

Managing Household Ant Pests



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In nature, ants are generally considered to be beneficial insects. But when they invade a home, ants can be a nuisance.

To manage an ant infestation in the home, you must first identify the species. The next step is to learn about the biology of that species and determine where the colony might be nesting. Some species commonly nest indoors, while others nest outside and enter a home just to look for food.

To rid your home of ants, you must eliminate the colonies or nests. Some treatments, such as insecticides sprayed on ant trails, kill only a few foraging worker ants. They do not eliminate colonies. In fact, such treatments can sometimes make the problem worse by causing a colony to split into two or more separate colonies.

This publication can help you identify and treat ants that invade your home. However, ant control can be difficult. If you are not successful, call a commercial pest control operator.

Why Ants Enter a House

To start a new colony

Ants form new colonies in several ways. Some species produce winged ants that swarm from the nest during certain times of the year, mate, and then form new colonies. Newly mated females

become queen ants in new colonies. They may choose indoor nesting sites if suitable ones are not available outdoors. When she finds a nesting site, the queen loses her wings and begins to lay eggs, which hatch into legless, grub-like larvae. The queen feeds the larvae as they develop through several stages, molting and growing between each stage. Larvae then form pupae and soon emerge as adult ants. Once worker ants have developed, the queen no longer needs to care for the brood.

When winged ants swarm in the home, it is likely that their colony is located somewhere inside. Winged ants swarming outside, such as around porch lights, should not be a concern. To discourage them, turn off porch lights or use yellow “bug” lights. If you do see winged ants inside, it is important to distinguish them from termites. The following chart will help. (Also see Extension publications B-6080, “Subterranean Termites,” and L-1782, “Drywood Termites.”)

Winged ants

- Two pairs of wings, with the hind wings shorter
- Antennae usually are “elbowed”
- Narrow “waist” between abdomen and thorax

Winged termites

- Two pairs of wings of equal size and shape
- Hair-like antennae
- No narrow “waist”

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Some ant colonies can have more than one queen, and mating may occur within the nest without swarming. These ants form new colonies when one or more of the queen ants, along with some workers and brood, leave the nest and move to a new location. Ant colonies do not nest in permanent locations. Often entire colonies will move from one nesting site to another almost overnight. Ant colonies may move indoors if the weather is either abnormally hot and dry or very wet. They may also move indoors if there is insufficient food and water outside.

To find food and water

Worker ants from outside or inside nests may forage for food and water inside a home. Foraging workers of some species secrete chemical (pheromone) trails to lead other ants to food and water. The ants take food back to the colony and share it with the other ants, including the queen(s) and brood. In some species, such as the pharaoh ant, larvae are an essential part of the food chain; they partially digest solid food brought to them by worker ants and regurgitate it for the rest of the colony to consume. Most adult ants can not ingest solid food particles.

Common Indoor Ant Species

Pharaoh ant, *Monomorium pharaonis*



Also called “sugar ants” or “piss ants,” these ants are very small, about $\frac{1}{12}$ to $\frac{1}{16}$ inch long, and are light tan to reddish. This exotic (non-native) species is the ant most often seen indoors in Texas. Pharaoh ants do not sting and usually do not bite. They feed on sweets (jelly—particularly mint apple jelly, sugar, honey, etc.), cakes, breads, and greasy or fatty foods (pies, butter, liver and bacon). They may nest in light sockets, potted plants, wall voids, attics, cracks and

crevices, and they especially like warm places close to sources of water. They are occasionally found outdoors. Their trails can reach 150 feet in length.

Worker ants develop from eggs (5 to 6 days) through several larval stages (22 to 24 days), a prepupal stage (2 to 3 days), and a pupal stage (9 to 12 days) to adults. The time from egg to adult takes 38 to 45 days (4 days longer for sexual forms). Colonies consist of one to several hundred queen ants, sterile female worker ants, winged male and female reproductive ants (sexuals), and immature ants. Pharaoh ants do not swarm. Colonies multiply by “budding,” a process whereby a large part of a colony migrates with some immatures to a new nesting site.

Red imported fire ant, *Solenopsis invicta*



Fire ants infest the eastern two-thirds of Texas (also see Extension publication B-6043, “Managing Red Imported Fire Ants in Urban Areas”). Worker ants are $\frac{1}{16}$ to $\frac{3}{16}$ inch long and are usually reddish or dark brown. Queen ants are larger ($\frac{3}{8}$ inch) and lose their wings after mating. This exotic species from South America prefers to nest outdoors in soil. The ants construct hills or mounds in open areas and also nest under rocks and landscape timbers, at the bases of tree trunks, in decaying wood and in clogged rain gutters. Occasionally they are found indoors nesting in wall voids, decaying wood or utility housings.

When a mound or nest is disturbed, the sterile female worker ants respond quickly and will run up vertical surfaces to attack the intruder. They bite and hold on to the victim with their jaws while injecting venom with stingers at the ends of their abdomens. Fire ant stings produce

a burning sensation and often cause whitish blisters. Most people can tolerate the stings, but some people are very sensitive to fire ant venom and must seek medical attention.

Foraging workers may enter a house in search of food, moisture or nesting sites, particularly during hot, dry periods or during floods. Fire ants are omnivorous, but eat mostly insects and other invertebrates such as ticks, chiggers and caterpillars. They often feed on the sugary “honeydew” produced by aphids, mealybugs and some other insects.

Eggs hatch in 8 to 10 days and larvae develop through four stages (instars) before pupating. Development from egg to adult requires 22 to 37 days, depending on the temperature. Each colony contains one or more queen ants. Queen ants can produce about 800 eggs per day. A “mature” colony can contain more than 200,000 adult and immature ants. Fire ant reproductives swarm to establish new colonies.

Carpenter ants, *Camponotus* sp.



Carpenter ants

There are 14 species of carpenter ants in Texas. The largest is the black carpenter ant (*Camponotus pennsylvanicus*), which is found primarily in wooded areas and rarely causes a problem indoors. Common indoor species are *Camponotus rasilis* and *C. sayi*. The workers of these species have dull red bodies with black abdomens. Worker ants are 1/4 to 1/2 inch long. They can be distinguished from most other large ant species because the top of the thorax is evenly convex and has no spines. Also, the attachment between the thorax and abdomen has a single flattened segment.

Although these ants can bite, they do not sting. Foraging worker ants leave the nest and seek foods such as insects, decaying fruit, and honeydew. When foraging worker ants enter a home they can be a nuisance.

Occasionally carpenter ants, particularly *C. rasilis*, nest under stones or in other places, but they usually nest in dead wood, either outdoors in old stumps, dead parts of trees, firewood and fences, or indoors between wood shingles or in siding, beams, joists, fascia boards, etc. Colonies are often located in cracks between structural timbers, but the ants can also tunnel into structural wood to form nesting galleries (although this is rare with the species that occur in Texas). They may prefer moist or decaying wood, wood with dry rot, or old termite galleries. Galleries (nesting tunnels) usually follow the grain of the wood and go around the annual rings. Tunnel walls are clean and smooth. Galleries can weaken structural timbers. Nests can be located by searching for piles of sawdust-like wood scrapings and dead ant parts underneath exit holes. These piles accumulate as the nests are excavated.

The development from egg to worker ant takes about 2 months. A mature colony contains winged males and females (reproductives about 3/4 inch long), sterile female workers of various sizes, and a wingless queen about 9/16 inch long. The winged reproductives swarm from May through July. If they are found in a home, it is likely that a colony is nesting indoors. (Also see Extension publication L-1783, “Carpenter Ants.”)

Other species

The **acrobat ant**, *Crematogaster* sp., nests under stones, in stumps or in dead wood and occasionally invades homes. Some species make nests in trees. Foraging worker ants tend aphids and other sucking insects and feed on the honeydew the aphids produce. The acrobat ant has a heart-shaped abdomen that is often held up over its body.



Acrobat ants

The **Argentine ant**, *Linepithema humile*, is an exotic species from South America. It is not as common in areas infested by the red imported fire ant. Workers are light to dark brown and can be found both indoors and outdoors. Their foraging trails may be as long as 200 feet. Because each colony may contain several queens, the population of Argentine ants can be huge in some areas.

Bigheaded ants, *Pheidole* sp., prefer to nest in soil outdoors. The heads of larger (major) worker ants are relatively large compared to the size of their bodies. Their antennae have 12 segments and “clubs” on the ends. They bite but do not sting. Like red imported fire ants, they feed on live and dead insects, seeds and honeydew outdoors. Indoors, they are attracted to greasy foods and sweets.



Bigheaded ant

Workers of the **crazy ant**, *Paratrechina longicornis*, are grayish black with long legs and antennae. They run very fast. Although they mainly nest outdoors, they will forage in homes. They are omnivorous, but are difficult to attract to ant baits.



Crazy ant

The **little black ant**, *Monomorium minimum*, is a slow-moving, small and shiny black ant. Workers prey on insects and feed on honeydew.

Workers of the **odorous house ant**, *Tapinoma sessile*, look somewhat like red imported fire ants



Little black ant



Odorous house ant

but have a pungent “rotten coconut” smell when crushed. This species is easily identified because all the workers are the same size and they are active during the day. They form large colonies, and their nests contain more than one queen ant.

Workers of **tramp ants**, *Tetramorium* spp. (e.g., *T. bicarinatum*), also resemble the fire ant, but if you look closely you’ll see that the head and thorax are roughened and have parallel grooves. The bodies of fire ants are smooth. Tramp ants prefer to nest in the soil around building foundations and will forage indoors for food.



Tramp ant

The **ghost ant**, *Tapinoma melanocephalum*, is also becoming a problem in Texas. Workers are tiny ($1/16$ inch) with a dark head and thorax and a light abdomen. Colonies nest primarily indoors. Foraging workers are attracted to sweets.



Ghost ant

Help with Ant Identification

If you are unable to identify ants from the information in this publication, you can get help from professionals. You will need to collect a specimen of the ants that are infesting your home. Dip a cotton swab in rubbing alcohol and use it to collect one or more of the ants. Place the ants in an alcohol-filled vial. Your county Extension agent or a pest control company representative may be able to identify the ants.

Texas Cooperative Extension publication B-6138, “The Common Ant Genera of Texas,” is a useful reference. It is available from the TCE Bookstore (<http://TCEBookstore.org>).

If you hire a pest control operator, that person will be able to identify the ants that are invading your home.

Table 1. Characteristics of some common house-infesting ants of Texas.

Species	Preferred nest locations	Foods preferred indoors	Swarming season	Sting	Bite	Follow trails	Length of workers (inches)
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Usually nest indoors

Pharaoh ants	Near heat and moisture sources	Grease, meats, sweets	None	No	No	Yes	1/16
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Usually nest outdoors, but can be found in or on buildings

Acrobat ants	Protected galleries in mortar and wood	Slight preference for sweets and meats	Early summer to early fall	No	Yes	Yes/No	1/8 to 1/4
Carpenter ants	Usually in stumps and fences (see text)	All foods, sweets	May to late July	No	Yes	No	1/4 to 1/2
Odorous house ants	Under stones or boards, in walls, under floors	Sweets, meats, dairy products	Seldom	No	No	Yes	1/8
Red imported fire ants	Lawns, gardens, plant beds	Meats, grease, sweets	All year	Yes	Yes	Yes/No	1/8 to 1/4
Thief ants	Nests of other ants, soil, cracks in wall	Grease in cheeses and meats, sweets	Late July to September	No	No	No	1/16

Usually nest only in soil outdoors

Argentine ants	Lawns, plant beds, leaf litter, trash piles	Sweets, animal fat	Rare, April and May	No	No	Yes	1/8
Crazy ants	Trash piles, tree soil	Sweets, meat	Spring	No	No	No	1/16 to 1/8
Little black ants	Lawns, under objects, rotten wood	Grease, sweets, meats, fruits, vegetables	May to September	No	No	Yes	1/16
Tramp ants	Cracks in or near sidewalks and pavement	Grease, meats, honey	May to June	No	No	Yes	1/8

How to Manage Ants Indoors

Ants enter a home in search of food, water or a good nesting site. There are things you can do to eliminate these resources inside and outside your home to prevent ant problems.

To remove food sources:

- Keep your home clean. Clean up spilled foods and beverages and store foods in tightly sealed containers.
- If insects are producing honeydew on plants close to the house, control them. Ants are attracted to honeydew.

To remove water sources:

- Repair dripping faucets and other plumbing leaks.
- Replace wet or rotten wood.
- Move mulch and landscape rocks away from the bottom of the foundation. Mulch and rocks keep the soil moist, which attracts ants.

To remove nesting sites and keep ants from entering the house:

- Caulk cracks and crevices. Replace worn weatherstripping around doors and windows.
- Remove dense vegetation next to the house.
- Remove ivy that grows on walls.
- Clean out rain gutters. Ants may nest in gutters clogged with decomposing leaves and other debris.
- Store firewood away from the house.
- Trim tree limbs away from the roof and house. Ants may use them as bridges to gain access.
- Before you bring firewood or potted plants into the house, be sure they are not infested with ants.

Assess the problem

When ants are observed indoors, take some time to study their habits. Make observations both during the day and after dark (some ants are more active at night). Note what foods they are attracted to and where most of them are appearing. Note whether the ants have wings or are wingless. The most important thing is to try to locate the nest, because treating the nest is the most effective way to eliminate the ants.

If you see trails of foraging ants, follow the trails and try to determine where the ants are coming from. You can make food-lure bait stations to trick the ants into revealing their nest locations. Fill small squares of aluminum foil or bottle caps with sugar water, peanut butter, mint apple jelly, bacon grease or some other sweet or greasy food. Watch the ants as they locate the food and take it back to the nest. You may soon see a column of foraging workers develop.

Remember that foraging ants may return to nests indoors or outdoors. You may see the workers entering and leaving the house using “highways” such as the edges of buildings, borders around landscape beds, wires, fences, hoses and plumbing systems. If possible, follow them to their outdoor nests. Unfortunately, you won’t be able to see most indoor nests because they are in wall voids or underneath slabs. But knowing the ants are nesting only indoors will keep you from making unnecessary and ineffective outdoor treatments.

These observations take time, but they are worth the effort because you will know how to treat the ants effectively. Indiscriminately spraying insecticide on foraging ants or around your home will do little good.

Treat the nest

If you do discover a nest, make note of its location so you can treat it. Insecticides for controlling ants are available as liquid sprays, dusts, fogs, aerosols and baits. Many are labeled in a general way to control “ants.” Some are labeled to control specific types of ants. When choosing a product, be sure to select one that will control the specific pest you have and that is labeled for the location where it will be used—indoors or outdoors.

In addition to treating outdoor nests, you may also need to apply insecticide indoors to kill foraging workers, especially in winter when outside treatments are less effective.

Indoor nests can be treated directly with an insecticide or, if the nest is not accessible, by using baits. Sometimes it is necessary to drill holes into wood and wall voids to reach an ant colony. If so, you’ll want to hire a professional pest control operator who has the skill and equipment to do this. Ant colonies are mobile and quickly move to new locations when disturbed. Some

species have more than one nest within a structure, and some have satellite colonies apart from the main nest (e.g., carpenter ants), so it may be important to have the assistance of a professional.

The most effective insecticide formulations for direct application to indoor nests are sprays or dusts. Dusts are usually preferred because they do not stain and control ants longer than do sprays. Dusts should be applied sparingly in thin, even layers in the ant nest area.

Insecticide baits may be used alone or in combination with direct nest treatments. To be successful, the bait must contain a food substance attractive to the target ant species so that foraging worker ants will collect the material, return it to the colony, and feed it to the other ants. Some ant species feed mostly on sugar or sucrose, while others prefer oils or proteins. Some species, such as imported fire ants, feed on many types of foods.

Granular baits can be applied to inaccessible indoor locations such as wall voids. Outdoors, they can be broadcast or used for spot treatments.

Indoor baits are also formulated as liquids, gels, pastes or solids. These are contained in bait stations or applied by some other method. Effective indoor baits contain ingredients such as abemectin, fipronil, hydramethylnon, sulfonamide, sodium tetraborate (borax), orthoboric acid, pyriproxyfen or methoprene. These are slow-acting pesticides. Baits should not be confused with “bait traps,” which kill only foraging workers and not ants in the nest.

Boric acid products are commonly formulated in sugar water (25 percent sucrose) and placed in a dispenser. Concentrations of 0.5 to 3.7 percent are most attractive to Argentine ants. Higher concentrations are less attractive. Boric acid is a slow-acting stomach poison. Be careful using it outdoors because it is toxic to plants. For pharaoh ants, if the nest cannot be located, use a bait (e.g., Drax® Ant Kill Gel containing 5 percent orthoboric acid or Terro®-PCO or other products containing 5.4 percent sodium tetraborate or borax). Or prepare a 1 percent boric acid bait using the following recipe:

- Choose the most attractive food material for the ant species (e.g., peanut butter, mint apply jelly, corn syrup, etc.).

- Mix 1 part boric acid powder (available from most pharmacies) per 100 parts bait material — 1 teaspoon per 2 cups food material (1 cup = 48 teaspoons).

The 1 percent bait is better than higher concentrations because it is less repellent to ants and kills them as efficiently. Place small quantities of bait in bottle caps or on pieces of foil, or inject it into short (2-inch-long) sections of soda straws using a squeeze bottle. Place 20 to 30 small bait stations where ants have been seen. Never place any baits in areas accessible to small children or pets. If the proper food material is used and the bait is kept fresh and moist, the ants should be controlled after 3 to 4 weeks of a careful, thorough baiting program.

To use baits successfully:

- Do not spray long-acting contact insecticides (often applied to control cockroaches or sprayed on ant trails). Sprays prevent foraging worker ants from reaching the bait.
- Follow directions carefully and use the correct number of bait stations or the right amount of bait material to treat the infestation. Also use fresh product. Some bait formulations, particularly those containing vegetable oil (e.g., soybean oil, peanut oil), will lose attractiveness over time or if stored improperly.
- Make bait more effective by removing other food sources such as spilled food and grease.
- Be patient. It may take 3 to 4 weeks or more to eliminate some colonies.

Baits usually kill many, but not all, of the ants in a colony, particularly when a colony is large and cannot be treated directly as well.

Use contact insecticides for barriers

Some contact insecticides repel ants. Examples are pyrethroid insecticides (permethrin, bifenthrin, cyfluthrin, es-fenvalerate, cypermethrin, lambda-cyhalothrin). Although repellants should not be used while baits are set out, they can be used after a baiting program to quickly eliminate any remaining ants. They can also be sprayed around cracks, openings for plumbing and other places ants might enter to create an indoor barrier and keep ants from reinfesting a home.

Nonrepellant contact insecticides (such as those containing chlorfenapyr) can be used indoors by professional pest control operators to kill foraging ants when the nest is inaccessible.

Outdoors, contact insecticides can be used to establish a barrier around the home. This is done by spraying insecticide in a 1- to 4-foot-wide band on the soil around the entire perimeter of the home and to the lower walls of the home, as directed on the product label. This barrier will greatly reduce or eliminate ant invasion if treatment is repeated periodically or whenever ants are active. Granular insecticides can be used to treat the soil instead of sprays. Water the treated area lightly after application to release the insecticide from the granules.

Professional pest control operators can spray Termidor® (0.6 percent fipronil) 1 foot up and 1 foot out from the base of foundations. This is a slow-acting, long-lasting contact insecticide. It appears that foraging ants returning to their nests carry the insecticide to other ants, which eliminates the colony. This may be an especially helpful product for controlling crazy ant nests outdoors, because they are harder to control with baits.

The entire home landscape should not be routinely treated unless the landscape is infested with fire ants or other pest ants that continually enter the home. Most ant species are beneficial in the landscape.

Choosing the Right Insecticide

Table 2 lists some of the many products available for treating pest ants in and around the home. Some older contact insecticide products have recently been removed from the market. Products containing bendiocarb (Ficam® and others), chlorpyrifos (Dursban® and others) and diazinon are no longer being sold, although existing stocks can still be used.

Some of the products and formulations listed are available only to professional pest control operators.

For additional information, refer to the following publications, available from the Texas Cooperative Extension Bookstore at <http://tcebookstore.org>.

B-6043, “Managing Red Imported Fire Ants in Urban Areas”

L-5070, “The Two-Step Method Do-It-Yourself Fire Ant Control”

L-5314, “Red Harvester Ants”

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Table 2. Examples of insecticide products for controlling ants in and around homes. Note that some products contain several ingredients. Some products are available only to professional pest control operators. Carefully follow directions on the product label. For a more detailed version of this table, visit <http://www.insects.tamu.edu>

Active ingredient common name	Where and how used (check label for details)	Product name examples and signal word
abamectin B ₁	Indoors: Apply to cracks and crevices where ants are active Outdoors: Broadcast around perimeter of house; treat individual colonies and mounds	Advance 375A Select Granular Ant Bait Advance Granular Ant Bait Formula 1 Advance Granular Carpenter Ant Bait CAUTION
avermectin B ₁	Indoors and outdoors	Raid Ant Baits II Raid Outdoor Ant Spikes CAUTION
acephate	Outdoors: Treat mounds Indoors: Apply to cracks and crevices; for carpenter ants, apply to tunnels and cavities	Orthene PCO Formula II Orthene Crack & Crevice Pressurized Residual Formula 1 Ortho Orthene Fire Ant Killer CAUTION
arsenic trioxide 0.46%	Outdoors or indoors	Grant's Kills Ants Stakes Grant's Kills Ants Bait Stations CAUTION
bifenthrin	Outdoors: Broadcast or treat mounds Indoors	Ortho Fire Ant Killer Broadcast Granules Talstar PL Granular Insecticide (FMC) TalstarOne Multi-Insecticide Bifenthrin Pro Multi-Insecticide Golf Courses/Nursery Ortho Bug B Gone Max Insect Killer for Lawns Basic Solutions by Ortho, Lawn & Garden Insect Killer Ortho Home Defense Max CAUTION
boric acid	Indoors	Perma-dust Pressurized Boric Acid Dust AntX 75 CAUTION
chlorfenapyr 21.45%	Indoors	Phantom Termiticide - Insecticide CAUTION
clove oil	Outdoors: Broadcast or treat mounds Indoors: Apply to cracks and crevices	Eco Exempt D with Hexa-Hydroxyl CAUTION

CAUTION–least toxic; **WARNING**–moderately toxic; **DANGER**–most toxic of formulated product

Common name and formulation	Where and how used (check label for details)	Product name and signal word
cyfluthrin	Outdoors: Spray around doors, windows, foundation and porches; spray ant trails, mounds and lawns; inject into nests Indoors: Apply to cracks, crevices and wall voids	PowerForce Multi-Insect Killer Cy-Kick Crack and Crevice Pressurized Residual Cy-Kick CS Crack and Crevice Pressurized Residual Real Kill Home Insect Control Indoor Outdoor Insect Killer PowerForce Multi-Insect Concentrate PowerForce Multi-Insect Killer Ready-to-Spray Tempo 1% Dust Insecticide Prescription Treatment Brand Cy-Kick CS Controlled Release Cyfluthrin CAUTION
β-cyfluthrin cyano	Outdoors and indoors	Tempo Ultra WP Tempo SC Ultra Insecticide CAUTION
cypermethrin	Outdoors and indoors	Demon TC Hot Shot Home Insect Control Clear Formula ₂ CAUTION
deltamethrin	Outdoors: Apply around windows, doors, porches, eaves, patios and in crawl spaces; treat mounds Indoors: Apply to ant trails and around doors and windows	DeltaDust Insecticide DeltaGard G Insecticide Granule Ortho Fire Ant Killer Suspend SC Insecticide CAUTION
disodium octaborate tetrahydrate	Outdoors and indoors	Bora-Care Termiticide, Insecticide and Fungicide Concentrate Tim-bor Insecticide and Fungicide CAUTION
eugenol (clove oil) + thyme oil	Outdoors: Treat perimeters, landscapes and mounds	Eco EXEMPT G Granular Insecticide CAUTION
fenoxycarb	Outdoors: Treat mounds	Award Fire Ant Bait CAUTION
fipronil	Outdoors: Apply around doors, windows, vents, pipes and other openings Indoors	Ceasefire Fire Ant Bait Insecticide Combat Ant Killing Gel Over 'N Out Topchoice Insecticide Termidor SC Termiticide/Insecticide CAUTION Termidor 80 WG Termiticide/Insecticide WARNING

Common name and formulation	Where and how used (check label for details)	Product name and signal word
hydramethylnon	Outdoors: Broadcast, treat mounds, or use in bait stations Indoors: Apply bait only into cracks, crevices and other inaccessible areas	Amdro Fire Ant Bait Yard Treatment Amdro Pro Fire Ant Bait Grant's Kills Ants Total Ant Killer Bait Amdro Ant Block Eclipse Professional Insect Bait Maxforce Fire Ant Killer Granular Bait Maxforce Professional Insect Control Fine Granule Insect Bait Maxforce Professional Insect Control Granular Insect Bait CAUTION
hydramethylnon + s-methoprene	Outdoors and indoors	Extinguish Plus CAUTION
indoxacarb	Outdoors and indoors	Spectracide Fire Ant Killer Plus Preventer Bait Once and Done Advion Fire Ant Bait Real-Kill Ant Bait CAUTION
lambda-cyhalothrin	Outdoors: Treat mounds; treat ant nests; treat carpenter ants in trees, stumps, poles and fences; apply around buildings Indoors: Treat cracks, crevices, wall voids, and ant tunnels in wood	Spectracide Fire Ant Killer Granules ₂ Prescription Treatment 221 L Residual Insecticide Scimitar GC Insecticide CAUTION
linalool + N-octyl bicycloheptene dicarboximide + nylar: 2-(1-methyl-2-(4phenoxyphenoxy) ethoxyl pyridine + permethrin	Indoors: Treat carpet and pet bedding	Demize Nylar Carpet Spray CAUTION
methoprene	Outdoors: Treat mounds, perimeters of buildings and other areas; broadcast Indoors	Extinguish Professional Fire Ant Bait Pharorid Ant Growth Regulator CAUTION
n-ethyl perfluoro-octanesulfonamide (sulfonamide)	Indoors	Advance Dual Choice Ant Bait Stations CAUTION
orthoboric acid	Outdoors and indoors	Snuffer Niban FG Granular Bait InTice Granular Bait Niban Granular Bait Drax NutraBait Pressurized Baiting System Hot Shot Max Attrax Roach Killing Powder CAUTION

Common name and formulation	Where and how used (check label for details)	Product name and signal word
permethrin	Outdoors and indoors	Pounce Astro Insecticide Permethrin Pro Termite-Turf-Ornamental MasterLine Permethrin Plus-C Termiticide/Insecticide CAUTION
propoxur: 2-(1-methylethoxy) phenol methycarbamate	Outdoors and indoors	2% Prentox Larva-Lur contains Propoxur CAUTION
pyrethrins + other ingredients	Outdoors Indoors: Apply to cracks and crevices	ULD HydroPy-300 Pyrethrin Concentrate Microcare Pressurized Pyrethrum Capsule Suspension 565 Plus XLO Contact Insecticide P.I. Contact Insecticide ULD BP-50 Contact Insecticide Pro-Control Plus Total Release Aerosol Insecticide Pro-Control Total Release Aerosol Insecticide Tri-Die Pressurized Silica + Pyrethrin Dust Tri-die Silica & Pyrethrum Dust Drione Insecticide Prentox Pyronyl ULD BP-100 Contact Insecticide Microcare CS Controlled Release Pyrethrum Liquid Concentrate Prentox Pyronyl 303 Emulsifiable Concentrate Prentox Pyronyl Oil Concentrate OR-3610A ULD BP-300 Contact Insecticide Prentox ExciteR Kicker CAUTION
pyriproxifen (pyridine)	Outdoors and indoors	Distance Fire Ant Bait (Insect Growth Regulator) Archer Insect Growth Regulator Nyguard IGR Concentrate CAUTION
rosemary oil (10.0%)	Outdoors and indoors	EcoEXEMPT IC CAUTION
sodium tetraborate decahydrate (Borax)	Outdoors and indoors	381B Advance Liquid Ant Bait Terro - PCO Liquid Ant Bait Stations 388B Advance Ant Gel Bait CAUTION
spinosad	Outdoors: Broadcast or treat mounds	New Ortho Fire Ant Killer Bait Granules Fire Ant Control with Conserve (Green Light) CAUTION
tau-fluvalinate	Outdoors	Mavrik Perimeter CAUTION

Common name and formulation	Where and how used (check label for details)	Product name and signal word
thiamethoxam 25.0%	Outdoors	Flagship 25WG CAUTION
(S)-cyano (3-phenoxphenyl)methyl-(S)-4-chloro-alpha-(1-methylethyl)	Outdoors and indoors	Conquer Residual Insecticide Concentrate CAUTION
2-phenethyl propionate	Indoors	EcoPCO ACU Contact Insecticide CAUTION

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