

APPENDIX 3: COCKROACHES

MANAGEMENT AND CONTROL OF COCKROACHES (GERMAN)

1. GENERAL INFORMATION

Cockroaches may become pests in any structure that has food preparation or storage areas. They contaminate food and eating utensils, destroy fabric and paper products, and impart stains and unpleasant odors to surfaces they contact. They may transmit bacteria that cause food poisoning. The skin shed by cockroaches may cause asthma in children if inhaled. In South Africa, the exotic German cockroach is the main pest.

Cockroaches are common in kitchens and bathrooms because they favor warm, humid areas that are close to food and water. The German cockroaches are the fastest reproducing of all the pest cockroaches and a single female and her offspring can produce over 30,000 individuals in a year. Egg-laying occurs more frequently during warm weather. The female carries around a light tan egg case (6mm long) for about 28 days (1-2 days before the eggs hatch), when she drops it. Each case contains about 30 young and a female may produce a new egg case every few weeks. Young or immature cockroaches undergo gradual metamorphosis resembling the adult visually and in feeding habits, but do not have fully developed wings and are not reproductively active. Cockroaches are white after molting, but their outer covering thickens and darkens as it hardens within hours.

Cockroaches are nocturnal; hiding in dark, warm areas especially narrow spaces where surfaces touch them on both sides.

2. MANAGEMENT OF COCKROACHES

Cockroaches are tropical and like warm hiding places with access to water. If cockroaches have access to food, baits will have limited effect. Sprays alone will also not be effective against cockroaches. An integrated approach is required. The keys to controlling cockroaches are sanitation and exclusion: cockroaches will continue to re-invade as long as the habitat is suitable for them (i.e. available food, water and shelter). In addition to sanitation and exclusion, baits can be effective. Sprays or dusts that are registered for use on cockroaches may temporarily suppress populations, but they do not provide long-term solutions.

2.1. MECHANICAL CONTROL

Sanitation: Cockroaches thrive where food and water are available to them. Even tiny amounts of crumbs or liquids caught between cracks provide a food source. Important sanitation measures include:

- Store food in insect-proof containers such as glass jars or sealed plastic containers;
- Keep rubbish in containers with tight fitting lids. Remove rubbish, newspapers, magazines, piles of paper bags, rags, boxes and other items that provide hiding places. Do not store rubbish indoors or close to the house;
- Eliminate plumbing leaks and correct other sources of free moisture. Increase ventilation where condensation is a problem;
- Vacuum cracks and crevices to remove food and debris. Be sure surfaces where food or beverages have been spilled are cleaned up immediately. Vacuuming also removes cockroaches, shed skins and egg capsules. Removing cockroaches reduces their numbers and slows development. Trim shrubbery around buildings to increase light and air circulation, especially near vents, and eliminate ivy or other dense ground covers near the house as these may harbor cockroaches;

- Remove trash and stored items such as piles of wood that provide hiding places for cockroaches from around the outside of buildings.

Exclusion and removal of hiding places: During the day, cockroaches hide in cupboard cracks, stoves, crawl spaces, outdoor vegetation and many other locations. They invade kitchens at night. Limiting hiding areas or avenues of access to living areas is an essential part of an effective management strategy. False-bottom cupboards, hollow walls and similar areas are common cockroach refuges. Prevent access to the inside of buildings through cracks, conduits, under doors or through other structural flaws:

- Seal cracks and other openings to the outside;
- Look for other methods of entry such as from items being brought into the building, especially appliances, furniture and items that have been in storage;
- Look for egg sacs glued to undersides of furniture, in refrigerator and other appliance motors, boxes and other items. Remove and destroy any that are located;
- Locate and seal cracks inside the treatment area where cockroaches can hide.

2.2. CHEMICAL CONTROL

Insecticides are most effective in controlling cockroaches when combined with sanitation and exclusion practices that limit the cockroach's ability to establish or re-invade; chemical control alone will not solve the problem. If insecticides are used, they must always be used with extreme care. Indoor chemical control is warranted only in the cockroach population is established but not for an incidental intruder or two. No surface sprays or space sprays to be used.

Only use baits that are registered for cockroaches that contain ***Imidacloprid*** and ***Fipronil***.

PREMISE COCKROACH BAIT GEL (made by Bayer, active ingredient = *imidacloprid*) Use in pistol gun, apply in small cracks and holes. It is very effective and long lasting. Most insecticides used in baits are slow-acting and cockroaches quickly learn to avoid fast acting ones. Consequently, an effective bait program does not give immediate results, but may take 7 days or longer. Baits can be quite effective for long-term control of cockroaches unless the cockroaches have other food sources available to them. Baits do not control all cockroaches equally. Female cockroaches with egg cases do very little feeding and avoid open spaces; consequently they are less likely to be immediately affected by bait. Baits do not attract cockroaches, so place them near hiding places or where cockroaches are likely to encounter them while foraging. Bait can also be placed near to fecal specks and droppings of cockroaches, which contain a natural aggregation pheromone. Look for these fecal specks and droppings under kitchen counters, behind kitchen drawers and in the back on cabinets.

The German cockroach has developed resistance (or tolerance) to many insecticides used for their control. If cockroaches seem to be unaffected a day after the application of the spray, a different material or strategy may be required.

After a cockroach control program has been started, evaluate the effectiveness visually. If populations persist, re-evaluate the situation. Look for other sources of infestation, making sure all possible entryways are blocked, be certain that food and water sources are eliminated as much as possible, and continue sealing and eliminating hiding places. When populations are under control, continue monitoring on a regular basis to make sure re-infestation is not taking place. Maintain sanitation and exclusion techniques to avoid encouraging a new infestation. If severe re infestations continue to occur, consider having the infested area modified or remodeled to reduce the amount of suitable habitat for cockroaches.