

Introduction

Red Imported Fire Ants (RIFA) are mostly associated with problems in the outdoor environment.

They can, on occasion, present problems within structures. Indeed it seems that such complaints are on the rise as the RIFA population increases.

Infestations have been reported in structures such as hospitals, nursing homes, offices, restaurants, stored grain facilities, pet stores and private residences. RIFA presents minimal risk of damage to a structure. RIFA have been known to damage electrical systems such as switches, computer boards, air conditioners and various appliances.

In some cases RIFA have been known to establish colonies inside of a structure. RIFA need soil for these colonies in such cases they bring it in from sources outside of the structure. This soil and its associated clean up can represent some damage and expense.

By far the biggest impact of a structural infestation of RIFA is the potential risk of RIFA stings. This risk is particularly hazardous for those allergic to the stings or unable to protect themselves as in the case of infants or the invalid.

When dealing with a structural RIFA infestation you will need to proceed through several steps. First, you will need to make a positive identification of the ant to be certain you are dealing with *Solenopsis invicta*. There are a number of ant species that are similar in appearance, but will be treated in very different ways. A frequent cause of ant control failures begins with treating for the wrong ant species.

Second it is important to understand some aspects of fire ant life history. This information



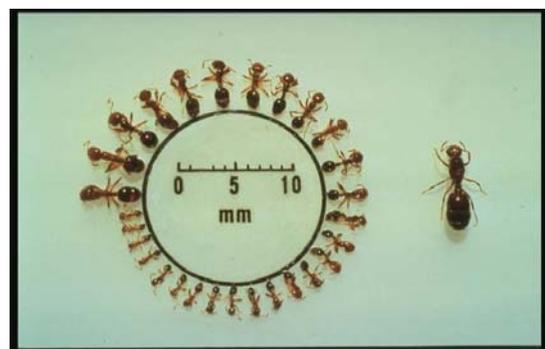
is important when choosing treatment options, application locations and the proper timing of treatment.

Third, there are several treatment options available. Each treatment has some advantages and disadvantages. A decision will have to be made as to which best suits your particular situation.

Identification

The first step in dealing with a fire ant infestation within a structure is to make sure the ant is correctly identified. There are many reddish brown ants of a similar size that are easily confused with fire ants. *Phidole* (Big Headed Ants), *Tetramorium* (Pavement Ants), *Linepithema humile* (Argentine Ants), are just a few of the species of similar size and color. All of these can infest a structure. Different methods are used to successfully treat each of these ants.

Size is also a poor indication of the species. Adult RIFA are polymorphic, meaning they have many forms or sizes. RIFA adults can actually vary from 1/8 inch to 3/8 inch as illustrated in the photograph below. Some of the ants above are also polymorphic and some are not so even the presence of multiple sizes does not indicate that the ant is RIFA.



Proper identification is critical to the success of the treatment. Since most of these ants are similar in size and color a hand lens or magnifying glass of 10 –15x will be necessary for proper identification.

Samples can be taken to the local County Extension office where they can be sent to the Plant Problem Clinic for a positive identification.

First, ants are distinguished from most other insects by the presence of one or two “humps” called nodes between the thorax and abdomen. Fire ants are in the group that possesses two “humps” as seen in the top photograph. The second characteristic is that the antennae have ten segments terminating in a two segmented club as seen in the lower photograph.

Similar species may have a three or four



segmented club on the end of the antennae. They may also have spines on the propodeum which are lacking on RIFA.

Several ant species can inflict painful stings. Some that don't sting are capable of pinching hard enough with their mandibles to cause pain similar to a sting. The stinging behavior of RIFA is diagnostic. When RIFA sting they “grab hold” with their mandibles and inject the stinger into the raised area. This position is characteristic of RIFA. In the absence of a hand lens this can be used on living ants. This method has some obvious risks and drawbacks, but the ants can usually be crushed to stop the stinging process before venom is injected.

Biology

Most structural RIFA infestations originate from mounds located outside of the structure. RIFA are capable of foraging more than 100 yards away from a mound in search of food sources.

Most conventional ant treatments focus on following foraging ants backwards to find the colony. The colony is treated with a contact poison. Barrier treatments may then be performed to reduce or eliminate the foraging ants. Since RIFA can and do forage from great distances this is often very difficult or impossible. It is further complicated by the fact the foragers may be coming from more than one colony. Usually, a very high number of colonies are present.

RIFA are omnivorous and can use almost anything as a food source. RIFA adults, however, are not capable of feeding on solid food. They must rely on the larvae to convert the solid food into soluble liquids. They pass the liquids orally from one ant to another throughout the colony. This process is called *tropholaxis*.

The process of tropholaxis is exploited by the use of baits. A bait is carried back to the RIFA mound by a forager. As tropholaxis takes place, the entire colony is effected by the bait.

Because of tropholaxis baits must act fairly slowly to allow them time to permeate the entire colony. If any ants get “sick” before the process is complete the remaining ants will not be exposed to the food source.

RIFA forage anytime the surface temperatures are between 70° and 95° F. Baits are very short lived and depend upon the ants to carry them back to the colony for effectiveness. Therefore, the timing of applications should consider the foraging activity of the ants.

Treatment

The primary recommendation for RIFA control is a broadcast application of one of the many bait products available. They are an attractive choice for several reasons. First, they can control colonies without having to locate *every* colony. They are very low in toxicity and represent minimal risks to pets, children, or those sensitive to other more toxic treatments. They are easy to find and readily available. There are numerous types



to choose from including toxicants and insect growth regulators. If applied correctly they are relatively inexpensive and very effective.

None of these bait products are labeled for indoor use, however, as we have discussed most infestations are coming from outside the structure. Therefore, exterior treatments with bait products are usually effective in controlling structural invasions if they are properly applied.

RIFA baits breakdown quickly in sunlight and water so they need to be applied when RIFA are foraging to be effective. The efficiency of RIFA foragers also means they will pick up most of the bait and reduce the impact on non-target species – such as other ants which have been found to eat fire ants.

The easiest way to determine if RIFA are foraging is to place a small amount of test bait outside, wait about 30 minutes. If RIFA are foraging they will be at the bait by that time and the bait can be applied. If RIFA fail to appear do not apply the bait. RIFA do forage during the winter months when the temperature is high enough, however, they are rarely active enough for baits to be very effective. It is recommended that baits be applied between the months of April and October.

Baits are most effective when they are applied as a broadcast treatment. Broadcasting can be accomplished with a handheld spinning disk spreader. The spreader must have a minimum opening of 1/8 inch.

Treatment with a broadcast granular such as Talstar®, Chipco TopChoice® (available to commercial applicators only) or Over ‘n Out® (available to homeowners) should also prove effective for the control of fire

ants. Follow all instruction on the product's label.

Both the baits and the granular broadcast treatments may take up to six weeks to control fire ant populations. To reduce the fire ant foraging activity in the interim time you may want to consider some of the following recommendations.

Generally, fire ants come into buildings searching for food, especially meats or greasy food. If fire ants are found indoors, remove children and pets from the immediate area. Then, try to follow the ants' trail to determine what they are eating and where they are coming in. Ants holding food are usually on a path back to the nest.

A common place for fire ants to forage is the kitchen, but do not overlook trash cans, diaper pails, or food that may be in other areas of the building. Once the ants' food source has been found, remove it or seal it in a tight container.

When inspecting for the ants' entry point, first check around doors, windows and places where pipes, ducts, and wires enter the house. Be mindful that fire ants can enter a structure from almost any location. Fire ants have been known to invade structures from establish colonies on roof tops.

After determining where the ants are entering, spray the ants and their trail with an insecticide. Any insecticide spray registered for inside ant control should be effective. Follow all instruction on the product's label. Be careful not to spray around food or eating utensils or into areas where wires are present.

For cases where a colony has established within the structure insecticides labeled for indoor use should be used to treat the mound directly. Once the ants are dead the soil

from the colony can and should be cleaned up.

None of the current technologies are able to provide permanent relief from future fire ant infestations. Regular treatments are recommended to ensure acceptable levels for fire ant control.

For baits treatments will need to be made at least twice a year—once in the spring and once in the fall.

Granular treatment can provide up to 12 months of fire ant suppression. They can be applied any time of year and need to be watered in to activate them.

Both strategies may take up to six weeks before full effectiveness will be observed.

Fire ant management with the current technologies can be very effective. Successful treatments depend upon an understanding of the fire ant biology, timing of applications and application methods. .

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