

Red Imported Fire Ants May Find Some Landscape Design Elements Unattractive

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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.

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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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