The Society of Food Hygiene and Technology

Insect Control

WHY IS IT IMPORTANT TO PROTECT FOOD PREMISES FROM INSECT INFESTATION?

Food Poisoning – Many species of insects live and feed in filthy environments. Insect bodies are covered with fine bristles that pick up and retain bacteria. The insect can then spread the bacteria to food or food preparation surfaces by flying or crawling around the premises. Many serious outbreaks of food poisoning have been caused by insect contamination.

Legislation – As has been covered in *Preventive Pest Control* and *Why do we need to eliminate rodents from food premises?*, failure to protect food premises from pest infestations can lead to prosecution, large fines and occasionally closure.

Reputation – Complaints of insect contamination can have far reaching and damaging consequences for a company. In extreme cases, factories have been forced to close after important clients have been lost. The publicity associated with prosecutions can damage a reputation irreparably.

Wastage – Large quantities of contaminated foodstuffs often have to be disposed of after insect infestations have been detected.

Insect Control

What types of insects can be found within food premises?

COCKROACHES

The two main species of cockroach encountered within the UK are the Oriental Cockroach and the German Cockroach. Cockroaches can be distinguished from other large insects by their long, whip like antennae, flattened bodies and the head, which is tucked under the body. Oriental Cockroaches are dark brown/black and grow to 25-30mm long, whilst German Cockroaches are smaller (12-15mm) and are a lighter brown with two black stripes behind the head.

Cockroaches inhabit warm, dark, damp areas. They are successful because they can feed on almost everything imaginable, including faecal matter, all types of food waste and even each other. They require cracks and crevices to harbour in and young insects (nymphs) can squeeze into gaps as small as 0.5mm. They lay eggs in tough egg cases (ootheca), which are impervious to insecticides and take up to two months to hatch.

FLIES

Flies within a food premises create a particular risk to food safety because of the manner in which they feed. Their sponge-like mouths can only suck up liquid food and so they vomit digestive enzymes onto the food on which they land . They then mix this into a soup with their bristly feet and often defecate at the same time. This process can transfer large numbers of harmful bacteria.

Most flies lay their eggs (which hatch into maggots) within decaying material. Blow Flies favour decaying meat or carcasses, whilst House Flies are also commonly found within rotting vegetable matter. These large flies (6-10mm long) usually breed outside and then enter buildings in search of food and shelter.

Insect Control

There are a number of smaller flies (2-5mm) including the Fruit Flies, Filter Flies and Scuttle Flies that are more commonly found breeding within food premises, often within drains. Most of these species of flies can complete their life cycles within 10 days if conditions are favourable, and so large numbers of flies can appear very quickly.

ANTS AND WASPS

Ants and wasps live in large social colonies of up to 20,000 individuals. Wasps and Black Garden Ants forage for sweet sugary food and create a contamination risk when they enter food premises.

The Pharaoh Ant is a tropical species of ant that can infest heated buildings. They are small (1.5-2mm) and light brown / yellow in colour. They have a preference for food that is high in protein and are common pests within hospitals, where they have been known to feed from patient' s wounds.

STORED PRODUCT INSECTS

This is the name for a large group of insects that feed on all types of dry goods, including cereals, flour, herbs, spices, nuts, dried fruit, chocolate and fabrics. They are all small insects (mostly 2-6mm) that spend most of their time living within the food that they consume. Most are beetles (e.g. Flour Beetles, Biscuit Beetles, Grain Beetles) or moths (e.g. Flour Moths, Indian Meal Moths). Each species has a small range of products that it will feed upon.

They can infest raw materials in storage, but also the building fabric and machinery of food factories, retail outlets and kitchens. Serious infestations can be very difficult to eradicate.

Insect Control

WHAT TO DO?

All food premises should have an insect control programme that minimises the number of insects that enter the site and quickly eradicates those that do. Many of these principles have been discussed in Preventive Pest Control and so the following simply highlights the main points.

PREVENT INSECT ACCESS

Windows should be fitted with fly screens that allow the window to be opened but deny access to flying insects. Doors can be fitted with fly screen doors or hanging strip curtains. The manager responsible for pest control should ensure that these systems are used correctly.

Denying access to crawling insects should also be considered. Gaps under doors can be proofed with rubber strips or nylon bristle strips. Holes and cracks in the walls and gaps around pipes or cables should also be sealed, as should openings into all wall, floor and ceiling cavities.

Incoming goods and second hand equipment or machinery should be checked for signs of insect activity and rejected if insects are found. Rejected stock should be quarantined, preferably in a building separate to other stock / production.

REDUCE ATTRACTION AND REMOVE BREEDING SITES

Waste should be managed effectively to avoid insect problems. Bins should be fitted with tight fitting lids and waste areas should be checked for cracks and gaps in the flooring that allows waste to become trapped and insects to breed. Bins should be emptied and cleaned regularly.

Insect Control

Food preparation and storage areas must be kept scrupulously clean, insects only require small quantities of food debris to thrive on. Particular attention should be paid to the hidden, often forgotten areas below cookers, machinery, shelves and work surfaces.

Drains and drain covers must be regularly and thoroughly cleaned to prevent flies and cockroaches breeding. Damaged drains will need to be repaired to avoid debris becoming trapped.

Goods should be kept stacked away from walls (0.5 metre) and off the floor to allow thorough cleaning and inspection.

CONTINUAL MONITORING

As part of an insect control programme, a pest control contractor should carry out regular site inspections.

A thorough visual inspection will verify if insect pests are present and highlight issues that could lead to problems in the future. A report is issued containing recommendations, usually separated into proofing, housekeeping and stacking categories.

Monitoring devices can be permanently installed in the premises. Sticky traps are used to monitor for crawling insects and a pheromone lure can be added to attract cockroaches. Pheromone traps are available for a number of Stored Product Insects. Traps utilising a sweet attractant can be used to monitor for wasps and some species of flies. These insect monitors provide early warning of the presence of pests and help to reduce insect numbers.

A continuous inspection regime will normally consist of eight inspections / treatments carried out by a Service Technician and up to four inspections

carried out by a Field Biologist. In the event of infestation being discovered, follow-up inspections/treatments will be necessary. High-risk environments may require more intensive regimes dependant on the potential risk of pest infestation, the age of the building and the nature of the processes carried out. Customer Technical Codes of Practice may contain specific requirements for pest control and these should be referred to to assist in the selection of the appropriate level of service.

ERADICATION

Electronic Fly Killers (EFKs) should be installed in all food handling and storage areas. These contain ultra-violet light emitting tubes, which are attractive to flying insects. The units contain an electrified grid or a sticky board to catch the insects. A pest control contractor will advise on the positioning of EFKs to ensure they work effectively, and will also be able to service the units if required.

Pest control contractors will also carry out insecticidal treatments if they believe that they are necessary. The following types of treatment are utilised in different situations:

Residual Spray Treatments – An insecticidal spray is applied to walls or floors where insects are present. The spray can remain active for a number of weeks.

Dusts – Insecticidal dust can be pumped into sealed ducts and cavities to eradicate cockroaches. Dust can also be applied to ant and wasp nests.

Gel Baits – These are available for cockroaches and ants. The insects feed on the edible insecticidal bait until they consume a lethal dose.

Insect Control

Misting / Fogging – Specialised generators are used to produce a fine cloud of insecticidal particles that fill an enclosed area and settle on all available surfaces. These procedures are used mainly to knockdown insects present at the time and have limited residual life.

Fumigation – A penetrating toxic gas (e.g. Phosphine) is pumped into a building or container. The gas is then retained for a set time (up to 3 days) before the area is flushed out. The treatment is only used as a last resort because it is usually very disruptive and costly. Phosphine use is also limited as it is a greenhouse gas and it's use is restricted under the Montreal Protocol.

Heat Treatment – All stages of an insect's life cycle are destroyed by the application of heat over differing time scales. This procedure has been proven to be effective in a variety of different applications from storage bins/silos, conveyors and production machinery. No insecticide is necessary so it is popular in Organic sites

Insecticides only work effectively when applied to clean surfaces. It is therefore important to work with the pest control contractor to ensure that cleaning is carried out to the required standard.

Acknowledgment: The Society would like to thank **David Perrett**, Service Manager, Rokill Pest Control for his help in the production of this leaflet.