



Understanding & Managing Structural Ant Challenges: The Least Hazardous Way

The Santa Clara County IPM Program supports reducing reliance on pesticides. We encourage all including the homeowners to adopt environmentally sound Ant management practices, such as using pesticides only when necessary.

Although ants often are regarded as pestiferous, they are beneficial in several ways. Ants are predators of numerous pest insects, including fly larvae and termites. By aerating soil and recycling dead animals and vegetable material, they aid in formation of topsoil. Ants also are responsible for pollinating plants in some areas. Ants provide a great service to the environment, and management efforts that prevent or suppress ants are preferred over practices that aim to eliminate ants.

Ants become pests when they invade buildings in search of food or shelter. Many species of ants, such as pavement ants, argentine ants, are particularly prone to infesting food. Inside buildings, these ants are merely a nuisance, since they almost never bite. However, ants walk over many different kinds of surfaces and sometimes feed on dead animals and insects, so it is possible that they can carry disease-causing organisms to human food. Assume that ant infested food has been exposed to organisms that can cause spoilage, and throw it away. Carpenter ants may cause some structural damage where as some ants are capable of biting causing severe allergic reaction. It is often very difficult and laborious to eliminate most ants from their outside habitat, so management efforts should aim at preventing ants from invading structures.

Argentine ants are the most common ants in California. In spring, their nests are found in open ground. In warmer weather, ants may move nests to more hidden areas such as under structures. During the winter months, ants may move indoors. Argentine ants obtain protein from eating insects, including many pests, but prefer honeydew, which is a sweet excretion produced by aphids, scales, mealy bugs and whiteflies. You will often find these ants in trees and shrubs infested with honey-producing insects. They often come indoors to find food during summer and fall when honeydew production declines.

Unfortunately, prevention is not always successful and management actions must be implemented. Managing ant problems is sometime as simple question as following a few basic steps that don't require a lot of time or money, however,

sometime a very challenging and tedious task to be left to the professionals following integrated pest management principles.

The steps to manage and control pest ants are as follows:

📖 **Proper Identification & understanding ant biology:** The first step in managing pest ants is proper identification, since many types of ants may invade a structure. It is critical to identify the type of ant you want to manage, because most ants differ in their habits and food preferences. Collect a sample of the ant and send it to your UC Cooperative Extension Agent or Department of Agriculture. They will assist you in properly identification and understanding of the ant biology. You may also log in to UC IPM website (<http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7411.html>) to get more information about the specific ant species.

📖 **Management Options:**

❖ **Habitat Modification:** The environment should be modified to reduce ant entryways and access to food. With quality materials and careful work, the alteration will be permanent and will make a long-term impact on the number of ant invasions. For example:

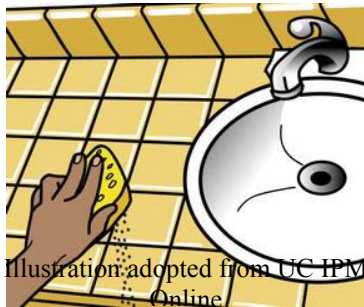
- Remove any possible sources of excess moisture. For example excess irrigation, potted indoor plants, condensate build up in the windows, condensate build up under air conditioning ducts, plumbing leaks, clogged gutters etc. Make sure that the foundation perimeter is kept dry. Repair any water leaks and replace moist or rotting wood as needed.
- Plants and trees in contact with the structure and overhanging limbs that provide ants access to the structure and the roof line provide access to the structure for foraging ants and will hold moisture against the structure producing conditions conducive to ants.
- Removing vegetation and making a dry vegetation free zone, such as gravel or stones against the perimeter of foundation will discourage nest building; wood chip mulches and landscape plants provide a good nesting environment.
- Manage honeydew-producing insects such as aphids, whiteflies, psyllids, and soft scales on plants near the house. These honeydew producers often support large colonies of ants that subsequently invade homes.
- Remove trees that consistently host ants and are adjacent to buildings.



- ❖ Exclusion: Caulk cracks and crevices around foundations that provide entry from outside. Caulk all potential entryways with silicone caulking compound. Use mildew-resistant caulk in moist areas. It is not necessary or practical to seal all cracks, but begin with the access point that the current trail of ants is using. Seal as many cracks as time allows, especially those around baseboards, cupboards, pipes, sinks, toilets, and electrical outlets. Use weather strips around doors and windows where ants may enter.
- ❖ Sanitation: Sanitation eliminates food for ants. Sweep and mop floors. Drain all sinks and remove any food debris. Avoid snacking in offices. Segregate eating from the general office areas. If snacking is common in the offices, vacuum or mopping may be required daily. Clean up food sources such as sugary spills, pet food, or garbage.

Periodically give all food storage and prep areas a complete cleaning, focusing on areas where grease and food debris accumulate. These include drains, vents, deep fat fryers, microwaves, coffee makers, ovens, stoves, toasters, and hard to reach areas behind or between appliances. Thoroughly clean these areas with a powerful vacuum. At the end of each day, remove all garbage that contains food from the buildings.

Sponge invaders ants with soapy water as soon as you see them. Plug up ant entryways with caulk or petroleum jelly. Use soapy water to wash any



bottles, cans, wrappings, and other items that have food residues before storing them for recycling. If dishes cannot be washed right away, it is very important that they at least be rinsed to remove all food debris. Place garbage in sealed plastic bags, then place the bags into a rodent-proof dumpster or other storage receptacle. Keep garbage cans and dumpsters as clean as possible to deny food to ants, as

well as roaches, flies, mice and rats.

Some time ants set up a colony inside an indoor potted plant. Remove infested potted plants.

Proper Food Storage: Food not kept in the refrigerator should be kept in containers that close tightly. Cardboard boxes are not ant or roach proof. Keep particularly attractive substances, like sugar and honey, in a refrigerator. Although refrigerator storage is usually safe, ants sometimes get into refrigerators even when the seals appear intact. When this occurs, a light, temporary coating of petroleum jelly on the edge of the refrigerator seal will exclude the ants.

Screw-top jars are ant-proof only in the lid has a rubber seal, because some ants can follow the spiral ridges to get into the jar. Glass containers with rubber gaskets or plastic containers with tight-fitting, snap-top lids are also ant-proof. Upon delivery, transfer packed food into plastic or glass containers. To prevent roach problems, do not bring shipping boxes into the food preparation area. Instead, boxes should be broken down and stored away from the kitchen in a cool area until removed for recycling.

Any food kept in office should be stored in ant-proof containers. Storage shelves should be far enough off the floor to facilitate cleaning and to reduce the possibility of access by insects or rodents. No supplies should be stored on the floor.

- ❖ Physical Controls: At times when only a few ants are notices foraging in an area, squashing or crushing the ants may be effective. However, foragers represent about 10 percent of an ant population; so further management efforts may be needed.

Vacuuming: Use a strong vacuum-to-vacuum up trails of ants effortlessly and quickly. Vacuum up a tablespoon of cornstarch to kill ants in the vacuum bag.

Detergent Barrier: Temporary “moats” of detergent and water may be useful during heavy ant invasion. Containers of food or food waste, which must remain open during working hours, can be placed in large shallow pans filled with water mixed with a small amount of detergent. Use this technique to protect potted plants from ants that may be attracted to nectar produced by the plant or to honeydew produced by plant-feeding insects. Elevate the pot above the detergent-and-water mixture by placing it on an overturned saucer. Make sure the plant is not in contact with anything that ants could use as a bridge. This will not manage an auxiliary colony, which may already be established in the pot.

- ❖ Chemical Control: At times, non-chemical methods alone prove insufficient to solve the problem. Integrating a pesticide into your management program may be necessary to gain control of the ant problem. Pesticide must be used in accordance with their EPA-approved label directions. Some of the least toxic or least hazardous chemical treatment options are as follows:

- Detergent and Water: When ants invade, the best emergency treatment is a mixture of detergent and water in a spray bottle. This mixture will quickly immobilize the ants, which can then be wiped up with a sponge and washed down the drain.
- Boric Acid: Boric acid is one of the most valuable chemical tools in an integrated ant management program. It is formulated as a dust, gel bait, and aerosol. If kept dry, boric acid dust remains effective

for long periods of time. Boric acid gel baits are very effective in controlling many species of ants, however, not the panacea of all.

- Diatomaceous Earth and Silica Aerogel: These are insecticidal dust that can be used for ant management. Diatomaceous earth is made from fossilized diatoms, and silica gel is produced from sand. Both kills insect by desiccation: they abrade the wax and oil on the insect's outer covering, leading to dehydration and death. Although these materials are not directly poisonous to humans, the fine dust travels freely through the air and can be irritating to the eyes and lungs. These are especially useful in wall voids and similar spaces. They can be applied by drilling tiny holes in the walls. These dusts are also useful in crack and crevice treatments.
- Ants Baits: Baits greatly reduce the amount of the pesticide that must be used to kill ants. Foraging ants take the bait back to the nest to feed to other members of the colony, resulting in colony death. Fast acting baits kill foraging workers quickly, but are less effective than those that are slow acting and can be taken back to nest for consumption. Even if the queen is not killed, baits will usually stop an ant invasion. If a colony has been starved by effective sanitation measures, baits will more readily accepted. Baits should be placed out of sight and reach of children. Some ants are very susceptible to bait, some are less so. There are many reasons for these differences, only some of which we understand. If you are having difficulty in managing ants with a bait, the following points may be helpful:



- Correct identification of the species of ant is essential since each species differs in its food preferences. Some baits use a sweet attractant, while others use a protein or oily attractant. The type of ant you wish to manage must prefer the attractant used. If you cannot determine the type of attractant by looking at the label, call the manufacturer for more information. You also should ask if the company has data to support the efficacy of their product against the ant species you are dealing with.
- After setting out bait, observe to see if the target ant is taking the bait.
- Ant colonies have changing nutritional requirements that can pose problems in baiting. A colony that accepted protein bait one week may be more interested in sugar bait the next.
- The nesting and foraging environment can also affect bait acceptance. Ants nesting and foraging in dry areas will be

more interested in baits with high water content than will ants nesting in moist environments.

- When there are several competing ants species in one area, non-target ants may accept your bait more readily than the pest ant and, in some cases, prevent the pest ant from getting to the bait.
- Do not spray pesticide when using baits. Bait stations contaminated with pesticide are repellent to ants, and sprays disperse the ant infestation, making it more difficult to place baits effectively.
- Place bait stations along foraging trails, but do not disturb ant trails between the nest and the bait. Killing the ants or disturbing the trails prevents the ants from taking the bait back to the colony to kill nest mates.
- Do not apply bait until an ant problem is noticed. If you use baits preventively, you may attract ants into the building.
- Some baits come packaged in plastic disc “bait stations” that come with a double-sided tape so they can be attached to various surfaces out of view. It is important to remove bait stations once management is attained, because the stations may serve as harborage other insects. Some baits are formulated as granules or gels that can be injected into wall voids through small holes. Gel baits also can be placed near ant trails in inconspicuous places where they will not be disturbed.
- Granular Insecticide Bait formulations and its applications: Some of the insecticide ant baits are available in the granular formulations. The advantage of this kind of formulation is when larger area needs to be treated and where ants are not accepting the containerized bait. The granular formulations of insecticides, if used appropriately, can act provide a large area control. Such material is normally directed towards the exterior of the foundation 2 to 3 feet out onto the soil (landscaped areas). Use only products manufactured and approved for this purpose and carefully follow the instructions on the labels.
- Liquid Spray carrying Slow-acting insecticides: These products when applied as a liquid spray barrier or spot application in the pathways of ant trails, allow insecticide to be picked up by the unsuspecting foraging ants, later carried back to their nest thus destroying the ant colony. Lately such insecticide products are available in the market. Caution should be exercised when using such products. There may be a need for such pesticide formulations in extreme ant problems/challenges, however, careful & skillful application are warranted to prevent any damage to the ecosystem such as problems associated with surface run-off of

applied insecticide contaminating storm water, leaching of applied insecticide product into ground water etc.

- 📖 **Pesticides:** Before buying, make sure that the pesticide label has directions for use on lawns and lists the pest you want to control. Apply the product only where the pest is found; spot treat instead of applying broadly.

Always read the label; its instructions must be followed. The label will give you the directions for use, including how much to apply and when. It will also indicate whether protective clothing, gloves or equipment are needed

Store pesticides out of the reach of children and pets and buy only the amount you expect to use in one season.

- 📖 **Structural Pest Control Services:** If you choose this option, ask what type of services the companies offer and discuss the results you can expect. Avoid Structural Pest Control programs that regularly apply pesticides whether or not pests are present. If pesticides are used, make sure that they are part of an IPM program, where pesticides are applied only if pests are at levels that require control.

- 📖 **Need more info?** The Santa Clara County IPM website provides comprehensive information for homeowners and structural pest control professionals who wish to practice non-chemical alternatives with your help, while minimizing reliance on pesticides. For more information on IPM contact the Santa Clara County's IPM Manager at 408-299-5105 or E Mail: Naresh.Duggal@ceo.sccgov.org.

PRACTICE IPM AT YOUR WORKPLACE AND HOME

A Pesticide free building is an ideal place to reside &
work,
It's good for the environment
and
It's good for you!

A Message from Santa Clara IPM Program