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Pest Management News

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Fire Ant Management: The Two-Step Method and Other Approaches

John D. Hopkins and Kelly M. Loftin

When it comes to insect pests, fire ants would be close to the top of everyone's list! Red and black imported fire ants (*Solenopsis invicta* and *Solenopsis richteri*) are invasive species and their painful stings can injure or kill livestock, wildlife, domestic animals, and humans. Their large mounds (as many as 300 per acre) are unsightly and often damage mowers and other equipment. Fire ants also infest buildings and can damage electrical equipment by chewing on wire insulation.

Severely infested pasture

Fire ants cost Americans $6 billion a year, including the cost of insecticides. The Two-Step Method and other approaches described in this article can lower control costs, reduce environmental damage, and provide improved control of fire ants. Knowing your options will allow you to make better choices to protect your family, pets, and property.

Fire ant mounds can appear almost anywhere

Identifying Fire Ants

There are hundreds of ant species in the southern United States, including some native fire ant species, and most of them

are considered beneficial insects. Collectively, ants till more earth than earthworms and some prey on other arthropod pests (ticks for example) and help reduce their numbers.

Fire ants will build their mounds almost anywhere—in the open or next to a building, tree, sidewalk, or electrical box. A fire ant mound does not have a central opening. Fire ants emerge quickly and begin biting and stinging when the mound is disturbed. They will even run up vertical surfaces.

Worker fire ants are dark reddish-brown with shiny black abdomens, and are about 1/16- to about 1/4-inch long. Fire ants are similar in appearance to many other ants, so make sure you have correctly identified the species before attempting to solve your ant problem. If you are uncertain about the species, call your local extension office for assistance in identifying your ants.

Controlling Fire Ants

Fire ant carrying bait back into the nest to feed the queen and brood.

Most homeowners and facilities maintenance personnel (about 80 percent according to one survey) try to control fire ants by treating individual mounds. Mound treatments are expensive, up to $2 or more per mound, and require lots of time and labor if you have much area to treat. You can easily use too much insecticide (exceed the legally labeled amount per unit area), which may lead to environmental contamination if rain-washes the insecticide into lakes and streams. To be effective, the mound treatment must kill the queen(s). Otherwise, the colony will survive. Some nests may go undetected. Even an area where every mound has been treated can soon be re-infested by fire ant colonies migrating from untreated areas or floating there on floodwater. In addition, deep-dwelling colonies that escaped mound treatment can quickly form mounds after a soaking rain. It is usually more effective and less expensive to treat large areas/the entire yard with a product designed for broadcast application.

Fire ants cannot be totally eradicated because it is not possible to treat all infested areas. There may not be one best method for fire ant control, especially in large areas. Your objective should be to **find the method or methods that are most cost-effective, environmentally sound, and fit your tolerance level for fire ants.** In areas where these ants do not present problems, doing nothing is one option. For public areas and school property that require some level of imported fire ant control, your best option is **to implement an integrated pest management program (IPM) that communicates to those using the area how fire ants will be managed.**

Remember fire ant strings have been associated with human deaths, so designing an effective fire ant management program utilizing broadcast baits or long residual granules may be in the best interest of those responsible for managing imported fire ants on public/school property.

Types of Control

Organic products: A few products are certified as organic. These include ingredients such as d-limonene, an extract from citrus oil, or spinosad, a fermentation product derived from a soil microorganism. This could be your only option for your campus school garden or other areas where you need to be sensitive to the type of insecticide you are using.

Chemical control: The use of insecticides for fire ant control is regulated by the Environmental Protection Agency (EPA) and the Arkansas State Plant Board (ASPB). Approved products must be used according to label directions. Read the label carefully! An approved product is one that has directions for fire ant control on the label. Be sure it is appropriate for where you intend to use it, particularly if you will be treating a vegetable garden or other food production site. Products for use in electrical utility boxes and indoors are for use only by pest management professionals who are licensed by the ASPB.

Control Products

Most active ingredients are marketed under more than one brand or trade name. This article refers to the generic names of the active ingredients in insecticides, which you should see on the product labels. Some sample trade names are given as well.

Products are formulated as dusts, granules, liquid drenches, or baits. They are applied either to individual ant mounds or across the surface of the ground (broadcast). The various active ingredients affect ants in different ways.

Most active ingredients are contact insecticides that affect the nervous system of ants. Contact insecticides include acephate (Orthene®), carbaryl (Sevin®), fipronil (TopChoice®, Quali-Pro® Fipronil 0.0143G or Taurus® Trio G) broadcast granules [which are restricted use or professional use products], pyrethrins, pyrethroids (bifenthrin, beta-cyfluthrin, cyfluthrin, cypermethrin, deltamethrin, gamma-cyhalothrin, lambda-cyhalothrin, permethrin, esfenvalerate, or zeta-cypermethrin), and liquid spinosad formulations. These ingredients vary in how quickly they kill ants and how long they remain in the environment. Natural pyrethrins and synthetic pyrethroid ingredients kill ants in minutes. Acephate and carbaryl take about one day, while granular fipronil may take four to six weeks to eliminate colonies. Hot water, pyrethrins, and d-limonene treatments have little or no lasting effect. Carbaryl, spinosad, and acephate break down in a matter of days to weeks. Pyrethroids can remain in the environment for weeks to months, while fipronil can persist as long as a year.

Baits contain active ingredients dissolved in a substance ants eat or drink. Some bait ingredients affect the nervous system. These include abamectin (Ascend®, Award® II, or Clinch®), indoxacarb (Advion® or Ortho® Fire Ant Killer Mound Bait), metaflumizone (Altrevin®, or Siesta®), spinosad (Fertilome Come and Get It!), and fipronil (MaxForce FC). Some affect the digestive system (boric acid) or metabolism (hydramethylnon or Amdro® or Probait®). Other bait ingredients interfere with reproduction or growth. These include methoprene (Extinguish®), and pyriproxyfen (Distance® or Esteem®). A relatively new type of bait combines two active ingredients, hydramethylnon and methoprene (Amdro® Yard Treatment or Extinguish® Plus).

To be effective, baits must be fresh and applied when ants are actively foraging. To determine if the time is right for treatment, place a small amount of bait in the area to be treated and see if foraging

ants remove it within an hour. Because ants collect, bait and return it to the colony, very little insecticide is needed. **Baits are ruined by water, so do not water baits after application, or apply them when rain is expected.**

Control Approaches – The Two-Step Method

Step 1. Broadcast fire ant bait once or twice a year (fall and spring) to reduce fire ant colonies by 80 to 90 percent.

Step 2. Treat nuisance mounds or colonies that move into the bait-treated areas. Step 2 may not be needed.

A broadcast application of a fire ant bait is recommended for larger areas

Baiting is the most cost-effective and environmentally sound approach to treating medium to large landscape areas. The bait you apply determines how quickly ants will be controlled and how long the effect will last. Faster acting bait products include indoxacarb (works in a few days), metaflumizone (works in about a week), hydramethylnon (works in 1-2 weeks for mound treatments and in 2-3 weeks when broadcast), and spinosad (works quickly on foraging ants but may take several weeks for reduction in mound activity). These baits may need to be reapplied more often than slower acting and longer lasting products such as abamectin, methoprene or pyriproxyfen, which work in 1-2 months when applied in spring and six months when applied in fall. Products that combine fast- and slow-acting ingredients, such as hydramethylnon plus methoprene (Extinguish® Plus or Amdro® Yard Treatment), may control ants better because they act quickly and have a longer effect on the colony. Certified organic products that contain spinosad such as Fertilome® Come and Get It! can be used for broadcast bait and mound treatments. Use products such as Amdro® Pro, Esteem®, Extinguish®, or Extinguish® Plus for livestock pastures and hay fields.

Hand Held Spreader

Over-the-Shoulder Spreader

Push-Type Spreader

University of Arkansas, United States Department of Agriculture and County Governments Cooperating.

Always read and follow the application instructions on the product label. **Use a hand-held spreader/seeder or a standard push spreader to correctly broadcast bait products.** Use the hand-held or over-the-shoulder spreader/seeder for baits that are applied at very low rates such as 1-5 pounds of product per acre. Use a push-type lawn spreader for baits that are applied at higher volumes per acre (2-5 pounds per 5000-10,000 square feet like Amdro® Yard Treatment).

Use a vehicle-mounted spreader such as the Herd® GT-77 to cover large areas. For home lawns, calculate the area to be treated and use the smallest spreader setting that allows bait to flow. Apply the bait in swaths, crisscrossing swaths if needed, until the specified amount is applied. For larger areas, see How to Calibrate a Fire Ant Bait Spreader located at:

http://articles.extension.org/pages/12228/how-to-calibrate-a-fire-ant-bait-spreader.

Herd Spreader for ant baiting

Be observant as the agitators in some spreaders may cause bait to cake up so that it does not flow properly.

Individual Mound Treatments

Although treating ant mounds individually is more labor-intensive and may use more insecticide than other methods, it is a suitable approach for small areas with few fire ant mounds (fewer than 5 per ¼ acre) or where you want to preserve native ants. Bait products (hydramethylnon, indoxacarb, metaflumizone, or spinosad) can be used to treat individual ant mounds and are ideal for treating inaccessible colonies like those nesting under sidewalks, in plant beds, and at the bases of tree trunks. **Remember when using single mound treatments you will only treat the mounds you see not the mounds you don't see or can't find. So using only single mound treatments may allow a population of active foraging fire ants to remain in an area, resulting in frequent re-treats to an area.**

Some mound treatment products are available as liquid drenches, injectable aerosols, dusts, or granules that are watered in to the mound. **Ants are killed only if the insecticide contacts them**, so proper application is essential. These treatments are most effective when ants are nesting close to the mound surface (as they do when the temperature is mild). Colonies should not be disturbed during treatment. If you use a watering can to apply insecticide, do not use the can later for other purposes.

Long-Residual Broadcast Contact Insecticide Treatments

With this approach, a contact insecticide is applied to the lawn and landscape surface. This is more expensive than other control methods but it may be more effective in smaller areas because ants that move into treated areas will be eliminated if the chemical is active. **Granular products are best applied with a push-type fertilizer spreader and must be watered in after treatment.** Granular fipronil products (TopChoice®, Quali-Pro® Fipronil 0.0143G) are slower acting but longer lasting and only one treatment is permitted per year. Faster-acting contact insecticides, such as the pyrethroids (listed above), eliminate ants on the surface for months but may not eliminate colonies nesting deeper in the soil. The product Taurus® Trio G is a fipronil granule with added pyrethroids so you not only get

quick knockdown of foraging fire ants with the pyrethroids but the longer lasting control due to the fipronil active ingredient.

Make a Management Plan

Chemical control lasts only as long as the effects of the insecticide used, or until new ant colonies move in from untreated areas. You can expect an ant infestation to return to its original level eventually. Thus, keeping fire ants in check requires a commitment of time and money. To reduce the cost and make control easier, consider making a map of your property. Divide the property into treatment areas and designate the most appropriate treatment approach for each area. Make and maintain a schedule for first treatment and any necessary re-treatments.

For example, you might use a long-residual broadcast contact insecticide at regular intervals in high-value or high-traffic areas (near buildings or in play or recreation areas) where maximum control is needed. In other areas, where 80 to 90 percent control of ants is acceptable, you might use the Two-Step Method. Because control lasts longer when large areas are treated, consider participating in a community- or neighborhood-wide treatment program. These have been shown to improve control and reduce cost. If everyone participates by making coordinated treatments, ant colonies will not be able to migrate from property to property.

(Adapted from an original article by Dr. Paul Nester, Extension Program Specialist - IPM, Houston/Metro area - used with permission)

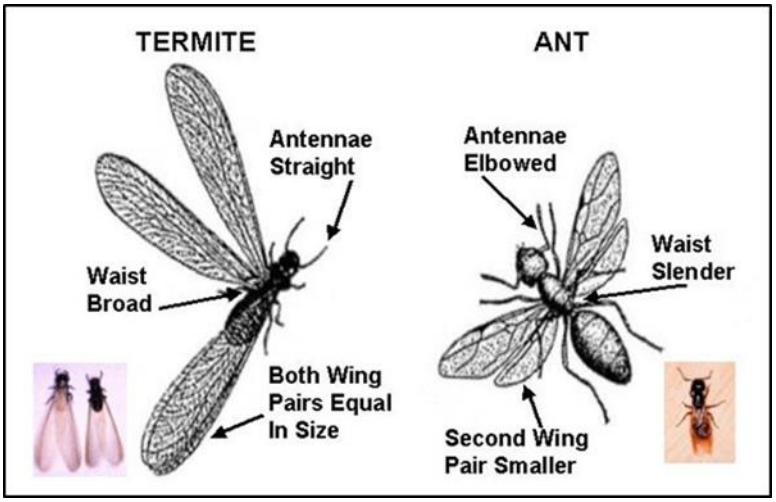
Termites: A Homeowner's Nightmare

John D. Hopkins

We are approaching the end of termite swarming season here in Arkansas (March to May) and if you observed a swarm associated with your home and the winged reproductive termites are now gone, you should realize that an active colony is probably still doing its destructive work. These swarms can occur both inside and/or outside the home. A single colony can swarm more than once in a season, but the first swarm will be the largest. It is common for colonies in the same area to swarm on the same day. If you see a swarm, it could be a sign that your home may be infested and warrants further investigation.

Both ants and termites swarm but it is easy to distinguish between the two. A magnifying glass might be useful. The antennae of termites are straight and look like a string of beads, while the antennae of ants have a sharp bend or elbow. Termites are similar in width from front to back while ants have a constricted or pinched waist between body regions. The swarmers of both termites and ants have two pair of wings, however, the front and hind wings of termites are similar in size and extend at least half

their length beyond the body of the termite. The wings of ants are shorter with the front wings being larger than the hind wings.



When conditions are right, usually following several days of warm temperatures and a light rain, winged termites may suddenly emerge by the hundreds or thousands from their underground colony. These swarming events are usually short-lived and may be over in a matter of minutes. Winged termites are the reproductive stage (both male and female) leaving the colony to find a mate and then start their own new colony. Because termites are poor flyers, they can disperse only a short distance. Many fall prey to birds and other predators or are unable to find a suitable site to begin a new colony. As a result, only a very few are successful in establishing new colonies. The originating colony is where concern should be placed.


Termite Swarmers Emerging from an Outdoor Flower Pot

The presence of termite swarmers inside a home is a signal that termites are active within the structure. Over the counter insecticides labeled for use in the home to control flying insects will kill swarmers but will do nothing to eliminate the underground colony and the termite workers that may be causing structural damage to your home.

The first thing to realize is that proper termite control is not a do-it-yourself job. Seek the services of a reliable professional.

If your house is under contract with a termite control company and you see a termite swarm or evidence of active termites, alert the pest control company as soon as possible. They will be happy to come out to take care of the problem. If your house is not under contract with a termite control company and you notice a termite swarm or active termites associated with your home, don't panic. Termites feed relatively slowly. The extra damage they will cause during the day, week or even month that you take to pick a reliable termite control company will be relatively insignificant. The undesirable consequences of making a mistake when selecting a firm to correct your termite problem can end up costing you considerably more in the long run. Take time to carefully consider your plan of action.

Things to consider when hiring a termite control professional:

Remember, the professional has access to techniques, products and equipment needed to adequately and safely rid a home of termites.

Avoid firms that try to pressure you into signing a contract immediately with "specials" or scare tactics.

Arkansas law requires that all pest control firms be licensed through the Arkansas State Plant Board, http://www.aad.arkansas.gov/arkansas-state-plant-board 1 Natural Resources Drive, Little Rock, AR 72205, 501-225-1598.

Membership in the Arkansas Pest Control Association, Inc., www.arkansaspest.org, and/or the National Pest Management Association, Inc., http://www.npmapestworld.org/, suggests that the company is an established firm with access to technical and training information needed to do the job correctly.

As with any service company, references are invaluable. Consider calling at least 2 to 3 companies. Requesting inspections and estimates from more than one company will substantiate the extent of your termite problem and allow you to compare services.

Be sure you fully understand what a termite company's contract covers and what it does not cover before you sign. Read the fine print.

An annual termite inspection is a must. You should arrange your annual inspection during the warmer part of the year when termites are the most active. A thorough inspection cannot be accomplished in a few minutes. Expect it to last up to an hour or more. If you have a crawl space, the inspector should inspect below the house as well as within.

Termites are a fact of life for the Arkansas homeowner. All homes should be inspected annually and treated when necessary.

If you see a swarm associated with your home, investigate and take the appropriate action.

Another piece of information to emphasize the importance of being vigilant during termite swarming season is a recent release by Terminix of its ranking of the 15 most- termite infested cities in the U.S. based on resident reports in 2016.

Terminix Top 15 Termite Infested Cities (Little Rock AR #15)

1. Mobile, Ala.
2. San Antonio, Texas
3. Memphis, Tenn.
4. Tampa, Fla.
5. Miami, Fla.
6. Los Angeles, Calif.
7. Orlando, Fla.
8. Jacksonville, Fla.
9. Dallas, Texas
10. Baton Rouge, La.
11. Houston, Texas
12. Oklahoma City, Okla.
13. San Diego, Calif.
14. Philadelphia, Pa.
15. Little Rock, Ark.

Peach Brown Rot

Sherrie Smith

Peach Brown Rot-*Monilinia* sp.

Photos by Sherrie Smith, University of Arkansas Cooperative Extension

Brown Rot is one of the most serious and pervasive fungal diseases of stone fruits. Brown rot attacks peaches, nectarines, apricots, cherries, and plums. Two species of Monilinia have been identified as causative agents in the United States; *Monilinia fructicola*, and *M. laxa.* Monilinia causes twig and blossom blight in early spring. Flowers turn brown and become a gummy mass. The infection travels down and can girdle the twig. Lens-shaped lesions can form on branches and the trunk. The infected tissue becomes covered with grayish-tan spore mass that provides secondary inoculum for additional infections. Brown rot appears on ripening to mature fruit as a rapidly growing, firm brown decay. Eventually the fruit is covered with the grayish-tan spore masses and eventually mummifies on the tree. Immature fruit that is infected remain on the tree and mummify also. Since Monilinia overwinters on mummified fruit, twigs, and cankers, sanitation is very important in the home orchard. However tedious a procedure, it is helpful to clean up as much infected tissue as possible. Homeowners may use Ortho Home Orchard Spray, or Bonide Fruit Tree Spray, or Hi-Yield Captan 50WP, or Bonide Captan 50WP, or Spectracide Immunox, or Bonide Fung-onil Multipurpose Fungicide Concentrate. Commercial growers may use Abound, or Quadris Top, or Topguard, or Pristine, or Captan, or Indar, or Eagle, or Fontelis, or Propimax, or Tilt, or Scala, or Gem, or Fontelis, Adament, or Ziram Granuflo. Timing of the first sprays is of the utmost importance. Begin at pink bud in the spring and follow label for repeat sprays.

Black Vultures

Becky McPeake

Black vulture populations have been growing in the southeastern United States since the 1960s. Many vulture species occur worldwide as scavengers of carrion. Unlike their less-aggressive cousin the turkey vulture, black vultures will gang up and prey on living calves, pigs, lambs, and goats. They sometimes attack vulnerable cows while giving birth. Black vultures can also be an urban problem. In Eureka Springs, community members have mixed opinions about hundreds of black vultures which roost in a wooded area near the city from October to April. Property damage and droppings are an issue for some, while others consider the birds “peace eagles” and a tourist attraction.

Photo of black vultures by Charles H. Warren, NBII.

Legally black vultures are protected under the federal Migratory Bird Treaty Act. It is illegal to harm, harass, or take black vultures without a permit. Livestock producers with black vulture problems should call USDA APHIS Wildlife Services at 870-673-1121 to schedule a site visit. A technician will provide recommendations and issue a permit application for harassment or removal if necessary. Permit applications are sent to the U.S. Fish and Wildlife Service for approval and can requiring weeks to months for processing, so Wildlife Services should be contacted without delay. The cost of the permit varies depending on number of birds permitted for removal.

Around smaller livestock operations, problems with vultures may be alleviated with constant vigilance and persistent harassment. Loud noises produced by automated cannons or other devices are often used for disturbing roosts when conditions are favorable. In urban and some rural locations, nearby residents would need to tolerate loud noises produced by such devices. Protecting larger livestock operations is more difficult where cattle range over large expanses. Additionally, pyrotechnics may disturb livestock especially during calving season.

A method recommended by the National Wildlife Research Center for reducing black vultures at roosts is using effigies of vultures hung visibly upside-down by the legs with wings spayed and appearing dead, which frightens away other black vultures. In some states, Wildlife Services issues permits for shooting and displaying nuisance birds to prevent livestock depredation. However, Wildlife Services - Arkansas is skeptical about its effectiveness, as birds and other wildlife often become habituated to repeated use of frightening devices such as this.

When proof of black vulture depredation is obtainable, producers can apply for reimbursement through the Livestock Indemnity Program under the USDA Farm Service Agency (FSA). There must be strong evidence of vulture depredation including authentication by a date-stamped photo or video. Also required is documentation of livestock ownership through purchase or other means. A local FSA committee determines whether there is enough evidence to warrant reimbursement, which is up to 75% of the average fair market value of livestock lost.

Name That Weed

Bob Scott

This month's weed is one I get called on a lot to ID. It comes up in yards after spring herbicide applications are made and is usually first to appear alongside bermudagrass. Its common name comes from its ability to appear in areas that are cleared by a more natural cause and is usually more of a nuisance than anything else. Be the first to reply with the correct common name and win a prize. **HINT**: This month's weed is pulled from the greatest hits and has been a weed of the week/month before. It is commonly mistaken for horseweed.

Be the first to email me at bscott@uaex.edu (**use this link**) and win a prize. Do not hit reply or reply all to this email as your answer will not go to Bob Scott.

To The Readers

Please offer any suggestions for Urban or Livestock Integrated Pest Management topics (insect pests, plant diseases, weed problems, wildlife control problems) that you would like to see – *OR* – feel free to submit an article that you have prepared. Kelly and I will be glad to include it (subject to editing). Send feedback to jhopkins@uaex.edu or kloftin@uaex.edu

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