

BEST PRACTICE GUIDELINE

PEST CONTROL



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British Retail Consortium



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1 Objective of Guideline

An effective pest control system is a prerequisite to any site's operational system to protect the products on site. This guideline promotes best practice by discussing the elements to be considered when setting up, operating and monitoring a pest control system, whether this is provided by the site's own staff or working in partnership with a contractor. It provides an effective framework to:

- consider the requirements for establishing a pest control policy
- identify the requirements for preventing pest access to site
- give guidance for the control and monitoring of pests
- identify action required when an infestation occurs
- give guidance on how companies and pest control contractors can work together.

Principles are illustrated by the use of case studies and examples.

2 The Importance of Pest Control and Management

Pests, including insects, rodents, mammals and birds, must be excluded from any manufacturing or storage premises as they are a significant potential source of microbiological and physical hazards. Rodents are known carriers of Salmonella and many birds carry Campylobacter, both of which are common causes of food poisoning. Pests can cause damage and financial loss through consumption of stock as well as damaging building fabric; for example, cases of fire have been attributed to rodents gnawing through electrical wires.

Pest problems may also be an indication of poor standards of hygiene in general.

Lack of effective pest control procedures can lead to loss of business, product recalls and fear from staff members working at the site. Legislation in many countries requires competent pest prevention and management programmes to be implemented.

The design of any pest control system must consider the needs of the site. This may be dependent on:

- nature of identified pests
- nature of raw materials
- characteristics of finished products
- nature of equipment
- type of production process
- condition and characteristics of buildings
- condition of site
- the environment
- potential for future pest risks
- certification to standards which require special pest control considerations, such as 'organic'.

The selection of the control and monitoring methods, and the type and frequency of inspections, should be pertinent to these factors.

3 Definition of a Pest

A pest may be defined as any species that:

- has a detrimental effect on the health of humans
- causes damage to structures
- causes damage to materials such as raw materials or finished product
- causes negative public reaction and loss of goodwill
- contravenes legislation
- increases fear.

A pest may be thought of as 'anything in the wrong place at the wrong time'. They are usually categorised as rodents, insects, birds and mammals.

4 Internal versus Contract?

Consideration needs to be given to whether the control of pests is undertaken in-house, under the responsibility of the company's own staff, or whether it is contracted out to a specialist. The pest control programme must be carried out by trained and competent personnel, and therefore the company needs to commit to the provision of resource for training and the continuing professional development (CPD) of its own staff to the same level that would be expected of an external contractor (refer to qualifications of staff in section 6). If internal management is chosen, the requirement for external expertise should still be considered; for example, to undertake periodic field biologist visits or independent audit.

If the company undertakes its own pest control, it needs to provide facilities for the correct handling, storage and disposal of materials such as pesticides. Spent chemicals need to be disposed of according to national guidelines. Internal staff should be encouraged to become members of the leading national trade association.

The requirements of a documented system will be the same as those for external contractors and must be effectively constructed and maintained. The company needs to evaluate the advantages of continued communication and having personnel on site who can deal with problems instantly, versus the disadvantages of keeping up-to-date with legislation and training, issues of holiday and absence cover, and the fact that the company has ultimate liability. These factors have to be weighed against the option of contracting out pest control to an external service provider.

5 Considerations for Needs of a Pest Control Contract

Successful pest control requires a close working partnership between the service provider and the company's site management, with continued communication. When tendering for services from an external pest control specialist, consider how both parties will work together and establish a proactive programme for effective pest management to satisfy the following points.

Potential service providers should be part of a national trade association. This is often easily confirmed by the use of the association's logo and criteria for membership. It means that the contractor has been independently audited, has qualified staff, appropriate insurance, a trading history and is backed by the opportunity for complaints to be investigated by the trade association.

Obtain details of the service provider's portfolio of experience – for example, has it had previous experience of working with companies certified to the BRC Standard? Discuss how the service provider will ensure that there is adequate cover of suitably qualified personnel, not only for routine inspections but also for emergency call-outs and any specific company or customer requirements such as availability 24 hours a day, seven days a week. The service provider should be able to explain which technicians will service the site and how any reorganising will take place; for example, how new staff will be introduced to the site.

6 Qualifications of Staff

All pest control staff (including sales and service staff), whether internal or contracted, need to be appropriately trained and qualified to a nationally recognised certificated standard such as the UK's RSPH/BPCA Level 2 Certificate in Pest Control as a minimum. These are entry-level qualifications and staff should also undertake CPD to ensure that their skills and knowledge are kept up-to-date. Staff should hold other relevant qualifications such as health and safety and food hygiene awareness as appropriate.

Inspectors should be senior technical staff providing an inspection/quality service. They may be qualified to a higher level than technicians, but do not have the qualifications associated with those of a field biologist. The responsibilities of inspectors would be to carry out independent inspections on reduced-risk sites, such as storage facilities of a consumer product.

'Field biologists' should be senior service technicians who are qualified to a higher, nationally certified level to carry out this work.

Continual training is an important commitment and the service provider should assure the customer that individuals will be continuously developed, attend nationally recognised industry events and continually research new operational systems and equipment which may be of benefit to the site to reduce associated risks. This is also an important principle for any staff undertaking pest control within the company.

7 The Pest Control Contract

It is likely that a (sales) surveyor of the service provider, together with technical input, will draw up the details of the contract and negotiate the contract price. The pests covered within the contract should be detailed and be relevant to the needs and risks of the site. As with any contract, the greater the number of potential hazards included, the higher the likely costs.

7.1 Visit Frequency

Details and associated costs of the contract often revolve around the number and type of visits to the site and these should be based on a site-specific pest assessment. The contract must also consider and document any specific customer requirements and the site's certification to any schemes that place special requirements on the nature and type of pest control measures that can be employed, such as 'organic'.

A pest risk assessment principle is suggested as a tool for a number of issues – to agree the principal service specification, the appropriate response times from the contractor when pest issues are encountered, and the appropriate processes to be carried out by the site contact for recommendations made by the service provider. An example of such a matrix is provided in Appendix 1, where high-, medium- and low-category response times are given.

Ideally the contract should include visits by a field biologist, typically a minimum of two per year. The field biologist will provide an overview of the pest management system and controls, reviewing the management and hygiene of the site, and ensuring that appropriate and timely actions are being taken by both the technician and the company. Their main remit is to look at prevention.

7.2 Documentation

Companies should inspect blank report folders **before** contracts are awarded and the service provider should deliver model templates during any survey or presentation.

Refer to section 16 on documentation for details of what should be included in any documentation file.

7.3 Partnership

The company and the service provider need to work together to ensure an effective pest control system is established. The responsibilities of each of the parties should be clearly documented and agreed within the contract.

The service provider has the responsibility to:

- provide the level of service according to the agreed contract
- communicate with the designated site contact to ensure effective pest control systems are maintained
- make recommendations for actions that are suitable and practical for the site
- give clear and easy-to-understand advice on pest prevention measures
- remove old evidence of pests, such as droppings and bodies.

The company has the duty to:

- action the service provider's recommendations within an appropriate timescale
- provide a safe environment in which the service provider can work
- provide access to the necessary areas for inspection
- have a nominated, responsible person to manage the service provider and make sure that company policies are fulfilled.

The contract should include details of scheduled meetings such as an annual review, and 'exit' procedures for both parties in the event of contract termination.

8 Proofing

The first principle of pest control is prevention: keep pests out of the site grounds and specifically out of production and storage areas.

The buildings should be maintained in a good state of repair and the site continually assessed for potential routes of pest entry. External doors should fit close to the floor and adjacent walls. If this is not

the case, the door, walls and/or floor should ideally be refurbished. Appropriate temporary solutions may be employed, such as bristle strips or other 'seals', but their condition must be checked on a routine basis as rodents can chew through these or they may become damaged through use.

Train staff on good practice to keep doors closed; ideally external doors should have automatic shutting devices or be fitted with alarms. Air curtains may be effective at preventing entry of flying insects but will not prevent rodent entry. Strip curtains such as those made from mesh or plastic should not be damaged, should meet the floor as appropriate and be properly used. If they get tied up by staff or damaged then they may not be the right solution and the company may need to seek an alternative.

Windows that can be opened directly to the outside and which pose a risk to product contamination should be screened by the use of mesh with a maximum diagonal size of 2 mm. Such screens should be removable for cleaning, and need to be routinely checked to ensure they are not damaged.

Gaps around pipes, air bricks and service ducting are all potential entry points for pests and should be proofed with mesh or suitably sealed. Mice can gain access through gaps as small as 5 mm. Drains should be fitted with interceptor traps and inspected/baited according to the pest risk assessment.

Depending on the pest risk assessment, the need for bird control should be considered – this may include netting or anti-perch systems on roofing or within loading bays, as well as options for acoustic or visual deterrents. Note that certain species of birds are often protected by law and that poisoning protected species is illegal. Culling is usually only carried out by authorised personnel.

9 Attraction

The second principle of pest control is to reduce the attraction for pests and control numbers through site management. All pests need food, water, favourable temperatures and somewhere to live (harbourage), and influencing these factors can minimise the potential for pest infestation. The service provider should advise on particular aspects which are relevant to the industry and site requirements.

Hygiene and housekeeping are two of the most important factors in denying pests food sources and places of harbourage. Ensure food waste is not available to pests by storing it appropriately; that is, in bins with tight-fitting lids. Ensure bins are emptied and waste removed from site frequently and that the bins and bin storage area are cleaned at an appropriate scheduled frequency.

If food and perching locations are denied to birds then the probability of an infestation is much reduced.

Staff should be trained to ensure spillages are quickly and effectively cleared up; for example, syrupy mixtures will attract fruit flies. This training may include the appropriate cleaning and storage of cleaning equipment (mops etc.) following use.

The exterior of the premises must be properly maintained. This includes removal of any potential harbourages and effective and regular management of foliage, which should be kept away from exterior walls. Good practice would be to have a 2–3-m clear 'no-grow' zone or a 0.5-m clear zone from the bottom of vegetation around external walls. Pallets and disused equipment should be properly stored to prevent rodent harbourage and allow regular inspections.

To help prevent a number of pests, there should be no standing water around the property and water butts and gutters should be frequently inspected to prevent water build-up.

Store products 0.5 m away from walls and ensure that they are frequently rotated to allow inspection and cleaning to be carried out. This gap will also assist in deterring some pests from gaining access to stored produce. Ensure raw materials and equipment are appropriately inspected before entry to the site and that they are stored in a manner that doesn't allow them to become a food source or harbourage for pests.

The service provider should be able to help the company undertake a risk assessment of the nature of raw materials, work in progress and finished product on site and ensure that procedures are put in place to monitor and control particular pests of concern. As a general rule, however, incoming raw materials should be inspected and possibly quarantined to ensure they are free from signs of pest damage or infestation; the condition of transportation in which they arrived should also be inspected. Higher levels of inspection may be required on foods that are prone to pest infection – for example, flour and chocolate – or on materials such as fabric that are susceptible to specific pests. The processing equipment used to handle certain raw materials, such as flour silos, may also be vulnerable to infestation and should therefore be scheduled for regular inspection.

10 Control

Pest entry cannot be prevented entirely, therefore control measures will be necessary. The presence of a pest infestation is often a symptom of a problem and the source, location and cause must be investigated so that these can be eradicated to minimise the likelihood of future infestations. The use of baits should not be considered as the first point of action.

10.1 Rodent Control

Integrated control may require the use of baits (see Figure 1) as part of a programme to control rodents but should not be viewed as the sole solution. Depending on the species causing the problem, the extent of infestation, the size and area of activity, alternative solutions may be appropriate; for example, if large quantities of alternative foods are freely available, long-term rodent control may best be achieved by improving hygiene.

Figure 1 Example of a bait box



If there is a possibility of rat activity or a significant risk attached to their presence, toxic baits (as approved by the relevant regulatory authorisation) may need to be considered; however, the source and habitat should be managed first and control may not require long-term use of baits.

A number of formulations are available for use to eradicate rodents, including edible bait, liquid bait, contact-bait formulations or fumigants (although this last option cannot be used internally for rodents). An assessment of the risks when handling and using products, such as that advised by the Control of

Substances Hazardous to Health (CoSHH), will be required prior to the application of any pesticide. This assessment will need to be reviewed on a frequent basis and certainly if there are any changes in use, pests or the environment.

If the risks are relatively low, consider using a non-toxic monitoring system, both for environmental reasons and to safeguard against killing non-target species. This may, however, necessitate more frequent visits, potentially fortnightly or weekly.

The position and distance between baiting and monitoring points will be determined by the site, environment and potential risk of pest activity. Attempts to formulate the number of baits or monitors required as, for example, 'one per x metres' should be discouraged.

Baiting points should be robust, of tamper-resistant construction and secured in place to prevent contamination risk to product in areas where non-target species (people or animals) may come into contact with any product.

In secure areas such as within wall cavities where there is zero potential risk of non-target species, access by third parties or product contamination, alternative bait-box designs with non-spill bait formulation may be considered. Other baiting practices such as burrow baiting may be the most appropriate and effective method in some instances, provided that the CoSHH assessment does not contradict this process.

It is known that chemical resistance is increasing within rodents, therefore periodic rotation of the active ingredients in poisons is good practice. If rodenticides are to be used on site, they must be sufficient in quantity to control the level of pests; underbaiting is one of the largest contributors to rodent tolerance. Continual rodent activity may be an indication of poor habitat management or failure to address issues such as proofing, hygiene, housekeeping or stock rotation. Only if all of these points have been appropriately addressed should 'resistance' be considered a possibility.

CASE STUDY

Controlling rats

Rats were reported by site staff to the service provider, as having been seen externally around the raw materials storage area. On visiting the site, the technician found droppings and damaged raw materials and it was suspected that the infestation had originated from a raw material delivery. External non-toxic monitoring devices were exchanged for toxic baits around the storage area. Internal control measures included additional kill traps and contact gel formulations as these have a lower risk of spillage and potential to contaminate product. Recommendations for increased delivery inspections were made by the pest control technician to the site quality manager. A follow-up visit was carried out internally (note rats are known to suffer from neophobia – i.e. fear of new objects – therefore negating the need for everyday follow-ups) to ensure sufficient quantities of bait were on site, that the control programme was working effectively, and to collect carcasses. A subsequent visit showed no further evidence of activity and the control programme returned to the original non-toxic specification.

10.2 Fly-killing Devices

Fly-killing devices are a common solution to assist with the control of flying insects (see Figure 2). They attract flies by the use of ultraviolet (UV) light and come in a variety of designs, usually based on one of two technologies. Note that the requirements of target pests need to be assessed before assuming UV fly-killers are best suited to their control; for example, fruit flies are not necessarily attracted by UV light.

Figure 2 Example of a fly-killing device



Fly-killing devices with electrified grids (usually referred to as electric fly killers - EFKs) kill flies via electrocution but have the disadvantage that body parts can be expelled out of the device either through the electrocution process or by wind blowing those body parts collected in the tray. Careful consideration, therefore, should be given to their position to ensure they do not pose a potential contamination risk to open product or preparation surfaces.

Alternatively, 'sticky board systems' are available which trap the flying insects on a sticky substance, preventing escape. The disadvantage of this 'sticky board' design is that if the temperature fluctuates they may melt or harden; they may therefore not be suitable in very hot or very cold environments. They may also not be suitable for dusty environments and can become 'full' and ineffective in high-infestation areas.

The UV bulbs which are the core of most fly-killing devices pose potential contamination issues due to the potential for glass breakage; therefore the UV bulbs must be suitably protected. This can normally be achieved through use of bulbs with a protective sheath, i.e. shrink-wrap plastic (usually defined by a marker at one end), or the bulbs being inside a protective case.

The luminosity of UV bulbs deteriorates over time and therefore they should be changed as a minimum every 12 months, ideally during spring so that they will be most effective during the highest-risk months. Each unit also needs to be serviced and maintained by a suitably qualified technician to ensure safe and effective operation. The company should consider the procedures for servicing and changing of bulbs to ensure that this operation poses no risk to product. Ideally this should occur outside of production hours; for example, during maintenance and cleaning periods.

The fly-killing device should be of adequate size for the space it is required to cover or the required number of units provided – the pest risk assessment should contain this information. Units are usually manufactured to cover either 25, 50 or 75 m² and this will be detailed within the manufacturer's specification.

Positioning of devices is important to ensure their effective operation. They should be positioned:

- away from other sources of UV light, i.e. away from windows and artificial lighting such as strip lights, as these are more powerful than the fly-killer bulbs
- appropriately for their purpose; for example, drawing flying insects away from the area to be protected. Units designed for wall-mounting have half the effective coverage area of similarly sized units designed to be suspended from ceilings; however, they may be appropriate in drawing insects away from high-risk areas

- away from doors, particularly external doors or windows, to prevent attracting insects into the building, and to avoid sources of air movement potentially causing insects to be blown out of the catch tray or diverting the flight of flies
- to ensure they are serviceable and cannot be damaged
- at the right location and height for the target pest; for example, house flies do not usually go above 3 m.

10.3 Other Control Methods

Sites certified to organic status will have different needs which should be recognised and provided for by the service provider. For example, organic pesticide sprays are available; these are natural products that can be used in food areas.

Many systems now exist to manipulate the environment; for example, temperature reduction and/or air depletion systems such as the use of carbon dioxide treatment, to eliminate infestations in equipment.

Attractant devices such as those for wasps work on the principle of using a substance to attract the pest into a device from which it cannot escape (see Figure 3).

Figure 3 Example of a wasp trap



11 Monitoring

A variety of monitoring devices are available which can be used to give an indication of pest activity, thereby allowing further investigation and the instigation of appropriate corrective action.

11.1 Pheromone Traps (Moth Pots)

Pheromones are chemicals produced by some species of insects; 'sex pheromones' are those which a female produces to attract a mate. Moths and cockroaches are well known for their pheromones, and these have been commercially produced for use in pest monitoring traps (see Figure 4). They are not a full control system; however, males lured into traps are prevented from mating. The contents of the traps should be analysed for trends and to give information on pest activity, locations, populations and the effectiveness of treatments.

Figure 4 Example of a pheromone trap

Considerations for positioning of pheromone traps are similar to those for the positioning of fly-killing devices (refer to section 10.2). They are likely to be used where storage of dry raw materials such as foodstuffs is required and may be positioned above such products.

The shelf life of traps is usually three months because they degrade and are affected, for example, by temperature and wind; they are often colour-coded to identify when they have been deployed, as date coding is usually inside the trap to ensure that they have been checked as well as recoded.

11.2 Insect Monitor Pads

Insect monitor pads contain either a food or pheromone attractant which is non-species-specific and trap insects via a glue-based board (see Figure 5). Their use will follow the pest assessment, but they are recommended in areas where there is a potential for crawling pest infestations and the need for constant monitoring to detect early infestations.

Figure 5 Example of an insect monitor pad

They provide information on the species of insect, potential source, population size, direction of movement, and location of established infestations.

Consider carefully where to position crawling insect monitors within a site; they are often incorrectly placed with rodent baits. The target insects are often associated with machinery so monitors should ideally be placed nearby and, where safe to do so, around cracks, gaps and crevices, as insects are attracted by areas of food storage or potential harbourage sites such as inside machinery and under cupboards.

The pads should be exchanged according to manufacturer's recommendations (generally monthly); however, dusty or warm locations may require a greater frequency of replacement.

12 Pest Control Inspections

The frequency and type of routine inspections or site visits by the service provider should be established following the initial pest risk assessment of the site, and recorded within documented protocols or with any contract agreed between the service provider and the company.

Needs such as the provision of keys for restricted-access areas, permits to work/access and protective clothing should be clearly understood and documented within the pest control file. Pest control staff should be aware of pertinent site rules such as access and hygiene regulations, and the need for visitors and contractors to sign in and to abide by the company rules – for example, completing medical questionnaires as appropriate.

12.1 Technician Inspections

The technician is responsible for day-to-day pest management and is the 'eyes and ears' of the site. They should inspect all areas of the site looking for evidence of activity and the potential for activity, which may be due to defects in structure, hygiene or other practices. They should make recommendations for improvements such as building maintenance or hygiene improvements, and these should be discussed with the site contact following every visit.

The technician should check the site document file and talk to the site contact prior to inspection as well as summing up the visit to the site contact before leaving. The technician, inspector or field biologist should periodically (at least annually) be accompanied by site personnel so that these personnel may have an understanding of aspects checked and what the inspections/treatments entail.

Technicians should not simply be 'bait-box checkers' since bait-box checking is not the most important aspect of pest control, but is one of the means of gaining information about pest activity on site. Limitations should be recognised; for example, it is known that rats are not 'happy' entering or feeding from external bait stations. Emphasis should therefore be placed on identifying sources of pest activity and eradicating those sources. The technician should advise on the condition of the site and the potential for attraction and harbourage for all pests, not just those specified within the contract.

The technician should ensure that documentation is updated including the treatment report with findings, actions taken and recommendations based on evidence during that inspection. Ideally, photos should be included within reports to aid identification of problems and locations. Should the technician find that any baits have been lost, repositioned or damaged, these issues must be reported to the site contact and an action plan considered. If baits are frequently moved or lost, then their position should be reassessed.

Records of visits should include:

- type of visit undertaken, for example, routine, follow-up, call-out
- record of visit number, date and the technician's name

- detailed findings including pest infestation and possible legislation requirements
- the names, quantities and locations of pesticides used
- the proposed dates for works to be carried out, such as the subsequent visit
- corrective actions undertaken by the technician
- corrective actions to be undertaken by the site contact
- proactive recommendations to prevent recurrence for both service provider and site contact
- signature of the technician and the responsible person on site.

12.2 Inspector or Field Biologist Inspections

The inspector or field biologist is a more highly qualified member of staff than the technician and should undertake a thorough review of the site, identifying the potential for continual improvement. The aim of the inspector or field biologist is to ensure current pest control systems are suitable and sufficient and make ongoing proactive pest management suggestions as necessary, according to any risks identified.

The inspector or field biologist should leave a full report of their visit, summarising the evidence seen as well as recommendations. This should include details of where issues have been noted as well as where there are no problems; i.e. evidence of conformity as well as non-conformity.

The pest risk assessment should be reviewed to ensure it is up-to-date and has not been affected by changes in climate, legislation or operational procedures. Paperwork and report file documents should be reviewed to ensure all are thorough and up-to-date.

12.3 Inspection Dates

The technician's and inspector's or field biologist's visits should not be carried out simultaneously and they should be equally spaced out in terms of time. Good practice would be for service providers to inform appropriate site personnel of the week-commencing dates for visits (for example, at the beginning of the year/contract) and to confirm specific dates at the previous visit. This allows effective planning, particularly for the site contact(s), so that time for discussion can be allocated during the subsequent meeting.

12.4 Internal Inspections

Relevant staff on site should be trained in pest awareness and should report pest sightings to the nominated responsible person within the company. Awareness and use of the company's sightings form should be encouraged (refer to section 16).

Routine hygiene audits by company staff should include pest prevention principles; for example, evidence of pests and pest-proofing issues. Any findings should be reported back to the service provider via the agreed communications route.

Raw materials should be inspected for evidence of pest activity; these inspections may include routine inspections and quarantine procedures. Specified equipment may also require scheduled inspections.

13 Actions to be Taken when Problems Occur

When an infestation is identified, consider the following:

- take immediate action to reduce the risks, both of the pest and product contamination
- call the service provider – accurate communication is key – and provide as much information as possible on the specific circumstances so that the service provider may evaluate the risk and agree with the site contact the need to visit within a specified timeframe. Ideally this would be the same day for urgent, high-risk issues or certainly within 24 hours; however, this depends on the type of pest, the location and therefore the risk and the agreed timeframe within the pest control contract. See the example provided in Appendix 1
- determine the frequency and number of follow-up visits required. This will depend on the pest type, location and associated risks. For example, mice in a plant room away from production areas do not pose a significant risk to the product. However, if they were within an internal cupboard, then this would require a more urgent response
- as a minimum, follow up rodent activity within five to seven days. The service provider should carry out follow-up action to find the source of the problem, as well as consider the options for traps where required; for example, the use of rodent sticky boards for immediate control, within a specifically agreed time programme. Note that alternative treatments such as sticky boards may not be approved by local legislation or by the policy of the site, and therefore should be agreed before use
- search for, collect and dispose of rodent carcasses appropriately, according to either the pesticide product label or local regulations
- ensure that action taken in the control of birds complies with legislation – it may not be possible to eradicate them through culling or proofing. Additional information or approval may need to be obtained prior to any control measures being introduced
- for an infestation of insects, ask the service provider to assess the risk to product. Monitor pads may provide information to ascertain the level and areas of infestation. Insects may be controlled by using contact spray, edible baits or insect growth inhibitors.

CASE STUDY

Controlling mice in food manufacturing

Mice have been seen feeding on material within the production area of a high-risk food manufacturing site.

Action

- 1 Production is stopped.
- 2 Potentially affected materials are quarantined and subject to careful inspection and evaluation, before being appropriately disposed of.
- 3 The source of the mice is investigated and it is seen that they are accessing the area via a small gap in the wall – this is temporarily blocked.
- 4 The potential for escape routes is investigated to establish how widespread the problem is.
- 5 Other areas of the site, raw materials and products are inspected to assess any further evidence of infestation.
- 6 There is a full, deep clean of the production area.
- 7 Production is not resumed until the pest control service provider has visited and established, together with the site management, that infestation of this area has ceased.
- 8 Further monitoring is established until the problem has been resolved.

14 Recommendations and Corrective Action

Agreement over who is responsible for actioning recommendations should be established at the outset of a pest control programme/contract. For example, if the on-site maintenance team is to complete such works, the service provider should give clear instructions regarding the work required. Larger proofing works such as fly-screens or bird-proofing may need to be undertaken by specialist pest contractors.

Communication between the appropriate personnel on site and the service provider is key to ensuring that appropriate recommendations for proofing and improvement are made and that corrective action as agreed by both parties is carried out within an appropriate timescale. All corrective actions carried out, including completion dates, should be documented. It is the responsibility of the company to ensure that these actions are carried out in an appropriate manner, recorded and kept up-to-date.

15 Trend Analysis

The performance of trend analysis will help to identify systematic and recurring problems, focus investigations helping to identify appropriate corrective action to eliminate the underlying cause. Trend analysis is mainly carried out for flying insects where these are captured in trapping devices such as fly-killing devices and pherome pots, however it may be useful to look at other pest control data that is captured.

Analysis of the catch-tray contents can allow identification of species type, population level and potential areas of activity and should be undertaken at appropriate timeframes tied to the seasons. Trending graphs can provide a picture of any activity that has occurred which may necessitate further investigation to establish the source of infestation and implementation of appropriate corrective action. Consider including threshold limits to trigger defined actions as this can be particularly effective when monitoring stored product insect activity. See Appendix 4 for an example of a trend analysis of a fly-killing device catch-tray.

16 Documentation

Reporting systems must be comprehensive and applicable. The following should be included within pest control documentation, which should remain on site and under the supervision of the company at all times:

- the contract detailing the specification for the level of pest control service
- contact details and emergency operational agreements between the site and the service provider
- forms for sightings of pests on site – these should include the opportunity to record as much information as possible such as the location, numbers, time and name and contact details of the person making the sighting
- a comprehensive site plan, signed and dated – this should relate directly to the bait checklist and the actual site and should be reviewed for currency at least annually
- pest risk assessment – including any follow-up matrix
- site-specific information, such as keys required and treatment times
- reports from visits
- appropriate trend analysis of pest activity

- risk assessment for use of potential pesticide materials (such as CoSHH)
- material safety data sheets (MSDSs) for actual pesticides used on site
- activity risk assessments relating to health and safety of pest control staff
- insurance certificates
- waste transfer certificates
- personnel training certificates
- a copy of the contractor's current membership certificate of a nationally recognised trade association
- procedures for operational tasks such as collection and disposal of pesticides.

17 Review

17.1 Service Provider Meetings

Annual review meetings between the management of both the company and the service provider should take place. Specifications should be reviewed and discussed to ensure enough resources are provided from both sides; for example, that the technician and inspector or field biologist has enough time for on-site inspections and preparation and that the company provides sufficient finance for corrective actions such as building maintenance. These meetings should also confirm that there is sufficient time and opportunity for staff to communicate with service providers to understand any issues.

Where service provision is provided internally, it should be reviewed regularly so that adequate resources are provided for training, and facilities are made available on site.

These meetings should also take the opportunity to review the history of the site, the requirements of the risk assessment and the products currently used on site. They should also plan for the future to agree on new objectives and the potential introduction of any new technologies and control systems.

17.2 Senior Management Review Meetings

Pest control issues such as infestations, and a summary of corrective actions undertaken and those outstanding should be included within discussions at any of the company's senior management review meetings.

18 Audit of the Pest Control System

The pest control system should be included in the company's internal audit process and should be audited to a planned schedule at least annually. It is the company's responsibility to continually manage the service provider; however, they should always work in partnership.

The company should regularly review the following:

- whether the current contract and specification is suitable for company needs; for example, that it fulfils requirements of BRC certification
- any changes in the site, processes or raw materials which may change pest control needs – make sure these have been highlighted to the service provider

- whether visits have been carried out to the stated schedule at even intervals
- whether documentation is up-to-date, complete and available for each visit
- whether contact numbers are available and up-to-date, particularly those for emergencies and out-of-hours
- whether appropriate action has been taken on issues raised by both contractor and personnel on site, and whether records of the action taken are up-to-date
- whether bait plans and/or site checklists are up-to-date
- whether only appropriate pesticides are being used on site and that data sheets are available for all pesticides in use
- a periodic check of the number of baits in the company of the technician to ensure that the specification is suitable and sufficient
- whether baits are in good condition, where necessary fixed in place and numbered as part of the recording system
- whether the adjoining property and its activities do not pose a pest risk
- whether inspections of machinery and raw materials have been carried out as appropriate
- whether fly-killing devices have been cleaned, contents analysed and tubes of the correct type fitted and changed to the required frequency.

19 Role of Trade Associations

Trade associations have the independent responsibility to ensure that the overall delivery of pest management services is professional. Through Articles of Association, members of a trade association will need to adhere to codes of practice and guidelines.

The association will have the ability to audit and work with service providers to ensure that all statutory requirements are met and routinely delivered, including:

- creating and applying safe working procedures at all times, safeguarding people, non-target species and the environment
- maintaining records and information and making them available as necessary
- confirming that service providers hold suitable public and product liability insurance and, where necessary, employer's or individual liability insurance
- in conjunction with the pest control company, giving field staff suitable and sufficient training so that they are competent to carry out their duties.

Trade associations may also offer arbitration/conciliation or mediation services in the event that operational delivery fails to meet agreed expectations. Companies have the option of contacting the trade association with issues of concern.

Appendix 1 Example of a Pest Risk Matrix

The following is an example of a pest risk matrix for an Italian clothing manufacturer based in an industrial area with little surrounding vegetation.

The specification covers rats, mice, moths and textile pests as the site is without a specified staff food area. Other pests not specified should still be considered to enable an agreed call-out response.

AREA	Specified				Non-specified			
	Rats	Mice	Moths	Textile pest	Flies	Wasps	Birds	Etc.
Raw materials storage area with sealed products	H	H	H	H	L	L	M	
Production area – fabric cutting	H	H	H	H	M	H	H	
Finishing area – product assembly	H	H	H	H	M	H	H	
Finished product storage area	H	H	H	H	L	L	M	
Plant room	H	H	L	L	L	L	M	
External boundary	L	N/A	N/A	N/A	N/A	L	L	
Offices	H	H	L	L	L	M	M	

In this example, the following response times have been agreed with the manufacturer:

(H) High – call-out prior to 2 pm = same-day visit; after 2 pm = first call on the following day.

(M) Medium – same-day visit where possible, or early the next day.

(L) Low – visit within 24 hours.

These details should be agreed by the service provider and the site contact at the start of any control programme.

The need for repeated visits following infestation should be based on an assessment of individual case requirements depending on pest type/behaviour, control programme and evidence seen at visit. Repeat visits should continue until infestation has been confirmed as eradicated.

Appendix 2 Example of a CoSHH Product Assessment

This assessment is suitable and sufficient to enable a valid decision to be made about the required measures necessary to control substances hazardous to health and associated risks. Manufacturer's safety data sheets (MSDS) and the product label have been taken into consideration for this document and should be available for site-specific assessments.

Pesticide trade name (form):

Active ingredient:	A product of wax blocks Active ingredient 0.005 % w/w	Ready-to-use, dark green wax blocks for the control of rats and mice – approx. 22 g each.
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Elimination of usage:	For the use of this product, all other non-chemical control measures must be assessed or rejected first. Is the application of this product required?
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Alternative/substitution:	Engineering controls should be used in preference to personal protective equipment (PPE) wherever practicable. Traps – live or snap. Housekeeping, hygiene, proofing improvements.
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Exposure potential:	Pre-control level of risk	Affected persons and nature of risk	Control measures to obtain acceptable levels
Mixing	Low	Operator contact	Premixed.
Application	Medium	Operator contact	PPE – as below. Due to physical properties contact with product should not occur.
	Low	Third-party exposure	Do not allow third-party access to baits.
	Low	Environmental	Spillage not likely to occur due to formulation.
Maintenance	Low	Operator contact	Store and use from original container.
Disposal	Low	Operator contact	Gloves and dust mask when sweeping spilt or broken block product. Return packaging, product and waste to store

Risk to technician:	Do not eat, drink or smoke when handling this product. Wash thoroughly with soap and water following application.
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Only to be applied by professional, competent, non-sensitised person.	No danger symbol required on packaging. Product is non-flammable, but is combustible. Not classified as hazardous.
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Exposure levels:	R26/27/28	Very toxic by inhalation, in contact with skin and if swallowed.
R-phrase/S-phrase	R48/25	Toxic: danger of serious damage to health by prolonged exposure if swallowed.

Toxicological information:	Oral LD ₅₀ > 36,000 mg/kg. Rat. Unlikely to cause eye or skin irritation.
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Personal protective equipment:	Nitrile gloves. Disposable overalls.
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Other instructions:	MSDS for product.
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Manufacturer:	Anti-Pesto Ltd, West Wallaby Street, Wigan, WG3 7FT Tel: 0151 600 1517 Emergency only: 0800 600 9000 (UK)
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Any site-specific alterations/improvements required for this assessment must be recorded on a treatment report, entitled 'Alteration to CoSHH Assessment'. Top copy to be provided to contact on site, before the treatment. Bottom copy to be attached to the actual treatment report.

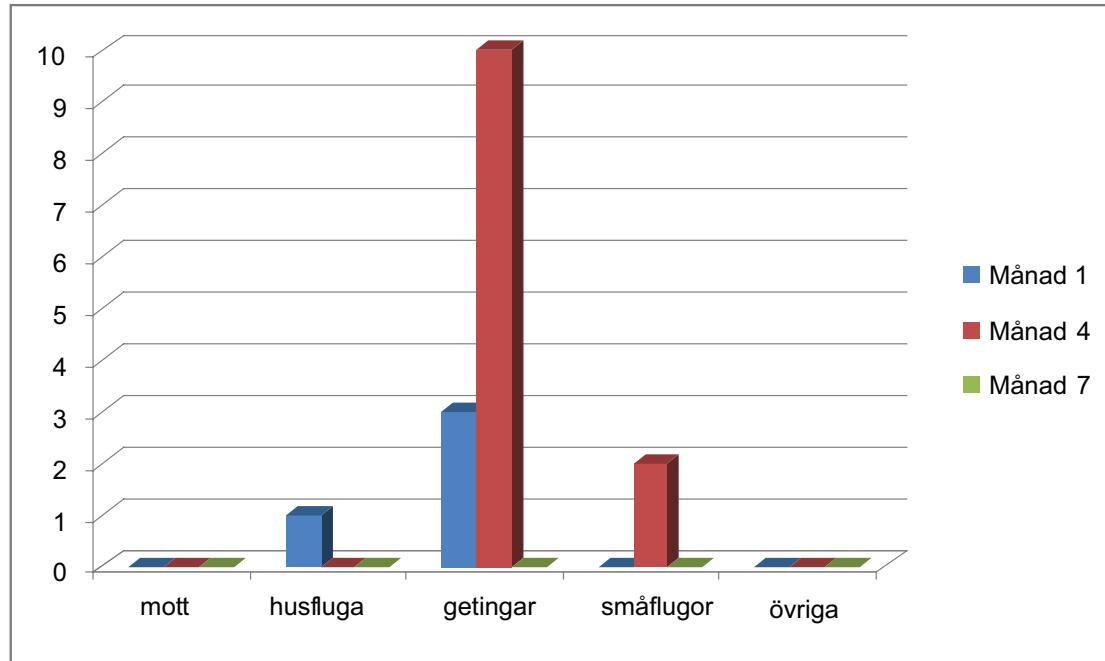
Any questions relating to a problem under CoSHH should be addressed to the technical safety officer at [service provider]. These assessments shall follow the advice of the National Pest Control Association and relevant CoSHH and Health and Safety at Work regulations.

Appendix 3 Principles for Completing a Visit Report

Treatment Report			Anti-Pesto Ltd West Wallaby Street, Wigan, WG3 7FT TEL: 0151 600 1517										
Customer name: A B Smith & Co		Account no: 2 4 E 1 6 4											
Customer address: 123 High Street		Site no: - - - 0 1 2											
New Town Arcade		Visit type: JOB ROU FU EO											
Postcode:	A	B	1	2	=	3	C	D					
Findings during survey: To include Report number 4 of 8													
Any activity identified – either covered within specification or not. Location, population size, likely source of activity													
State of existing monitoring system as found at start of inspection – e.g. moved or damaged baiting points													
Potential source of pest activity – food or water, change in the environment or surrounds													
Hygiene and housekeeping issues/defects identified on site or possible health and safety implications													
Pest activity identified on site	R	M	C	SPI	BB	GA	F	W	FL	TP	CI	Other	
Actions carried out:													
If application, location and quantities of pesticide. Type and reason for monitoring system													
Temporary measures to prevent activity, until recommendations actioned													
Advice provided to members of staff to assist with pest prevention or monitoring													
Recommendations to be completed:													
Possible proofing, habitat management, housekeeping, hygiene requirements. It is important here to determine who will be responsible for actioning these recommendations – the service provider or the site contact and within what timescale.													
All items listed should explain why they require action – for example: ‘Food – to prevent alternative food sources to rodenticides. Housekeeping – to remove available nesting material and so discourage activity’.													
Risk assessment: Have all hazards been assessed? Yes Ref: GF-GRA-006													
Is a further risk assessment required? No													
Trade name	Quantity	Active ingredient			Formulation		COSHH ref no						
Product A	350 g	Name			Loose grain		GCA – 003						
-	-	-			-		-						
Technician name:	PRINT NAME			Customer name:		PRINT NAME							
Technician signature:	Clear signature			Customer signature:		Clear signature							
Date of next visit:	0	4	0	7	0	8	Date of inspection:	0	3	0	6	0	8

Appendix 4 Example of a Fly-killing Device Catch-tray Analysis

The following is an analysis of fly-killing unit 4 located in the offices of an Italian textile manufacturer.



This illustrates that wasps were becoming an increasing problem. In month 4, investigation resulted in the location of a wasp nest within the wall cavity. This was removed and appropriately treated. The subsequent trend analysis confirmed that this treatment was successful and no further issues have been identified.

Appendix 5 Example of an Activity Risk Assessment

Risk Assessment Form

Anti-Pesto Ltd, West Wallaby Street, Wigan, WG3 7FT

1. Activity:	Ref:	2. Assessment undertaken by:	3. Date of assessment: 7/4/08
Working within warehouse area	GF-GRA-006	G Wallace	Date to be reviewed: 1/4/09

4. Briefly describe the task/process and location:	Technicians will be servicing and inspecting wall/floor junctions and rodent monitor stations within the warehouse area, where moving vehicles operate at all times of the day.
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Hazard – action or activity with the potential to cause harm)	Risk – the likelihood of such a hazard causing harm (who and how)
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5. List significant hazards here:	List groups who are at risk:	Frequency of task:	Pre-control risk rating:	Control measures (actions) to be followed to reduce the likelihood of harm:	Post-control risk rating
Moving forklift trucks and delivery lorries	Technician – crushing or impact	Every time on site	High	Treatment times to take place between 1 and 2 pm when this area will be at its quietest.	Low
				Technician to stay within designated walkways within warehouse.	
				Inform warehouse manager prior to commencing any inspection or treatment.	
				High-visibility jackets to be worn at all times when in the warehouse area.	
Overhanging loading bay	Technician – head and knee injury	Every time on site	Medium	External inspection. If you do not need to go under loading bay lip, then don't.	Low
				Space less than 1.2 m in height will require special consideration, prior to inspection. Stop and think first.	
				Technician to use bump cap and protective knee pads during inspection.	
Uneven levels	Technician – tripping	Every inspection	Medium	At all times consider the different levels within the storage area.	Low
				Do not carry objects that may obscure line of sight.	
				Ensure anti-slip mats do not form trip hazard.	
Manual handling	Technician – twisting and stretching	Inspecting monitor stations	Medium	Do not hold equipment bag when bending to collect stations.	Low
				Where possible, always bend with the knees, rather than the back.	
				Do not lift heavy objects (over 5 kg) to inspect stations, request site to use forklift/pallet truck to move objects for you.	

6. Related assessment/document reference:	a. On-site induction to be completed by all new service staff.
b. Personal Protective Equipment Register. Ref: PPE-002	c. Site specification for pests and location of monitoring.
7. Specific considerations to be made:	This activity can be particularly hazardous – please ensure that you have reported to warehouse office and confirmed attendance. Ensure all recommendations are actioned and follow up appropriately.

It is the responsibility of all persons involved with the task to ensure that this assessment is suitable and sufficient and properly followed.

Report any defects to the Warehouse Manager as **soon** as they arise.

Glossary

Active ingredient	The chemical included within a pesticide designed to control the target species.
Audit	A systematic examination to substantiate whether activities and related results comply with planned arrangements and whether these arrangements are implemented effectively and are suitable to achieve objectives.
Bait	Edible formulation of a pesticide – for use against rodents and some crawling insects.
BRCA Standards	BRCA Global Standard for Consumer Products BRCA Global Standard for Food Safety BRCA Global Standard for Packaging and Packaging Materials BRCA Global Standard for Storage and Distribution
Company	The person, firm, organisation or other entity with whom a confirmed purchase order is placed, or who owns premises where products are being manufactured.
Continuing professional development (CPD)	A process of continual learning by field service providers (staff) to demonstrate that their knowledge and skills are current and effective to deliver pest management services.
Contract	A written, legally binding agreement for the exchange of promises between the site and the service provider. To confirm the specification to be delivered and the revenue to be made available.
Contractor	Pest control company responsible for reducing risk of pests and providing proactive pest prevention and management services.
Corrective action	Action to eliminate the cause of a detected non-conformity deviation.
CoSHH assessment	Control of Substances Hazardous to Health assessment – a legal requirement to undertake an assessment of the risks when handling and using substances such as pesticides.
Customer	A business or person to whom a product has been provided, either as a finished product or as a component part of the finished product.
Field biologist	Appropriately trained and experienced senior service technician/business principal who inspects the site and reviews progress of the specification and service delivery of the technician.
Housekeeping	Practices associated with ensuring effective cleaning and removal of habitat and nesting material.
Hygiene	Practices associated with ensuring the removal of available food sources that may attract pest activity.
Infestation	The presence of a large number of pests.
Inspector	Appropriately trained and experienced senior service technician, although of lower grade than a field biologist who inspects the site and reviews progress of specification and service delivery of the technician.
Integrated control	Consideration and elimination of all possible solutions/programmes for the control of pests. Selection of the most effective programme for the site, environment and target pest to be controlled.
MSDS	Material safety data sheet – contains details on the hazards associated with a chemical, and gives information on its safe use.
Pesticide formulation	The physical appearance of a pesticide – for example, gel, grain, powder, liquid.
Pheromone	Attractant (usually female sex chemical) used to attract pests (usually males) to a monitor trap or pesticide bait.
Proofing	The physical prevention of pests to exclude them either externally or from high-risk internal locations. Proofing can include gaps under doors, around pipes, gaps in brickwork/airbricks.
Service provider	Persons responsible for the supply of pest control prevention and management services, whether provided by an external contractor or internal company staff.
Technician	Service provider member of staff who routinely attends site to provide the necessary actions to control and prevent pest activity where possible.
Trend	Ongoing monitoring of pest activity. Usually associated with fly-killing devices and insect traps.
Ultraviolet light	The light emitted from flying-insect machines to attract flying insects.



Sources of Further Information

BRC Global Standards

A series of globally recognised certification standards for manufacturers and storage and distribution companies.

www.brcglobalstandards.com

BRC Guidelines

A series of best practice guidelines; these include complaint handling, internal auditing, foreign body detection, product recall and traceability.

www.brcbookshop.com

British Pest Control Association

Information and resources available to members and non-members.

www.bPCA.org.uk

Confederation of European Pest Control Associations

Lists contacts and websites of European countries' national trade associations.

www.cepa-europe.org

Federation of Asian and Oceania Pest Managers' Associations

Lists contacts and websites of Asian and Oceania countries' national trade associations.

www.faopma.com

US Pest Control Association

Lists contacts and websites of US trade associations.

www.pestworld.org