

## PEST CONTROL



**Managing pests forms a vital part of operations for every food premises. Mismanagement of food pests can cause substantial financial damage and can harm your business reputation. Infestations are a major reason for enforcement action and prosecution. However, every food organisation can take preventative steps to control infestation which include environmental, physical and chemical measures.**

This information is to ensure that all practical steps are taken to prevent the contamination of the food product and environment by pests, and to produce, store and distribute food in a pest free environment.

The scope of pest prevention and control should encompass the complete store including non-foods areas, storage, distribution and staff facilities.

These guidelines are to ensure that the best practices are applied, to prevent contamination of food products by pests and pesticides and by no means replaces the requirements of legislation and SANS/ SABS standards and requirements.

Should any infestation not be eliminated within 7 days or should infestation be out of control, the pest prevention contractor should contact the SPAR Group Food Safety Manager immediately and appropriate action must be taken.

**Caution – The potential hazards would be:**

- Bacterial contamination – pests carry bacteria which they excrete onto the food.
- Cross contamination – from bacteria left by pests on food contact surfaces.
- Physical contamination – from pest's bodies, eggs, hair and droppings.
- Chemical contamination – from careless use of insecticides and rodenticides or residual insecticides.

**Regional responsibilities**

Ensure that all stores are managing pest control effectively and according to the following guidelines:

**New Store - before opening:**

1. A pest prevention contractor must be appointed. SPAR recommends a store to use the preferred supplier listed at the front of the store safe file. This must be done prior to the new store being occupied. Building operations usually encourage rodents and other pest activity because of litter and rubble being on site.
2. A member of the store management team must be nominated and held accountable for all pest control matters (the staff member must be clearly indicated at the beginning of the file).
3. The nominated staff member/s must be trained in the handling of pest prevention equipment e.g. rodents bait stations, electric fly catchers, emergency procedures in reaction to accidental poisoning. This training is conducted through the pest control company.
4. Nominated staff must have access to locked bait stations for inspection purposes.
- 5. Self-administering pest prevention measures are not permitted at all.**
6. The contractor should inspect the unoccupied premises with the operations manager and point out building defects that may promote pest infestations e.g. gaps in the doors, unsealed drainage pipes, gaps in the walls.
7. Bait stations must be correctly placed prior to occupation.
8. Insecticides shall be correctly placed and operational before the store opening.
9. The store operations file for pest prevention must be commissioned.
10. The store manager must be guided with regards to stock, daily, weekly and monthly checklists.
11. All staff must be trained in pest prevention practices (listed in this section), sighting and reporting of activity.



## Documentation

Each store must have a pest control register that includes:

1. Service contractor's details.
2. Emergency response numbers.
3. Copy of service agreement (not price related, but a detailed breakdown of the service provided).
4. Public liability insurance declaration and workmen's compensation details.
5. Current registration of onsite operator with department of agriculture (Act 36/1947).
6. Map of schematic drawing showing the placement of and numbering of monitoring devices.
7. Service and corrective action reports.
8. Sighting log.
9. Register of approved chemicals.
10. Pesticide usage log.
11. Material safety data sheets.
12. Quarterly, in-depth reports including trends analysis.
13. Copy of self-inspection programme (checklists), including receiving practices to prevent contaminated stock from entering facility.

### Existing stores

1. Ensure that the pest prevention file is correct as per the guidelines.
2. Review previous audit, pest prevention inspection reports and address any outstanding non-conformances, address causes and shortcomings as soon as possible to prevent infestation build up.
3. Meet with pest prevention officer to discuss problems identified instore and their recommendations.
4. Clean all areas thoroughly.
5. Move loose fixtures and fittings, clean underneath and behind.
6. Discard all refuse, old equipment and fittings that clutter areas, prevent proper cleaning and create pest control risk areas.
7. Tolerate no scrap paper or cardboard. These attract pests.
8. Fill all gaps and holes where pests may gain access or breed.
9. Ensure that all dark corners are well illuminated. Pests breed in the dark, undisturbed damp areas.
10. Ensure that all corners and walls of stock rooms are accessible at floor level, for cleaning, placing of traps and inspections.
11. No product or equipment may be stored directly on the floor only pallets and shelves may be used.
12. It is recommended that shelves alongside the wall are at least 30 - 45cm above floor and 25 - 30cm away from the wall allowing access to clean, inspect and place traps.
13. Products that are known to attract pests (cereal, pet food, mealie meal, grains) should not be stored in dark corners or against walls. Allow access on as many sides possible for cleaning purposes will assist with pest prevention.
14. If pallets are used in stock rooms, they must be picked up off the floor and thoroughly cleaned before new stock is delivered. Where possible pallets must be discarded and replaced with shelves.
15. Check old shelving as mice and cockroaches nest in holes in wood.
16. Cleaning schedules (including cleaning and inspections) for cleaning all back up and storage areas must be displayed, and cleaning duties must either be allocated to SPAR staff or contract cleaning companies. Management must check on this during the week.

**Specification appointment of the pest prevention contractors:**

1. All preferred suppliers and contractors must comply with relevant legislated requirements and standards (Act 36). The company must be a reputable and professional company, thus no household pesticides/sprays are permitted to be used.
2. The Pest Control Officer (PCO) inspecting the store must be registered with the Department of Agriculture and a certified copy of this certificate must be kept on file.

**NOTE**

Certificate fraud has been experienced, therefore each certificate must be clearly stamped by the Department of Agriculture and be valid for 3 years.

3. Insecticides and rodenticides shall be environmentally acceptable and registered for use in South Africa. This registration must be identified by the "L" number. The "L" number is unique to every registered remedy, and registration is specific to the relevant insects for which the insecticide is intended.
4. Must have public liability insurance. This amount must be relative to the size and scope of the service provider or industry being treated i.e. size of distribution centre or number of retail outlets.
5. Must have a certificate of compliance according to the compensation for Occupational Injuries and Disease Act 1993. Letter of Good Standing from the Department of Labour, Compensation for Occupational Injuries and Diseases Act 130 of 1993 (as amended).
6. Pesticides should be applied in compliance with the provisions of SABS 0133, the Department of Agriculture and local regulations concerning pesticide use.
7. Should have a policy of following an eco or environmentally sensitive programme and be prepared to be audited by external auditors to this effect.
8. Provide training programmes for staff in the food preparation facility. These programmes should include: personal hygiene, code of behaviour in the food premises, contamination and risks related to pest prevention, all relevant information required for pest control certification.
9. The service provider must be able to advise on hygiene, housekeeping and proofing standards which could reduce the risk of future pest problems.
10. The service provider staff must comply with dress and personal hygiene codes of SPAR, including the wearing of mop caps and protective clothing in food preparation areas.

**Common Pests**

Generally speaking pests are living creatures capable of contaminating food directly or indirectly. Common pests in food premises include – rats and mice, birds such as sparrows and pigeons or insects such as flies, cockroaches, book lice, ants and weevils.

**Infestation**

If you discover a pest infestation, you must act immediately to deal with it. The owners/managers of a food premises must ensure that the contracted pest control company is competent and that the managers/owners are kept informed of any surveys and action taken. A written record should be made about each visit and should be kept by the food business. Using contractors does not remove or reduce the store owner's legal responsibility if pest contamination in food is found.

**Methods of pest control**

Pests can be controlled by a variety of methods:

- Environmental
- Physical
- Chemical



Preventative environmental control, the key points involved are:

- The design, maintenance and proofing of the premises.
- Good housekeeping.
- The denial of food, moisture and harbourage.
- The correct storage of food and packaging.

Pests need food, water, shelter and security to thrive. If these are denied, pests will not survive. Good housekeeping is essential. A pest may occasionally gain access to even a well proofed building, but if the premises are kept clean and tidy, large numbers of pests will not be able to breed. Pay special attention to staff changing rooms, locker rooms, dining areas, lift shafts, food stores, and waste areas. All spills of food and liquid should be cleared up immediately. Waste should be removed and disposed of in a hygienic manner – bins must have well fitted lids and be of adequate size. Removing sources of water – such as dripping taps, leaking roofs and damaged gutters – which will aid control.

Denial of access includes ensuring that:

- Doors are well fitted and are kept closed unless in use.
- Windows have insect screens and air bricks have a wire mesh behind them.
- The building should be well maintained so that no holes are left, for instance, around pipes.
- False ceiling, ducting and boxed-in pipework have internal access points.
- Cavities in internal walls have been avoided.
- Cupboards, equipment and preparation tables can be moved for cleaning and inspection.

Guidelines for the prevention of pest infestation:

- Remove unused equipment, vegetation and other harbourage areas from the site.
- Move and regularly check unused equipment and packaging.
- Keep all food in rodent proof containers and always replace lids.
- Check all raw materials – including packaging, equipment and food on arrival and before they are stored. In extreme cases where there is an infestation of goods, products need to be depalletised before being accepted into the store.
- Ensure the outside areas are tidy and not overgrown with vegetation.

### **Eradication method**

If pests gain access to the food premises, they must be destroyed by physical or chemical methods. When physical methods are used, the pest is caught and removed so the risk of food contamination is eliminated. However, if the infestation is large, physical control may be too slow and ineffective, so chemical methods are used.

When chemicals are used, the pests do not die immediately, and they may have contaminated food if precautions are not taken. The use of chemicals must be carefully controlled to prevent chemical contamination to food.

Physical controls would include - traps, sticky boards, insect light traps etc.

Chemical control could include rodenticides and insecticides. Insecticides are the main method of insect control. They are classified into 3 groups:

- Contact insecticides are absorbed by the external surface of the insect.
- Systemic insecticides are taken in when the insect feeds.
- Respiratory insecticides are taken in when the insect breathes.

### Rats and Mice

Rats and mice should be controlled because of:

- The spread of disease, caused by, food poisoning bacteria such as Salmonella and E. coli carried on and in rat's bodies.
- Contamination by rodent urine and droppings, which can lead to Weil's disease (Leptospirosis), TB and other illnesses.
- Rats and mice can also carry fleas, mites and ticks which can cause allergic reactions.
- Parasites – including the cysts of *Trichinella spiralis*, a worm that lives in rat's intestines, which particularly affects raw pork and may survive when the meat is not cooked through.
- Rat bites.
- The possibility of wasting food because of infestation of food and packaging material, leading to loss of production, recall of contaminated foods, repackaging and the destruction of large quantities of food.
- Damage (leading to fires, floods or subsidence) to structures and service installations, such as underground water pipes and electricity cables, caused when rodents gnaw to wear down their incisor teeth.
- Likely financial loss, caused by all the above
- Legal requirements.



#### Signs of a rat and mice presence or infestation:

Scratching noises in walls, ceilings or under the floor as rats scurry around.

Droppings – rats leave dark, capsule, spindle or rod-shaped droppings about 10 -14 mm long, depending on which rodent is infesting the premises.

Distinctive smells – rats leave an ammonia-like smell that will be particularly strong in enclosed areas such as under cupboards.

Urine stains are also visible when shining a UV blacklight in the pathway of rodents.

Damage – rats have teeth that grow continuously and so they gnaw on wood, plastic, cables and hard materials to keep them in trim. They will tend to be in hidden places such as behind the fridge. Rats can even cause fires by chewing through cables.

Ripped food packaging – rats will tear open food which may leave gnaw marks.

Nests – rats build nests in warm, hidden places using shredded material such as newspaper and fabrics. Nests will often contain young rats. Attention to be given to the area where tissues, toilet paper and serviettes are stored as these are ideal nesting materials for the rodents.

Smears – there will be greasy smear on pipes and walls.

Feet marks – there are foot marks in the dust or in flour.

It is impossible not to attract rats and mice with food, so it is best to store food in plastic or metal containers which have been regularly cleaned. Always clean under cookers and fridges. Areas outside of the store; always make sure that the kitchen waste is kept in bins with tight fitting lids. Rats can come up from sewers through broken pipes, so it is important to ensure that pipe work is in order. Ensure manhole covers are unbroken and tight fitting. Rats and mice will climb through ventilation holes, rainwater pipes, rough brick walls and through doors and windows that are not closed properly. Pipes can be protected internally by wire balloons and externally by metal collars. These are fitted inside or over the drain so that the rodents cannot gain access.

**Birds**

Reasons for controlling birds include preventing:

- The contamination of food or equipment by droppings, feathers and nesting materials which carry insects and mites.
- The transmission of food poisoning micro-organisms, such as Salmonella.
- Blocked gutters which may result in flooding and expensive repairs and maintenance.
- The defacement of buildings – bird droppings can contain an acid which attacks stone and paint.
- Roosting on fire escapes and similar structures, causing a safety hazard.
- Non-compliance with legal requirements.



The SPCA and other Animal Welfare Societies are against narcotising drugs as the birds are harmed when they fly after ingesting the drugs. The more humane approach is to prevent birds from entering the premises using netting etc.

**Insects**

Insects including flies, cockroaches and stored product pests, such as beetles, weevils, booklice and mites – need to be controlled because:

- It is a legal requirement.
- They can attack and destroy large quantities of food.
- They can contaminate food by their bodies, droppings, webs and eggs.
- Many insects and cockroaches frequently transmit pathogenic bacteria.
- Flies – housefly, bluebottle and fruit fly – can infest food by regurgitating partly digested food and enzymes as they eat, continually defecating, carrying bacteria, such as Salmonella, physically contaminating food with their bodies, eggs and wings.
- Cockroaches can carry various pathogens including Staphylococci and Salmonella, dysentery, gastroenteritis and typhoid. They may also contaminate food with their moult debris, dead bodies and faecal pellets.



Insect monitors may be used to check for insect infestation.

**Houseflies**

The house fly lays its eggs in food supplies. The eggs develop into larvae that feed on the surrounding matter. The larvae remain in the larval stage for 5 days. Then they develop into pupae from which the adult emerges. This part of the life cycle takes about 10 days in warm conditions. Adult flies can only take in food in liquid form. They eject saliva onto the food and then suck up the liquid mix. This action is called regurgitation (bringing up) of previously eaten food, which may be infected.

**How to keep flies away:**

- Do not leave rubbish open or heaped up.
- Protect points of entry. Windows can be covered with wire gauze. Doorways should be covered with curtains.
- Do not leave food lying around.
- Keep the premises clean.
- Regularly empty and clean refuse bags.
- Machinery should be either sealed to the floor (to prevent food from gathering underneath it) or raised off the floor (to allow for cleaning underneath it).

### Cockroaches

Cockroaches are a high-risk pest to have in the kitchen. Besides the health risks listed above, cockroaches are unsightly pests to have in the store, be it in the front of store or in and around prep areas and storage areas. Not only are they disturbing by sight, but cockroaches produce an obnoxious odour that taints food and objects they encounter. Cockroaches can breed rapidly and are highly resilient. A quick response is essential to ensure cockroach infestation does not become established or spread quickly. Infestations are more than likely to re-occur especially when surviving cockroaches lay eggs which hatch after one or two months.



#### How to keep cockroaches away:

Sealing entry points can help protect a cockroach from entering the workplace. Key risks are gaps under doors or around pipes to the exterior or neighbouring properties. Also seal gaps where cockroaches can harbour, they are nocturnal and hide during the day in cracks and crevices in the walls, around skirting boards and behind electrical sockets.

Where possible, store food in sealed containers, clean up spillages and food waste immediately, clean food debris from under fridge and cookers, keep refuse sealed, do not leave liquids in sinks or buckets overnight.

Insecticides in the form of spray, powders and lacquer (a colourless liquid) can be used. Lacquer sticks to the insect's limbs and is ingested when the insect cleans itself. Powder is used in places that are hard to clean.

### Ants

Although there are hundreds of types of ants in South Africa, there are relatively few species of ants which are significant as pests. It is essential that your pest control officer identify the type of ant you are dealing with in order to apply the correct remedy.

Ant problems occur primarily because food, water, and shelter (nesting sites) are available. It is essential to eliminate food sources when treating your store against ants. To keep ants away keep food in sealed containers, clean up spills as they occur and keep dustbins covered.



It is important that you do not use repellent sprays when trying to get rid of an ant infestation. This may affect bait acceptance, kill the foraging population and prevent baits being taken to the nests, and will in any event only kill a small percentage of the colony.



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**Guidelines for rodenticide use – either a single feed or multi-feed bait system**

1. Rodenticides should never be used in food handling areas. If necessary, use non-toxic monitoring blocks inside lockable stations.
2. Bait station rodent entry points must have holes large enough to allow target pests in only, and should be strong enough to prevent dogs and cats from entering.
3. Rodent baits, including non-toxic monitoring blocks, must be secured on metal rods inside the lockable stations.
4. Tamper proof bait stations must be locked and secured to walls, floor or shelving.
5. Liquid rodenticides should not be used in a food handling area. If used at all, strict adherence to the manufacturer's instructions is essential.
6. Glue boards for rodent management should be placed inside a plastic or metal station. Use of glue boards for other purposes is not encouraged.
7. Glue boards, if used, and traps should be inspected on a daily basis.
8. Peanut based attractants are human allergens and a food safety hazard. Use with great circumspection.

**Guidelines for insecticide use**

1. Liquid treatments (including aerosolised liquid) should be avoided in food handling areas as far as possible. If they are used, this must be done after food has been removed and food packaging has been removed or sealed. Food contact surfaces must be protected or cleaned and sanitized after treatment in the area.
2. Liquid treatments must be applied only below bench height in food preparation areas, along walls or floors, behind or under equipment, under tables, around sinks, within or near garbage collection areas.
3. Gels must not be placed on food preparation surfaces or areas that will be frequently washed.
4. When gelling, the pest control technician must not touch food preparation surfaces, equipment or utensils with his hands, body, or equipment.
5. Crack and crevice treatment should be conducted below bench height in food preparation areas.
6. Dusts must not be used in food handling areas, except when applied to interior of equipment, example motor housings of food equipment such as dishwashers, which are later sealed. This must be done when the food handling area is not in use.
7. Dusts should not be used in roof voids or suspended ceilings above food handling areas.
8. Granular insecticides must only be used in exterior areas. Do not apply on walkways. Do not apply within 5 meters of entrances to food handling or storage areas.

**Guidelines for space treatments**

1. Space treatments, including fogging, misting, fumigation and ultra-low applications must not be performed under normal conditions.
2. A technical expert from your pest control contractor must motivate such use and submit a hazard identification and risk assessment report before space treatments are used.
3. Treatments may only be performed when food areas are not in operation, and all food and food packaging has been removed or sealed, and food contact surfaces covered.

**Guidelines for flying insect units.**

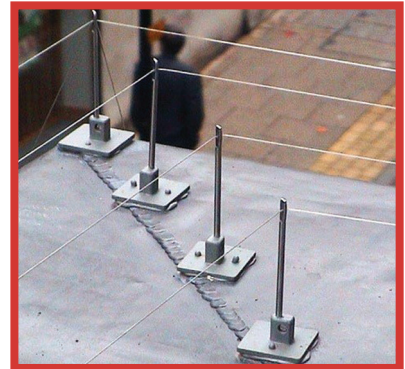
1. Do not place insect light traps devices in food handling areas.
2. Use only shatterproof UV lamps
3. Make sure UV lamps are changed at least annually.
4. Change the glue boards in the unit when the pad is 70% covered or monthly in fly season.
5. Do not use devices which release pesticides on an automatic basis in areas where there is exposed food.

**Control Measures – ‘Pest-Proofing’ Your Store**

Certain structural specifications must be adhered to, as mentioned under the building requirements section of this file. The building must be in a good condition and repair in order to restrict pest access and prevent potential breeding sites.

This can be done by:

- Sealing holes and other places where pests can gain access.
- Keeping the floors, walls, roof, doors and windows in a good state of repair with no gaps or spaces, to prevent entry for pests.
- Fitting fly screens to windows if they are to be opened. The fly screens must adhere to the cleaning schedule.
- Fit drain covers to prevent pests gaining access.
- Insectocutors must be installed in appropriate places in back up areas.
- Air curtains can be installed at entrances to the store.
- Putting clean-as-you-go procedures in place in all production and storage areas.
- Removing all cupboard boxes from production and storage areas and decanting product into sealable bins/containers.
- Making sure all ingredients are sealed.
- Do not leave open ingredients lying around, especially at night.
- Removing returns and waste regularly.
- Keeping all areas for returns and waste clean and tidy.
- Storing stock off the floor and ensuring that all areas are accessible for cleaning.

**REMEMBER!**

If pests are sighted, it is important that the contracted pest control company is contacted immediately and that they provide you with a corrective action report. The Pest Control Company plays an important role in your store's pest control programme, however, the ultimate responsibility rests with the Store Owner.

**Summary**

- A food pest is any living creature capable of directly or indirectly contaminating food.
- Common pests include rodents, birds, flies and cockroaches.
- Pests must be controlled and prevented from contaminating foods.
- Methods of control may be environmental – such as denial of shelter, food and water or physical or chemical.
- Supervisors have an important role in preventing pest infestation.