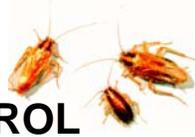


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Department of Entomology, Soils, and Plant Sciences • 114 Long Hall • Clemson, SC 29634-0315 • Phone: 864-656-3111  
email: dpento@clemson.edu

## UNDERSTANDING COCKROACH CONTROL



Over 15 kinds of cockroaches are found in South Carolina, but only a few of these may be found in your home. Cockroaches are considered pests in several ways. Most people view them as carriers of germs. While they can transfer germs, the most serious medical problem associated with cockroaches is the allergic reaction many people have to their shed skin and droppings. Many people are embarrassed when they have a cockroach infestation in their home, but cockroaches can be found anywhere, not only in unclean places.

To help you solve your pest problem you should understand how cockroaches live, what kind you have and ways to control them. Cockroaches live in our homes for the same reasons we do - food, water and shelter. Unfortunately, they can feed on a wider variety of items than people to survive.

**Cockroach Life Cycle.** Cockroaches have three stages of development - egg, nymph, and adult. They gradually change as they change from one stage to the next until they become adults.

The egg stage in cockroaches is unusual in the insect world. Cockroaches put their eggs into small cases holding anywhere from about six up to 40 or more young. Some cockroaches put their egg cases in a protected place soon after it is formed, while others hold it internally or on the end of their body until it is ready to hatch.

When the young break out of the egg case, they are very small nymphs. To grow, all insects must shed their outer skin by a process called molting. When cockroaches molt, they are soft and white until their body hardens and darkens. It may take a cockroach as little as six weeks to become an adult or as long as a few years. This will depend on what kind of cockroach it is and how favorable the conditions are for their growth.



Newly hatched German cockroach nymphs and their eggcase.

As with most insects, cockroaches will not molt after reaching the adult stage. Adults look similar in shape to nymphs, but will often have wings.

It is important to know which kind of cockroach you are trying to control because each kind likes to be in a slightly different location. The cockroach pests that are most difficult to control are usually the smaller kinds, but if the larger ones establish inside, they too can be difficult to eliminate.

### Major Cockroach Pests

**Small Cockroaches.** The most persistent cockroach pests are the smaller kinds that live and breed indoors with people. This includes the very common German cockroach and the less common brownbanded cockroach.

German cockroach adults are 1/2 to 5/8 inch long and pale brown or tan with two parallel black streaks behind the head. Unlike most cockroaches, German cockroach females protect their egg cases by carrying them around. The egg case protrudes from the body until the eggs are nearly ready to hatch. Each egg case contains thirty to forty eggs that take about 2 weeks to hatch. A female German cockroach may



German cockroach adults and nymph.

produce one to seven cases during her life. German cockroach nymphs are about 1/8 inch long when they hatch and uniformly dark, except for a lighter brownish area in the middle of the body. German cockroaches are mainly found in kitchens and bathrooms around sinks and drains, behind refrigerators and stoves, and in cabinets. However, if sanitation is poor, German cockroaches may be found in other places. Even though adult German cockroaches have wings, they do not fly.



Brownbanded cockroach eggcase.

Brownbanded cockroach adults are about 5/8 inch long. All stages have two light, yellow-brown bands that run across their backs. The bands on adult males may be hard to see since their light brown wings completely cover their narrow bodies. The males can fly in a warm environment. Brownbanded cockroaches may be found anywhere in a structure, especially above floor level around cabinets, and in corners near the ceiling. Egg cases are often glued underneath drawers, and in furniture and appliances, including TV's, microwaves, computers, and radios.

**Large Cockroaches.** The most common large cockroaches include the American, the smokybrown, and the oriental. These cockroaches are normally found outdoors, but they can live inside.

American cockroach adults range in size from 1½ to 2 inches. Generally, they are red-brown in color, with pale yellow "halo-like" markings behind the



Large outdoor cockroaches: (left to right) American brown, smokybrown, and Australian.

head. The nymphs are about ¼ inch long when they hatch from the egg case and are initially gray-brown. As they develop, they become more red-brown and the "halo" becomes more prominent. American cockroaches are often found in dark, moist, warm areas, especially around sewers, storage rooms, and garbage areas. Along the coast they may be found in trees. When inside, they generally stay on the basement and first floor levels. Adults may fly on warm evenings.

Smokybrown cockroach adults are 1 to 1½ inches in length and, as the name implies, smoky-brown in color. The young nymphs are about 3/8 inch long, with black bodies and white markings on the middle of their bodies and the tips of their antennae. As they grow, they turn a mahogany color before becoming smoky-brown adults. Smokybrown cockroaches prefer dark, warm, humid environments. They can be very mobile and will use a variety of habitats such as mulch, log piles, thick vegetation, and gutters around roofs. Along the coast they may be found in trees, especially palmettos. In a structure, they can be found from the attic to the crawl space. Adults may fly on warm evenings.

Oriental cockroach adults are 1 to 1¼ inches in length and dark-brown to jet black in color. The wings of the males are 2/3 the length of the body, while the females have only small wing pads.



Female Oriental cockroach.

Neither sex is capable of flight. The nymphs are about ¼ inch long when they hatch and go from red-brown to black as they develop. Oriental cockroaches prefer dark, damp, and relatively cool locations. They can be found in water meter boxes, sewer lines, leaf litter, crawl spaces, and basements. In a structure, they rarely go above the basement level.

## Minor Cockroaches

Many cockroaches do not live in close association with humans. Others are found in only a few locations around the state. These are considered minor pests.

The Surinam cockroach is about 1 inch in length, with a stout body. It is brown to black with a pale band on the front edge of its body. The wings extend beyond the length of the body. Only females are known to occur, and all the young are clones of the mother. Surinam cockroaches are mostly found along the coast, where they can become very numerous in lawns. Sometimes they are transported in plantings used in shopping malls.

Wood cockroaches are a group of minor cockroach pests. They are native to North America. Males are usually plain brown and 1 inch or less in length. Females are shorter and broader than males. Generally, females range in color from light to dark brown, with wings only half the length of the body or shorter. Males are good fliers and are often found around lights at night. Sometimes males fly into buildings. Outdoors, wood cockroaches are found in areas such as wood piles, mulch, and leaf litter. Indoors, wood cockroaches cannot survive very well and are seldom a problem.

**Nonchemical Control.** There are many control strategies available to help solve cockroach problems. Cockroach control requires more than just insecticides. You will be most successful if you use a combination of methods. Preventing access to shelter, food, and water around your home is one of the best control measures both outside and inside.

Outdoor habitat changes that may help include:

- Remove as much mulch or debris around the building as possible. Prune tree limbs and shrubbery so they do not touch the house. Stack wood away from the house and raise the piles off the ground.
- If you have pets, do not leave food bowls out overnight and keep kennel areas clean.
- Dispose of garbage in sealed bags and in garbage cans with lids. If you recycle, rinse out cans and bottles, and keep your recycling areas in a dry location away from the house. Do not let your recycling area become too cluttered.
- Keep screens and weather stripping in good repair. Check attic vents and windows. Caulk large openings around outside drainage lines

and sewer vents. Steel wool can be used as a temporary filler until you can caulk openings properly.

- Remember to check grocery bags, boxes, firewood, and other items that may serve as a means of entry for cockroaches.

If cockroaches do get inside, the following tips will help you control them:

- Keep food and garbage in tight containers.
- Clean up all crumbs and spills on floors, counters, and shelves as soon as they occur.
- Keep faucets and drains under sinks and appliances in good repair. Do not let water stand in the sink for long periods of time.
- Keep clutter from accumulating, especially in kitchens and bathrooms. Cockroaches often hide in messy cabinets and in stacks of newspapers, bags, and rags.
- Vacuum often. Vacuuming is very important because it can remove small food crumbs, and cockroach egg-cases that may not be killed by insecticides.

Good sanitation is important, both inside and outside the house. It is often the best control measure for cockroaches.

**Chemical Control.** Many products for cockroach control can be found in supermarkets, garden supply stores, feed and seed stores, and farm supply stores. It is impossible to list all the insecticides and products. You can usually find the right chemical in the store by looking at the lists of ingredients on the containers. Look at the label on products at the store to help you select the one that can be safely and legally used on a specific site. Read the entire label and only use insecticides according to label instructions. Most homeowner products come in a dust, bait, or spray form.

Dusts are slow-acting, but they give long-lasting control. Boric acid is probably the most commonly used dust labeled for cockroach control. Boric acid should be applied as a thin film in out-of-the-way places such as under refrigerators, stoves, and sinks, as well as in wall voids, cracks, and crevices. It should not be applied in open areas such as on shelves and counters where food and utensils are kept. Never place in reach of children and pets.

Baits usually come in plastic stations or in a gel tube. They are effective in many indoor areas, especially in the kitchen. Bait stations are most effective placed in corners near where you suspect cockroaches are hiding or coming into your home. If you are having trouble with the large outdoor cockroaches, get the larger bait stations since the adults cannot fit into the smaller ones. Bait gel should be placed in cracks and crevices where cockroaches hide.

Sprays in either liquid or aerosol form generally provide the quickest control of cockroaches. Sprays should be applied to cracks and crevices where cockroaches live. This includes cracks around pipes under sinks, around toilet bowls, around baseboards, and behind and under appliances. Never spray into or around electrical outlets. Some exposed surfaces where cockroaches crawl can be treated, but you should avoid food-preparation and eating areas. Some sprays may damage carpets, tile, or plastics. Check the label before using sprays on these surfaces.

Outdoors, homeowner products for cockroach control are mostly limited to liquid sprays. Just as indoors, the spray should be applied to cracks and crevices where cockroaches are suspected of living or entering the home. A perimeter treatment along the base of the foundation wall can also help control

the larger outdoor cockroaches. Consider raking back mulched areas next to the structure. Large-scale insecticide applications are best applied by a professional pest control applicator. Good pest control operators have the equipment, materials, and training necessary to perform these services safely and effectively. You may prefer to have all your cockroach control done by a professional. If you do, get estimates from at least three reputable firms before you decide on one.

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Prepared by Eric P. Benson, Extension Entomologist/Associate Professor and Patricia A. Zungoli, Extension Entomologist/Professor, Department of Entomology, Soils, and Plant Sciences, Clemson University.

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