



Red Imported Fire Ants May Find Some Landscape Design Elements Unattractive

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The red imported fire ant, *Solenopsis invicta* Buren, is an introduced species that has spread throughout the southeastern United States. It has become the dominant ant in the southeast, and 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, and in urban and some irrigated parts of New Mexico, Arizona and California. 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 (insects, carrion and sap flows) the colony rapidly increases in size.

The red imported fire ant currently is controlled with chemical insecticides. However, **Integrated Pest Management** or IPM, which combines compatible chemical, biological and cultural controls, can be used to manage pest populations. IPM prevents or reduces pest problems in cost-effective and environmentally sound ways.

Biological control methods using imported and native natural enemies are being studied and appear to offer some level of sustained population suppression of red imported 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 methods to prevent pest problems. Such methods produce permanent results without the use of pesticides. However, few scientific studies on effectiveness have been conducted and little attention has been received from the scientific community or private industry.

There are several **landscape practices** and **design “elements”** that may make an landscape less attractive for foraging or colonization by red imported fire ants. By incorporating these elements into the landscape, a “choice” for habitat results. The ants in a colony may no longer prefer the modified site, leaving it uninfested, and move to a nearby site that may seem more preferable for nesting. In contrast, in a “no choice” situation without modifications of the landscape, ants may nest wherever they find adequate habitat.

The following IPM elements may be considered for management of fire ants. They are not intended as recommended practices until research results supporting these practices to manipulate red imported fire ant populations 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 have shown that relatively few fire ant colonies are found in shady wooded areas. It is possible that these wooded areas are relatively 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! Furthermore, during the hotter, drier season of the year, fire ants will be more active in the shade. Plant shade trees to increase shading and increase the diversity of the habitat. 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 are known to attack and kill newly mated red imported fire ant queens, and they also have been observed to raid and kill off small fire ant colonies. These other ant species are viewed as the best defense against high populations of imported fire ants. A more diverse environment encourages and harbors these desirable ant species. Specific native ant predators can be encouraged by creating their ideal nesting sites (add small rock or board piles in shaded areas or leave thick, tall grass along landscape edges and bases of tree trunks). The selection of plant varieties or different plant species also may 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 kill 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 competitor ant species. Avoid broadcast applications of bait products where red imported fire ant colonies are less than 5 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 caterpillars, beetles and other insects, chiggers, ticks, cockroach eggs and flea larvae found in the landscape. Grow plant species, varieties and cultivars that are not pest prone to indirectly provide less food for fire ants. Some herbs such as mint have been found to be unattractive to fire ants. However, several plants, including crape myrtles, are frequently infested with crape myrtle aphids that make a sweet liquid (honeydew) on which ants feed. Some turfgrass species are more prone to insect attack than others and several improved cultivars are even resistant to insects. Conversely, some plants and plant parts (i.e., some types of seeds) are eaten by fire ants, and bunch grasses provide ants with 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. Pet food bowls left on the patio and garbage cans provide ample food for fire ants. Similarly, fly larvae in pet manure serves as food. This can be avoided by promptly removing and discarding pet excrement. Reducing any form of litter could 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. Fix leaky faucets and irrigation valves and heads, improve drainage, practice xeriscape techniques and conserve water to discourage fire ant infestations.
- Mulches and nesting sites. Some mulches like 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 be nonconductive 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 (i.e., edges of cement slabs, landscape timbers) and many other types of mulch (straw, composted leaves, bark) often attract fire ants because they provide a

structure, moisture 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 as well.

- 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, in part explain this observation. A lush turfgrass or other landscape 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 frequently 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. Conversely, fire ants are recognized as rapid reinvaders; they will rapidly invade 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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For more information regarding fire ant management, see Extension publications [B-6043](#), *Managing Red Imported Fire Ants in Urban Areas*; [B-6076](#), *Managing Red Imported Fire Ants in Agriculture*; [B-6099](#), *Broadcast Baits for Fire Ant Control*; or [L-5070](#) *The Texas Two-Step Method Do-It-Yourself Fire Ant Control for Homes and Neighborhoods*. Also visit our web site at <http://fireant.tamu.edu>.

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