

Welcome to Texas: Avoiding the Sting of Fire Ants

Wizzie Brown

Extension Program Specialist
 Texas A&M AgriLife Extension Service

Around these parts, when you step in something soft, it's one of two things. Neither is pleasant, but only one can hurt you . . . fire ants.

Avoiding red imported fire ants can save you from painful stings, a trip to the doctor, and, for some, even death.

WHY ARE FIRE ANTS SO BAD?

Thousands of fire ants live in each mound of soft soil. If a mound is disturbed in any way, ants rush out in large numbers, climb on whatever is disturbing the mound, and begin stinging. Each ant hangs on with its mandibles (jaws) and can sting many times (for more information on stings, see [Medical Problems and Treatment Considerations for the Red Imported Fire Ant](#)).

Fire ant stings burn like fire (hence the name "fire ant"). Often, there is localized swelling at the site of the sting. Within a few days, a small pustule forms where the stinger was inserted into the skin, and the area often is itchy. Pus-

tules are sterile while intact, but scratching can open them and lead to secondary infection.

Some people are sensitive to fire ant venom, causing the sting area and sometimes an entire finger, foot, hand, or limb to become swollen. Others are so allergic to the venom that a sting can cause a serious, life-threatening allergic reaction.

HOW CAN I RECOGNIZE FIRE ANTS?

Red imported fire ant workers are various sizes— $\frac{1}{8}$ - to $\frac{1}{4}$ -inch. They are reddish-brown and black and have 2 nodes and 10-segmented antennae with a 2-segmented club (see [Texas Pest Ant Identification: An Illustrated Key to Common Pest Ants and Fire Ant Species](#)). The workers (all sterile females) are the ants within the colony that will sting.

Reproductive ants are larger than workers and sometimes have wings. Queens are large with reddish-brown and black bodies; males are black with enlarged thoraxes. Males and queens aren't often seen except during or shortly after mating swarms. Mating occurs on warm, moist days, often after rain or irrigation occurs. Males die after mating; queens chew off their wings and find a site to dig a cell to begin a new colony.



WHERE ARE FIRE ANTS FOUND?

Red imported fire ants infest the eastern two-thirds of Texas and all of the southeastern United States (see *Geographic Distribution of Fire Ants*).

They live in colonies, preferring to build the mounds in open, sunny areas. Mature colonies build large, dome-shaped mounds that can contain more than 200,000 ants. When the weather gets hot or dry, the ants tunnel deep into the soil to find cooler temperatures and water, causing their mounds to be unnoticeable and making it seem as if the ants disappear. After heavy rain, numerous mounds will pop up because the ants are trying to move out of the water-saturated soil.

Mounds are often built next to sidewalks, roads, or anywhere fire ants can find food or water. Look for fire ant mounds around areas such as fallen objects on the ground, flowerbeds, landscaped areas, parks, playgrounds, sports fields, and tree trunks or roots.

HOW CAN I AVOID FIRE ANTS?

The best way to avoid fire ants is to be aware of your surroundings. Everyone living in Texas gets stung by a fire ant or two occasionally.

WATCH YOUR STEP! The only way to avoid being stung is to pay attention to where you're standing. Serious incidents occur when a person unknowingly allows dozens of fire ants to get on them, usually when they stand on a mound for more than a few seconds.

Most serious incidents are the result of inattention. People get stung while

- taking or posing for photos,
- sightseeing,
- leaning against fence posts, talking,
- picking up food or trash that has been on the ground for a time,

- sleeping on the ground (even in a sleeping bag or tent),
- sitting around a campfire, or
- gardening.

Children are fascinated by mounds and watching the fire ants “boil up” when disturbed. If kids can see the fire ants, they are close enough to have ants up their legs in seconds. Mobility-impaired individuals and infants are vulnerable to fire ants since they can't escape. Be very careful where you park wheelchairs and strollers. **DO NOT** place babies or carriers on the ground for any length of time.

WHAT DO I DO IF I GET FIRE ANTS ON ME?

- **DON'T PANIC!** Remove them quickly. The most effective way to remove fire ants from the skin is with a fast, repetitive brushing motion.
- **DON'T** try to shake them off; you can't.
- **DON'T** try to rinse them off with water. It makes them hold on and sting in another spot.
- **DON'T** be shy (Texans understand!). **QUICKLY** strip off shoes, socks, and clothing where the fire ants are stinging you. Shake out the clothing and inspect every fold before putting them back on. It is possible for fire ants to stay hidden for hours.

WHAT DO I DO IF I GET STUNG?

There is nothing that can make fire ant stings disappear. Fortunately, most people just suffer a burning sensation, itching, and pustules with no lasting effects. The important thing is to watch for severe reactions. Some people find that ice, cold compresses, and/or painkiller sprays and ointments help ease the burning and itching. Treat the pustules, whether intact or open, like any other small wound.

Immediately go to the nearest emergency room or doctor if a stinging victim feels faint, loses

consciousness, has severe swelling, or has trouble breathing. These are signs of a severe allergic reaction and can be life-threatening.

Watch for problems if a person

- ◆ is stung more than a few times,
- ◆ is a child (they not only have worse reactions from fewer stings, but tend to scratch open the pustules and get infections),
- ◆ has had reactions to other insect or arthropod stings,
- ◆ has had fire ant stings in the past,
- ◆ has other severe allergies,
- ◆ has an impaired immune system.

Fire ants are a fact of life in Texas. Simply being aware of their presence is the best way to stay safe.

ACKNOWLEDGMENTS

This fact sheet was originally written by Charles L. Barr and developed as a leaflet using funding provided by the Texas Department of Transportation. The author wishes to thank Molly Keck, Paul Nester, and Steve Messana for reviewing this fact sheet as well as the reviewers of previous editions: Paul Nester, Nathan Riggs, and Bastiaan Drees.

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Geographic Distribution of Fire Ants
www.extension.org/pages/9725/geographic-distribution-of-fire-ants

Managing Red Imported Fire Ants in Urban Areas
www.extension.org/pages/11004/managing-imported-fire-ants-in-urban-areas-printed-version

Broadcast Baits for Fire Ant Control
www.agrilifebookstore.org/product-p/e-628.htm

Fire Ant Control: The Two-Step Method and Other Approaches
www.agrilifebookstore.org/product-p/ento-034.htm

For more information regarding fire ant management, see Extension publications *Managing Red Imported Fire Ants in Urban Areas*, *Broadcast Baits for Fire Ant Control*, or *Fire Ant Control: The Two-Step Method and Other Approaches* posted on <http://AgriLifeBookstore.org>.

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Fire Ant Control Methods around Pets

Paul R. Nester

Extension Program Specialist–Integrated Pest Management,
 Texas A&M AgriLife Extension Service

The red imported fire ant can be a serious health problem for backyard pets. Fire ants can sting and, occasionally, kill small animals. According to a survey completed by veterinarians, small animals and pets are treated more frequently than any other type of animal for fire-ant-related health injuries.

Fire ants are attracted to pet food. They can blanket a food bowl, making it impossible for pets to eat. When disturbed, mounds produce thousands of stinging fire ants, creating a potentially dangerous situation for pets while playing, running, or digging near a fire ant mound.

Very young animals, caged animals, or those that are old and have difficulty moving are most likely to be stung (see *Protecting Penned Animals from Fire Ants*). Animals with open sores, “hot spots,” irritated skin, bandaged wounds, or limited mobility from other health problems are more vulnerable and attractive to fire ants. Such animals are also more likely to suffer severe reactions because of their weakened state.

Fire ants most readily sting body parts with little or no hair such as the ears, eyes, muzzle, and the tender skin of the abdomen. If your pet is attacked, remove it as quickly as you can from the source of the fire ants. Then remove any fire ants still on

your pet. Do not try to spray the fire ants off with a water hose; they will hang on with their jaws and sting repeatedly. Brush them off quickly, protecting yourself from potential stings. Depending on the severity of the attack, treatment by a veterinarian may be necessary (see *Diagnosing and Treating Animals for Red Imported Fire Ant Injury*).

CONTROL

Remove your pet from the ant-infested area when applying any type of product. The Two-Step Method can effectively control fire ants in heavily infested areas (see *Fire Ant Control: The Two-Step Method and Other Approaches*). This approach begins by broadcasting fire ant bait containing one or more of the following active ingredients—abamectin, fenoxycarb, hydramethylnon, indoxacarb, pyriproxyfen, metaflumazone, s-methoprene, or spinosad—over the entire yard. Troublesome mounds near pets or other high-traffic areas are then treated individually with an approved dust, granular, or liquid insecticide plus water. Individual mound treatments provide quick control of major nuisance mounds while bait treatments provide slower, more complete control of fire ant activity over the whole area. **When applying fire ant control products to areas where pets live, read and follow the label instructions for safety and best results.**

Several “organic” fire ant control methods can be safe to use around your pets. For recently pro-



duced mounds, pouring 2 to 3 gallons of very hot or boiling water over the mound will provide 50 to 60 percent control. Insecticide products containing d-limonene, pine oil, pyrethrins (or a combination pyrethrin plus diatomaceous earth or silica dioxide), or spinosad can adequately control individual fire ant mounds (see *Natural, Organic, and Alternative Methods for Imported Fire Ant Management*).

When applied as directed, broadcast-applied bait products are unlikely to harm pets. This is due to the relative low toxicity of the insecticides used, the small percentage of active ingredient used in baits, and low application rates. When applied at the recommended rate (usually 1 to 1½ pounds per acre), thoroughly scatter the baits so they are barely visible on the ground and unlikely to contact pets. If the fire ants are active, worker ants will rapidly pick up baits and remove them to underground nests, away from people, birds, and pets.

Despite their relatively low toxicity, always use caution when applying baits to pet territories. Remove the pets during application and take care to sweep up any small piles of spilled bait product. When ingested in large enough quantities, some baits can be toxic to pets. Store them properly so they are inaccessible to pets. Do not leave visible piles of bait on top of fire ant mounds, as this may tempt some pets to feed on the product.

Thoroughly water dust, granular, and liquid insecticides into the mound and let them dry before allowing pets nearby. Using baits as a mound treatment, or using granular products without watering the granular product in (never water bait products) may pose a hazard. Pets can easily come into contact when high concentrations of pesticides remain on the surface.

For more information regarding fire ant management, see Extension publications *Managing Red Imported Fire Ants in Urban Areas*, *Broadcast Baits for Fire Ant Control*, or *Fire Ant Control: The Two-Step Method and Other Approaches* posted on <http://AgriLifeBookstore.org>.

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ACKNOWLEDGMENTS

This fact sheet, first released in May 2002, was authored by Nathan Riggs, Extension Agent—Integrated Pest Management (Fire Ant Project). Wizzie Brown and Molly Keck, Extension Program Specialists—Integrated Pest Management, Texas A&M AgriLife Extension Service, reviewed recent revisions.

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www.agrilifebookstore.org/product-p/e-628.htm

Red Imported Fire Ants May Find Some Landscape Design Elements Unattractive

Bastiaan M. Drees

Extension Entomologist Emeritus
 Texas A&M AgriLife Extension Service

S. Bradleigh Vinson

Professor of Entomology

The red imported fire ant, *Solenopsis invicta* Buren (Hymenoptera: Formicidae), is an introduced species that has spread throughout the southeastern United States. The dominant ant in the southeast, it has displaced many native ant species by simply out-competing them. It now infests the eastern two-thirds of Texas. Spot infestations have been found in several West Texas communities as well as in urban and some irrigated parts of California and New Mexico (see [Geographic Distribution of Fire Ants](#)).

As a species, it thrives in open areas of disturbed lands. The requirements for survival and growth are simple: with adequate, available water and access to protein and carbohydrate sources (carrion, insects, and sap flows), the colonies rapidly increase in size.

The red imported fire ant is often controlled with chemical insecticides. However, Integrated Pest Management (IPM), which combines com-

patible biological, chemical, and cultural controls, can manage pest populations by preventing or reducing pest problems in cost-effective and environmentally sound ways.

Biological control methods using imported and native natural enemies of red imported fire ants appear to offer sustained population suppression (see [Natural Enemies of Fire Ants](#)).

Cultural control methods use agronomic (turf) and horticultural (ornamental plants) practices to produce an environment or habitat that is unattractive to infestation by this exotic pest. Cultural methods in IPM programs are often the simplest and most effective ways to prevent pest problems. Such methods produce permanent results without the use of pesticides. However, since few scientific studies on their effectiveness have been conducted, the scientific community and private industry have given little attention to these methods for managing fire ants.

There are several landscape practices and design elements that may make a landscape less attractive for foraging or colonization by red imported fire ants. Incorporating these elements into the landscape creates a habitat “choice.” The ants in a colony may no longer prefer the modified site,



leave it uninfested, and move to a nearby site that may seem preferable for nesting. In contrast, in a “no choice” situation without modifications of the landscape, ants may nest wherever they find adequate habitat.

Consider the following IPM elements for managing fire ants. They are not intended as recommended practices to manipulate red imported fire ant populations until research results supporting these practices become available.

Cultural elements and practices to minimize red imported fire ants in the landscape

- ◆ **Shade.** Red imported fire ants nest in open, sunny areas. Numerous surveys show that relatively few fire ant colonies are found in shady, wooded areas. It is possible that these wooded areas are less disturbed and have a healthy, well-established population of native ants. Conversely, red imported fire ants often nest at the base of tree trunks and sometimes up in trees! During the hotter, drier season of the year, fire ants will be more active in the shade. Plant shade trees to increase shading as well as habitat diversity. Shade trees around the home also regulate temperature inside the home, but they also require more water.
- ◆ **Habitat diversity.** Recognize that all ants are not bad and a diverse habitat encourages competitor ants. A number of nonpest ant species attack and kill newly mated red imported fire ant queens. They also raid and kill off small fire ant colonies. These other ant species can be the best defense against high populations of imported fire ants. A more diverse environment encourages and harbors these desirable ant species. Encourage specific native ant predators by creating their ideal nesting sites. Add small rock or board piles in shaded areas or leave thick, tall grass along landscape edges and the bases of tree trunks. Selecting plant varieties or different plant species may also promote competitor ants.
- ◆ **Insecticide use on competitor ant species.** Know when to use individual ant mound treatments versus broadcast-applied ant bait products. Bait products can kill both red imported fire ants and desirable competitor ants. The rapid reproduction rate of the fire ant then allows it to reinvade treated areas more quickly than the competitor ant species. Avoid broadcast applications of bait products where red imported fire ant colonies are less than five ant mounds per quarter acre or 10,890 square feet of lawn. Do not broadcast baits where desirable ant species are common and should be preserved. If only a few colonies are present in the landscape, use individual ant mound treatments only. In situations where an adjacent area is a source for immigrating red imported fire ants, create a barrier or buffer zone and apply periodic broadcast applications of a bait product in the buffer zone to reduce invasion into the managed area.
- ◆ **Other predators.** Place purple martin houses in the landscape to provide nesting sites for these insect predators. Although the impact of this predation is not documented, it should have a positive impact on swarming reproductive male and female fire ants.
- ◆ **Planting and maintaining pest-free plants.** Imported fire ants eat beetles, caterpillars, chiggers, cockroach eggs, flea larvae, ticks, and other insects found in the landscape. Grow plant cultivars, species, and varieties that are not pest-prone (particularly to honeydew-producing sucking insects like aphids, scale insects, and whiteflies) to indirectly provide less food for fire ants. Some herbs, such as mint, are unattractive to fire ants. Some turfgrass species are more prone to insect attack than others and several improved cultivars are even resistant to insects. Fire ants eat some plants and plant parts (i.e., some types of seeds), and bunch grasses provide temporary nesting sites in flood-prone areas. The impact of landscape

plants on the predator or competitor ants is unknown. Again, there are no scientific studies that document the impact of plant selection for the landscape on fire ant infestations.

- ◆ **Good sanitation.** Garbage cans and pet food bowls left on the patio provide ample food for fire ants. Similarly, fly larvae in pet manure serves as food. Avoid this by promptly removing and discarding pet excrement. Reduce any form of litter to make the yard less attractive to fire ant foraging and nesting.
- ◆ **Access to water.** Fire ants need water daily. In low maintenance or dry areas, lack of water can limit fire ant nesting and establishment. To discourage fire ant infestations, conserve water; fix leaky faucets, irrigation valves, and heads; improve drainage; and practice xeriscaping techniques.
- ◆ **Mulches and nesting sites.** Some mulches, such as cedar bark mulch, may repel fire ants, although no studies confirm these manufacturers' claims. Areas covered by pea gravel or other small stones in sunny areas may not be conducive to ant nesting. Using rough gravel instead of sand underneath brick or other patio structures also may deter fire ants from nesting there. Conversely, "hardscape" edges (edges of cement slabs, landscape timbers) and many other types of mulch (bark, composted leaves, straw) often attract fire ants because they provide moisture, a structure, and temperature-buffering effects that are apparently ideal for fire ant nesting. These same conditions may also be ideal for the predator and competitor ants.
- ◆ **Fertilization practices.** Fertilization may have direct and indirect effects on fire ant colonization that can either encourage or discourage fire ant infestations. Hay producers have observed reductions in fire ant mound numbers following pasture fertilization. However, other production practices involved in improving pastures may also explain this observation. A lush turfgrass or other land-

scape plants are hosts to sucking insects and caterpillars that can serve as a sucrose and protein food source for the fire ant. Conversely, casual observations suggest that fire ants do not prefer to make mounds in taller, dense stands or grass, and/or their mounds seem to be less noticeable.

- ◆ **Mowing and disturbing ant mounds.** Disturbing colonies often may cause the fire ants to move to a new location. In the landscape, when the grass is mowed frequently at a low cutting height, the disturbed colonies will move to less disturbed areas in the fence row, adjacent to sidewalks and foundations, or to hedge rows and trees. This is evident on putting greens and tees of golf courses as well. But, fire ants are rapid reinvaders, quickly reinfesting the disturbed lands once these practices are stopped.

Be realistic. Cultural elements and practices alone will never eliminate this pest. At best, manipulation of these cultural influences may reduce fire ant infestations and thereby reduce dependence on insecticides. Become aware of neighboring areas that serve as sources of infestation and continue to expect an occasional mound, particularly after flooding rains or in the spring and fall during the time of swarming and mating flights.

ACKNOWLEDGMENTS

James A. Reinert was a co-author of the original manuscript issued in March 2000.

Charles L. Barr, Jerry Cook, Ray E. Frisbie, Lisa Lennon, Paul R. Nester, Scott Russell, and Walter R. Tschinkel reviewed this publication.

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

www.agrilifebookstore.org/product-p/ento-034.htm

For more information regarding fire ant management, see Extension publications *Managing Red Imported Fire Ants in Urban Areas*, *Broadcast Baits for Fire Ant Control*, or *Fire Ant Control: The Two-Step Method and Other Approaches* posted on <http://AgriLifeBookstore.org>.

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Managing Fire Ants in Vegetable Gardens

Molly Keck

Extension Program Specialist II—Integrated Pest Management
 Texas A&M AgriLife Extension Service

The red imported fire ant, *Solenopsis invicta* Buren (Hymenoptera: Formicidae), can be a serious problem for anyone planting and caring for a garden in infested parts of Texas and the South. Fire ants are attracted to the abundant moisture, rich organic soil, and the wide variety of foods available to them in gardens.

Fire ants are social insects. Their colonies are usually found outdoors, although some have been found in homes and in other structures. Outdoors, their mounds can be up to 18 inches tall and several feet in diameter. Each colony may contain one or more queen ants and more than 200,000 worker ants. Each queen ant lays as many as 800 eggs per day.

Worker ants forage for food and love to eat greasy or oily materials (see [Fire Ant Biology](#)). In gardens, this includes oil-containing seeds, seed pods, and insects (pests and beneficial insects).

Options for Controlling Fire Ants In Vegetable Gardens

Type/Active Ingredient	Trade Names	Comments
Bait products¹:		
hydramethylnon	Amdro Fire Ant Bait/Amdro Fire Strike/Amdro Yard Treatment	Not approved for use in vegetable gardens, but can be applied around and outside the borders of the garden so the worker ants inside and outside of the garden can gather the bait and take it back to their colonies.
abamectin	Clinch/Ascend/Varsity Award II, Enforcer Fire Ant Bait	
fenoxycarb	Award	
pyriproxyfen	Distance/Esteem	
s-methoprene + hydromethylnon	Extinguish Plus/Amdro Fire Strike Fire Ant Bait for Yard Treatment	
indoxacarb	Spectracide Fire Ant Killer Plus Preventer Bait Once & Done	
metaflumazone	Siesta	
s-methoprene	Extinguish Professional Fire Ant Bait	Approved for cropland (including vegetable gardens). Requires 6 to 8 weeks for effects to begin.
pyriproxifen	Esteem Ant Bait	
spinosad	FertiLome Come and Get It	Approved for vegetable gardens. ¹ OMRI certified, approved for organic vegetable gardens.



“Organic” methods²:		
pyrethrins + diatomaceous earth	Organic Solutions Multipurpose Fire Ant Killer/Diatect Results Fire Ant Killer	Effective mound drench at 4 tablespoons per gallon of water. Provides quick kill with short-term residues.
diatomaceous earth (DE)	N/A	Horticultural-type DE applied to mounds as a dust or water suspension may move ant colonies, but probably not eliminate them.
D-limonene	Orange Avenger*	*OMRI certified (see http://www.omri.org/manufacturers/94301/orange-avenger-llc , approved for organic vegetable gardens.
spinosad	Greenlight Lawn and Garden Spray/Fertilome products, Monterey Garden Insect Spray, several Bonide products	Approved for vegetable gardens.
Pyrethoid insecticides: bifenthrin	Ortho Bug B Gone Max/Ortho Max Lawn and Garden Insect Killer for Lawns/Over N Out/Bayer Lawn and Garden	Some of these products are approved against soil insects in the garden, including fire ants, and may suppress foraging by ants. Other products can be used only in the lawn or on label-listed vegetables. Check the label for approved uses.
β-cyfluthrin		
Carbamate insecticide: carbaryl	Sevin, various products	Read product label to determine if the product is approved for fire ants in the vegetable garden. Formulated as liquids, dusts, or granules.
Organophosphates: acephate	Various, EX: Ortho Orthene Fire Ant Killer/Surrender Fire Ant Killer	Formulated as liquids, dusts, or granules. Read the label carefully to determine if the product is labeled for application in a vegetable garden. If not, they can be applied directly to mounds outside the garden.
Non-Chemical Methods³:		
Very-hot-to-boiling water	N/A	1 to 2 gallons of very hot to boiling water will kill <i>fresh</i> fire ant colonies in mounds 60 percent of the time. Be careful not to cook the plants.

¹See *Broadcast Baits for Fire Ant Control*

²See *Natural, Organic, and Alternative Methods for Imported Fire Ant Management*

³See *Are there any home remedies that will kill fire ants?*

They have been reported to feed on okra pods and tunnel into potato tubers, particularly during periods of dry weather (see [What do fire ants eat?](#)). The following chart outlines options and strategies available to combat fire ants in vegetable gardens.

ACKNOWLEDGMENTS

This fact sheet was originally written by Nathan Riggs, Extension Agent—IPM as Fire Ant Plan Fact Sheet #004 in 1999 and revised in 2002. This current revision was reviewed by Bastiaan M. Drees, Professor and Extension Entomologist, and Paul Nester, Extension Program Specialist, Harris Co.

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Natural, Organic, and Alternative Methods for Imported Fire Ant Management

u.tamu.edu/ento-009

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Organic Fire Ant Control

 extension.msstate.edu/insects/fire-ants/organic-fire-ant-control

It is possible to control fire ants organically. Gardeners and homeowners have a few organic treatment options that are quite effective. Many of these contain the active ingredient spinosad. Spinosad is a biopesticide produced through commercial culture of a soil-born microbe that produces metabolites toxic to certain insects. These metabolites are harvested and formulated into insecticide, so the final product contains no living microbes. But note that not all products that contain spinosad are completely organic; some contain non-organic inert ingredients. Spinosad products approved for organic production usually indicate so on the label. Organic fire ant control products containing spinosad are available as baits and as liquid drenches.

Organic Fire Ant Baits: Most organic fire ant baits contain spinosad as the active ingredient. Come and Get It Fire Ant Killer and Payback Fire Ant Bait are two examples. Baits are best used by [broadcasting](#) them over the entire yard according to label directions. Spinosad-based fire ant baits are relatively fast-acting and should give results within two to three weeks. Depending on where you live and the level of control you expect, you may need to treat two to three times per year. See the section on [Granular Baits](#) and [Tips on Using Baits](#) for more information on how to use and apply fire ant baits. See [Fire Ant Biology](#) to gain a better understanding of how and why fire ant baits work.

Organic Mound Drenches for Fire Ants: There are several organic insecticides labeled for use as fire ant [mound drenches](#). The most common contain spinosad or d-limonene. Two examples of liquid spinosad products are Monterey Garden Insect Spray and Ferti-Lome Borer, Bagworm, Leafminer, and Tent Caterpillar Spray. These products are used primarily to control caterpillar pests in home gardens and landscapes, but they also have directions for use as mound drenches for fire ants. D-limonene is an extract of citrus peels that has contact activity on certain insect pests, including fire ants. Orange Guard Fire Ant Control is an example of a mound drench product containing d-limonene. This product can damage grass when applied in undiluted form, and control cost per mound is relatively high.

Apply mound drenches by mixing the specified amount of insecticide per gallon of water and drenching the fire ant mound. The ants are killed by contact activity. The amount of drench needed depends on the size of the mound. One gallon is sufficient for small mounds, but two gallons or more may be needed for large mounds. Use a watering can, or similar container, to mix and apply the drench according to label directions. Do not disturb the mound before drenching. Be sure to use enough drench volume. Not using enough drench to thoroughly soak the mound is the main reason for control failures with mound drenches.

Use Both Baits and Drenches: One of the most effective ways to control fire ants with these organic treatments is to use the baits as the foundation of your control program and use liquid drenches to spot treat mounds that survive the bait treatments or that 'pop up' between bait treatments.

Contact

Dr. Blake Layton, Extension Entomology Specialist
Department of Entomology, Mississippi State University
Phone: (662) 325-2085
Email: blayton@entomology.msstate.edu