



Rat and Mouse Control Procedures Manual

A practical guide for Pest Control Technicians
working in urban environments

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Contents

Introduction	3
1.0 METHODS APPLICABLE TO RAT AND MOUSE ACTIVITY IN AND AROUND PROPERTY	4
1.1 CHOOSING CONTROL MEASURES	4
1.2 METHOD OF TREATMENT.....	6
1.3 WHY RODENTICIDES TREATMENTS FAIL.....	13
2.0 ADVICE ON SPECIFIC TREATMENT SCENARIOS	14
2.1 BLOCK TREATMENTS	14
2.2 LIVE RAT IN PROPERTY	14
2.3 RATS IN OPEN AREAS	15
2.4 PERMANENT AND LONG-TERM BAITING.....	17
APPENDIX 1: Disposal of Rodenticides and Rodent Bodies	18
APPENDIX 2: Storage of Rodenticides	19
APPENDIX 3: Local Authority Rodent Control in Sewers and Drains	19
APPENDIX 4: Further Reading	19

Introduction

An infestation of mice or rats can cause significant public health concerns whether related to domestic or commercial property. Infestations of both can develop quickly and cause significant damage and distress which, when coupled with their known disease carrying capabilities, makes rats and mice a high priority for treatment.

Accordingly, the control of rats and mice presents a daily challenge to the pest control industry, as Public and Private sector Technicians alike must provide an effective service whilst being able to meet stringent safety controls and ever-increasing customer expectations. The need for safe, effective and efficient treatments is paramount and this manual aims to provide professional Pest Control Technicians with guidance as to how such treatments should be completed.

Whilst it is more usual for mouse infestations to occur indoors rather than in and around buildings or in open areas, the resultant risks to non-target species are reduced when compared to rat activity, but must still be considered when carrying out a rodenticide treatment. Technicians must therefore approach rodent control holistically and integrate a range of control measures into a rodent treatment strategy. Whilst this manual is intentionally proscriptive, it focuses primarily on the controlled use of rodenticide applications. However, all available controls must be considered – not just the use of rodenticides. A range of methods to improve environmental management at the site, including hygiene and proofing, maintenance and repair of buildings should always be used to complement any decision to use rodenticide and will be more successful in the long term. Further reading on the application of related non-toxic techniques are provided in Appendix 4. This manual recognises that there is a common approach to the assessment of rat and mouse activity. This manual is therefore divided into two sections; Section 1 provides guidance common to both rat and mouse activity, whereas Section 2 supplements this information by providing specific additional advice on different treatment scenarios. Nevertheless, this manual does not intend to dictate the methods by which Technicians organise their work if the same level of service and safety is achieved.

The Campaign for Responsible Rodenticide Use (CRRU) UK Code of Best Practice for Rodent Control and the Safe Use of Rodenticides (the CRRU Code) is recognised fully in this manual. To aid consistency of approach, sections of the CRRU Code are reproduced in this manual in accordance with the CRRU UK copyright. However, the CRRU Code should be read in conjunction with this manual.

UK Rodenticide Stewardship Regime

Anticoagulant rodenticides fail conventional regulatory risk assessments. Residues are found in a wide variety of wildlife species and they are occasionally responsible for deaths of non-target animals. The Health and Safety Executive (HSE), as the UK Competent Authority for biocides, requires reassurance that products containing these substances can be used without unacceptable risk to wildlife and other non-target species.

The Stewardship Regime was launched by CRRU in July 2015 and encompasses all rodenticide products sold to and used by professionals when applied outside buildings. It does not involve rodenticides restricted to use indoors, nor fumigant gases which are the responsibility of the Register of Accredited Metallic Phosphide Standards (RAMPS) (<http://www.ramps-uk.org>). It also does not involve rodenticide products sold to and used by amateurs.

Training and Competence

The requirements for training and certification are dictated under the UK Rodenticide Stewardship Regime. Whilst the Stewardship provisions do not relate to rodent control indoors or to fumigant gases, these standards should be applied to all professional Pest Control Technicians who use rodenticide bait products.

CRRU have established a framework for the review and approval of training courses and their certification, and have also defined the minimum standards for the achievement of certified proof of competence.

Furthermore, those involved in rodent control are encouraged to maintain their knowledge gained from achieving approved certification, by joining an established Continuing Professional Development (CPD) scheme. CRRU maintains a list of established CPD schemes available to those in the professional pest management, farming and game keeping sectors.

More information can be found at <https://www.thinkwildlife.org/training-certification/>



1.0 Methods applicable to rat and mouse activity in and around property

1.1 Choosing control methods

Risk Hierarchy

1.1.1 In accordance with the CRRU Code, Technicians must consider the concept of Risk Hierarchy when conducting rat and mouse control treatments. All trapping and chemical interventions have the potential to harm humans, non-target animals and the environment. Although these risks can be mitigated, they cannot be entirely avoided. Therefore, Technicians must adopt the principle of employing the methods that have the least risk of adverse impact, but which will be effective in the circumstances. Each site is different and will require a different set of measures, either to prevent rodent infestation or to remove an infestation when it has become established. However, the rodent carrying capacity of the site should always be reduced through improvements in environmental management.

1.1.2 Technicians are required to work through the Risk Hierarchy to demonstrate that the use of any treatment method is appropriate to the site and the risks presented – including the reasons why any treatment method was not used. Consideration of these risks will determine which methods are most appropriate for dealing with the rodent

infestation. After considering control measures, such as proofing, improvements in hygiene environmental management and non-chemical approaches to control, the Technician may conclude that a rodenticide treatment is required. Accordingly, Technicians must apply all available and appropriate risk mitigation measures appropriate for the site every time anticoagulant rodenticide is used.

1.1.3 Technicians are required to make a record of their findings at the site and their reasons why any rodent control measures have been used. When considering risks to non-target animals and the environment, CRRU have published guidance and a template Environmental Risk Assessment (ERA) for use in almost all anticoagulant applications, which also requires a site survey and written justification for the use of a rodenticide. The purpose of an ERA is to determine which possible adverse environmental effects may occur at any specific site and to identify which measures are necessary to protect wildlife and the wider environment as far as possible. However, treatments carried out indoors can also carry risks to non-target species, particularly pets, and so these factors should be considered in all rodenticide treatments, albeit that there is a sliding scale of potential environmental risk (i.e. indoors vs. in and around buildings vs. open areas).

1.1.4 Any risks to human health are addressed under the Control of Substances Hazardous to Health Regulations 2002 (COSHH) which require that a suitable and sufficient assessment is made of the use of each rodenticide [and where necessary each formulation] to prevent any risks to the Technician and others that may come into contact with these products.

1.1.5 This manual does not seek to duplicate the requirements for a COSHH assessment and/or ERA, so long as these are conducted for each and every anticoagulant treatment and the findings are suitably recorded. For ease of reference, these assessments will be referred to as On-Site Assessments (OSA) throughout this manual.

Choice of rodenticide and formulation

1.1.6 Noting the Risk Hierarchy, the use of first-generation anticoagulant rodenticides (FGAR) is to be preferred over the use of the second-generation anticoagulant rodenticides (SGAR) against Norway rats, where no anticoagulant resistance is suspected or proven. The reverse is true against mice because of the prevalence of resistance to FGARs throughout the country.

1.1.7 **SGARs are acutely toxic and have long biological half-lives. Therefore, in the Risk Hierarchy they present the greatest risk to non-target animals and the environment. The Technician should only use SGARs when other methods of achieving rodent control have been carefully considered and found to be unlikely or unable to provide an effective solution. No one SGAR compound presents less risk than another.**

1.1.8 Technicians should use only one rodenticide active substance at a time; however formulations containing the chosen active substance can be varied depending upon the characteristics of the site. The choice of active substance and formulation will be determined by the:

- Pest species;
- Characteristics of the site;
- Previous treatment history (if available);
- Conditions set out on product labels;
- Outcomes of COSHH assessments;
- Outcomes of the OSA;
- Palatability of the formulation (including resistance);
- Likely risks of the rodenticide being removed, hoarded or spilled during rodenticide treatment operations;
- The status of anticoagulant resistance in the rat or mouse infestation to be treated.

1.1.9 Technicians must therefore check the authorisation conditions granted for each product used as stated on the product label.



Approved use

1.1.10 It is essential that Technicians only use rodenticides in those areas where their use is permitted by the product authorisation and shown on the product label. The CRRU code references three definitions for such use:

- **“Indoors”**¹ This is defined as situations where the rodenticide is placed within a building or other enclosed structure and where the target is living or feeding predominantly within that building or structure; and behind closed doors. If rodents living outside a building can move freely to where the rodenticide is laid within the building, then products restricted to use indoors should NOT be used. Open barns or buildings and tamper-resistant rodenticide stations placed in open areas are not classified as indoors. However, sewers or closed drains are considered to be ‘indoors situations’;
- **“In and around buildings”**² This is a new term on UK rodenticide labels and defined as being understood as the building itself, and the area around the building that needs to be treated in order to deal with the infestation of the building. This would cover uses in sewer system or ships but not in waste dumps or open areas such as farmlands, parks or golf courses;
- **“Open areas”** This is a new term without a concise definition. As above, European Commission documents describe uses “around farmland, parks and golf courses” as typical of open area applications. The term is also used “when rodenticides are used to reduce impacts on game rearing or outside (i.e. in field) food stores (potato/sugar beet clamps)”. An open area is therefore one that fits neither of the two preceding definitions and is an urban, suburban or rural space that is not directly associated with a building.

1.1.11 The OSA should capture the above information and also provide a record of the Technician’s decisions, in addition to the information provided throughout this manual where a written record is required.

¹Source: HSE (2012). Environmental risk mitigation measures for second generation anticoagulant rodenticides proposed by the UK. Health and Safety Executive. Available at URL: <http://www.hse.gov.uk/biocides/downloads/ermm-sgar.pdf>. 30 pp.

²Source: EC (2009). Risk mitigation measures for anticoagulants used as rodenticides. European Commission, Directorate-General Environment, B-1049 Brussels, Belgium. Document CA-May09-Doc.6.3c. 8pp.

1.2 Method of treatment

1.2.1 This section outlines the procedure to be followed for a rat or mouse infestation. Figure 1 below summarises the procedure.

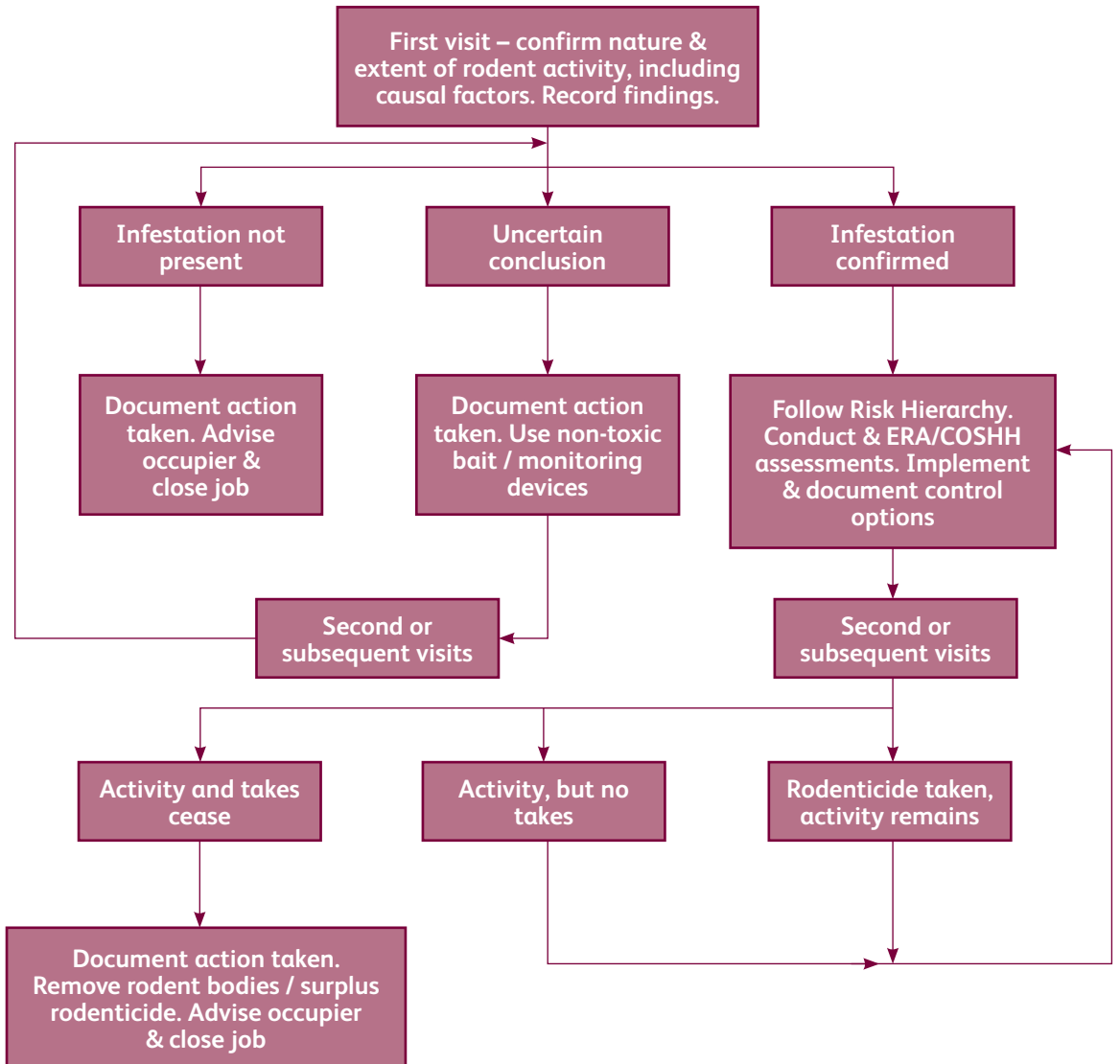


Figure 1: Overview of treatment procedure for rats and mice



First visit

- 1.2.2** Confirm the existence, location and severity of any infestation/activity by completing the OSA, looking for signs of current activity – fresh droppings, footprints, gnawing, smear marks, odour, damage to food cartons etc. where relevant, identify any adjacent premises or areas of land which may be a source or contributory factor to the infestation. Sufficient details must be taken to ensure accurate records can be made, noting the areas where evidence of an infestation/activity has been found and possible entry points.
- 1.2.3** Based on the evidence from the survey confirm the distribution of any infestation/activity and record the details. Details of contributory factors should also be recorded, including damage to structure, poor housekeeping or poor standards of hygiene. Advise the owner/occupier of health risks due to rats/mice being present (food contamination etc.).

Infestation not present

- 1.2.4** Explain to the owner/occupier that there is no evidence of an infestation/activity and reassure the owner/occupier that a revisit can be arranged if any complaint reoccurs.

- 1.2.5** As a minimum, the following details must be recorded:

- Details of the premises (including any specific job reference);
- Name of Technician who attended;
- The date of visit;
- The areas surveyed;
- The result of the survey confirming that an infestation/activity was not identified;
- Any other information that may be of relevance (standard of hygiene, proofing, activity in adjacent properties etc.).

- 1.2.6** Close down the job recording such comments as required.

Uncertain conclusion

- 1.2.7** Where there is no evidence of any current infestation/activity and the owner/occupier will not accept the situation, or alternatively it appears that there may be rats/mice intruding (entering from an adjoining property) then lay strategically placed non-toxic baits or other monitoring devices. Owners/occupiers must be shown the locations of the non-toxic baits and informed that children and pets are not allowed access to these baits. Note: it is advisable that the owner/occupier be advised of the difference between an infestation (breeding population) and a casual intruder (one-off occurrence).

- 1.2.8** In the case of a block treatment, ensure all dwellings and communal areas have also been surveyed including those that adjoin the original source of the complaint to identify any signs of activity.



1.2.9 Provide information and advice to the owner/occupier on improving standards of hygiene, housekeeping and proofing requirements.

1.2.10 As a minimum, the following details must be recorded:

- Details of the premises (including any specific job reference);
- Name of Technician who attended;
- The date of visit;
- The areas surveyed;
- The evidence of potential infestation/activity, including any contributory factors;
- The location, amount and type of non-toxic bait used (including suitable diagram);
- Any other information that may be of relevance (standard of hygiene, proofing, activity in adjacent properties etc.).

1.2.11 Inform the owner/occupier that a revisit will be made within 1 to 2 weeks.

Infestation confirmed

1.2.12 Evaluate hygiene/housekeeping and proofing standards and identify alternative food sources and waste retention areas.

1.2.13 Identify any likely entry points including:

- Gaps under external doors;
- Gaps around water, drainage, gas or electricity services;
- Damaged air vents;
- Any other points that allow access from the exterior to the interior of the building.

1.2.14 Bring any hygiene, proofing, maintenance or repair matters to the attention of the owner/occupier and ask for remedial works to be carried out. Explain to the owner/occupier that works to improve hygiene must be carried out without delay, but proofing, maintenance or repair matters are required to be carried out once control of the rodent population has been achieved. Tact and diplomacy are required to explain that rodents will not take toxic baits if other food sources are readily available. If necessary, show the owner/occupier examples of poor practice.

1.2.15 Note that in rented properties any disrepair to the exterior or structure that compromises the hygiene of the building is the responsibility of the landlord/owner. For Local Authority services, consideration of the need for enforcement action is required if conditions do not improve sufficiently to permit an effective treatment.

1.2.16 If the Local Authority or other client organisation manages the property, written details of any recommendations for proofing or repair must be provided to the appropriate office for action. All advice on proofing is to be provided by the Technician or supervisor.

1.2.17 Where necessary, adherence to appropriate health and safety procedures must be ensured to avoid potentially aggressive confrontations.

1.2.18 As a minimum, the following information must be recorded:

- Details of the premises (including any specific job reference);
- Name of Technician who attended;
- The date of visit;
- The areas surveyed;
- The evidence of infestation/activity, including any contributory factors;
- Any other information that may be of relevance (standard of hygiene, proofing, activity in adjacent properties etc.).

Control options

1.2.19 If an existing treatment is, or has been carried out, on the premises by another pest control company, the Technician should not commence any control methods until the owner/occupier gives firm assurance that the other contract has been terminated and any baits previously laid are removed or authority is given for their removal.

1.2.20 In accordance with the OSA, non-toxic control methods must be considered before the use of rodenticide. Rodenticide must only be used where the OSA determines this is appropriate; it should take into account the presence of young children, non-target animals (including pets) and vulnerable persons as a minimum, using lockable bait stations if appropriate.

- 1.2.21** Rodenticide formulations must be applied in accordance with the product label requirements, the OSA and Technician experience. Rodenticide preparations, which are known to work in the area, should be used as a matter of routine. The experience of the Technician is fundamental in determining which rodenticide formulation should be used. Only one rodenticide active substance should be used in any premises at any time; however formulations containing the chosen active substance can be varied depending upon the characteristics of the site.
- 1.2.22** Rodenticide should be located where evidence of activity has been observed. For mice, the Technician should seek to place many small rodenticide locations rather than few large ones. Rodenticide locations may be placed in close proximity to each other to good effect.
- 1.2.23** To exploit the neophobic nature of the rat, it may be better to protect and secure bait points using existing materials, rather than introduce bait stations. The survey should identify any locations where bait could be placed safely. If bait is placed in a rat burrow, loose bait is less likely to be re-exposed than wax blocks. Entrances to baited burrows should be covered or lightly blocked. It is important to note that covering baits and the use of tamper resistant bait stations only protect the rodenticide from non-target animals of larger size than the target species. Baiting should be avoided in areas of the premises where the OSA indicates that feeding on bait by non-target small mammals (i.e. field mice and voles) is likely.
- 1.2.24** Rodenticide applied inside should not be placed directly on the floor; trays or other measures should be used to keep the rodenticide where it was laid and to facilitate removal at the end of the treatment. If a suitable cover for the rodenticide cannot be found, the Technician must use a tamper resistant bait station unless the Technician can control or restrict access to the rodenticide (i.e. baiting indoors).
- 1.2.25** Rodenticides may cause rodents to die in inaccessible locations, from where it would be difficult to retrieve the body. This could cause problems with odours or secondary poisoning risks to non-target wildlife. In such locations it may be appropriate to use traps or other control methods.
- 1.2.26** Explain the nature of the treatment and any specific safety requirements to the owner/occupier. Owners/occupiers must be shown the locations of the baits (or provided with information detailing these locations) and informed that children and pets are not allowed access to these baits. Provide an appropriately annotated advice sheet to the owner/occupier highlighting the premises address, the date, what product has been used and what action to take in cases of an emergency – including contact telephone number. For rat treatments, the likelihood of neophobia should be explained to the owner/occupier to account for the time taken for the treatment to be effective.
- 1.2.27** As a minimum, the following information must be recorded:
- Details of the premises (including any specific job reference);
 - Name of Technician who attended;
 - The date of visit;
 - The areas surveyed;
 - The evidence of infestation/activity, including any contributory factors;
 - Relevant site information including the presence of young children, non-target animals (including pets) and vulnerable persons;
 - The location, amount and type of rodenticide used (including suitable diagram).
 - Any other information that may be of relevance (standard of hygiene, proofing, activity in adjacent properties etc.).
- 1.2.28** Estimate timing of the next visit and inform owner/occupier accordingly. This will be dictated by the product label and the characteristics of the infestation. Generally, revisits are conducted no later than 7 days from the previous visit. More frequent revisits may be required at larger sites and/or infestations and/or where specific risk of bait disturbance and expose to human and non-target animals is identified.
- 1.2.29** Where possible, survey 'at risk' premises horizontally and vertically adjacent, including any common parts. If this is not possible due to time or other constraints record details of property numbers, street or block to identify them for future survey and treatment as necessary.
- 1.2.30** Advise the owner/occupier as to the risk of smells being generated from dead carcasses and the possibility of these smells persisting for a period of time (7 to 10 days, or longer).



Second or subsequent visits

1.2.31 Where the application of rodenticide is needed and the treatment phase is underway, the Technician is required to revisit to track progress. During these visits the Technician must:

- Carry out a survey of the whole premises for evidence of, and/or changes in, rat/mouse activity (i.e. droppings, footprints, marks, burrows, gnawing/chewing, damage to food stuffs etc.);
- Search for, and remove, any rodent carcasses;
- Check that all rodenticide baiting points remain secure;
- Re-evaluate hygiene, proofing, maintenance or repair standards;
- Check for evidence of non-target species gaining access to rodenticide baits;
- Deal with rodenticide spillages or other problems as they occur;
- Observe the progress of the treatment.

1.2.32 Re-evaluate the controls on site in accordance with the OSA. If substantial changes have occurred that could affect the safety or success of the treatment, a new OSA should be completed. Similarly, if a different Technician attends the premises from the previous treatment, a record must be kept as to whether the Technician agrees with the OSA. Where the Technician disagrees with the OSA, a new OSA must be completed.

1.2.33 All rodent carcasses and redundant/waste rodenticide should only be disposed of as detailed in Appendix 1.

If rodenticide has been taken

1.2.34 Replenish rodenticide baiting points as appropriate and in accordance with the OSA and the product label. The Technician may consider alternative rodenticide formulations and/or techniques.

1.2.35 Old rodenticide bait boxes should be reused where possible in order to increase the opportunity of use through the smell of other rodents. Note: this may not be possible on farms where biosecurity might be compromised unless bait stations can be thoroughly cleaned and correctly disinfected before redeployment at a different premises.

1.2.36 Bait stations can be marked with the date of re-examination and record kept of the level of takes observed at the time. Bait stations can be replaced where additional legible notes cannot be made on the station. For loose grain baits, the pile can be evened out neatly so that any new activity since the last check is obvious. This would be more difficult with other bait types such as block formulations without refreshing baits every time which increases waste. A tracking patch (e.g. fine sand or similar) can be placed in front of each bait station to confirm if rats/mice have visited the box since last check; this is quite useful to demonstrate if the box has been visited but the bait has not been eaten, which can suggest the need to change to a different bait.

1.2.37 As a minimum, the following information must be recorded:

- Details of the premises (including any specific job reference);
- Name of Technician who attended;
- The date of visit;
- Any changes in the premises that could affect the safety or success of the treatment (completing new OSA if necessary);
- The evidence that the infestation/activity still exists;
- The number of takes observed and the amount of new rodenticide used;
- The location, amount and type of rodenticide used for any new bait stations (including amendments to the baiting diagram);
- The nature of any proofing works carried out or still outstanding;
- Any other information that may be of relevance (standard of hygiene, proofing, activity in adjacent properties etc.).

1.2.38 Explain the nature of the treatment to the owner/occupier and bring any outstanding hygiene, proofing, maintenance or repair issues to their attention. Estimate timing of the next visit and inform owner/occupier accordingly. This will be dictated by the product label and the characteristics of the infestation. Generally, revisits are conducted no later than 7 days from the previous visit. Where rodenticide consumption is high, it may be necessary to increase the frequency of visits to ensure that this is achieved.

Rodenticide not taken but signs of infestation present

1.2.39 On first and second revisits, inspect and refresh baits (where necessary) and note any findings to identify prove the presence of rats/mice.

1.2.40 After the second revisit using a single rodenticide type and where no rodenticide takes have been observed, the Technician should re-evaluate and update the OSA and the treatment strategy. This would include re-evaluating the entire site (including any horizontally and vertically adjacent premises if relevant) and examining the efficacy rodenticide bait placement points (this is because relatively small distances can alter the level of bait takes from a baiting point). The Technician should also re-assess any hygiene, proofing, maintenance or repair issues that may hinder the treatment and whether the Local Authority should [be asked to] use its powers to secure improvements to the hygiene of the building. Consideration should also be given to consumption of bait by non-target animals or immigration of rodents from another location.

1.2.41 Continue substituting alternative formulations using the same method above until an acceptable alternative is found and baits are taken. Only one rodenticide active substance should be used in any premises at any time; however formulations containing the chosen active substance can be varied depending upon the ongoing characteristics of the site. Any change of formulation and/or rodenticide must be recorded on each occasion and a new advice sheet issued to the owner/occupier.

1.2.42 Particularly relevant to rats, where activity continues for prolonged periods, consider the potential for hidden methods of entry e.g. potential defects in the drainage system.

1.2.43 As a minimum, the following information must be recorded:

- Details of the premises (including any specific job reference);
- Name of Technician who attended;
- The date of visit;
- Any changes in the premises that could affect the safety or success of the treatment (completing new OSA if necessary);
- The evidence that the infestation/activity still exists;
- The number of takes observed and the amount of new rodenticide used;
- The location, amount and type of rodenticide used for any new bait stations (including amendments to the baiting diagram);
- The nature of any proofing works carried out or still outstanding;
- Any other information that may be of relevance.

1.2.44 Where all bait preparations have been tried and no takes are recorded, the matter must be referred to an appropriate senior Technician/supervisor. A lack of suitable rodenticide takes may also be attributable to the owner/occupier of the premises (for example, making too much alternative food sources available). Having provided the owner/occupier sufficient advice and opportunity to remedy any defects under their control, and if the defects contributing to rodent control failure have not been rectified, Local Authorities have the power to serve a legal notice on the owner/responsible person to ensure that the appropriate repairs are completed as soon as possible. The tenure of the property has implications for these responsibilities, particularly as proofing works may not be the responsibility of the individual occupier. For Local Authorities, consideration should be given to Part 1 of the Housing Act 2004 or Part III of the Environmental Protection Act 1990. This may therefore require liaison with the appropriate officer within the Local Authority who has responsibility for housing conditions.

Completion

1.2.45 When all rodenticide takes cease completely and no further signs of infestation/activity are noted, remove all accessible bait and bait materials from the premises. All waste products must be returned to the depot for authorised disposal. All rodent bodies and redundant/waste rodenticide should only be disposed of as detailed in Appendix 1.

1.2.46 Explain the situation to the owner/occupier and restate any outstanding preventative hygiene, proofing, maintenance or repair works that require attention.

1.2.47 Close down the job and maintain suitable permanent record of the OSA and the treatment – including notes, copy letters and other relevant documents.





1.3 Why rodenticide treatments fail

1.3.1 When rodenticide treatments fail it is usually for one of two reasons:

- Inadequate bait uptake - usually caused by one or more of the following:
 - Not enough bait points;
 - Bait points not in the right place;
 - Bait points not being checked/ replenished frequently enough;
 - Bait palatability - rodent populations may not prefer the taste of certain baits and so a different formulation should be considered if takes are low;
 - Incorrect baiting technique – it is important that any bait is easily accessible. A survey of rodent activity will reveal where the rodents are living and the areas they are using. If they are using wall cavities and roof spaces, the use of baits in those areas will likely improve uptake relative to use of bait boxes alone, as will burrow baiting for rat activity outdoors;
 - ‘Behavioural resistance’ which is demonstrated by rodents not entering bait stations or traps. This can be a particular problem where there is a lot of alternative food available.
- Physiological resistance is caused by genetic mutations in the rodent populations and means that some rodenticides are no longer effective.

1.3.2 If the Technician is satisfied that inadequate bait take is not the cause of a rodenticide treatment failure, they should review their control strategy in accordance with the CRRU code of best practice and could also consider getting a sample of rodents tested for physiological resistance.

2.0 Advice on specific treatment scenarios



2.1 Block treatments

2.1.1 If the request for service centres on a single dwelling within a larger block of dwellings (for example, flats or terraced housing) or relates to the block in its entirety, the treatment process is similar to that detailed in Section 1, but the Technician must consider the property as a whole, and not individual dwellings, when making any assessment. Depending upon the size and nature of the property and the extent of any infestation/activity, consideration should be given to obtaining senior Technician involvement as a number of agencies may need to be involved in the treatment to secure control from the outset. Such agencies may include environmental health officers, housing officers or representatives of any other client organisation who manages the property and representatives of the occupants of the property.

2.1.2 Sufficient details must be taken to ensure accurate records can be made, noting the areas where evidence of an infestation/activity has been confirmed. Care should be taken to examine all areas of the property including communal halls, lofts, bins stores, garages etc. In addition, the outside of the property (as a whole) should be examined to obtain any evidence of activity outlined above.

2.1.3 Based on the evidence from the survey, the Technician should confirm the distribution of any infestation/activity and record the details. Details of contributory factors should also be recorded, including damage to structure, poor housekeeping or poor standards of hygiene.

2.2 Live rat in property

2.2.1 A live rat trapped within a property will cause significant concern to the owner/occupier(s). Advise owner/occupier of options, which are:

- Catch and kill;
- Use of traps.

2.2.2 The Technician must determine the best method of control based on training and experience and the OSA. Given the heightened nature of this scenario and the need for immediate action, it is unlikely that the Technician will have completed any OSA prior to taking action, but this must be completed once the rodent has been captured and dispatched.

Catch and kill

2.2.3 If the rodent is running freely around the property and causing distress, the Technician may attempt to physically catch and kill the animal. This method is potentially dangerous from a health and safety perspective and great care must be taken not to run into or fall over furniture or static objects in the 'heat of the chase'.

2.2.4 If a live rat is caught it must be humanely dispatched without unnecessary delay. It may be possible to do this on site but it may be preferable to remove the captured rat from the premises and dispatch it elsewhere if possible. A blow to the head using a pest or similar object can result in concussion but death should be confirmed. Delivering an accurate strike may be very difficult unless the rat is physically restrained. Damage to owner/occupier's furniture and effects may result from even the most carefully aimed blows, so the Technician must be confident that this method can be used successfully, safely and humanely.

2.2.5 The use of an air pistol for the despatching of live rats can be used where it is considered safe to do so. Technicians must be trained in their use and a thorough risk assessment must be completed. No other person must be present in the same room when the air pistol is used. The air pistol is only to be used when the technician is satisfied that the rat has been cornered and a close up shot can be taken. Safety glasses must be worn during this operation.

2.2.6 Any blood spillage on surfaces must be cleaned immediately using wipes and disinfectants and disposed of safely. All dead rats should be disposed of as detailed in Appendix 1.

2.2.7 If the Technician is satisfied that the captured rat was the only rat in the property, close down the complaint. Provide information and advice to the owner/occupier on improving standards of hygiene, proofing, maintenance or repair. If the Technician believes the captured rat has not controlled the infestation, additional control methods will be required.

Use of traps (lethal and non-lethal)

2.2.8 The advantages of the use of traps are that they do not employ any chemical means of control and any captured rodents can be easily removed from site. However, care must be taken to ensure non-target animals can access the trap. This risk will be determined by the OSA so that, where possible, non-target animals are excluded from the trapping area. The use of purpose made boxes designed to accept traps should be considered.

2.2.9 The Chartered Institute of Environmental Health National Pest Advisory Panel has published a Code of Practice for the use of vertebrate traps. Any such trapping should be undertaken in accordance with this Code of Practice. A free copy can be obtained from <https://www.urbanpestsbook.com/downloads>

2.2.10 Explain the nature of the treatment to the householder and stress the hazards of contact with the trap. Arrange to call the next day to inspect the trap. If no catch has occurred then reset the trap. Consider relocation and/or additional traps. Arrange to call the next day to inspect the trap. If no catch has occurred on the third occasion, the Technician should reassess the OSA and consider the use of rodenticide.

2.2.11 If the Technician is satisfied that the captured rodent was the only one in the property (which is only probable for rat activity), then close down the complaint. Provide information and advice to the owner/occupier on improving standards of hygiene, proofing, maintenance or repair. If the Technician believes the captured rodent has not controlled the infestation, additional control methods will be required.

2.3 Rats in open areas

General

2.3.1 All FGARs and SGARs fail theoretical regulatory environmental risk assessments due to their characteristics of toxicity and persistence. This does not mean that they cannot be used, but that proper use depends on:

- That there must be of a risk to human and/or animal health; and
- The thorough and careful application of environmental risk mitigation measures.

2.3.2 As detailed in Section 1, the points provided below are applicable to all rodenticide use scenarios and not just to open areas, albeit that there is a sliding scale of potential environmental risk (i.e. indoors vs. in and around buildings vs. open areas). Technicians should therefore follow the principles on Section 1, supplemented by the information below.

Site Survey

2.3.3 Technicians must complete a site survey prior to conducting the rodent control treatment. The survey should determine the extent of the infestation to be treated. The site and the surrounding area must be thoroughly examined to identify the boundary of the infested area so that the entire infestation is dealt with.



2.3.4 The survey should also include the possible presence of companion animals and farm livestock, and areas to which site workers, or members of the public, have access. Other essential information collected during the site survey will be the risks to the environment that the application of rodent control measures may present.

2.3.5 Proposed controls must be based on the Risk Hierarchy, as it may be possible to control rodent activity without the application of a rodenticide. However, another important point to note is that all rodent control measures, including for example the use of traps and the removal of cover and harbourages to prevent infestation should be carried out in accordance with relevant legislation and with due regard to non-target wildlife and the wider environment.

Environmental Risks

2.3.6 Each treated site will have different environmental risks associated with the use of rodenticides. The extent of these risks will vary greatly depending on local circumstances but few sites will be entirely free from environmental risk.

2.3.7 The OSA should be carried out when a rodenticide is to be applied at any new site. It should never be assumed that any previously applied rodenticide is safe. The OSA should be carried out after the site survey. It is not necessary to conduct an OSA each time baits are checked and replenished during a baiting programme, but environmental risks should be considered on each visit, and the programme modified if risk mitigation measures are found to be insufficiently effective.

Treatment strategy: first visit

2.3.8 Visit owner/occupier's and ascertain where rats have been seen. Carry out a full site survey of the area paying particular attention to holes in the ground around buildings, in embankments and particularly near drainage, gas and telecom inspection chambers as well as areas of accumulated rubbish and other potential harbourage.

2.3.9 If no obvious visible signs of rat activity are found, carry out test baiting using non-toxic baits and/or traps. Confirm that any rodent activity found in close proximity to streams, rivers etc. is attributable to rats and is not due to the presence of water voles or other non-target species.

- 2.3.10** If rat activity is confirmed, a treatment programme should be carried out. All necessary actions must be taken to avoid rodent infestations by restricting their access to food and shelter and to prevent their ingress into areas where their presence cannot be tolerated. It is not acceptable to apply rodenticides repeatedly at sites where all such measures have not been fully implemented and rigorously maintained. The concept of Risk Hierarchy requires that consideration must be given, prior to any action to use rodenticides, to what might be the least severe but effective measures to take to achieve the desired objectives in relation to an existing rodent infestation, or one that might develop.
- 2.3.11** In accordance with the OSA, toxic baits must be positioned where it is safe to do so and in the best positions to prevent access to non-target animals. The application should be conducted in the most effective and expeditious manner possible. The Technician should choose rodenticide products after consideration of efficacy and so as to present the minimum acceptable level of risk to non-target animals and to the environment (this consideration involves both the type of product to be used and the active substance it contains). A rodenticide active substance should be chosen that is appropriate to the resistance status of the infestation to be treated. The Technician should also ensure that all who have access to the treated site are aware of the treatment, where baits are situated, what to do if a bait placement is disturbed and if dead or dying rodents are encountered.
- 2.3.12** Record the position of all bait stations including the type and approximate quantities of bait used at all locations.
- 2.3.13** Direct baiting deep into rat holes using loose grain bait can be used, however where this is not possible, suitably protected and/or anchored protected bait stations should be used. Use tamper resistant bait stations or natural/artificial cover to protect the bait from access by non-target species as far as practicable. Rat holes can be heeled over once baited, or plugged with grass or other vegetation. Access to rodenticide baits by non-target species must be minimised – use of uncovered (unprotected) baits in areas where non-target species have access (either indoors or outdoors) is against the CRRU Code of Best Practice.
- 2.3.14** Where rat activity is confirmed on open land subjected to fly tipping such as domestic refuse, building rubble etc. the refuse must remain undisturbed until the treatment programme has been completed and all surface rat activity has been controlled. Arrangements must then be made with the owners of the land, using Local Authority enforcement powers (Prevention of Damage by Pests Act 1949) as necessary, to secure the removal of all refuse and harbourages to prevent future re-infestation from occurring.
- 2.3.15** Advise the owner/occupier of the action taken and any necessary safety procedures. Provide a copy of the completed OSA to the owner/occupier or other person with responsibility for the treated site and safety data/poisons advice sheet. It is recommended that the Technician asks the customer to sign the OSA.
- Treatment strategy: second or subsequent visits**
- 2.3.16** Frequency of revisits should be made in accordance with the OSA. This will also be determined by the product label, an assessment of the need to replenish bait points, the risk of disturbance of bait placements or access to them by non-target animals and the generation of poisoned rodent carcasses that must be picked up for safe disposal. Daily inspection may be required in some circumstances.
- 2.3.17** An important risk mitigation measure is the frequent search for, collection and disposal of dead rodents that may be contaminated with rodenticides. This should be done at least as often as when baits are checked and/or replenished. Remove rodent carcasses each time the site is visited and dispose of them correctly (see Appendix 1). Clean up any bait spilled whilst checking bait stations.
- 2.3.18** During the course of the treatment period, if there are any significant or relevant changes to the site conditions or circumstances then the OSA should be reviewed, amended as necessary and appropriate actions taken.
- 2.3.19** Review treatment methods and re-survey the area referring to bait point location records on the job sheet/file record to ensure that all bait stations are visited. Treatment strategy should be reviewed as soon as it becomes apparent that the treatment is not proving effective; if treatments are carried out properly the target population should be significantly reduced within two to three weeks.
- 2.3.20** Replenish all points where bait has been taken and make a record. Remove bait if there is evidence of takes by non-target species at certain bait points or if bait points are repeatedly disturbed. Advise owner/occupier of current situation and ensure the safety data/rodenticide advice sheet is still available in case of accident/incident.
- 2.3.21** Arrange to revisit as dictated in the OSA and carry on revisits until all takes of bait cease.
- Treatment strategy: completion**
- 2.3.22** When all bait takes cease completely and no further signs of infestation/activity are noted, remove all accessible bait and bait materials from the area and return to the depot for authorised disposal. All rodent bodies and redundant rodenticide should only be disposed of as detailed in Appendix 1.

2.3.23 The Technician should also attempt to address any measures to minimise the risk of establishment of a subsequent infestation at the site. This would include any modifications to this site including:

- Modifying or eliminating actual and potential harbourages such as landscaping features;
- Clearance of materials that could provide attraction for rodents;
- Undertaking proofing or other measures aimed at denying access to rodents including faulty drainage systems and features that could provide secure movement routes;
- Reducing or preventing access to food sources and supplies;
- Leave written instructions to the owner/ occupier of the site about these recommended measures and refuse to apply rodenticides again at the site until the instructions are implemented in full.

2.3.24 Close down the job and maintain suitable permanent record of OSA, bait location records etc. and other relevant documents.

2.4 Permanent and long-term baiting

2.4.1 It is generally considered that, in normal circumstances, rodent infestations can be cleared up using anticoagulant rodenticides in 35 days or fewer. However, longer periods of baiting are sometimes necessary, for example when rodents are initially reluctant to take baits, where there is a continuing influx of rodents from a source that itself cannot be treated or where infestations are difficult to treat because of anticoagulant resistance. Where a baiting programme continues beyond 35 days in order to control an infestation, it may be called 'long-term baiting'. This would include the need for a thorough review of the treatment strategy after 35 days, which should determine whether control can be reasonably achieved by extending the duration of the treatment

2.4.2 It is important to distinguish reactive long term baiting from, what has been previously considered, proactive permanent baiting.

2.4.3 Rodenticide baits were not originally intended to be used for permanent baiting applications in which baits are placed to detect the presence of rodent and prevent the development of infestations rather than being sited only where rodent activity is evident and removed after the infestation had been cleared. However, the development of wax baits, which have a prolonged life, have become useful in permanent baiting, which has led to this practice being used increasingly in many applications. This has been supported by the view that it is widely thought that putting out bait where there is no current rodent infestation protects buildings, facilities and installations in case rodents appear between visits by a Technician.



2.4.4 Making baits continuously available undoubtedly increases the risk to non-target species. However, permanent baiting may still be required in some circumstances and therefore the Health and Safety Executive and CRRU UK do not advocate a complete ban on this practice. Nevertheless, the practice of permanent baiting should not be used as a matter of routine as it is recognised that wild small rodents also go into permanent bait stations and take bait. These animals are in turn the prey of a very wide variety of species of wild mammals and birds in the UK, which can be exposed to contamination by rodenticides.

2.4.5 Permanent baiting should therefore be used only at sites where no practical alternatives are available and where the Technician considers there is a direct and present risk to either public health or animal hygiene. It is important that the main objective to maintain control is to have facilities that are effectively proofed against rodent ingress and made less 'rodent friendly' by removal of harbourage and food sources where practicable. Frequent and thorough inspection of all internal areas of buildings will also offer fast identification of the presence of rodents in areas where they are not acceptable.

2.4.6 Note that only some products containing the active substances bromadiolone and difenacoum are authorised to be used as permanent baits. Check the product label to ensure that authorisation for use in permanent baiting has been granted to the bait being used.

2.4.7 CRRU have published guidance on permanent and long term baiting. Any such treatments should be conducted in accordance with that document. A free copy is available at <https://www.thinkwildlife.org/downloads>

Appendix 1: Disposal of Rodenticides and Rodent Bodies

Legal background

The safe disposal of rodenticides and rodent bodies is an important aspect of any pest control operation. The legislation covering this area is complex and all Technicians are recommended to obtain suitable advice (for example from the Environment Agency or their pesticide supplier) to ensure that their disposal routes are satisfactory.

Such disposal routes may exist within the resources of the Local Authority or by the use of a third party. Whichever option is chosen, Technicians are advised to satisfy themselves that all the necessary permissions, as required by the legislation, are in existence. For example, the disposal routes for spent bait are different from unused or obsolete products.

Under the Environmental Protection Act 1990 and the Pollution Prevention & Control Act 1999, local authorities must dispose of controlled and special waste in accordance with the Pollution Prevention and Control (England and Wales) Regulations, the Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations 1991, the Environmental Protection (Duty of Care) Regulations 1991 and the Waste Framework Directive 75/442/EEC as enacted under the Waste Management Licensing Regulations 1994.

The Landfill (England and Wales) Regulations 2002 amended the Duty of Care Regulations to require transfer notes to identify waste by reference to the Consolidated European Waste Catalogue (EWC) 6 digit code, and also to restrict the types of waste accepted at certain sites.

Specific hazard classification and disposal advice is contained on each individual product or material safety data sheet. Technicians must comply with this information when disposing any product; however, the following guidance provides an outline of the disposal method.

Methodology: spent bait, waste packaging and contaminated PPE

Until its final disposal, all waste should be stored temporarily in a suitable storage facility designed to the standard outlined in the HSE Agriculture Information Sheet No 16(rev1): *Guidance on storing pesticides for farmers and other professional users* and handled in accordance with appropriate risk COSHH assessments.

All such waste arising from pest control activities should be consolidated in a systematic way, for example spent bait and bait stations should be stored separately from other container wastes, and accumulated in such quantities as to allow economic and efficient disposal.

Such waste should be bagged for interim storage and transport in bags having the necessary strength to withhold the weight of the waste and provide resistance to puncture. 300 gauge clear polythene bags with plastic pull tags are recommended for this purpose.

It is a statutory requirement of the Control of Pesticides Regulations 1986 (as amended) to empty containers completely, which is important not only from a legal standpoint, but also from a waste reduction perspective. Therefore where containers have held hazardous classified formulations, and have not been completely emptied, then the container must also be treated as hazardous waste. Any waste residues should be disposed of legally. Similarly, it may be possible for the disposal operator to seek re-use, re-cycle or recovery options for products that are contained within a plastic bag within a bucket. These buckets should be emptied completely and stacked inside each other. The contaminated polythene bags should be packed into a separate sack.

Disposal operators cannot accept waste unless it is in accordance with the Regulations, and therefore consideration should be given as to whether a licensed carrier is required to transport the waste products. Such materials may be transported to the disposal operator in a designated pest control vehicle. Where local authorities consider the use of a waste carrier, these must hold a valid waste carrier's licence.

The 'duty of care' obligation under Environmental Protection Act 1990 requires that all parties involved in any waste transfer must keep records (for example, transfer notes and waste descriptions) for at least 2 years.

Methodology: excess, out-of-date, obsolete and unusable stock

The responsibilities and principles to be applied when disposing these products are the same as those described in the previous section, however the type and quantity of the waste product may require specific disposal. Technicians are advised to seek suitable professional opinion from their nominated disposal operator as to the most viable disposal option for all such products.

Methodology: rodent bodies

The Technician should follow the product label and recover animal carcasses (e.g. rodents) separately where possible and remove from site as Non-Hazardous Waste.

Rodent bodies are generally classified to be considered as 'Non-Hazardous Waste' but the precautionary principle must be applied. A risk assessment should be completed for suspected or confirmed infection hazards. If such infection is known to be present, suitable 'clinical' waste advice should be sought and the bodies disposed of as hazardous waste.

The product or material safety data sheet must be consulted and rodent carcasses removed separately where possible and removed from site as non-hazardous waste. Disposal of the material should be as industrial waste and not as 'black bag' waste i.e. in the municipal or household waste stream. Rodent bodies should not be burned or buried on site or elsewhere; however, Technicians carrying out work on farms are allowed to bury rodent carcasses on farmland provided certain conditions are complied with.

The Animal By-Products Regulations 2003 do not apply to creatures killed during the course of pest control activity.

Appendix 2: Storage of Rodenticides

All pest control storage facilities should be designed to the standard outlined in the HSE Agriculture Information Sheet No 16(rev1): *Guidance on storing pesticides for farmers and other professional users*. A free copy can be obtained from <http://www.hse.gov.uk/pubns/>

All bulk pest control materials shall be stored in the pest control store immediately from the time they are delivered to the site, until they are needed by Technicians. Materials may only be used from original containers, or are in containers which are suitable and appropriately labelled. Waste materials may only be disposed of as detailed in Appendix 1.

A detailed inventory must be maintained of all products and quantities, and the amount provided to each Technician.

Appendix 3: Local Authority Rodent Control in Sewers and Drains

Sewers provide ideal conditions for rats, they have an even temperature being warm in winter and cool in summer, they can provide harbourage and an abundant supply of food and water with the absence of any predators.

The control of rats in sewers is a vitally important part of any integrated rodent control programme – sewer baiting should complement the control strategy for surface infestations and vice versa. Rats will move readily from one environment to another in search of food and a co-ordinated approach to control is therefore essential.

Many years' experience indicates that successful rat control in sewers can reduce the number of infestations on the surface. A comprehensive sewer baiting strategy is therefore essential if effective control of the rat population in the sewer network and reduce surface rat activity is to be achieved.

Minimisation of re-invasion routes by ensuring proper repair and maintenance of the network infrastructure will assist in maintaining low population levels following a comprehensive sewer baiting programme.

This is particularly relevant for the 'private sewers' and lateral drains, (drains beyond the curtilage of a building) transferred in 2011 as information on the condition of these is likely to be limited, but there will inevitably be some disrepair and also are unlikely to have been subject to any rodent control (baiting activity).

The role of local authorities is crucial to the development of effective sewer baiting, even though this may be carried out by the sewerage undertaker, or their contractor.

The Chartered Institute of Environmental Health National Pest Advisory Panel has published a National Sewer Baiting Protocol: Best Practice & Guidance Document. Any such work should be undertaken in accordance with that document. A free copy can be obtained from <https://www.urbanpestsbook.com/downloads>

Appendix 4: Further reading

CIEH NPAP Publications

(<https://www.urbanpestsbook.com/downloads>)

- Code of Practice for the Use of Vertebrate Traps
- National Sewer Baiting Protocol: Best Practice & Guidance Document
- Pest Minimisation: Best Practice for the Construction Industry
- Pest Management for Outdoor and Mobile Catering
- Pest Control Procedures in the Food Industry
- Pest Minimisation: Best Practice for the Hospitality Industry
- Pest Control Procedures in the Social Care Sector
- Pest Control Procedures in the Housing Sector
- Good Composting Practice: Guidance on Composting Without Attracting Rodents

CRRU Publications

(<https://www.thinkwildlife.org/downloads>)

- CRRU UK Code of Best Practice
- CRRU Guidance: Permanent Baiting
- CRRU Environmental Risk Assessment Form

HSE Publications (<http://www.hse.gov.uk/pubns>)

Agriculture Information Sheet No 16(rev1): Guidance on storing pesticides for farmers and other professional users

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