



# FactSheet

Extension

## Ohio State University Extension Fact Sheet

### Entomology

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#### **American Cockroach**

**Susan C. Jones, Ph.D.**

Associate Professor of Entomology

Extension Specialist, Household and Structural Pests

The American cockroach is a pest in residences and large commercial buildings where food is prepared or stored such as restaurants, grocery stores, bakeries, breweries, pet shops, food processing plants, etc. This cockroach occurs both outdoors and indoors; it commonly breeds in sewer systems and underground utility networks, from which it then may invade structures. It is the most common cockroach species in city sewer systems. It favors microhabitats with high humidity. The American cockroach sometimes is commonly called a “waterbug” or “palmettobug.”

#### **Identification**

Adult American cockroaches are approximately 1.3 to 2.1 inches long; they are among the largest of the cockroach pests in homes. These cockroaches have a somewhat flattened oval shape, spiny legs, and filamentous antennae that are uniformly brown and as long as or longer than the body. Adults have fully developed wings, but they seldom fly when disturbed. The forewings are glossy reddish brown to dark brown, sometimes paler towards the sides and tip. The pronotum (“shield” behind the head) is reddish brown with a yellowish brown border.

Nymphs (immature stages) resemble the adults, but they are smaller and lack wings. Nymphal early instars (the stage between molts) are grayish brown with a paler lower surface. Older nymphs are uniformly reddish brown. Wing pads are evident in third or fourth instar nymphs.

Egg cases (oothecae) are mahogany brown to blackish brown and about 3/8 inch long. The eggs in each egg case are arranged in two parallel rows, usually with 14 to 16 eggs total.

#### **Life Cycle**

A female American cockroach produces 6 to 14 egg cases during her lifetime. She carries her egg case for a few hours or days after it is formed, then she drops or glues it in a sheltered site, often a crack or crevice, near a food source. The eggs hatch within 38 to 49 days (average = 44 days). Early instar nymphs molt (shed their skin) at approximately monthly intervals. Older nymphs molt at more variable intervals, usually every 1 to 6 months. The nymph’s body weight approximately doubles between molts. There are 10 to 13 nymphal instars. Development time (egg to adult) of the American cockroach is greatly influenced by temperature; it averages about 15 months (range 9.5–20 months). The adult life span may be >1 year. Adult

American cockroaches can continuously reproduce when conditions are favorable.

### **Habits**

The American cockroach favors dark sites with high humidity. It most often is associated with sewers, steam tunnels, boiler rooms, and basements, especially around pipes and drains. This species also can occur in the landscape, reaching high numbers in moist, shaded leaf litter under trees and shrubs, in rotting stumps or logs, or in planters. It also may congregate under roof overhangs and in the roof gutter system where leaves and other debris provide both food and shelter for these large cockroaches. All stages require harborage sites where they hide during the day, coming out to forage for food and water at night.

The American cockroach is a scavenger that feeds on decaying organic matter and a variety of other foods. It is particularly fond of fermenting foods.

### **Damage and Injury**

Cockroaches typically are not tolerated by humans, and the mere presence of these insects is considered a nuisance. Furthermore, American cockroaches often are responsible for significant fouling of food products and other items. American cockroaches also produce a strong, unpleasant odor, which they convey to harborage sites and food items.

The American cockroach can harbor numerous bacterial and viral pathogens in its feces or on its body. It can contaminate food and food-preparation items and surfaces with disease organisms that result in food poisoning, dysentery, or diarrhea.

### **Integrated Pest Management (IPM)**

IPM is a systems approach that combines non-chemical strategies (e.g., exclusion techniques, alteration of harborage sites, and proper sanitation) and the targeted placement of pesticides with preference for products that are least harmful to human health and the environment. IPM consists of routine inspection and monitoring, with chemical treatment only when pests are actually present. On-going monitoring indicates whether cockroaches are present and if control practices are working.

### **Inspection**

A thorough inspection using a flashlight and flushing agent is critical to determine which species are present and where the pests occur. Monitoring may involve using sticky traps or glue boards, which are placed where the cockroach species is likely to be found.

In warm weather, an indoor problem with American cockroaches should always trigger an outdoor inspection. These cockroaches may be hiding in the sewer system, in the landscape, on the building, etc. The best time to inspect the building exterior is 1 to 2 hours after sunset — prime time for these large cockroaches to begin searching for food. Be on the lookout for cockroaches emerging from cracks and crevices. Note all of the locations so that you can target a residual insecticide treatment (see below).

### **Exclusion Techniques and Habitat Modification**

Ongoing indoor problems with American cockroaches often can be reduced or even eliminated by pest-proofing the building or modifying the cockroaches' outdoor habitat.

American cockroaches can move from one building to the next during the summer, entering through cracks in foundations, around loose-fitting doors and windows, and along plumbing and pipes. Hence, to eliminate entry points used by American cockroaches, it is advisable to employ pest-proofing measures:

- Install door sweeps, thresholds, and weatherproofing seals on exterior door

- Screen and weatherproof windows.
- Screen attic vents.
- Caulk and seal cracks and holes on the building exterior.
- Caulk and seal plumbing, cable, and utility penetrations into the building.

Numerous measures can be taken to eliminate the cockroaches' outdoor harborages including:

- Move firewood, lumber, and trash cans away from the structure.
- Avoid thick layers of mulch.
- Mow weedy vegetation near the structure.
- Increase ventilation around the structure by removing excess vegetation and pruning so that branches do not touch the building.

- Properly ventilate basements and crawl spaces, and keep these areas free of clutter.
- Keep gutters clean and otherwise well maintained.

### ***Sanitation***

Sanitation is a critical aspect in the management of cockroaches. It is important to employ a variety of sanitation measures including:

- Properly store food.
- Maintain a regular cleaning schedule (especially in the kitchen and bathroom).
- Regularly dispose of garbage.
- Promptly repair water leaks.

### ***Insecticides***

Numerous insecticides are registered for use against cockroaches. These include a variety of insecticide classes, such as botanicals, inorganics, insect growth regulators, and pyrethroids. Some of these insecticides are labeled “general use” for homeowner application, and others are labeled “restricted use” for licensed, certified pesticide applicators only. Before using any insecticide, always **Read the Label** and follow directions and safety precautions.

In cockroach management, commonly used formulations include liquids, aerosols, baits, dusts, emulsifiable concentrates, microcapsules, and wettable powders. [The formulation refers to the preparation containing the insecticide(s) in a form suitable for practical use].

Indoor insecticide treatments are most effective when applied to cracks and crevices and other cockroach harborage sites. Dusts may be applied to voids. Botanicals such as pyrethrum and pyrethrins have short-term effects and are useful for flushing cockroaches out of harborage areas onto surfaces treated with another insecticide with more long-lasting (residual) effects.

American cockroaches can be controlled outdoors with liquid insecticides or baits if you spend the time to find and target the infested sites. Persistent residual pesticides may be applied around the foundation and points of entry such as windows, doors, and utility penetrations. Once the chemical has been applied, it is best to seal cracks, crevices, and holes on the building to enhance long-term control.

Bait formulations of a variety of slow-acting chemicals are widely used for cockroach control indoors and outdoors. Bait formulations include liquids, pastes, gels, and granules; often the bait is housed in a station. Baits can provide effective control, but the cockroaches must preferentially feed on the baits rather than existing food sources. Hence, it is particularly important to employ sanitation measures (see above) when using cockroach baits.

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Keith L. Smith, Ph.D., Associate Vice President for Agricultural Administration and Director, Ohio State University Extension

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