



Managing Red Imported Fire Ants in Electrical Equipment and Utility Housings

Bastiaan M. Drees, Fire Ant Project Director

Department of Entomology, Texas A&M University, College Station, Texas

Like many other ants, the red imported fire ant, *Solenopsis invicta* Buren, frequently infests electrical equipment and utility housings. Two types of problems caused by these ants to electrical equipment exist:

- ◆ Movement of entire colonies into utility housings
- ◆ Affinity of foraging worker ants to electrical fields and switching mechanisms.

Movement of entire colonies into utility housings. Particularly during certain times of the year, entire colonies of imported fire ants move into utility housings. During winter months, the extra warmth provided in these units apparently is attractive to these cold-blooded animals, although during periods of heavy rains these housings may provide a high, dry nesting site as well. When a colony moves into a utility housing, worker ants import soil for nesting. This material can cause corrosion and interfere with maintenance operations. Once inside, the ants chew on insulation and can cause short circuits or interfere with switching mechanisms. Air conditioners, traffic signal boxes, and other devices can be damaged. Ants nesting in these units are highly defensive of their colony and can be a medical threat to maintenance personnel.

Affinity of foraging worker ants to electrical fields and switching mechanisms. Imported fire ant colonies (mounds) are often found at the base (slab) or near housings of electrical and utility units. Worker ants leave these nests in search of food to bring back to the rest of the colony members (larvae, other workers, and indirectly to the queen and reproductive ants). However, when worker ants enter switching mechanisms of electrical equipment, they can become a problem.

Worker ants of all ant species have an affinity for oscillating magnetic fields (60 cycles per second). Once ants in a switching mechanism bridge the gap between an open switch, they are shocked and electrocuted. The shocked ants release communication chemicals (pheromones)

or other signals that attract other worker ants. The result is that switching units can become tightly packed with the bodies of dead, electrocuted worker ants, causing a failure of the mechanism.

Management Options

Fire ant colonies nesting *around* and at the base of utility units can be managed to prevent them from entering these structures using methods available and insecticides registered for sites in which these units are located. For example, if fixtures are located indoors or in food production areas such as an orchard, use fire ant insecticides registered for these sites. For colonies located *inside* electrical installations or utility housings, specialty products are available with instructions for their application in these locations. *Closely follow the instructions provided on the product label.*

For safety reasons, it is recommended that *an electrician or a licensed pest control operator treat infested electrical equipment*. Specialized control products and training are necessary to treat these sites effectively and safely.

Treatment program. This information was obtained from the Texas Agricultural Extension Service publication, B-6043 *Managing Red Imported Fire Ants in Urban Areas*:

- ◆ Eliminate colonies in and around electrical and plumbing casings and housings. Around water meter casings, immediate control can be obtained with injectable aerosol products containing pyrethrins or similar products. Mounds around structures or areas around electrical structures can be treated using one of the programs described for use in “Home Lawn and Ornamental Turf Areas” section in [B-6043](#). For fast control, hydramethylnon bait (Amdro®), or a spinosad bait product (Justice® or Eliminator®) applied to individual fire ant mounds will provide control in about one week. Do not use liquid drenches or sprays that can be hazardous around electrical fixtures or products that may damage insulation. Be careful when applying pesticide around water systems and

well heads. Once the ant problem is eliminated, debris and soil should be removed to reduce the possibility of short circuits. Be careful and *turn off all electrical service* before starting.

- ◆ Treat equipment housings with products labeled for such use, including State Fire Ant Killer® with resmethrin, Rainbow Insect Control® containing chlorpyrifos, Stutton® JS 685 Powder containing synergized pyrethrins plus silica gel, or Elastrel™ Insecticide with dichlorvos.

Maintenance program. After ants are removed from the electrical equipment, several things can be done to prevent re-infestation:

- Where possible, seal all sensitive electrical components, particularly locations that are not insulated, such as plastic housings containing contact points of switches, relays, and circuit breakers.
- Apply insecticide barriers around housings using long-residual contact insecticides, making sure to avoid the active electrical equipment.
- Apply specifically labeled products to the housing (see Step 2 in the program above).

Alternative Approaches and Possibilities for the Future

Landscape media barriers. Certain landscaping media, such as pea gravel and perhaps other types of rock, appear to be unfavorable nesting materials for fire ant colonies and foraging ants. These materials may be useful to place around electrical and utility housings to reduce and discourage ants from nesting and foraging in these sensitive areas. Why these substrates are unattractive to ants, under what conditions, and how deep or wide these deposits of landscape materials need to be has not been adequately studied.

Mechanical exclusion. Ants can enter holes as tiny as the diameter of the wire of a paper clip. However, materials with no holes (completely sealed) or holes small enough to exclude ant entry can be used to prevent ants from entering into at least the sensitive components of an electrical installation.

Physical barriers. Certain materials (e.g., Teflon®, Fluon®, Tanglefoot®, or similar materials) prevent ants from being able to walk up vertical surfaces, although they lose their effectiveness under certain conditions (e.g., when they get wet, old or dirty). Even certain physical features such as downward angled flanges may disorient foraging workers and prevent them from successfully accessing a sensitive area. Some of these have been used to develop insect or ant-free pet bowls! Ants avoid heated wires or strips that are 140°F or hotter. These concepts/ components could provide an ant-free unit, or at least they can be utilized in such a way as to prevent ants from gaining access to sensitive components.

Electrical devices. In the past, several ant control products (e.g., Yardvaark™, Aardvark™) have been marketed that use closely spaced, electrically-charged metal strips or wires to shock and/or electrocute ants. When inserted into an ant mound, worker ants contacting these strips are shocked and/or electrocuted, depending on the voltage encountered. Other worker ants are then attracted to the shocked ants (to behavioral-modifying chemicals or pheromones released by electrocuted ants) and over a period of hours a large pile of dead worker ants is formed. Unfortunately, the queen(s) and brood (eggs, larvae, pupae) are not attracted or affected. Although these devices may not successfully eliminate ant activity in a treated colony, similar devices are being developed and tested for use in electrical utility housings.

Texas Tech University scientists have recently developed such a patent-pending static electric device (SED). It is currently being evaluated, and how it works to protect electrical equipment is not known. However, in theory, when such a device is placed into an electrical housing, foraging ants entering the unit more readily find (and are shocked by) the device than the sensitive components (e.g., switching mechanisms). Although initially attracted to the unit by electrocuted worker ants, ants foraging from a nearby colony eventually may avoid or be repelled by the pile of dead ants. As a result, this “decoy” or “electrical trap” may spare the electrical unit’s sensitive components.

Suppression of imported fire ants in the community. Much effort is under way to better suppress imported fire ants over larger areas (see [FAPFS015](#) and [B-6043](#)). These include intensive investigations into biological control options,

exploitation of genetic and physiological traits, and development of more cost-effective, environmentally-sound, chemically-based methods. The implementation of these methods in integrated pest management (IPM) programs on a community-wide basis can provide sufficient levels of ant suppression to reduce the probability that imported fire ants will invade and harm utility housings and electrical equipment.

Sources of Specialty Products for Fire Ant Management in Electrical and Utility Housings

JS-685. Pyrethrins plus silica gel aerosol (Stutton Corporation, 11210 Ladnier Road, P.O. Box 6040, Biloxi, MS 39532 228/396-0396 or 800/357-1323; Contact: Lorie Student, stutcorp@aol.com)

Aerosol spray for electrical and utility units.

Rainbow® Telco & Power Wasp & Ant Spray (88500) with insect (mound) probe (4357). D-trans allethrin 0.3% (Rainbow Technology Corporation, 261 Cahaba Valley Parkway, Pelham, AL 35124-1146; 800/637-6047).

For fast knockdown of ants and other listed arthropods in and around telephone, power, cable, electronics and utility equipment and industries. Insect probe allows for aerosol injection into fire ant mounds. Effective range: 15 ft.; does not harm ABS, Noryl, polyethylene plastics; does not cause corrosion of noble metals; dielectric strength: 62,000 volts.

Rainbow® Fire Ant Killer (4480). Chlorpyrifos 5% granules (Rainbow Technology Corporation, 261 Cahaba Valley Parkway, Pelham, AL 35124-1146; 800/637-6047).

For control of ants and other listed arthropods in and around telecommunications, power, utilities and railroad systems equipment including: underground vaults, cable television pedestals, pad-mounted electric power transformers, cables, buried cables and telephone cables.

Rainbow® High Tech Insectape® Insecticidal Strip or Insect Patch (4045 & 4044). Contains Baygon®: 2-(1-methylethoxy) phenol methylcarbamate 10 % (Rainbow Technology Corporation, 261 Cahaba Valley Parkway, Pelham, AL 35124-1146; 800/637-6047).

An adhesive-backed, multi-layered strip/patch for control of ants and other listed arthropods that walk across the surface. For use inside equipment such as aerial terminals, pedestals and cable closures, electric meter, traffic controller or junction boxes, and other outdoor telecommunications or electrical apparatus. Provides continual control for up to 3 years.

Hot Shot® Ultimate Bug Killer for small spaces dichlorvos 18.6% (Spectrum Group, Division of nited Industries Corporation, P.O. Box 15842, St. Louis, MO 63114-0842)

For control in small spaces such as garbage cans, dumpsters (one unit treats 25 to 50 cu. ft.) for control of flies, beetles,

earwigs, cockroaches, silverfish, spiders and “other small household insects” for up to fur months.

Sprectracide® Bug Stop Pest Strip. Dichlorvos 18.6% (Spectrum Group, Division of United Industries Corp., P. O. Box 15842, St. Louis, MO 63114-0842)

For use in “storage spaces and closets” and “utility areas” to control fire ants. Lasts up to 4 months. Use one 65g strip to treat 900 to 1,200 cu. ft. of enclosed space for utility equipment such as communications equipment, electric, gas, water and cable television. Also controls other arthropods listed on product label.

Do Electricians Need to be Licensed by the Structural Pest Control Board?

Persons serving as electricians can apply pesticides in and on the outside of electrical equipment being serviced WITHOUT a commercial or noncommercial pest control operators license, providing this service is a necessary part of their normal service activity and NOT a service for which separate charges are being made.

If you are receiving payment for any pest control or suppression services, either from paying customers or from your employer, please obtain further information about obtaining and maintaining a Pest Control Operators License by contacting the Structural Pest Control Board at 1106 Clayton Ln., Suite 100 LW, Austin, TX 78723; 512/451-7200.

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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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