



# Current Report

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## Treatment Options for Controlling Red Imported Fire Ants

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### History

Red imported fire ants are thought to have invaded the U.S. at the Port of Mobile, Alabama, in the 1930s. Since that time, they have spread to infest more than 260 million acres, from North Carolina to Texas, with isolated infestations in California and New Mexico. The red imported fire ant was first officially reported in Oklahoma in the mid-1980s, but was probably present in the state before that time. As of late 1999, the red imported fire ant had been found in 25 Oklahoma counties. Many infestations are thought to be the result of ants being transported in sod or nursery stock. The map illustrates the current quarantine region in the United States. More information on the red imported fire ant quarantine can be found in Imported Fire Ant Quarantine Treatments for Nursery Stock and Other Related Articles, USDA-APHIS Program Aid No. 1653, or online at <http://www.ceris.purdue.edu/napis/pests/ifa/>

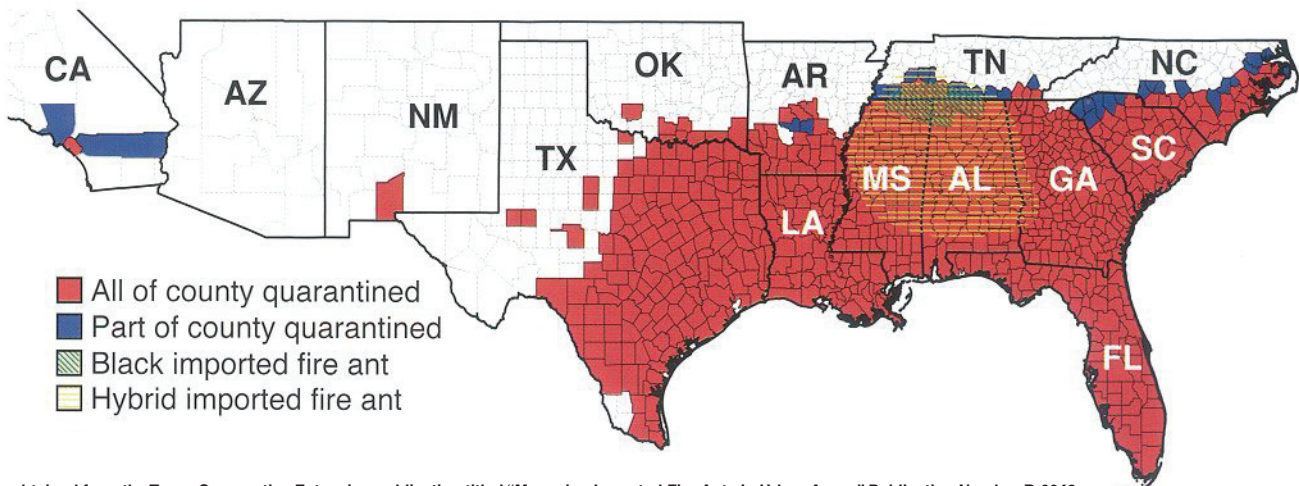
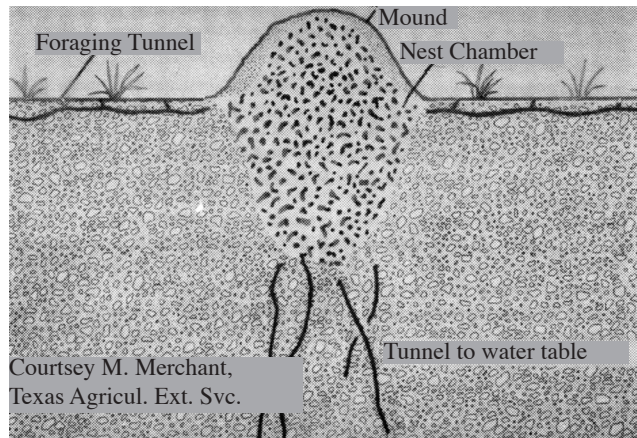
### Identification

Several species of fire ants reside in the United States. Native fire ants (those originating in the U.S.) can be pests where they are abundant, but some species help suppress populations of red imported fire ants by competing with them

for resources. For this reason, it is very important that you know which ant species you are dealing with before deciding on a treatment program.

### The Mound

One clue to which ant you're dealing with is the nature of the mound. Red imported fire ants build soil mounds that can reach two or more feet in diameter and a foot or more in height. The mounds **do not** have a central entrance/exit



Map obtained from the Texas Cooperative Extension publication titled "Managing Imported Fire Ants in Urban Areas." Publication Number B-6043.

hole; rather, the ants enter and leave via underground tunnels that radiate out from the mound. When a mound is disturbed, hundreds or thousands of worker ants rush out to defend the colony.

Fire ant workers range in size from about 1/8 to 1/2 inch in length. Mature mounds may contain 250,000 or more workers. Identification of worker ants is a difficult task, even for experts. For a positive identification, collect a sample of the ants and take it to your local Oklahoma Cooperative Extension Service office, or call one of the experts listed on the back of this publication.

## Damage

Fire ants cause damage in several ways. Their activity causes shorts and damage to insulation in electrical equipment. Their tunneling activity can remove soil from under roadways and sidewalks, causing cracking and collapse of pavement. Their large mounds can damage mowing and harvesting equipment.

The primary concern of most people living in fire ant-infested areas is the likelihood of stings. A small percentage of people can experience anaphylactic shock as a result of stings. During hot, dry periods of the year, fire ants may enter homes and businesses in search of moisture and food, increasing the chance of stings. Additional information on health risks associated with red imported fire ants can be found at the websites listed on the back of this publication.

## Controlling Red Imported Fire Ants

Control decisions should be carefully considered, and based upon several factors. Tailoring treatment methods to your particular situation will save money and result in more effective control. In agricultural situations, a producer may wish to do a cost analysis to determine whether he or she can make money by treating for the ants. In urban areas, there may be less tolerance for fire ants due to the likelihood of stings. The first step in initiating a control program is to be certain you do not use insecticides that are not labeled for the area to be treated or the pest you are treating for. Some additional things to consider are:

1. Is immediate control necessary?
2. How much money should be spent?
3. How much time should be spent?

In general, individual mound treatments (granules, drenches, and dusts) kill colonies quickly, but they require more time and effort than baits, and only destroy colonies that can be seen. Baits are more cost-effective over large areas and control small colonies that can't be easily found, but generally take two to six weeks or more before control is realized. What follows are three widely recognized options for fire ant control, each of which addresses the need for control under different circumstances.

**Individual Mound Treatments.** This approach is best used in small areas of ornamental turf where there are fewer than five mounds for each quarter-acre yard or where preservation of native ants is desired. This option selectively controls

fire ants, but you should anticipate reinvasion. It generally requires more labor and monitoring than other programs and is not suggested for heavily infested areas.

### Instructions:

1. Treat unwanted fire ant mounds using the individual mound treatment of choice. These are applied as dusts, granules, granules drenched with water after application, liquid drenches, baits, or aerosol injections. Home remedies such as very hot water mound drenches also may be used.
2. Continue treating undesirable mounds that appear, as needed.

**Ant Elimination Method.** This program eliminates nearly all ants in treated areas. Its effects are more rapid than those of other programs, and reinvasion of treated areas by migrating colonies and mated queen ants is minimized as long as the contact insecticide remains effective. However, it is more expensive and uses more insecticide than the other control methods. This approach is frequently used by commercial applicators.

### Instructions:

1. (Optional) Broadcast a bait-formulated insecticide in areas where there are many mounds (more than 20 per acre), or individually treat fire ant mounds. Wait two to three days after applying a bait before conducting the next step.
2. Apply a contact insecticide to turfgrass every four to eight weeks, or when ant activity is detected. Liquid or granular products that can be evenly applied to an area are appropriate for this. Some product labels instruct the user to spray "ant hills." Although initial surface treatment may not eliminate ants located deep in mounds, routine reapplication will eventually eliminate colonies.

## The Two-Step Method

### Step One - Baits

Fire ant baits consist of insecticides on processed corn grits coated with soybean oil. While baits can be applied as an individual mound treatment, they are best used as a broadcast treatment. Broadcast treatments are less expensive (in terms of product costs and time) and control colonies even when mounds are not visible. For best results, use fresh bait, preferably from an unopened container or one that has been tightly sealed and stored for no more than two years. Apply when the ground and grass are dry and no rain is expected for the next 24 hours. Apply when worker ants are actively searching for food. This can be determined by leaving a small piece of food (chips or meat) near an active mound. If ants are seen removing the food within 10 to 30 minutes, it's a good time to begin application. Ants are less active during cold and hot periods (when soil temperature is less than 70°F or greater than 95°F). In the summer, apply bait in late afternoon or evening, when ants are most active.

Baits can be applied with hand-held seed spreaders. Set the spreader on the smallest opening and make one or two passes over the lawn at a normal walking speed to apply the recommended rate (1 to 1 1/2 pounds per acre, or approximately 4 ounces per 10,000 feet). See the table of homeowner products for further information on baits.

### Step Two - Individual Mound Treatments

There are a variety of chemical and non-chemical methods for treating individual fire ant mounds. After baiting, treat "problem mounds" (mounds near sidewalks, porches, and other sensitive areas) with the mound treatment of your choice.

**Chemical Treatments:** Some products, such as those containing 75 percent acephate (Orthene® Fire Ant Killer), are formulated as dusts. Ants walking through the treated soil get dust on their bodies and transport the insecticide into the mound. Within a few days the entire colony should be killed. To use a dust, distribute the recommended amount evenly over the mound. Do not inhale the dust or get it on your skin.

Liquid concentrates are diluted with water and then applied to the mound. These liquid mound drenches kill the ants underground, but must be applied in sufficient volume to penetrate the entire nest (one to two gallons of diluted mixture poured over the top of each mound). Mound drenches generally eliminate mounds within a few hours. When handling liquid concentrates, avoid getting the product on your skin by always wearing unlined rubber gloves. Mix the insecticide in a container such as a sprinkler can. Write "Poison" on the container, and do not use it for any other purpose. Mound drenches should contact the greatest possible number of ants in the colony. The ants are nearest the surface of mounds on sunny mornings following cool nights, so time applications appropriately. During hot, dry weather, the ants stay farther underground, decreasing your chance of contacting them with insecticides.

Granular insecticides are released when water is poured over the granules on treated mounds. To treat a single mound, sprinkle the recommended amount of granules with a measuring cup on top of and around the mound. Then, gently sprinkle one to two gallons of water over the treated mound to avoid disturbing the colony or washing the granules off the mound.

Remember, if you apply less than the recommended amount of water with either liquid concentrates or granular insecticides you can expect poor results. Unless the product completely penetrates the mound, ants will move to a different site via underground foraging tunnels to avoid the poison.

Some products come in aerosol containers to which an injection rod is attached. The rod is inserted into the mound and the insecticide injected according to the label instructions for a quick kill of problem mounds.

**Combination.** Any of the three programs can be used on specific sites within a managed area where different levels of fire ant control are desired. On golf courses, for example, the ant elimination method might be suitable for high use areas such as putting greens and tee boxes. In fairways and rough areas, the two-step method may be sufficient.

## Common Insecticides for Fire Ant Control

| Trade name  | Pesticide                   | Control                                 |
|---|-----------------------------|---|
| Baits   |                             |   |
| Amdro®, Combat®   | hydramethylnon              | moderate-slow                           |
| Raid®, Ascend®  | abamectin                   | moderate-slow                           |
| Award®  | fenoxycarb                  | slow                                    |
| Distance®   | pyriproxyfen                | slow                                    |
| Extinguish™   | methoprene                  | slow                                    |
| Extinguish Plus   | methoprene + hydramethylnon | moderate-slow                           |
| Eliminator®, Justice®   | spinosad                    | slow                                    |
| Chipco®, FireStar®  | fipronil                    | moderate-slow                           |
| Mound Treatments*   |                             |   |
| Exxant®   | pine oil suspensions        | slow                                    |
| Citrex®   | limonene                    | fast                                    |
| Organics Solutions®, etc.   | pyrethrin                   | fast                                    |
| Orthene® Fire Ant Killer  | acephate                    | moderate                                |
| Spectracide® Bug Stop   | permethrin                  | fast                                    |
| Sevin®  | carbaryl                    | moderate                                |
| True Stop®  | rotenone                    | slow                                    |
| Granules  |                             |   |
| Over-N-Out™   | fipronil                    | moderate-slow                           |
| Chipco TOPchoice™**   | fipronil                    | moderate-slow                           |
| Specialty Products for Use in Electrical Installation and Utility Housings*** |                             |   |
| Rainbow High Tech Insectape® Insecticidal Strips or Insect Patch              |                             | phenol methylcarbamate                  |
| Rainbow® Fire Ant Killer Sutton® JS-685                                       |                             | chlorpyrifos pyrethrins plus silica gel |
| Hot Shot® Ultimate Bug Killer / Spectracide® Bug No Pest Strips               |                             | dichlorvos                              |

\* Baits containing hydramethylnon and abamectin also can be used as mound treatments.

\*\* Commercial applicators only.

\*\*\* For safety consideration it is recommended that an electrician or a licensed pest control operator treat electrical equipment. Follow all label instructions. Turn off power before treating electrical equipment.

## General tips

Pay special attention to application instructions on the label of the product(s) you use to insure the best return for your money and time. It pays to monitor for fire ant activity before applying baits, since the success of baiting programs is directly related to the ability of ants to rapidly collect materials and return them to the colony. If you have questions or concerns, consult the experts listed on the back of this publication before you start your treatment program.

Fire ants are probably here to stay. Movement in horticultural and agricultural goods, and natural movement during mating flights will continue to spread fire ants to new areas in Oklahoma where sufficient moisture and warm temperatures are present. Current research efforts are targeted toward introducing natural enemies and diseases of fire ants to reduce overall infestation levels. Management of fire ants in the short term can be accomplished with a little care and persistence by following the tips presented herein.

**For additional information contact:**

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(580) 924-5312

The following **Internet sites** have useful information on biology and control of red imported fire ants:

<http://www.entopl.okstate.edu/fireants/fireants.html> (Oklahoma State Univ.)

<http://fireant.tamu.edu/> (Texas A&M website)

Some of the information in this publication was adapted from the Department of Entomology, Texas A&M University

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