



AN INTRODUCTION TO BASIC PEST MANAGEMENT:

COCKROACHES



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INTRODUCTION

Pest Control is a vast subject and those operating as Pest Management Professionals need an increasing array of knowledge to continue to remain effective.

From Pest biology to environmental awareness, from insecticide and rodenticide product knowledge to resistance management techniques and a comprehensive understanding of all legal obligations – it is all essential for safe, effective pest management.

COCKROACH BACKGROUND

Cockroaches can be traced back to the age of the cave dwellers. There is little agreement as to the country of origin of cockroaches other than they were almost all tropical and to a great extent following commerce, as stowaways on ships, to all portions of the earth where conditions were suitable.

The Romans called the cockroach lucifuga and blatta for its habit of fleeing from the light whilst some European nationals named their cockroaches after their neighbours across the border, an honour that is often reciprocated.

The American cockroach, despite its name, was introduced on ships directly from Africa, whereas the oriental and German cockroach reached America directly from Europe.

Wherever man can survive, so can cockroaches.

Cockroaches are of extreme economic significance in hotels, restaurants, supermarkets, private homes, apartments, cruise ships, warehouses and many other institutions where sufficient food and water are available.

They abound near hot water pipes, moist kitchen sinks, behind stoves and refrigerators, under kitchen and dining room tables and in cracks and crevices big enough for them to hide.

COCKROACH SPECIES

Cockroaches have lived on earth for 350 million years. They are found worldwide and are truly a success story in nature. Unfortunately it is many of these outstanding characteristics which accounts for their success that makes them extremely difficult pests to eliminate.

There are 3 species of cockroaches which are of concern for food processors and handlers.

German cockroach

Characteristics

◆	COLOR:	BROWN TO DARK BROWN
⊗	SHAPE:	OVAL BODIED
■	SIZE:	1 – 1.6 CMS
■	BODY:	6 LEGS ANTENNA AND WINGS
⊗	HABITAT:	HOMES. FACTORIES RESTAURANTS



Oriental cockroach

Characteristics

◆	COLOR:	DARK BROWN ALMOST BLACK
⊗	SHAPE:	OVAL BODIED
■	SIZE:	2.5 CMS
■	BODY:	6 LEGS ANTENNA, NO WINGS
⊗	HABITAT:	ROOF VOIDS. REFUSE GEYSERS



American cockroach

Characteristics

◆	COLOR:	BROWN WITH BLACK BLACK/WHITE UNDER
⊗	SHAPE:	OVAL BODIED
SIZE	SIZE:	4 CMS
E	BODY:	6 LEGS ANTENNA AND WINGS
⊗	HABITAT:	SEWERS & BASEMENTS



INTERESTING COCKROACH FACTS

- They have been around since the days of dinosaurs
- Can live without food for a month
- Can live two weeks without water
- Can live without its head for up to one week
- Can hold their breath for up to 40 minutes
- Can run up to 3 miles per hour
- They are nocturnal and eat a wide variety of food
- Reproduce at an alarming rate
- Easily transported (incoming goods)

COCKROACH DANGERS

Since cockroaches are so closely associated with humans and commonly feeding on decaying food items and frequenting unsanitary areas such as sewerage systems and septic tanks, their presence leads to suspicion of threat to human health.

Defensive secretions common along cockroach species may cause burning sensations, vertigo or nausea in humans who come into contact with the insects.

It was also reported that they enter the ear canal of individuals where they can become lodged.

They often get implicated as carriers of salmonella, a cause for food poisoning. Other diseases caused by Cockroaches can be the following:

- Nausea
- Abdominal cramps
- Vomiting
- Diarrhoea
- Dysentery
- Cholera
- Plague
- Polio
- Asthma

Studies indicate that exposure to cockroach allergens may be as high as 79% in asthmatic children in severely infested homes.

Consequently it is stated that cockroach control should be considered as a component of disease management.

REQUIREMENTS FOR SURVIVAL

- Food or food particles
- Moisture
- Warmth
- Harbourage



Food & Moisture

Cockroaches are omnivorous but are especially fond of starchy materials, such as cereals, sweetened or sugary substances and meat products. Cockroaches often damage seedling plants and soft fruit such as strawberries, mangos and bananas.

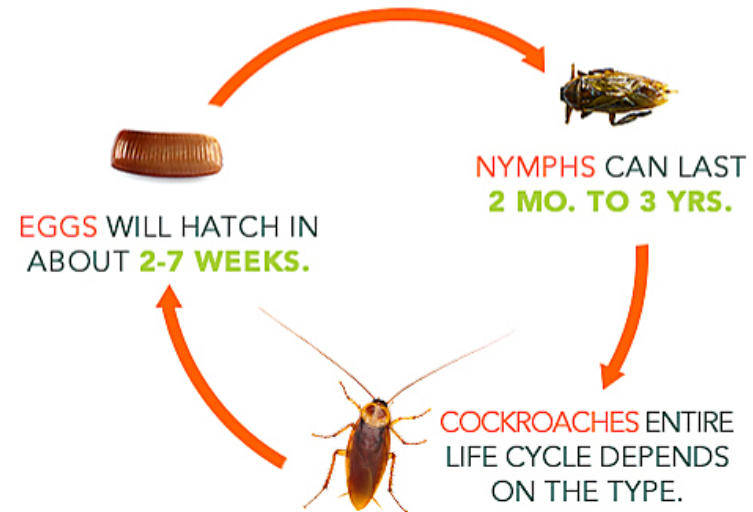
Warmth & Harborage

Cockroaches are of extreme economic importance in hotels, restaurants, supermarkets, private homes, apartments, cruise ships where they abound near hot water pipes, moist kitchen sinks, behind stoves and refrigerators, under kitchen and dining room tables and in any cracks or crevices big enough for them to hide.

THE COCKROACH LIFE CYCLE

The cockroach life cycle is comprised of three developmental phases, i.e. the egg, nymph and the adult stage. Most cockroaches are oviparous – their young grow in eggs outside of the mother's body. In these species, the mother roach carries her eggs around in a sac called an ootheca, which is attached to her abdomen. This sac contains anywhere between 6 and 40 eggs.

THE COCKROACH LIFE CYCLE



Female cockroaches carry their egg cases until they are ready to hatch and in the case of the German cockroach, once ready to hatch releases between 30 and 40 eggs with a maximum of 48. The average number of nymphs is around 29 and incubation at 24 degree Celsius around 28 days.

In the case of the oriental species, the female deposits from 1 to 18 egg cases in her lifetime and the egg capsule can be carried from 12 hours to five days. The egg case can hold up to 16 eggs and the number of nymphs per egg can be around 14. The incubation is between 42 and 81 days with an average of 60 days.

In the case of the American cockroach, the first few cases produced by a female may contain a full complement of up to 16 eggs with the average of nymphs to emerge around 13. The egg capsules are often glued to surfaces. The incubation period is between 38 to 49 days.

METHODS OF CONTROL

The backbone of the structural Pest Control industry pivots around the need for continual cockroach control covered by an integrated pest management approach. IPM is a long standing, science-based, decision-making process and provides an effective strategy for managing pests in all arenas from developed residential and public areas to wild lands. IPM serves as an umbrella to provide an effective, all encompassing, low-risk approach to protect resources and people from pests and consists of the following:

- Regular inspection of high risk areas
- Implementation of preventative measures
- Accurately identifying the pest and assessing the degree of infestation, taking into account biology and habits of pests.
- Using the entire spectrum of available control measures
- Carry out effective resistance measures
- Evaluating the success of all measures taken

Insecticide resistance is an important factor when taking into consideration the application of insecticides since this can cause some pesticides to become less effective at label rate. This is specifically relevant in the case of German, American and brown cockroach species. The relatively short life cycle and greater number of offspring per generation of German cockroaches makes them more likely to develop resistance.

This resistance applies to the following:

- Organophosphate
- Malathion
- Carbamate

- Pyrethroid
- Macrocyclic lactone glycosides
- Fluorinated sulfonamides
- Abamectrin

CONTROL MEASURES

Treatment for cockroaches should include the following:

- Sealing all entry points
- Deny pests food and water
- Applying good housekeeping practices
- Applying good sanitation practices
- Regular maintenance inspections
- Storage stacking of food sources
- Proper inspection of incoming goods
- Attend to pest recommendations made
- Report any sightings immediately

*"If roach were man and man were roach
The subjects both would brood and broach
Are love, dependency, survival.
We trust you in your re-arrival
To read this fable in reverse
And keep the world from getting worse"*

Donald Harington