

Cockroaches and Their Control

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L.M. English, Extension Entomologist

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Cockroaches are perhaps the most common and troublesome household pest in New Mexico. Cockroaches are not only a nuisance in the home, but also can spread disease organisms. From garbage, sewers, and other sources, cockroaches can spread to human food the fungi and bacteria that cause dysentery, food poisoning, and diarrhea.

In general, urban dwellings are more often infested than rural areas. Roaches and their egg packets can be easily transported in packing boxes, grocery sacks, animal feed sacks, and other similar containers. These are quick, flat-shaped insects that avoid light. They easily hide in cracks and crevices in and around the home. Egg packets containing numerous eggs develop in the abdomen of the female roaches. These pod-like egg packets are referred to commonly as ootheca. This ootheca can often be seen protruding from the abdomen of a female roach as she moves about. Small roaches hatching from these eggs look like the adults, but they lack wings. It takes 2 to 18 months for a nymph roach to become fully grown. Household species are active throughout the year in heated buildings. They prefer high temperatures and humidity.

Cockroaches feed on a variety of materials including the bindings and leaves of books, coverings of boxes, and various pantry food products. They are a particular problem in homes, restaurants, bakeries, hospitals, and places where they can foul the materials they contact with their excreta. Roaches present in high numbers produce an objectionable odor.

COMMON SPECIES

Several cockroach species are found in New Mexico. The most common species infesting

homes are the American, German, oriental, brown-banded, and Turkestan species.

American Cockroach

The large, brown American cockroach is the largest species of roach infesting dwellings in New Mexico. It can grow to 1-1/2 inches or more. It is reddish-brown and has fully developed wings in the adult stage. The females drop or glue their egg capsules in sheltered places. Females can produce a capsule once a week until they have produced 15 to 90 capsules. Each capsule contains 14 to 16 eggs. Nymphs hatch in 35 to 100 days and require 10 to 15 months and 13 molts before they reach the adult stage. Their total life span can be as much as 2-1/2 years. This species can develop in damp areas around the home. They are common residents in steam tunnels, sewers, and storm gutters. They can reach severe numbers where there is easy access to garbage, in large apartment houses, dormitories, and other commercial dwellings. An ideal resting site in much of southern New Mexico is in concrete block walls where mortar is left out of the vertical seams. They are a problem in much of the state because the climate is ideal for their survival.

German Cockroach

The small, tan German cockroach is one of the worst species to control in homes. They are about 3/4 inch long with two dark stripes on the upper side of the pro-thorax (shield-like front). Nymphs are wingless and have two dark stripes running nearly the full length of their bodies. The females may carry their egg capsules protruding from their abdomens for nearly two weeks until they

are near hatching. Egg capsules are dropped in secluded places just before hatching. Approximately 30 nymphs will be hatched from each egg capsule. This species is most common in and around bathrooms and kitchens. They bunch together in large numbers in areas of heat and high humidity. Under sinks and around appliances, cupboards, and baseboards are good areas to locate these pests.

Oriental Cockroach

The large, black oriental cockroach reaches an adult length of nearly 1 inch. Females of this species are wingless; the males' wings are much shorter than their body. Their life cycle takes about 13 months to complete. Females generally produce 14 to 15 egg capsules that hold 12 to 16 eggs each. The incubation period for the egg capsule is about 44 days. Oriental roaches are often referred to as a water bugs. They develop in clusters around dark, damp areas. They are particularly fond of drains and leaks in plumbing. They are gregarious, and large numbers may be found living in one group.

Brown-banded Cockroach

The brown-banded cockroach is smaller than the German cockroach, usually 1/2 inch long. There are two light yellow crossbands at the base of the wings. The dark bands on the thorax are much broader than in the German cockroach. The female is much darker and broad-bodied than the male. Wings on the female are generally shorter than the abdomen, while wings on the male extend past the abdomen. The female produces an average of 10 egg capsules with 15 eggs per capsule for a 115-day life span. The brown-banded roach may produce two generations per year. This species prefers living rooms of dwellings. They are often found in high places, such as under and around picture frames, clocks, and other objects on the wall. They can be found in radios, televisions, closets, lamps, and over door facings or thresholds. They do not congregate like some of the other species of roaches.

Turkestan Cockroach

This roach is a semi-arid to arid desert roach species that has recently been found in New Mexico. Doña Ana County is the only county where its presence has been confirmed. Like the oriental cockroach, males and females are very different in appearance. Males are 9/16 to 7/8 inch in length and have fully developed wings that extend beyond the base of the abdomen. Females are larger, 3/4 to 1 inch in length, with greatly reduced or shorter wings. The male Turkestan roach is often mistaken for the American cockroach, and the female can be mistaken for the oriental cockroach. Where this roach is established, it is prevalent in sewer systems and is capable of carrying bacteria-causing dysentery. The biology of this roach is very similar to the oriental cockroach. Currently there is no known pesticide resistance for this species.

CONTROLS

Cockroach control can be accomplished without synthetic chemicals. Although alternative control methods may not eradicate the pests, they can reduce roach populations to unobjectionable levels. Proper and routine use of the methods described will help to accomplish this goal safely and inexpensively.

Sanitation

Sanitary measures are important in cockroach control. Proper sanitation, both indoors and outdoors, effectively limits roach populations.

Discourage roaches from entering the home by sealing cracks in foundations and outside walls. Check the seal or caulking around air conditioning units, windows, doors, pipes, and other openings into the home.

Store garbage in tightly covered containers. Keep the containers on easily cleaned racks, platforms or slabs and empty them often. Also, wash the containers regularly. Store excess refuse in roach-proof boxes or bags, and dispose of it as soon as possible.

Paper, cardboard, lumber, stacks of firewood, and other debris near the home provide excellent

refuges for several roach species. Keep yard trash and stacks of firewood away from the home or garage to minimize the chance of roach invasion.

Eliminate all possible indoor hiding and breeding areas. Repair cracks and holes in floors, walls, and ceilings and seal outlets, window sills, and walls, along baseboards or ceiling molding. Regularly inspect areas where egg cases might be deposited. Remove and crush or burn any cases you find.

Good housekeeping and thorough cleaning are essential to control cockroaches. Do not leave unwashed dishes and kitchen utensils and uncovered food out overnight. Mop up all spilled liquids. Periodically clean cupboards, shelves, and bins where small amounts of food can accumulate. Keep dry pet food in roach-proof containers and never store it in or near the kitchen. Wash the pet's feeding dish and area daily.

Trapping

Cockroaches can be trapped both indoors and outdoors. Outdoor trapping can reduce roach populations and limit the number of roaches entering the home. Indoor trapping impedes indoor-breeding species, such as the German and brown-banded cockroaches, and can practically eliminate such outdoor species as the American and smoky-brown cockroach.

A properly prepared and positioned trap can catch many adult or nymphal roaches. However, the number varies according to the total roach population and the season. For example, outdoor species are less active during winter and are not as likely to be trapped.

Building a cockroach trap is simple. The materials are readily available in the home. Smear a thin layer of petroleum jelly around the inside lip of a pint jar to a width of about 2 inches. Place the jar upright, with bait inside, in an area frequented by cockroaches. Apple and potato make excellent bait for American, smoky-brown, and brown-banded roaches, while German roaches prefer banana peel. Change the bait often because fresh food is more appealing to roaches. Another trap can be made by dusting the inside of a jar lightly with talcum powder and using the same bait food.

Roaches entering the jar are unable to climb back out over the petroleum jelly barrier. Destroy the trapped roaches by dropping them into a pail of hot, soapy water. There are several commercially available cockroach traps that are equally effective.

Boric Acid

Boric acid powder and silica aerogel dust are inorganic insecticides that can control roach infestations in the home. Both are relatively inexpensive, low in toxicity to humans and pets, and retain their potency long after the initial application. In addition, roaches have not developed resistance to these products. The only disadvantage is that the chemicals are rather slow-acting and often take a week or more to reduce roach numbers. For best results, apply the insecticides to cockroach hiding places and runways. These areas can be found by using a flashlight in a dark room to observe where roaches flee. Professional pest control operators also can apply these materials.

Boric acid powder acts primarily as a stomach poison but also penetrates the insect's body. The powder accumulates on the roach's body and is swallowed when the insect cleans itself. Unlike other insecticidal dusts, boric acid does not repel roaches because they do not recognize it as a poison. Apply boric acid only to infested areas. Avoid leaving heavy trails of powder in the open or more than 1/2 teaspoon in any one place. If using a solution, spray into cracks and crevices and other cockroach hiding places. When the solution dries, a thin film of boric acid crystals remains. Commercially available boric acid tablets can be used effectively as bait.

Caution: Wear gloves when handling the powder and avoid inhaling it during application. Keep boric acid in airtight, properly labeled containers out of the reach of children and pets. Do not apply the powder to plants, potting soil, or any place where the air currents may carry it to plantings. The powder will severely burn or kill them. Do not use boric acid, either dry or in solution, outdoors or where it might be carried outdoors.

Silica

Silica aerogel dust absorbs the waterproof layer of wax on the roach's body and causes death by dehydration. A visible film of dust should be applied with a squeeze bulb or plunger duster to suspected roach hiding places, because contact with the chemical is necessary for control. Silica aerogel is particularly effective in controlling roaches in attics, wall voids, or other closed spaces. However, the roaches will learn to avoid treated areas. The dust loses its effectiveness if it becomes wet, so do not use it in damp areas.

It is necessary to spray household walls, underneath sides of shelves, both sides of drawers, under sinks and lavatories, around baseboards, around floor drains, and under any large appliances. Direct sprays into the cracks and crevices. Do not spray surfaces like breadboards and countertops that come in direct contact with food. Scatter bait under refrigerators, ranges, dishwashers, clothes washers, and under cabinets. After spray is dry, cover shelves with clean, untreated shelf paper before replacing food and dishes.

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Table 1. Pesticides labeled to control cockroaches

Materials	Suggestions
Avert bait*—placements per label (Abamectin B1, a mixture of avermectins)	Use precautions to keep chemicals out of food and spices and off dishes and eating utensils. Treat cracks and crevices and all potential hiding places. Make food and water sources inaccessible to roaches through good sanitation. Some products labeled for roach control contain boric acid; although they are effective, their killing action is slow. Sanitation and cleanup will help reduce problems with cockroaches.
Baygon 2.0% bait*	
Bendiocarb (Ficam) 1% dust	
Catalyst*—0.5 to 1% spray	
Commodore WP*—0.03% spray	
Cynoff EC/WSB/WP*—0.1 to 0.2% spray	
Delta Dust*—0.05% (deltamethrin)	
Demand CS*—0.15 to 0.03% spray	
Demon EC/WP*—0.1% spray	
Diazinon 0.5% aerosol or ready-to-use spray	
Dursban 0.5% aerosol or ready-to-use, OR Dursban 1% dust—per label directions	
Dursban 12.6% EC—per label directions	
Ficam Plus*—per label	
Flee*/Dragnet FT*—0.5% spray	
BioPath* (microbial bait stations)	
Gentrol —0.06% dilution (hydroprene—1GR)	Products containing <i>hydroprene</i> (Gentrol, with Gencor), a growth regulator, can be helpful in controlling cockroach populations.
Hydramethylnon (e.g. Combat or MaxForce) bait stations—per label directions	
Ortho products (per label directions) Total Flea Killer Flying and Crawling Insect Killer	
Niban Granular bait*	Use Niban bait per label directions (made by Nisus Corp.)
Saga Multi-Purpose Spray* OR Saga WP*—per label	
Silica gel powders	
Suspend SC*—0.03 to 0.06% spray	
Tempo 1, 20WP* or 0.1% dust—per label	
Traps	Pesticidal roach sticky traps can help control roaches and provide an indication of roach problems.
Ultrasonic devices	Research at other universities has proven these devices to be ineffective. They are not registered by the New Mexico Department of Agriculture. Therefore, they cannot be sold

*These are restricted-use pesticides available only to licensed applicators.