting Texas leaf-cutting ant activity 2 - 16 weeks after treatment, East Texas, **Winter 2009.**

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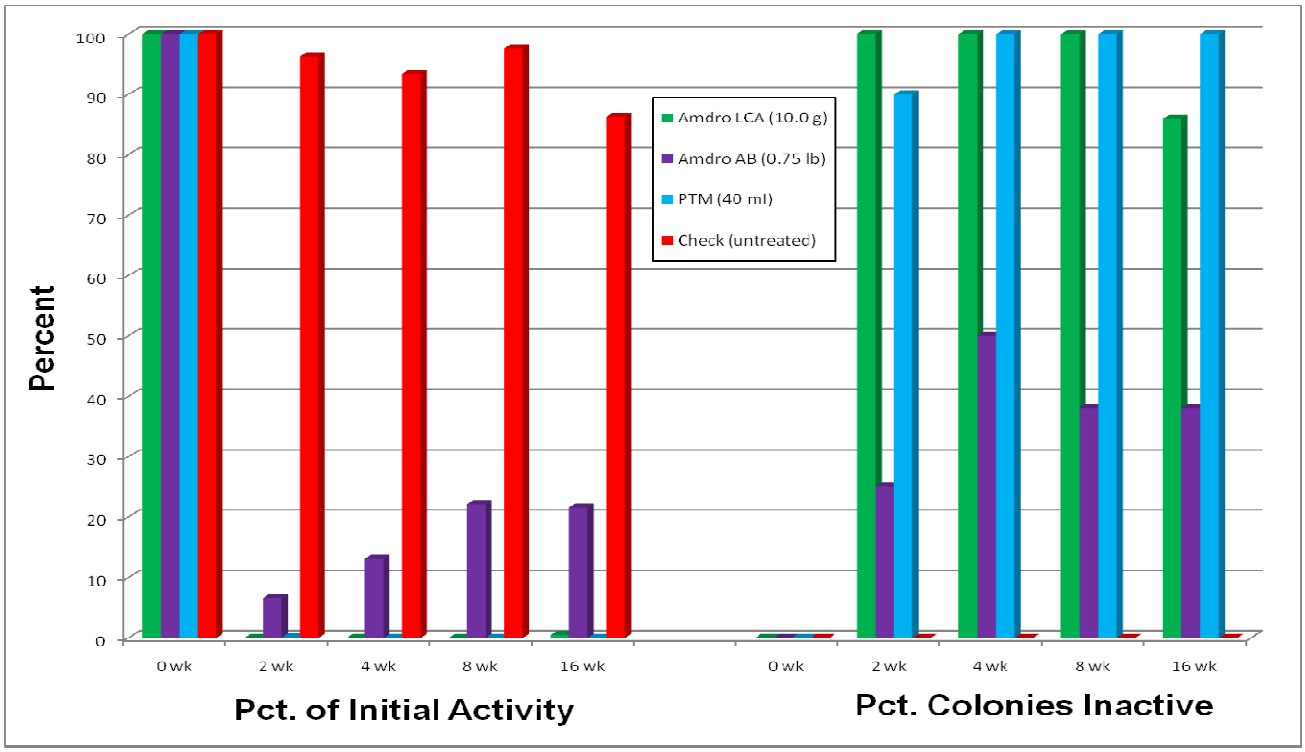

Figure 3. Efficacy of modified (large), unmodified (Ant Block) Amdro™, and PTM™ soil injections for reducing and halting Texas leaf-cutting ant activity 2 - 16 weeks after treatment, East Texas, **Spring 2009.**

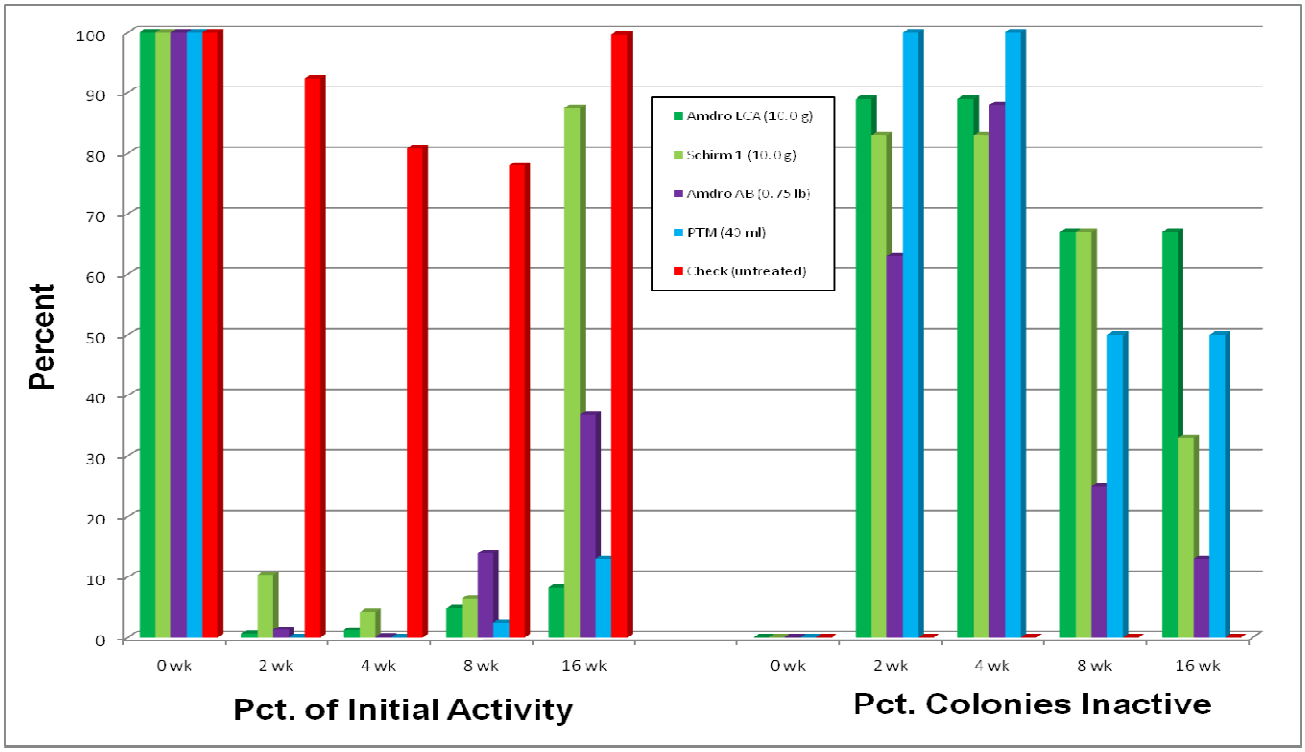

Figure 4. Efficacy of modified (large), unmodified (Ant Block) Amdro™, and PTM™ soil injections for reducing and halting Texas leaf-cutting ant activity 2 - 16 weeks after treatment, East Texas, **Summer 2009.**

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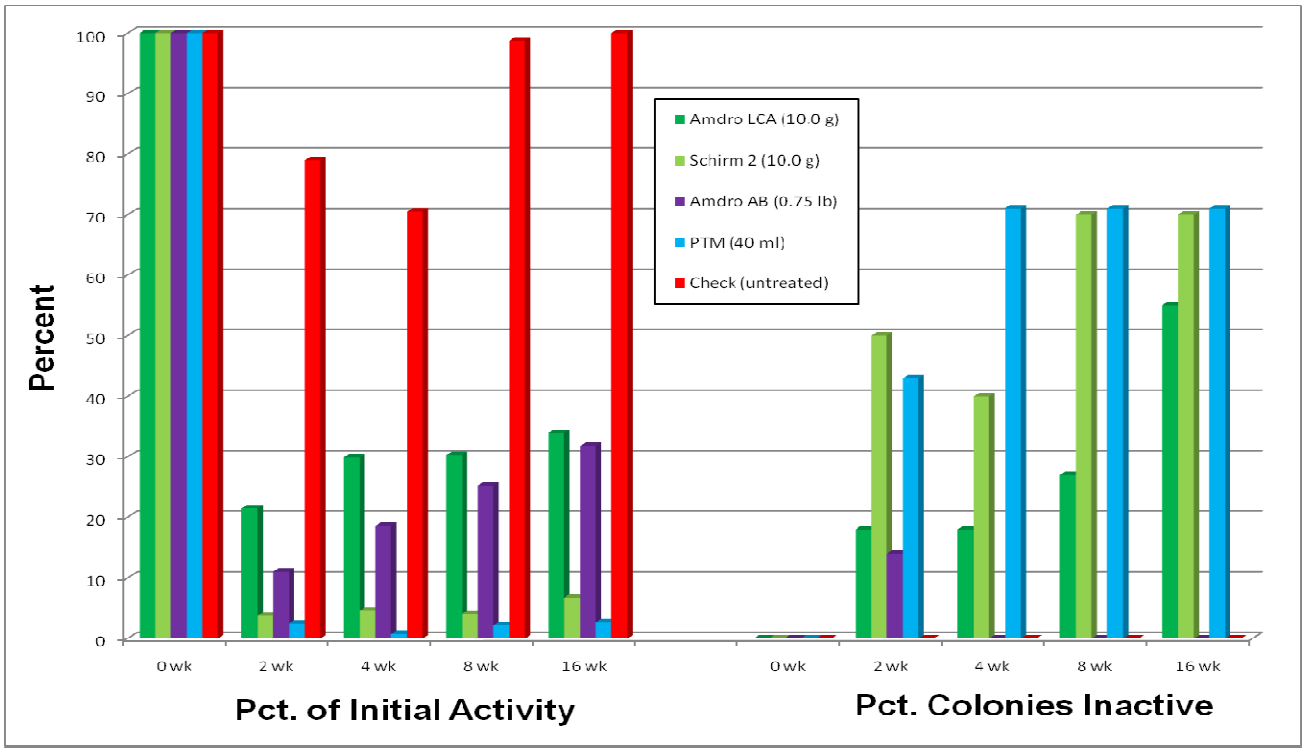

Figure 5. Efficacy of modified (large), unmodified (Ant Block) Amdro™, and PTM™ soil injections for reducing and halting Texas leaf-cutting ant activity 2 - 16 weeks after treatment, East Texas, **Fall 2009.**

Imported Fire Ants: The red imported fire ant (IFA), *Solenopsis invicta* Buren, is a major nuisance pest across the southern United States including in seed orchards and progeny test sites. Numerous products (76) have been registered for this pest. Individual mound treatments play an important role in fire ant management. Mound treatments are selective and often faster-acting than broadcast insecticide treatments. One desirable characteristic of fire ant mound treatments is low toxicity. A test was initiated to evaluate a relatively new, lower toxicity treatment: PTM™ Insecticide (9.1% fipronil) applied using a backpack soil injection probe to single fire ant mounds that have become established in a loblolly pine seed orchard next to orchard trees. An orchard block was selected at Arborgen's Woodville (TX) orchard in December 2009. In this block, 240 IFA colonies were selected; colonies were at least 7m (23 ft) apart, 8 inches or more in diameter and with newly excavated soil. Treatments were randomly assigned to the selected ant nests with 40 replicates per treatment and 120 untreated checks.

Treatments:

A) PTM™ solution 2% ai, 1.5 oz (40 ml) total injected 3 inches below soil surface at one (1) injection point.

B) PTM™ solution 2% ai, 1.5 oz (40 ml) total injected at the base of the colony (12 – 18" deep).

C) PTM™ solution 2% ai, 1.5 oz (40 ml) injected 3 inches below soil surface and 1.5 oz injected at the base of the colony (80 mls total).

D) Check – untreated

The effect of treatments on fire ant colonies was evaluated at 0, 7, 14, 47 and 87 days after treatment (DAT). Each mound was checked for presence or absence of fire ant activity by inserting a small diameter stick into the mound. If no fire ants appeared after 15 seconds, the mound was considered inactive (0). If fire ants were present within the allotted time period the mound activity was assigned a 1 (< 10 fire ants or freshly worked soil), 2 (some fire ants, not aggressive), or 3 (many aggressive fire ants).

The PTM™ treatments, particularly those applied three inches below ground, quickly reduced ant activity by more than 50% compared to checks (Figure 6). However, most colonies did not become inactive for 7 weeks post treatment (Figure 7). This was due in part to extended cold temperatures (<50^{0}F) that also reduced ant activity in the treated areas of the nest. Two additional trials are planned for spring 2010. Assuming that the results of these trials are similar to the winter trial, BASF will likely submit a request to EPA to add imported fire ant to the PTM™ Insecticide label.

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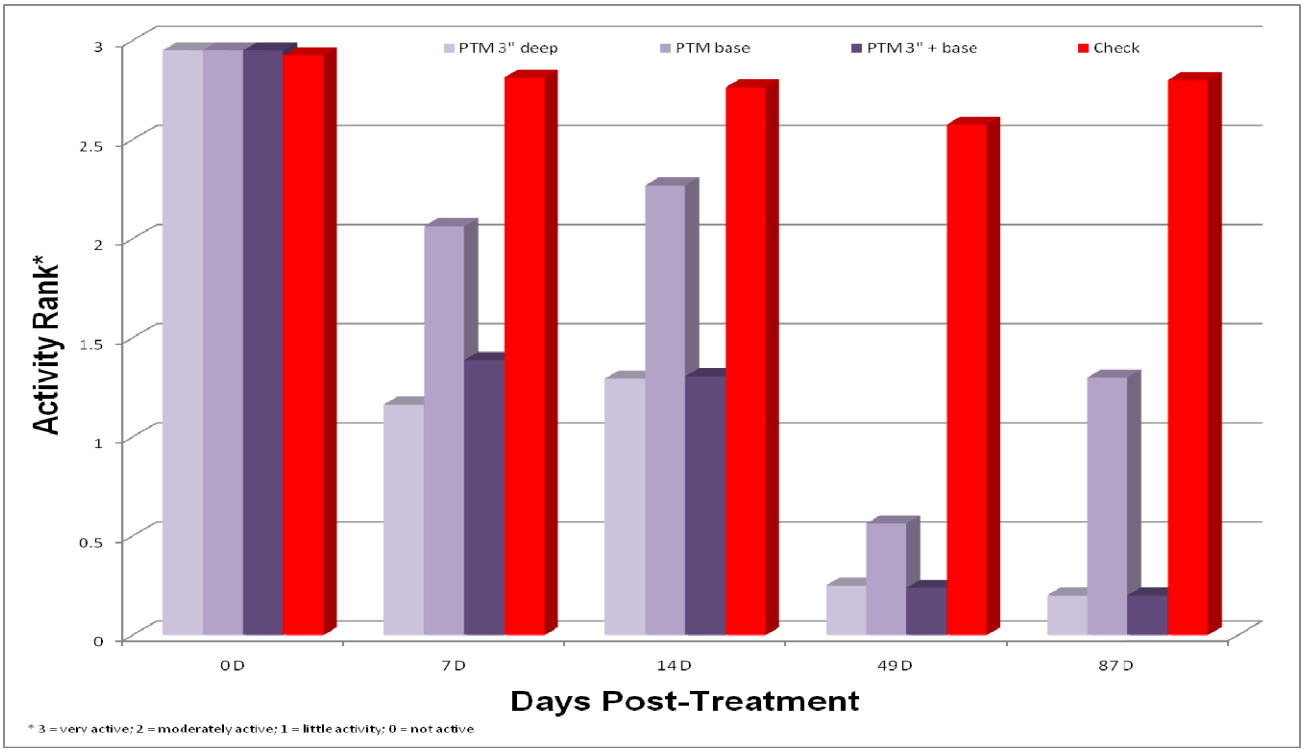

Figure 6. Efficacy of PTM™ soil injections at different depths (3", base or both) for reducing imported fire ant activity 7 - 87 days after treatment, Arborgen's Woodville Seed Orchard, **Winter 2009.**

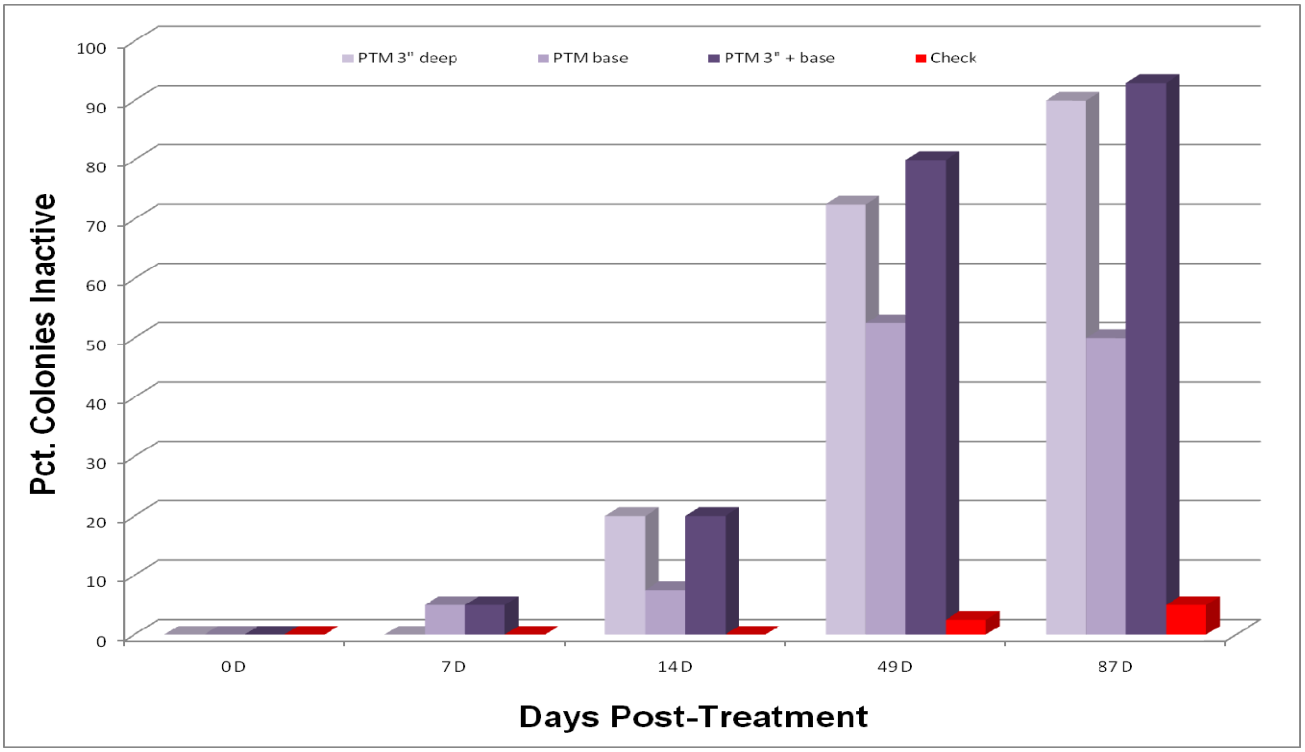

Figure 7. Efficacy of PTM™ soil injections at different depths (3", base or both) for halting imported fire ant activity 7 - 87 days after treatment, Arborgen's Woodville Seed Orchard, **Winter 2009.**

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Weevil Control

The pales weevil, *Hylobius pales*, and pitch-eating weevil, *Pachylobius picivorus*, are two serious insect pests of pine seedlings in the eastern United States. Adult weevils of both species are attracted to freshly harvested pine sites where they breed in logging slash, stumps and old root systems. Seedlings planted in freshly-cut areas are injured or killed by adult weevils that feed on the stem bark. It is not uncommon to have 30 to 60 percent weevil-caused mortality among first-year seedlings in the South, and mortality of 90 percent or more has been recorded.

One strategy to reduce losses caused by reproduction weevils is the use of seedling protective treatments. Pounce® 3.2EC (permethrin, FMC) had been used extensively through the 1990s. The longevity of Pounce® on treated seedlings was evaluated by the FPMCoop in 1998. Overall, the chemical provided protection against weevil-caused mortality even after exposure to seedlings treated six months earlier.

FMC discontinued production of the EC formulation of Pounce® in 2005. Waylay and Arctic™ (permethrin, Winfield Solutions) were registered in 2006 to replace Pounce®. Both of these new products contained similar concentrations of the active ingredient, but differ somewhat in their inert ingredients. Unfortunately, applicators have indicated that the Waylay or Arctic™ treatments have not been performing (repellency/duration) as well as Pounce® (Note: Waylay was discontinued in 2008). We were interested to know if the addition of a spreader/sticker (Complex™) to an Arctic™ solution would improve duration of protection of seedlings against weevils. Additionally, another product, OnyxPro® (bifenthrin, FMC) is already registered for use in nurseries but has not been tested for effectiveness and duration of protection against weevils when applied to pine seedlings in nursery beds.

A laboratory colony consisting of pales weevils only was established during the winter of 2009. Weevils, from the field, were collected once a week using pit traps baited with a 5:1 mix of ethanol and turpentine and set up in recently harvested tracts. In the laboratory, collected weevils were housed in clear plastic containers containing a layer of vermiculite, split bolts and foliage. The plant material and vermiculite were changed every two weeks.

Two hundred seedlings (50 Arctic™-treated, 50 Arctic™ + Complex™ [sticker-treated], 50 OnyxPro®-treated, and 50 untreated) were obtained from the ArborGen's Livingston Nursery in mid-October. Treated seedlings were treated prior to lifting with Arctic 3.2 EC per label recommendations (2 qt / 100,000 seedlings) or OnyxPro® (13.9 oz / acre). All seedlings were planted in 1/2 gal pots (treatments separate) and placed outside for exposure to the elements.

At 3-8 week intervals, 3-4 seedlings for each treatment were pulled and the above-ground stem of each seedling clipped into 5 cm twig segments. Each twig was placed in an individual moistened paper sleeve and placed separately in a petri dish. One weevil, starved for 24 hours, was placed in each dish. All dishes were placed in a dark room (temperature: ~70^{o}F) for up to 72 h. The number of dead weevils and an estimate of weevil feeding on cambial tissue were made at 24 h intervals for each twig. Currently, each treatment has been replicated 8 times for both male and females on each of five separate testing periods.

Both Arctic™ treatments significantly reduced weevil feeding, by more than 90% compared to checks during each evaluation period (Figure 8). Weevil mortality was $\geq$88% for the first two months post treatment and $\geq$67% after 4 months (Figure 9). The addition of Complex™ (spreader/sticker) did not improve the efficacy of Arctic™. The OnyxPro® treatment was only marginally effective in reducing feeding damage and causing weevil mortality. Additional monthly evaluations are planned for spring 2010 (until mortality and/or feeding for Arctic treatments are no longer significant compared to checks).

Based on the above results, Arctic™ appears to provide extended (4+ months) protection against regeneration weevils. It is important that care be taken to ensure that seedlings receive full pesticide coverage during application in the nursery. One option to improve coverage may be to position a horizontal bar in front of the spray nozzles so that seedlings are bent to expose the lower stem to the spray. Two passes, in opposite directions, should be made to assure complete coverage.

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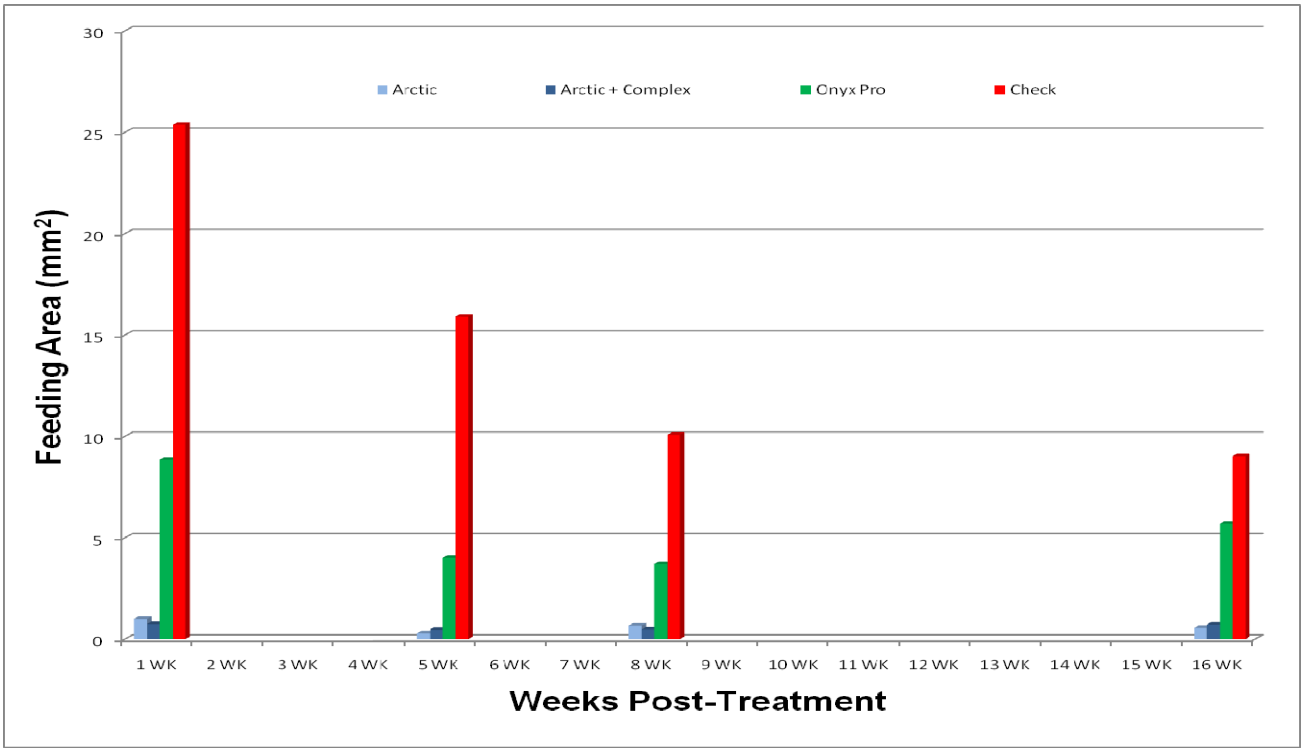

Figure 8. Feeding area by pales weevils after exposure to Arctic™ and OnyxPro®-treated pine seedlings from Arborgen's Livingston Nursery.

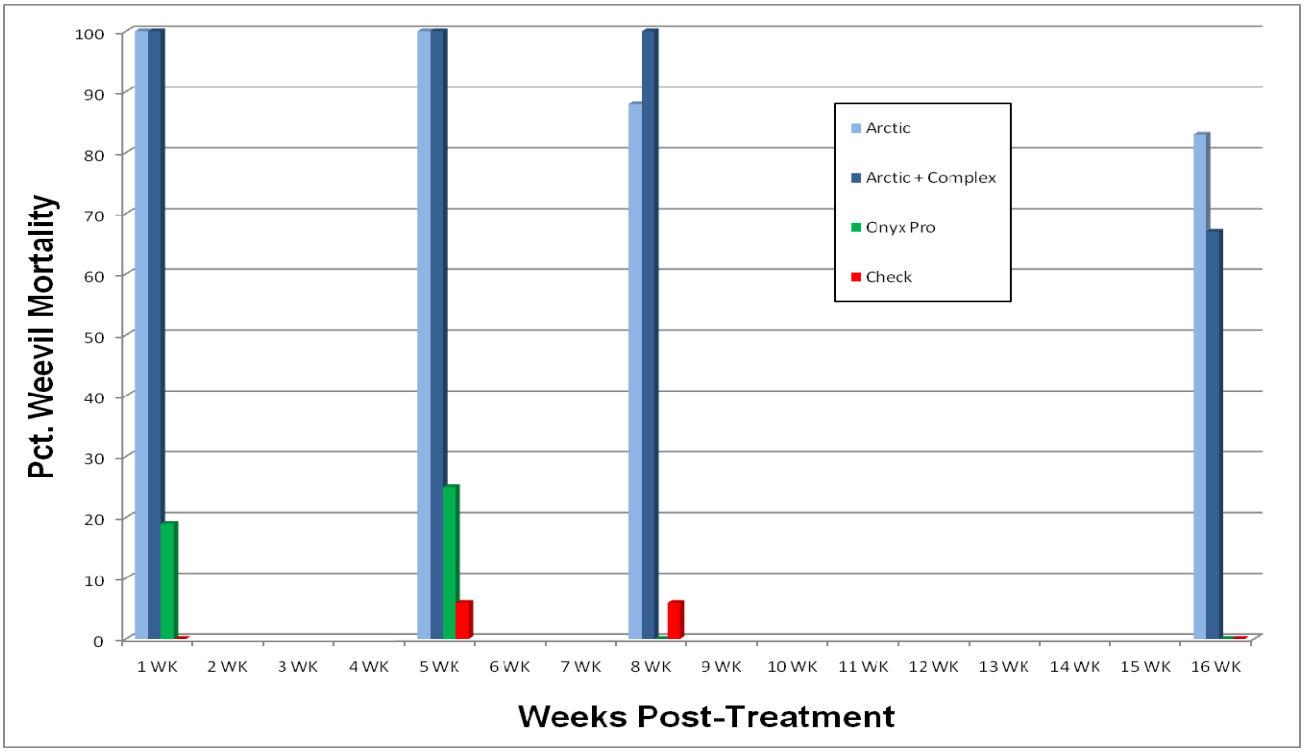

Figure 9. Mortality of pales weevils after exposure to Arctic™ and Onyx Pro®-treated pine seedlings from Arborgen's Livingston Nursery.

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Thought You Might Be Interested to Know . . .

Potential Kudzu Biocontrol Identified in Georgia

(UGA release, 11/6/09 via Chemically Speaking, Jan. 2010)

Researchers from the University of Georgia and Dow AgroSciences have identified a kudzu-eating pest in northeast Georgia that has never been found in the Western Hemisphere. Unfortunately, the bug also eats legume crops, especially soybeans. The bug has tentatively been identified as the bean plataspid (*Megacopta cribraria*), a native to India and China. It is pea-sized and brownish in color with a wide posterior, said Dan Suiter, an entomologist with the UGA College of Agricultural and Environmental Sciences (and former UF graduate). "It kind of waddles when it walks on a surface, but it flies really well," he said.

It's also commonly called lablab bug and globular stink bug. Like its distant cousin the stink bug, when threatened, it releases a chemical that stinks. Suiter and CAES diagnostician Lisa Ames first saw the pest when samples were sent to them in mid-October from UGA Cooperative Extension agents and pest control professionals in Barrow, Gwinnett and Jackson counties. Samples have since arrived from Clarke, Hall, Greene, Oconee and Walton counties.

Homeowners first reported the pest after finding large groups of the bugs lighting on their homes. "At one home in Hoshton, GA, we found the bugs all over the side of a lady's house," Suiter said. "There is a kudzu patch behind her home that provides food, and they were attracted to the light color of the siding. At this time of year, the insects are most active in the afternoon when it gets warm." In addition to homes, the bug is attracted to light-colored vehicles.

Suiter believes the bug arrived here by accident. "We do have the world's busiest airport here, but we'll never know how the bug first got here," he said. "When it found kudzu here, it found a food source, and it doesn't have any natural enemies here that we are aware of." The pest's population is currently contained to northeast Georgia. It's an invasive species feeding on an invasive species."

Introduced to the U.S. in 1876 from Japan, kudzu was planted in the 1930s to control soil erosion. It now tops the nation's invasive species list. "We have no idea what the long-term impact on kudzu will be, but we also have to consider the fact that it feeds on crops, too," he said. "It's kind of a double-edged sword. It eats kudzu, which is good, but it also stinks and gets on homes. And the ominous threat is that it eats soybeans and other legume crops."

Fipronil Cancellations

(Federal Register, February 3, 2010 via Oklahoma CES Pesticide Reports, March 2010)

EPA is canceling the registrations for Regent 1.5G (7969-206) and Regent 80WG (7969-208) on corn. EPA is also canceling the registration of Over n Out™ (7969-212) that is a fire ant insecticide.

Editor's Note: *I haven't been able to find out why these products were cancelled. I hope this doesn't become a habit with EPA seeing as we just got PTM registered for tip moth an leaf-cutting ant control.*

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EPA Proposes New Pesticide Labeling to Control Spray Drift and Protect Human Health

(North Dakota Pesticide Quarterly, February 2010.)

Editor's Note: *For years, the Environmental Protection Agency has struggled to craft meaningful drift labeling language that would satisfy environmental advocacy groups, industry and state regulatory authorities. These are draft proposals.*

The U.S. Environmental Protection Agency has rolled out proposed guidance for new pesticide labeling to reduce off-target spray and dust drift. The new instructions, when implemented, will improve the clarity and consistency of pesticide labels and help prevent harm from spray drift.

"The new label statements will help reduce problems from pesticide drift," said Steve Owens, the assistant administrator for the EPA's Office of Prevention, Pesticides and Toxic Substances. "The new labels will carry more uniform and specific directions on restricting spray drift while giving pesticide applicators clear and workable instructions."

The new instructions will prohibit drift that could cause adverse health or environmental effects. Also, on a pesticide-by-pesticide basis, the EPA will evaluate scientific information on risk and exposure based on individual product use patterns. These assessments will help the agency determine whether no-spray buffer zones or other measures, such as restrictions on droplet or particle size, nozzle height or weather conditions, are needed to protect people, wildlife, water resources, schools and other sensitive sites from potential harm.

In addition to the draft notice on pesticide drift labeling, the EPA also is seeking comment on a draft pesticide drift labeling interpretation document that provides guidance to state and tribal enforcement officials. A second document provides background information on pesticide drift, a description of current and planned EPA actions and a readers guide explaining key terms and concepts. These documents and further information are available in docket EPA–HQ–OPP–2009–0628 at *www.regulations.gov*.

Additional background information is available at the EPA's Spray Drift Web page at *www.epa.gov/pesticides/ factsheets/spraydrift.htm.* The EPA's official contact on this matter is Dale Kemery, e-mail: *kemery.dale@epa.gov* and telephone: (202) 564-7839 or (202) 564-4355.

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A Little Humor Goes a Long Way

Was it Really Worth $20?

(*By Marie B. Hawkins, American Tree Experts Inc.* in Tree Care Industry Magazine, March 2010)

The tree crew was in Evansville, Indiana, taking down a large maple on its last leg of life. After the take down, we found the stump was rotten in the center, full of that nasty, ugly black dirt filled with lots and lots of big white grubs. Each grub was big as a man's index finger and really fat. As they were cleaning the dirt out of the hole, so it wouldn't dull the saw chain on the final stump cut, my husband Rodney said to the guys, as he was cringing and wrinkling up his face, "You know, there are people in this world that eat these things."

Well, of course there is always someone who never knows when to shut up and keep his thoughts to himself. Jake said, "I'd eat one for twenty dollars." Rodney said, "I've got five." Another guy said, "I've got five." This continued till $20 was raised. To get ready for this ordeal, Jake had a large glass of water sitting next to him, for – as they say – just in case. In other words, just in case you really need to wash it down. I know for a fact that sometimes those wild things are hard to swallow: grasshopper legs scratch as they go down, and the grubs are just plain nasty! If you chew them on the way down, your body goes into a shaking motion like convulsions; that's how, I believe, the body helps you get through the stupid thing you just did to your body. God forbid, it wedges in your windpipe on its way down; if so, that "just in case" is real handy for that last act of courage you never really had to begin with – it was just an act of stupidity.

On with the story. Jake looks it over, rolls it around in his fingers and then pops it in his mouth! He starts to swallow, but

for some reason it's not sliding down the throat too well. His gag reflex is starting to work. You know, how the throat starts trying to bring it up, yet it wants it to go down. The body is funny that way. After several tries, with the throat doing all that up and down motion, it was time for the just in case. He finally took a big gulp of water to let that sucker swim to his stomach. After it hit bottom, the guys said, "Well, how was it?" All Jake said was, "I got twenty for that!"

Of course the rest of the day went on as usual. And for the next few months, everyone wanted him to do it again. But he upped the ante on the next one and no one was willing to go higher on the money.

Jake never would really say whether it was worth it or not. Really, I don't think it was, but he wouldn't want anyone to know he wasn't a brave sole.

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Pest Spotlight: Chinese tallow tree (*Triadica sebifera* L.)

(Source: http://www.invasive.org/eastern/eppc/SASE.html)

Chinese tallow tree is a small to medium sized deciduous tree in the Euphorbiaceae (Spurge) family. It is monoecious, producing male and female flowers on the same plant. As with many species in the euphorbia family, tallow tree is toxic to animals and humans. The white sap may be a skin irritant.

Origin and Distribution

Chinese tallow tree is native to China and Japan where the waxy outer covering of the seed is used for machine oil, soap, fuel oil, and many other uses. It was introduced into the United States in the 1700's in South Carolina. It was distributed in the Gulf Coast in the 1900's by the U.S. Department of Agriculture in an attempt to establish a soap making industry. Current distribution includes all of the Southeastern United States from Texas to Florida, North Carolina to Arkansas, and it was recently discovered in California.

Physical Characteristics

Height**:** Chinese tallow tree can reach a height of 15 meters at maturity.

Leaves: The leaves are rhombic ovate, 4 to 7 cm long and 3.5 to 6 cm wide (see left, photo by Chuck Bargeron). The tip of the leaf is acuminate (pointed) with a rounded to truncate (flattened) base. The leaf surface is glabrous with smooth margins and prominent venation. The leaf stalks are 2-5 cm long with two prominent glands just below the leaf. Leaves are placed alternately on the stem.

Flowers: The terminal flowers are in greenish-yellow spike-like bundles. The staminate (male) flowers occur in fascicles of 3-15 on the upper portion of the flower. The solitary pistillate (female) flowers are on pedicels at the base of the spike.

Fruit: The 1 to 1.3 cm capsule has three locules (compartments) turning from green to black upon maturity. The capsule walls are eventually shed exposing the seeds.

Seeds: The three seeds per capsule are round, white, and 7 to 8 mm in size.

Chinese tallow tree resembles several species of poplar (*Populus* sp,) trees. The main distinguishing feature is that tallow tree has smooth margins on the leaves while those of poplar are serrated.

Life History: Growth initiates in early spring and flowers are produced from March through May. Flowering can begin when the trees are one meter tall, which may be as early as three years of age depending on growing conditions. The male and female seed clusters mature at different times. Variation is seen between sub-populations as to which type matures first. This contributes to the high genetic diversity of this species. The seeds mature in late summer to fall. Seeds are produced annually and each tree has the potential of bearing 100,000 seeds. Trees remain productive throughout their lives, which is commonly up to 25 years, although trees of 100 years of age have been recorded. Distribution of seed is primarily due to birds and water. Trees readily resprout from stumps and rootstocks.

Habitat

Tallow tree prefers mesic to hydric soils but it can tolerate a wide range of soil conditions. It is commonly found in bottomlands, old fields, coastal prairies, and riparian areas. It can become established in shaded areas and is capable of spreading into undisturbed, as well as, disturbed areas. It is tolerant of periodic flooding and exposure to saltwater.

Management Recommendations

Mechanical Control

Cutting**:** Cut trees at ground level with power or manual saws. Cutting is most effective when trees have begun to flower to prevent seed production. Because tallow tree spreads by suckering, resprouts are common after treatment. Cutting is an initial control measure and will require either an herbicidal control or repeated cutting for resprouts.

Girdling**:** Use this method on large trees where the use of herbicides is impractical. Using a hatchet, make a cut through the bark encircling the base of the tree, approximately 15 cm (6 in) above the ground. Be sure that the cut goes well into or below the cambium layer. This method will kill the top of the tree but resprouts are common. Follow-up treatments for many years may be required until roots are exhausted, so this method is not recommended for large populations.

Hand Pulling*:* Chinese tallow tree is effectively controlled by manual removal of young seedlings. Plants should be pulled as soon as they are large enough to grasp, but before they produce seeds. Seedlings are best pulled after a rain when the soil is loose. The entire root must be removed since broken fragments may resprout.

Herbicidal Control

Foliar Spray Method**:** This method should be considered for large thickets of tallow tree seedlings where risk to non-target species is minimal. Air temperature should be above 65°F to ensure absorption of herbicides.

Glyphosate: Apply a 2% solution of glyphosate and water plus a 0.5% non-ionic surfactant to thoroughly wet all leaves. Use a low pressure and coarse spray pattern to reduce spray drift damage to non-target species. Glyphosate is a non-selective systemic herbicide that may kill non-target partially sprayed plants.

Triclopyr: Apply a 2% solution of triclopyr and water plus a 0.5% non-ionic surfactant to thoroughly wet all leaves. Use a low-pressure coarse spray pattern to reduce spray drift damage to non-target species. Triclopyr is a selective herbicide for broadleaf species. In areas where desirable grasses are growing under or around tallow tree, triclopyr can be used without non-target damage.

Clearcast® (ammonium salts of imazamox): Applications can be made using foliar broadcast, foliar spot spray, injection (hack and squirt), frill and girdle, cut stump and basal methods.

Cut Stump Method**:** This control method should be considered when treating individual trees or where the presence of desirable species precludes foliar application. Stump treatments can be used as long as the ground is not frozen.

Glyphosate: Horizontally cut stems at or near ground level. Immediately apply a 50% solution of glyphosate and water to the cut stump, covering the outer 20% of the stump.

Triclopyr: Horizontally cut stems at or near ground level. Immediately apply a 50% solution of triclopyr and water to the cut stump, covering the outer 20% of the stump.

Basal Bark Method**:** This method is effective throughout the year as long as the ground is not frozen. Apply a mixture of 25% triclopyr ester and 75% horticultural oil to the basal parts of the tree to a height of 30-38 cm (12-15 in) from the ground. Thorough wetting is necessary for good control; spray until run-off is noticeable at the ground line.

Biological Control

Although no biological controls are currently available, in 2000 the U. S. Department of Agriculture reported that the potential for biological control for tallow tree is promising. This was concluded after several species of insects were observed feeding on the leaves, flowers and seeds in natural stands of tallow tree in China.

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