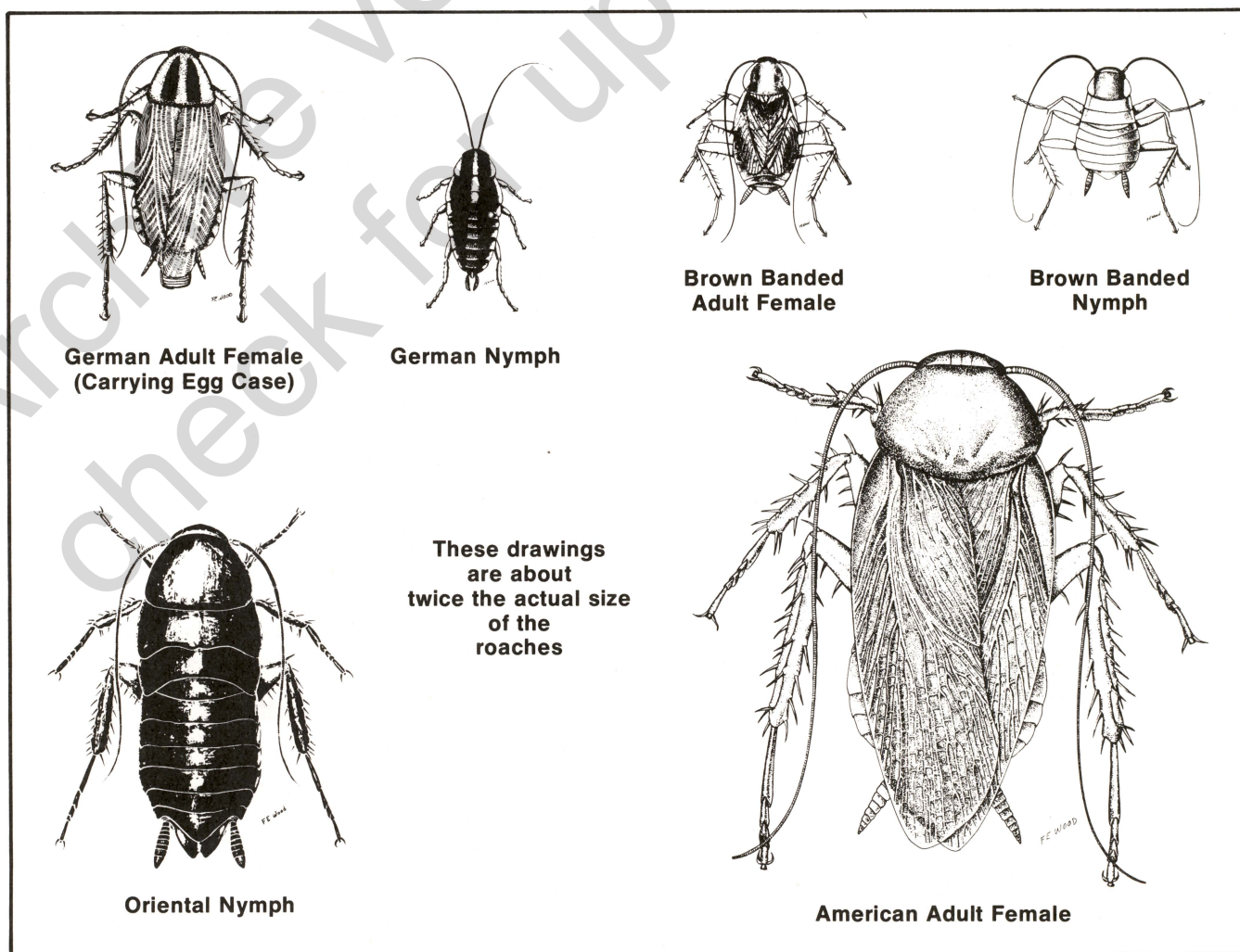


GUIDE

Published by the University of Missouri - Columbia Extension Division

Cockroaches

Flerney G. Jones, Department of Entomology
College of Agriculture



Cockroaches are generally the most common and troublesome pests found in homes. Urban homes are more frequently infested than rural homes. Roaches or their egg packets (ootheca) are easily transported in grocery sacks, boxes, animal feed sacks and other similar containers.

Cockroaches are flat, quick moving insects that avoid light and hide in cracks and crevices or between rough unpainted surfaces which afford a dark cover. Egg packets develop within the female's abdomen. Roaches have the ability to rapidly reproduce and adapt to a variety of conditions.

The roaches' diet consists of a wide variety of foods which contain sugars, starches, proteins or their combinations. Favorite foods include cooked potatoes, fresh pineapple and moist dog food. In general they feed on garbage, food scraps, stored foods and paper.

Cockroaches can carry organisms that cause dysentery, food poisoning and diarrhea from garbage cans, sewers and hospitals to food used for human consumption. Bacteria contained in spoiled food may be eaten by the roaches and distributed in fecal droppings. These droppings contaminate both food and cooking utensils. Roaches present in high numbers produce a very objectionable odor.

Common Species of Roaches

The four most common cockroaches infesting homes are the **German, brownbanded, American, and oriental** species. The two found most often in homes are the German and brownbanded. These two species are smaller than the American or oriental roaches. American and oriental roaches are more common pests of industrial buildings, business places and apartment complexes.

Wood roaches (several species), which normally develop outside, may occasionally infest homes. They may enter the home in the fall or during heavy rains, and may also be carried in on firewood. Winged males are attracted to lights. They generally do not become a persistent problem in homes.

German Cockroach

The German cockroach is tan or brown in color and about $\frac{3}{4}$ inch long. The adult roach is winged and has two dark streaks on the prothorax (shield-like front end) which lie on the longitudinal axis of the body. The nymphs (young) are wingless and have two wide dark streaks running the full length of the body.

The female carries the egg case for nearly the entire incubation period of the eggs. Just before hatching the case is usually dropped in a secluded area. About 30 nymphs hatch from each case. They occur most commonly in the kitchen, under or around sinks, appliances, cupboards and baseboards. Generally they bunch together in large numbers in areas of heat and high humidity.

German roaches also become a problem in food service areas and equipment in commercial establishments such as restaurants and supermarkets.

Brownbanded Cockroach

The brownbanded roach resembles the German roach but is slightly smaller (about $\frac{1}{2}$ inch long) and the prothorax is mottled reddish-brown. In addition there is a cross band of light yellow at the base of the wings and another about $\frac{1}{16}$ inch farther back which are separated by a dark reddish-brown band. The wings of the male roach extend past the tip of the abdomen; those of the female are shorter than the abdomen.

The female deposits the egg case shortly after it is completely formed. The brownbanded is not as prolific as the German roach in that only 13-15 nymphs hatch from each case.

Brownbanded roaches can develop at any location within a building. This roach is often found in high places such as behind picture frames, clocks and other objects on walls, or underneath tables, chairs, cupboards and cabinets. They are also found in radios, television sets, closets, lamps, and furniture in dining rooms, bedrooms and living rooms. Generally brownbanded roaches do not congregate.

American Cockroach

The American cockroach is the largest of the roaches that infest dwellings. It is about $1\frac{1}{2}$ inches long, reddish-brown, and has fully developed wings in the adult stage. The shiny, reddish-brown nymphs are wingless.

Although this roach can develop in damp basements of the home it is most frequently found in restaurants, grocery stores, bakeries and other businesses where food is prepared or stored and very frequently in steam tunnels, sewers and storm gutters. Severe infestations can occur where there is easy access to garbage, etc, in large apartment houses and other commercial dwellings.

Oriental Roach

The adult oriental roach is about one inch long and appears very dark brown or black in color. The adult females are wingless and therefore look very similar to the nymphs. The adult male has relatively short wings which do not extend to the tip of the abdomen.

Oriental roaches will develop in "clusters" outside and inside the house but are most commonly found in dark, damp basements around drains or leaks in the plumbing. They can freely ascend water pipes to higher floors of apartment houses and develop there in large numbers around faulty pipes or other moist areas. This roach is gregarious and large numbers may be found living in one group. These roaches are often called the "water bug".

Control Methods

First step is sanitation.

The first step in roach control is sanitation. Cockroaches eat a wide variety of foods; any food scraps or crumbs encourage their development. Infrequently emptied garbage cans with ill-fitting lids, kitchen waste baskets, accumulations of pop bottles, and places where water is available, all contribute to high roach populations and difficulty of control.

This does not mean, however, that roaches will not infest homes where proper sanitation is practiced. Seldom, if ever, can all the small crumbs or pieces of food be cleaned up. This type of situation will support the annoying population of cockroaches found in most homes.

Chemical Controls

Chemical control methods may vary with the different kinds of roaches. Different species infest different areas in the home and two or more species may be in the same building. Therefore, knowing which species you have and their favorite hiding places is important.

Specific places you can find German and brown-banded cockroaches in dwellings.

1. Around, behind, underneath kitchen sinks and drainboards.
2. In cracks around, underneath, behind, inside cabinets, cupboards, inside drawers and chests of drawers, especially the upper corners.
3. Around pipes or conduits where they go through a wall, ceiling, or are fastened close to a wall.
4. Underneath and behind refrigerators, freezers, or other appliances where there are motors which generate heat.
5. Behind window frames and curtains.
6. Behind door frames, door hinges and door locks.
7. Behind loose baseboards and molding strips.
8. Underneath tables, chairs and stools.
9. In radios, television sets, electric clocks, electric switches and behind switch boxes.
10. Behind mirrors, pictures, loose wallpaper, cracks in plaster and broken tiles.
11. In pantries, closets, bookcases, book shelves, and books.
12. Around mops, brooms and cleaning closets.
13. Near hot water radiator systems.
14. Laundry baskets.
15. In boxes of canned or other boxed merchandise.
16. Potato sacks.
17. Grocery boxes.
18. Moist basements.
19. Wall voids.
20. Garbage cans and refuse compactors.
21. Couches and beds.
22. Bathrooms.
23. Beer or soda pop cases or cartons.

The brownbanded roach is difficult to control because it infests obscure places; any corner or piece of furniture can harbor roaches or egg cases. On the other hand, the German roach, although more localized, builds up in terrific numbers and is sometimes resistant to certain insecticides (the chlorinated hydrocarbons) which control other roaches.

Specific places you can find American cockroaches in dwellings.

The American cockroach is frequently a pest of industrial buildings. When this roach infests a home it can normally be found in damp areas of the basement near the baseboards.

Specific places you can find oriental cockroaches in dwellings.

1. Bathrooms.
2. Floor drains
3. Under, around or behind kitchen or bathroom sinks.
4. Garbage containers and refuse compactors.

Specific places to find oriental and American roaches outside dwellings during the summer months.

1. In grass in the yards.
2. Around buildings, under leaves and shrubs.
3. Cracks where steps or porch join the foundation.
4. Crawl space under house.
5. Under siding next to ground.

Sprays. For the most effective control of roaches, apply insecticides by spraying or "painting" the areas over which roaches must walk while foraging for food. Large areas such as the entire floor or wall need not be treated. With a knowledge of the habits of various species of roaches discussed here, strategic places can be treated and insecticidal residue will kill the roaches upon contact.

When cabinets or cupboards are to be treated remove food and utensils and wash the shelves with a cleansing solution before applying the insecticide. After the shelves are treated allow them to dry. Cover with fresh shelf paper before replacing articles.

Baits. This is a granular material that should be lightly scattered under appliances, sinks, and other areas inaccessible to children and pets. One thorough treatment will usually protect the home for two or three months or longer.

Insecticides That May Be Used. The following insecticides are household formulations which can be obtained in a ready-to-use form to control the German, brownbanded, American and oriental cockroaches.
Use as directed on the label.

chlorpyrifos - (Dursban) - use a 0.5% solution.

diazinon - use a 0.5% solution.

propoxur (Baygon) - use a 1% solution or a 2% bait.

ronnel (Korlan) - use a 1% solution.

Note: Since roaches are often associated with food preparation areas, DO NOT contaminate utensils or food with the spray. Be careful that surfaces on which foods are prepared or served (bread boards, etc.) are NOT sprayed. Wash all utensils and food preparation surfaces within a food preparation area following any insecticide application.

Use Insecticides wisely and safely

- Apply only where needed or justified.
- Use care when handling, mixing or applying insecticides.
- Keep insecticides in original containers complete with labels.
- Keep insecticides out of reach of children and DO NOT allow children or pets near treated surfaces until dry.
- READ, UNDERSTAND and FOLLOW directions on the label and heed all precautions.
- Carefully and properly dispose of unused portions of diluted sprays and empty insecticide containers.
- DO NOT contaminate food, water, dishes or utensils.



■ Issued in furtherance of Cooperative Extension Work Acts of May 8 and June 30, 1914 in cooperation with the United States Department of Agriculture. Carl N. Scheneman, Vice President for Extension, Cooperative Extension Service, University of Missouri and Lincoln University, Columbia, Missouri 65211. ■ An equal opportunity institution.