

DELIVERING HIGH  
QUALITY TRAINING

RODENTS

  
Killgerm®  
TRAINING

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## Rodent Control

### INTRODUCTION

The word rodent comes from the Latin *rodere* meaning 'to gnaw'. All rodents are characterised by their teeth and jaw structure. The incisors (front teeth) are reduced to a single pair above and below. Canine and premolars are absent, leaving a gap (the diastema) between the incisors and molars. The gnawing habit of rodents wears incisors to a chisel-shaped cutting edge and they continue growing from open roots throughout the life of the animal.

There are fourteen rodent species currently in Britain, of which nine are native and the other five have been introduced.



*Rattus norvegicus*, the Norway rat.

Two further species, which used to be commonly found, have become extinct in the UK. These are the beaver and the highly damaging coypu, which was introduced from South America.

Of the surviving species, squirrels (Family Sciuridae) are dealt with later on in this section. Dormice (Family Gliridae) and voles (Family Muridae) are not relevant to this manual, as they usually do not constitute pest species. Mice and rats (Family Muridae) are serious pests and are dealt with in this section.

In Britain there are two species of rat: the Norway rat, sometimes referred to as the common or brown rat (*Rattus norvegicus*) and the ship rat, also referred to as the roof or black rat (*Rattus rattus*). The Norway rat has largely replaced the ship rat over the past 100 years. In fact, its distribution is now so severely limited in Britain that many conservationists believe it should be a protected species.

Recent research has shown that rural populations of the Norway rat are more likely to carry disease than urban populations. This is because rural populations tend to be more dense and more difficult to control. However, both types of population must be controlled.

Of the mice, the house mouse, *Mus domesticus*, is the common pest in urban environments, although field mice (wood mice and yellow-necked mice, *Apodemus* spp) can be a problem in autumn and winter. Where *Apodemus* spp enter homes and other premises control preferably via the use of break-back traps.

On farms, the house mouse is also a major pest, particularly associated with intensive pig and poultry rearing facilities.

Control methods for rats and mice are similar and are dealt with together below.

Rat control in sewer systems is a particularly important application of rodent control and is dealt with in detail in the 'Sewer Treatment' section.

## Rodenticides

### INTRODUCTION

Rodenticides usually need to be ingested, that is either eaten in the form of a bait or taken into the body via the mouth while grooming. Rodenticides fall into two categories; acute: these are quick acting and effective but often painful in their action, and chronic: these are slow acting, often multi-feed baits that generally cause minimal pain in their action.

An ideal rodenticide should be:

1. toxic in small amounts;
2. palatable to all pest species;
3. slow-acting;
4. toxic only to the pest species;
5. of minimal hazard to humans, pets and domestic animals;
6. readily biodegradable;
7. easily formulated;
8. humane.

In addition to these, the ideal rodenticide would result in equal susceptibility regardless of age, sex or strain of the target species and would not give rise to immunity or physiological tolerance.

Most modern rodenticide active ingredients fulfil many of these criteria, although the similarity between the physiology of rodents and other non-target mammals presents difficulties.

Therefore rodenticides need to be formulated in a bait base which is attractive to the rodent but is not so attractive to non-target species.



## HISTORY AND DEVELOPMENT

Until the late 1940s, only acute single-dose rodenticides were available. Examples of these were yellow phosphorus, Red Squill and zinc phosphide. These chemicals were always applied as a bait for the rodent to feed on. The baits were very effective but if the rodents did not ingest a lethal dose first time, they quickly learned to recognise and avoid the baits. This avoidance gave rise to the terms “poison shyness” or “bait shyness”.

Ingesting a sub-lethal dose of these baits may have been due to the rodent feeling ill as it ate the bait or to neophobia (new object avoidance). Pre-baiting (the placing of bait containing no rodenticide) to encourage the rodents to feed partly overcame the problem of neophobia. However, it remained very difficult to achieve the desired level of control with these rodenticides.

In the 1950s, “anticoagulants” were introduced. These chemicals interfere with the clotting mechanism in mammalian blood. They had been used in medicine for the treatment of thrombosis (a condition caused by thickening of the blood) for several years. They work by preventing production of prothrombin, which is required for blood clotting. When used as a rodenticide the rodents die of internal haemorrhages (blood loss) resulting from minor damage to blood vessels caused by the hurly-burly of their daily activity.

The success of these anticoagulants is that they have a chronic effect. When eaten by rodents at low concentrations in baits, symptoms of illness develop slowly and so the animals do not associate the symptoms with the bait. The symptoms, and death, appear to be relatively painless and so feeding continues until a lethal dose has been consumed which may take several days.

Over-reliance on the early anticoagulants, notably warfarin, caused resistance to develop in rat populations. This led to further research and in the early 1970s the second generation anticoagulants were developed.

There are now two generations of anticoagulant baits.

**First generation:** warfarin and coumatetralyl. It is generally accepted that a wide degree of resistance has built up against warfarin.

**Second generation:** includes brodifacoum, bromodialone, difenacoum, difethialone and flocoumafen.

The second generation anticoagulant baits are very effective, even against warfarin-resistant rodents. They are very potent and a single feed can be sufficient to provide a lethal dose but they still have the chronic anticoagulant action.

A non-anticoagulant active ingredient, bromethaline, has been developed and is available in a number of markets, including the USA. Non-anticoagulant rodenticides have certain advantages but the absence of an acceptable antidote has made registration authorities in Europe wary of granting approval to these products.

## RODENTICIDE FORMULATIONS

There are many ways in which the rodenticide can be presented to the animal. These are known as formulations and a knowledge of the advantages and disadvantages of different formulations is important when selecting a rodenticide for a particular species and habitat.

Baits are the most common way to present a rodenticide. Baits contain coloured dyes. This is principally a safety measure used to indicate when a non-target organism has eaten bait.

**Edible Baits.** Rats and mice have very wide-ranging tastes, feeding on whatever is available. However, they do have a general preference for cereal-based foodstuffs and so these usually form the base of edible baits.

Some edible baits come as loose cereals; others are formed into blocks, extruded bait, pellets, pastes or gels. These are still cereal-based and usually also contain a mould inhibitor.



## THE USE OF BAIT STATIONS

How bait is presented to commensal rodents is very important and there has been a great deal of research into the effectiveness of different types and designs of bait stations.

It has been shown that the greatest amount of bait is taken when rodenticide is laid out in open baiting, i.e. not in bait stations. However, baiting in this way may usually pose an unacceptable risk to non-target animals. For this reason, enclosed bait stations should always be used for rodenticides unless baiting is taking place in inherently closed areas such as burrows, sewers and some roof voids.

Bait uptake can be improved by the use of locally available materials as a means of protecting baits. This technique is acceptable only where COSHH, risk and environmental assessments show that it is safe to do so.

The choice of which type of bait station to use is a matter of judgement for the professional pest controller and forms part of the COSHH assessment. At all times, pest controllers must be prepared to explain and justify their decision about which type of station to use.

In most areas, tamper-resistant stations usually made from injection-moulded plastic incorporating a locking mechanism are necessary because of the risk that children or domestic animals or pets will gain access to the rodenticide. All metal or metal cover boxes for tamper-resistant bait stations are also available and provide additional security. However, research has shown that the use of this type of station will reduce the amount of bait taken.

During the treatment, there is an obligation on the operator to check the bait stations regularly and once the treatment has been completed, unused bait must be removed and safely disposed of. The emptied bait station can remain on site for future use.

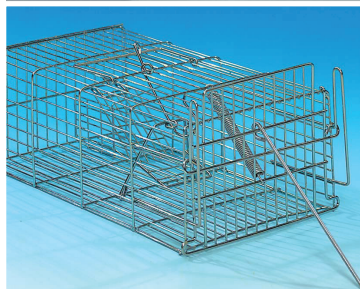
## Other Rodent Control Methods



### GASSING

This technique is only available for use outdoors at a minimum distance of 10 metres from buildings. Tablets are applied to the rat burrows, which are then sealed. Toxic gas is liberated from the tablet on contact with moisture and, unable to escape through the blocked entrance, travels through the burrow system, controlling the rats. It is essential that staff using this technique have received full and specific product training and know and observe the necessary safety precautions.

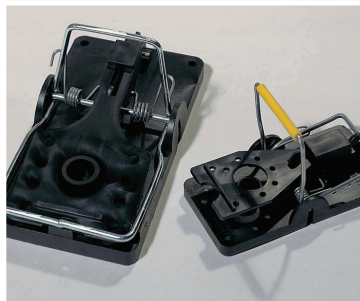
The use of gas-liberating tablets should be avoided in wet blustery weather.



### TRAPPING

Spring traps, which are designed to kill the rodent, as well as live traps are available for rats and mice. Sticky boards traps are also available for both rats and mice, although their sale and use is covered by a Pest Management Alliance Code of Practice. The key points are that the use of glue boards is a last resort option and that they should be checked once within 12 hours of placing.

Traps are extremely useful in areas where it is not possible to use rodenticides, for example, in sensitive food production areas.



Single and multiple capture live traps and instant kill traps are useful in areas which call for non-toxic control methods

Always wear gloves when setting traps to ensure that contamination with human odours does not occur. If a non-poison bait is required, chocolate is recommended (it smells more than cheese and rodents like it). All traps must be checked regularly and in the case of live catch traps and spring traps at least once every 24 hours. Any rodents captured must be humanely destroyed by use of an appropriate air weapon or dealing a strong and accurate blow to the head. Drowning is not an acceptable method.

These methods are also relevant when humanely destroying rodents trapped on glue boards.

Trapping rodents is labour intensive but is sometimes the only available option. Great care must be taken to avoid unnecessary cruelty.

## Sewer Treatments



### INTRODUCTION

The control of rats in sewers is considered to be an important part of any integrated rodent control programme. Rats will move readily from one environment to another in search of food and a co-ordinated approach to control is therefore desirable.

Many years' experience indicates that successful rat control in sewers can reduce the number of infestations on the surface.

To be able to provide a comprehensive and effective sewer-baiting programme it is necessary to understand all the difficulties that can exist in attempting such an exercise, from access, to catchment areas, to the clearing of keyholes in manhole covers before any attempt at lifting can be made.

The subject of access to manholes can raise several difficulties, i.e. following resurfacing of roads, tarmacadam can partially or completely cover the manhole to be raised. This can involve a considerable amount of additional work for the sewer-baiting team. Parked vehicles also present problems in gaining access to manhole covers, either because cars are parked over manhole covers or streets that contain long rows of parked cars have limited access for other vehicles, including the sewer-baiting vehicle.

### HEALTH & SAFETY

Before any consideration is given to actually baiting the manholes, the question of health & safety has to be answered. It is important to highlight at this point that all sewer-baiting can be carried out from the surface. It is not necessary to enter any manhole for the specific reason of baiting. Under no circumstances is it permitted for any person including a pest technician (PCO) to enter a manhole unless they have been fully trained in working in confined spaces specific to sewer entry and are suitably equipped to do so. This specialist training is usually a 2 or 3-day course, which covers areas such as safe entry; detection of gases; use of gas detectors; the use of man entry hoist and tripods, etc.

### PROTECTIVE CLOTHING

It is essential that good quality protective clothing is supplied to all staff engaged in sewer-baiting and the following items are recommended:

- Steel toecap safety shoes
- One-piece coverall
- High visibility jackets or waistcoats
- Good quality gloves (NBR-coated are the best and are hard-wearing)
- Visors or goggles for face/eye protection when manual force is required with hammers and chisels to loosen manhole covers from their frames (visors are preferred, as they protect the whole face)
- Waterproof suits for wet weather protection (you don't have to stop working in the rain)
- First aid box adequately equipped

### EQUIPMENT

It is a legal requirement to comply with the Road Traffic Act 1988 and the New Roads & Street Works Act 1991 Chapter 8; these Acts impose a requirement for the contractor to conduct themselves safely on the highway.

The vehicle should be a light colour, e.g. white or yellow and it must have yellow warning beacons fitted to the roof, preferably at the front and rear. The vehicle hazard warning lights should be used at all times when work is in progress. The vehicle should be placed facing oncoming traffic, roof beacons and hazard lights flashing, with the working area to rear of the vehicle. Sufficient warning cones, "men at work" signs and direction arrows should be supplied. This might appear to be excessive but it's the familiar story; it's alright to take shortcuts until accidents happen. The above legislation requires that adequate warning must be given to all road users when working on a highway.

Lifting equipment to remove manhole covers from their frames comes in a variety of types. Staff will work more effectively if the correct equipment is supplied. Specially adapted screwdrivers called "gougers", which are designed with hardened cranked ends to keep their shape, are used for the clearing of debris in keyholes in manhole covers. Sledgehammers, lump hammers, cold chisels, prising bars, wrecking bars are all necessary equipment to actually lift manhole covers. One other very useful item of equipment is an industrial magnet to reclaim items of equipment accidentally dropped down the manhole.

Standard T keys can be used but with a word of caution. If staff use them incorrectly then the possibility of back strain or other personal injury can become a reality. The manhole cover must be completely loose in its frame before any lifting is attempted using T keys.

Both manual and hydraulic lifting equipment is available, which can make lifting manhole covers easier and safer.

The manual equipment usually relies on a principle of leverage using the operator's body weight to supply downward pressure to lift the manhole cover. Once the cover has cleared the frame, the operator has to hold the weight of the cover (approximately 134kgs or 2cwt) and then pivot the equipment to one side and lower the cover onto the road surface. When using this type of equipment it is essential to make sure that the cover is completely loose from its frame before any lifting is attempted.

The hydraulic manhole lifter is useful, as it eliminates the physical aspect of lifting manhole covers. One model, which has a proven history including reliability, is the LOJAK hydraulic manhole lifter. The machine is portable, easy to operate and when assembled only weighs 28kg. Nonetheless it is capable of lifting a capacity of 1,500kg (1.5 tonnes) without injuries to backs and shoulders. This equipment can be used to reduce the risk from lifting, ie personal injury. A wide variety of keys is available to fit all types of manhole covers.

A good quality torch is essential, preferably quartz halogen for additional brightness.

#### PERSONAL HYGIENE

It is essential to provide adequate facilities for personal hygiene on the vehicle. This can be in the form of specialised vehicle wash hand basin with running hot water, soap and paper towels. Alternatively, you can provide a waterless antiseptic gel or an aerosol waterless mousse alternative, which can be wiped off with paper towels.

#### SEWER-BAITING TREATMENTS

To enable any sewer-baiting programme to be successful, the staff employed need to have an enthusiasm for the job, be fit, agile and able to record evidence of the programme in detail and with accuracy. If these criteria cannot be satisfied, the whole programme will fail with both financial and operational consequences.

#### GENERAL

The only practicable and effective method of killing rats in sewers, especially on a large scale, is the use of rodenticide poison baits laid in manholes as part of a carefully planned and well-managed baiting programme.

Rodenticide baits designed for sewer-baiting must only be laid in those manholes serving public sewers and which are protected by heavy weight covers.

Any good bait formulation can be used that is palatable and easy to deposit in the manhole. Damp conditions in sewers mean baits are subject to fungal growth, which may affect palatability, especially loose grain bases where mould can grow in 6 to 9 days. Rodenticide baits have been developed that include preservatives to retain palatability. The use of wax blocks can delay mould growth slightly from 8 to 12 days but are easily dislodged from benching and washed away.

Bait can be laid in sachets but this method depends on rats gnawing the bag open and can again be easily washed away.

Rodenticide bait should be laid on benching whenever possible (it may be necessary to flush the benching clean first). If there is no benching or the benching is too steep, rodenticides may be suspended in bags or blocks just above the invert. Traditionally, muslin bags have been recommended, as they are slightly self-sealing. Wax blocks may be preferable in this situation.

Rodenticide can be placed on benching using patented bait droppers/depositors or extending telescopic metal or plastic tubes.

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***Thorough planning is essential to ensure effective targeting of resources and correct application of baiting technique. It is recommended that areas for baiting should be agreed at least annually at a joint meeting between the local authority and the water authority or company***



Bait depositors are useful when manholes are deep. Bait is placed in the depositor and lowered, on a length of string, onto the benching. A quick tug of the string deposits the bait on the benching. With telescopic tubes, rodenticide is simply poured into the tube when the bottom end is resting on the bench.

When checking for takes on rodenticide, “wash-offs” can be checked for, if suspected, by depositing a small pile of sawdust next to the rodenticide. A “wash-off” will be indicated by rodenticide and sawdust both disappearing.

### **PLANNING THE BAITING PROGRAMME**

Thorough planning is essential to ensure effective targeting of resources and correct application of baiting technique. It is recommended that areas for baiting should be agreed at least annually at a joint meeting between the local authority and the water authority or company. If necessary, the sewer-baiting contractor can also be included.

The areas to be baited and frequency of baiting should be identified by using historical data including results of previous treatments, details of surface infestations, relevant information from the water authority and test-baiting results.

It is essential to have up-to-date drainage maps showing public sewers, manholes, catchment areas and direction of flow.

Manholes chosen for baiting should be in discreet catchment areas to aim for extinction of rats in that catchment area. Baiting should commence furthest from the sewer outfall and move towards the outfall or junction.

### **PULSE BAITING TECHNIQUE**

The pulse baiting technique is the favoured approach and is considered a method of baiting to extinction.

Pulse baiting commences with test-baiting. 10% to 15% of manholes are chosen in discreet catchment areas using previously described data and previous positive manholes, at least annually. A different sample is chosen each time to ensure all manholes are test-baited over a number of years.

Junctions must be included along with difficult to reach manholes in busy roads. Early morning starts will ensure these manholes are not missed.

When using single-feed sewer bait, it is recommended that approximately 50 grams of rodenticide is laid in each manhole to be test-baited. The manhole must be revisited 7 days later. If no takes are recorded, then no further action is necessary unless there is fresh evidence of rats within the manhole. The surface may be marked with wax/chalk to indicate it has been baited.

If a positive take is recorded, the amount of rodenticide must be increased in line with label directions. Additionally, when positive takes are recorded, two manholes either side of the positive take in all directions must also be poison-baited with the appropriate amount of rodenticide in line with label directions.

Revisits are again made to all baited manholes at 7-day intervals, repeating the above process until no more takes are recorded.

### **NOTE**

The rodenticide manufacturers’ (label) instructions must be followed at all times.

Accurate records must be maintained to enable accurate revisits to be made; to build up knowledge of heavily infested areas; to compare with surface infestations; and to investigate re-infestation.





### CALL-OUT BAITING

Local authorities may additionally find it useful to set up call-out baiting with their water authority.

When the local authority investigates a rat infestation and suspects a drainage defect, it is useful to arrange for localised sewer-baiting in the vicinity. This can either be on an agreed form or by statutory notice.

Results should be fed back into the infestation investigation to allow appropriate action.

Claims that sewer teams lift and treat 100 manholes a day every day are grossly exaggerated or the treatment is not being carried out correctly. A good average would be between 45 and 50 manholes each and every day, especially taking the following situations into account:

- Putting the correct signage on the highway
- Traffic conditions
- Tarred over covers
- Tight covers, which are difficult to raise (they don't always come up first time)

These figures are certainly more realistic and can be maintained over long periods of time without staff becoming pressurised or complacent about the job.

It is extremely important to gain the full co-operation of the water authority within your area. This is essential to enable the programme to be successful. It is usually the water authority that will provide funding for sewer-baiting treatments. The relationship must be built on trust and co-operation. It is recommended that local authorities and water authorities comply with the Water UK Protocol on sewer-baiting.

### CONCLUSION

The only way to control rats in sewers is to provide a comprehensive and effective sewer-baiting programme. This requires adequate funding, an excellent dialogue with your water authority, a detailed planned approach, committed staff, good equipment and protective clothing. All these issues will ensure that your sewer-baiting programme will be a success.

Please remember sewers are dangerous places that can and do kill.

When using rodenticides always read the label and follow the instructions.

Further advice on sewer baiting is available in the CIEH NPAP document 'National Sewer Baiting Protocol Best Practice and Guidance Document'.

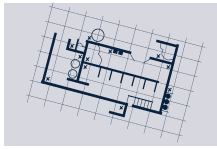
## Guidelines for the safe use of anticoagulant rodenticides by professional users

### THE CRRU CODE



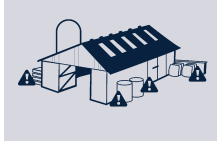
#### Always have a planned approach

- Before treatment begins, a thorough survey of the infested site is an essential key to success when using any rodenticide.
- Environmental changes which could be made to reduce the attractiveness of the site to rodents should be noted for implementing after the treatment. Usually this will involve rodent proofing and removing rubbish and weeds that provide harbourages and cover. However, the site should not be cleared before treatment since this will disturb the rodent population and make bait acceptance more difficult to achieve.
- Obvious food, such as spilled grain, should be removed as far as possible and any food sources covered.
- Rodenticide baits should only be used for as long as is necessary to achieve satisfactory control.
- In most cases, any anticoagulant bait should have achieved control within 35 days. Should activity continue beyond this time, the likely cause should be determined and documented. If bait continues to be consumed without effect, a more potent anticoagulant should be considered. If bait take is poor, relative to the apparent size of the infestation, consideration should be given to re-siting the bait points and possibly changing to another bait base, as well as making other environment changes.



#### **Always record quantity of bait used and where it is placed**

- A simple site plan or location list identifying areas of particular concern pertinent to the site should be drawn up and retained on file.
- A record of all bait points and the amount of bait laid should be maintained during the treatment. Activity should be noted at each bait point, including any missing or disturbed baits, as the treatment progresses.
- By carefully recording the sites of all bait points, responsible users of rodenticides are able to return to these sites at the end of the treatment and remove uneaten bait so that it does not become available to wildlife.



#### **Always use enough baiting points**

- Users should follow the label instructions regarding the size and frequency of bait points and the advice given regarding the frequency and number of visits to the site.
- By using enough bait points the rodent control treatment will be conducted most efficiently and in the shortest possible time. This will restrict the duration of exposure of non-target animals to a minimum.



#### **Always collect and dispose of rodent bodies**

- The bodies of dead rodents may carry residues of rodenticides and, if eaten by predators or scavengers, may be a source of wildlife exposure to rodenticides.
- It is essential to carry out regular searches for rodent bodies, both during and after the treatment period. Bodies may be found for several days after rats have eaten the bait and rats may die up to 100 metres or more away from the baited site.
- Any rodent bodies should be removed from the site and disposed of safely using the methods recommended on the label.



#### **Never leave bait exposed to non-target animals and birds**

- Care should be taken to ensure that bait is sufficiently protected to avoid accidentally poisoning other mammals and birds. Natural materials should be used where possible.
- Bait stations should be appropriate to the prevailing circumstances. They should provide access to the bait by rodents, while reducing the risks of non-target access and interference by unauthorised persons. They should protect the bait from contamination by dust or rain. Their design, construction and placement should be such that interference is minimised.



#### **Never fail to inspect bait regularly**

- Where the risk assessment or treatment records show that multiple visits are required, then those should be made as frequently as is considered necessary. Daily inspection may be required in some circumstances.
- At each visit, baits should be replenished according to the product label and a thorough search made to ensure that bodies and any spilled bait are removed and disposed of safely. Records of such visits should be maintained. Never leave bait down at the end of the treatment.



#### **Never leave bait down at the end of the treatment**

- Bait left out at the end of a treatment is a potential source of contamination of wildlife.
- On completion of the treatment, records should be updated to signify that the infestation is controlled and that, as far as reasonably practical, all steps have been taken to ensure that the site is now free of rodenticide bait.

## Environmental considerations influencing the use of anticoagulant rodenticides

Undertaking an environmental risk assessment is part of the responsible stewardship of anticoagulant rodenticides, in line with the UK rodenticide stewardship regime.

### PRE-TREATMENT

A recorded environmental risk assessment may be advisable to demonstrate that you have considered the following:

- Status of the site, e.g. Site of Special Scientific Interest.
- Adjacent features such as watercourses, woodland, specific wildlife habitats.
- Presence of mammal or bird predator/scavengers.
- Access by farm or domestic animals.
- Species, degree and extent of pest infestation to be controlled.
- Previous controls carried out which may influence treatment.
- Justification for the selection of the active ingredient and bait formulation to be used.
- Materials and techniques to be employed for protecting baits.
- Potential for primary/secondary poisoning of non-target species.
- Measures to reduce risk to non-target species.
- Facilities for safe disposal of dead rodent bodies and waste rodenticide.

### TREATMENT

Records should be kept to:

- Identify areas where bait has been laid.
- Identify the active ingredient, formulation and quantities used.
- Demonstrate the treatment frequency to check and replace baits and to search for and remove bodies was appropriate.
- Report any effect on non-target species and action taken to reduce risk.
- Report any interference or removal of baits.
- Report on conditions which may adversely affect treatment and remedial actions.
- Demonstrate that control has been achieved within the prescribed timescales.

### POST-TREATMENT

On completion of the treatment, records should be updated to demonstrate the following:

- That the infestation has been controlled.
- That as far as reasonably practical all baits have been removed and all bait stations emptied.
- A final search has been made to locate and dispose of any rodent bodies.
- Any proofing or other environmental changes which may prevent re-infestation have been discussed with the owner of the premises.

Please refer to the 'Killgerm Guide to Environmental Assessments When Using Rodenticides' for further information.



## Legislation

### BACKGROUND

The legislation covering rodents and vermin control extends back over many years. The main thrust of recent legislation is towards the safe and humane use of certain poisons to control rats and mice. Below is a brief outline of the main points of legislation relating to the control of rats and mice. COSHH and COPR are covered on other courses.

### HEALTH AND SAFETY AT WORK, ETC., ACT 1974

Part I of this Act places responsibility on all persons at work to work in a sensible and safe manner. It puts the same onus on both employer and employee. Part III deals with Building Regulations, and there is provision to introduce measures to prevent infestation in buildings.

### FOOD AND ENVIRONMENT PROTECTION ACT 1985

Part III of this Act provides for the making of Regulations with a view to:

- i) protecting the health of human beings, creatures and plants;
- ii) safeguarding the environment, and
- iii) securing safe, efficient and humane methods of controlling pests.

### PESTS ACT 1954

Under the Pests Act 1954, only certain types of spring traps are approved for killing and taking animals. These are listed in the Spring Traps Approval Order 1995 and the Spring Traps Approval (Variation) (England) Order 2007 and other Spring Traps Approval Orders, which are issued by Defra and details are available on their website. Such traps must be used in accordance with their conditions of approval.

Break-back traps commonly used for the destruction of rats, mice and other small ground vermin are exempted from the requirement to be approved. The Small Ground Vermin Order 1958 identified two such trap types. These are spring traps known as break-back traps commonly used for rats, mice and other small ground vermin, and spring traps of the kind commonly used for catching moles in their runs. Leg-hold traps are prohibited within the European Union by Council Regulation (EEC) 3254/91.

### THE PROTECTION OF ANIMALS ACT 1911 (AND AMENDMENTS)

The Protection of Animals Act 1911 gives general protection to domestic and wild animals. Under this Act it is an offence to do or omit to do anything likely to cause unnecessary suffering to domestic or wild animals. Where animals are captured with a trap, the animal within the trap must be provided with food and water and in the case of spring traps set for rabbits, the traps must be inspected at least once a day.

### THE WILD MAMMALS (PROTECTION) ACT 1996

This Act extends to wild animals the protection given to captive animals under other legislation. Under the Act, any person who mutilates, kicks, beats, nails or otherwise impales, stabs, burns, stones, crushes, drowns, drags or asphyxiates any wild mammal with intent to inflict unnecessary suffering is guilty of an offence.

Exceptions from offence under the Act are:

- a) the attempted killing of any such wild mammal as an act of mercy if he shows that the mammal had been so seriously disabled otherwise than by his unlawful act that there was no reasonable chance of its recovering;
- b) the killing in a reasonably swift and humane manner of any such wild mammal if he shows that the wild mammal had been injured or taken in the course of either lawful shooting, hunting, coursing or pest control activity.



**ANIMAL WELFARE ACT 2006**

This act brings together and updates legislation that exists to promote the welfare of vertebrate animals other than those in the wild. The Act redefines the term 'captive animal' under the Protection of Animals Act 1911 to animals that are 'under control' and 'not living in the wild state'. It therefore covers all animals that are commonly domesticated in Britain as well as exotics which may have escaped.

Offences under the Act include causing unnecessary suffering (physical or mental), mutilation (including tail docking), administering poisons and animal fighting. However, legitimate pest control activities which involve the use of one animal to catch another will not fall into the definition of an animal fight. The sale of animals to persons under 16 years of age is also prohibited.

For some offences (e.g. unnecessary suffering) it applies to all animals, whilst for others it is just against protected animals.

Section 4 states that if you are responsible for an animal and it suffers then you are accountable for that suffering. This means that asking third parties to check traps, glue boards etc. in your absence does not absolve you from the responsibility for the welfare of that animal.

Finally there is provision to introduce secondary legislation under the Animal Welfare Act and there are plans to introduce Regulations and a statutory code of practice for the rearing of game birds.

**THE PREVENTION OF DAMAGE BY PESTS ACT 1949**

The Prevention of Damage by Pests Act 1949 places a local authority under a duty to ensure, as far as is practicable, that a district is kept free from rats and mice and in particular:

- i) to carry out periodical inspections of areas, including agricultural land;
- ii) to destroy rats and mice on land occupied by the authority;
- iii) to enforce the duties under the Act of owners and occupiers.

In addition, occupiers of non-agricultural land must notify the local authority if rats or mice are living on or resorting to the land in substantial numbers.

If it appears to a local authority that steps should be taken to get rid of rats and mice on any land, the authority may serve notice on the owner or occupier requiring such action to be taken within a specified reasonable period.

If an owner or occupier fails to take steps to get rid of an infestation within the time specified by the local authority, the authority may itself undertake the work and recover the expense incurred.

**THE FOOD SAFETY ACT 1990**

Section 14 states that any person who, to the purchaser's prejudice, provides any food which is not of the nature or substance or quality demanded by the purchaser, shall be guilty of an offence.

Regulation (EC) 178/2002 of the European parliament lays down the principles and requirements of food law.

Article 14 of Regulation (EC) 178/2002 deals with unsafe food. It is an offence not to comply with article 14 under the General Food Regulations 2004. Food shall be deemed unsafe if it is considered to be injurious to health or unfit for human consumption.

## Black rat, Ship rat

*Rattus rattus*



### HISTORY

This rodent originated from South East Asia, India and China.

*R. rattus* remains were found in the excavations of an old well at York dating back to the 4th century BC. Findings are also recorded at a dig in the City of London, dating remains back to the 3rd century.

This rodent has been with us in this country the longest. It was originally thought to have been brought back with the Crusaders. Without doubt, vessels carrying cargoes of cotton, corn etc would have provided ideal travelling harbourages along with a ready supply of food.

This is so because most vessels in those days carried pigs, cows, chickens etc for food on the voyage.

Colour:	Black to brown or grey with lighter underside
Ears:	Large
Eyes:	Large and prominent.
Tail:	Longer than head and body
Weight (adult):	80 - 300 g
Litters per year:	4 - 6
Litter size:	4 - 8
Maturity:	2 - 3 months
Average life span:	12 months

### HABITS

*R. rattus* must drink water daily unless the food source is extremely moist. They are considered omnivorous but if available, fruit and vegetables are preferred. It is a very good climber, rare in the UK but still found in some port areas. Usually found indoors and often found high up.

## Brown rat, Common rat, Norway rat, Sewer rat

*Rattus norvegicus*



### HISTORY

Originated from Asia and China.

First recorded in Europe at the beginning of the 18th Century.

They were referred to as Norway rats because they were thought to have travelled from the East on Norwegian timber ships.

### HABITS

*R. norvegicus* must drink water daily unless the food source is extremely moist.

Colour:	This can vary but usually brown to grey-black with lighter underside.
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Ears:	Small
Eyes:	Small
Tail:	Slightly shorter than head and body. The tail is dark above and lighter below.
Weight (adult):	400 - 550 g
Litters per year:	3 - 6
Litter size:	7 - 9
Maturity:	2 - 3 months
Average life span:	12 months

They are considered omnivorous but if available, cereals seem preferred.

They eat on an average one tenth (10%) of their body weight each day.

*R. norvegicus* explores locations quite freely and are 'creatures of habit' in that they prefer to feed at certain locations.

However, it does have a fear of new objects. This is known as neophobia and this should be taken into account when baits are checked after an initial treatment.

## House mouse

*Mus domesticus*



### HISTORY

Originated in the steppes of Central Asia.

Reportedly found in this country as early as the 9th Century, when and how remains unsolved.

Certainly as agricultural practices improved man's harvests, the need for greater storage facilities were created thus providing more food and nest sites for mice and rats.

Colour:	Brown to grey with a lighter underside
Ears:	Large
Eyes:	Small
Tail:	Slightly less than body length
Weight (adult):	10 - 25 g
Litters per year:	5 - 8
Litter size:	4 - 8
Maturity:	6 - 8 weeks
Average life span:	3 - 4 months

### HABITS

*M. domesticus* will drink water if available but can survive on food with a moisture content of 15% and can consume 20% of its body weight per day.

It is omnivorous, feeding from a number of different points.

Whole wheat, which has been partly eaten by mice, has a kibbled appearance whilst whole grain, partly eaten by rats, has a cut or chopped appearance.

## Rodent control methods

For rodent control methods, please refer to **CRRU UK CODE OF BEST PRACTICE**: Best Practice and Guidance for Rodent Control and the Safe Use of Rodenticides.

Undertaking rodent control in line with this best practice document is a requirement of the UK Rodenticide Stewardship Regime. This must be adhered to in order to reduce SGAR residues in birds of prey and other wildlife. A key principle of this guide is the 'risk hierarchy'. "The concept of 'risk hierarchy' should be at the forefront when deciding a rodent control strategy for any site. The key here is that any intervention conducted must be potentially effective but, in the risk hierarchy, the least severe methods must always be used. It is not necessary that all options in the risk hierarchy should be employed, and found to fail, before an effective solution is reached. But all should be considered."

The guide can be downloaded here: <http://www.thinkwildlife.org/>



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