Rat Control and Game Management

Revised March 2024

THINK WILDLIFE

Campaign for Responsible Rodenticide Use

Introduction

Rats cause severe problems in game and wildlife management and rodenticides are often used to control them. A side-effect of this is that residues of rodenticides are often found in other wildlife, including species of high conservation value such as barn owls, tawny owls, kestrels and red kites. The purpose of this leaflet is to raise awareness of the issue of wildlife contamination with rodenticides, to explain how it happens and to provide advice to gamekeepers on how to prevent it as far as possible by using rodenticides responsibly in the countryside.

1. Problems with rats

Rodents, in particular Norway rats (sometimes called common or brown rats), can cause significant problems in game management. Some of the problems are well-known and others are not so obvious.

Rats are voracious predators of the eggs and chicks of game-birds

i) Predation of eggs and chicks

First and foremost, rats are voracious predators of birds' eggs and chicks. All ground-nesting birds are vulnerable and, of course, that includes pheasants and partridges. Rats are good climbers and birds' nests quite high up in bushes may be sometimes attacked. Predation of eggs and young by rats can be particularly troublesome on shoots that rely for success on wild-bred birds.

Rats come on to shoots to obtain food and shelter. The feeding of game birds with cereals is an obvious source of food for rats.

On these, and occasionally on other shoots, much time and money that would be better spent elsewhere is given to trying to ensure that rat infestations are kept at an acceptable level.

ii) Consumption of game bird feed

Rats are also a problem at and around release sites. Any food put out for poults, either whole grains or pellets, whether offered from open troughs or from hoppers, is highly attractive to rats. A few rats may sometimes be tolerated but when infestations build up to levels at which a substantial amount of food is lost to them and predation is a risk, remedial action is required.

It is essential to provide supplementary winter feed on most pheasant and partridge shoots, either by hand feeding or from hoppers. Either way, rats quickly come to know customary feeding areas and may take large quantities of the food that is intended to ensure healthy and stable game-bird populations through the hungry months of winter and early spring. Static feed hoppers are particularly attractive to rats, which take the spilled grain that is not cleared up by the birds. Often rat burrows are established around and even directly below hoppers. If nothing is done, large rat infestations may be present in hedgerows and coverts in spring when the birds are settling down to breed.

Rats will live as close to a food source as possible. Do not continue to feed birds from hoppers when rats are established near them or directly beneath them, as in this case.

iii) Infestation of game crops

Many shoots plant game crops of various types to provide cover and sometimes food for gamebirds at certain times of year. Rats often take up residence in these, particularly if they are of high food value, such as maize. Autumn cobs and grains that were intended for gamebirds can be stripped by rats, which may then survive the winter to threaten gamebird eggs and chicks the following spring. Without adequate rat control, these crops can become seriously infested and pose an economic threat to the farm as well as to the shoot.

Game crops provide food and cover both for birds and for rats. It is good practice to leave a wide margin between cover and the crop so that rat runs are readily visible.

iv) Transmission of diseases

Very little is known about the transmission of diseases from rats to game birds and vice-versa. However, the range of diseases that are known to be transferred from rats to man is reason enough to want to ensure that high rat infestations are not established around any installation associated with a shoot. As well as the familiar leptospirosis, rats carry other less well-known disease organisms, such as toxoplasma, cryptosporidium, salmonella and campylobacter.

For all of these reasons it is essential to keep rats under control around the shoot but, if rodenticides are used in this process, a potential result is the contamination of wildlife with anticoagulant rodenticides.

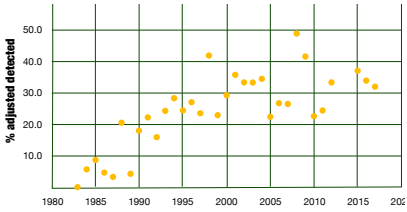


Figure 1. *The increase in the percentage of barn owls (Tyto alba) found to be carrying residues of one or more second-generation anticoagulant in the UK 1983 to 2017. The percentage values are adjusted to take into account changes in the limits of detection provided by the different analytical methods used during the period of sampling. The mean percentage of barn owls with SGAR residues during 2015-2022, using the more sensitive analytical method, was 88%. The figure is reproduced here with the kind permission of Lee Walker, UK Centre of Ecology and Hydrology.*

2. Anticoagulants and wildlife

It has been known for some time that a side-effect of the use of anticoagulant rodenticides in the countryside is that some barn owls carry rodenticide residues in their bodies. An annual record of this contamination is kept by the Centre for Ecology and Hydrology (CEH) through the Predatory Bird Monitoring Scheme (PBMS) (https://wiki.ceh.ac.uk/display/pbms/Home). This work has been funded by the Campaign for Responsible Rodenticide Use (CRRU) UK since 2015.

THINK WILDLIFE
Campaign for Responsible Rodenticide Use

Many valuable wildlife species are contaminated with residues of anticoagulant rodenticides used in the countryside.

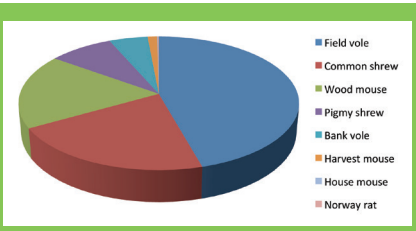


Figure 2. The percentage of different prey species in the food of barn owls in the UK. The figures are aggregate data from surveys conducted in the UK during the period 1974 to 1997 and are adjusted for mean prey weight. Note: barn owl diets are very variable and the diets of individual owls may vary considerably from that shown in the figure. Adapted from: Love, A.R., Webbon, C.E., Glue, D. and Harris, S., 2000, Changes in the food of British Barn Owls (Tyto alba) between 1974 and 1997, Mammal Review 30: 107-129.

In the early years it was thought that the percentage of barn owls exposed to anticoagulants had reached a peak at about 40%, however a switch to more sensitive methods of residue analysis (mass spectrometry) by the CEH chemists has shown that the percentage of exposed barn owls is actually closer to 90%.

It is important to note that very few of the birds examined contained potentially lethal quantities of the poisons, and most had actually died from other causes, such as collisions with road traffic and starvation. We are unaware whether there are sub-lethal effects of low-level contamination by pesticides, but the fact that the owls are contaminated shows that, at some time in their lives, they have taken rodents that had eaten rat bait.

It is not only barn owls that are affected. Anticoagulants are found in a wide variety of our key wildlife species including red kites, tawny owls, kestrels, stoats, weasels, polecats, foxes, badgers and even hedgehogs. This makes anticoagulants one of the most widely distributed contaminants of UK wildlife.

Does this matter if the levels of these residues are generally very low? The answer of course is "yes". That is because, we do not know if these low-level residues are having any adverse effects.

But they may have and the fact that they are there is a matter of concern for rodenticide manufacturers, for government departments which regulate rodenticide use in the UK, for conservationists and for everyone who has an interest in the health of UK's wildlife and countryside. Gamekeepers certainly fall into that category.

How is this contamination happening? A breakthrough in our understanding of this came when it was found that almost 70% of kestrels carry rodenticide residues. At first this was a puzzle because we know that kestrels rarely eat Norway rats and house mice, the rodents targeted during rodenticide treatments. Kestrels feed almost exclusively on voles and wood mice, so it must be through these, non-target rodents, that most are being contaminated. The same is almost certainly true of barn owls, tawny owls and several of the other species involved.

So we now know that some of our wildlife is becoming contaminated with rodenticides when these chemicals are applied where wild small mammals, such as mice and voles, live side-by-side with the target rodents. The purpose of this booklet is to make gamekeepers aware of this and to explain how best to prevent it.

3. Environmental Risk Assessment

It is important to carry out an environmental risk assessment when you begin to control rodents in a new area, or in an area where this has not been done for some time. This should be done particularly

when a rodenticide bait or gassing product is to be used but may also be helpful when trapping. The assessment will provide understanding of the environmental risks, in particular the risks to wildlife, of the actions you are about to undertake. It will also provide reassurance to you, and to those to whom you are responsible, that all available measures are used to minimise potential damage to wildlife and the wider environment. Guidance about environmental risk assessments and template risk assessment forms are available from the CRRU UK website (https://www.thinkwildlife.org/downloads/).

4. Controlling rats affecting game conservation

Rats require food and shelter in order to thrive in the countryside. Many game management activities provide both of these necessities. Obviously, the most cost-effective way to manage rat infestations is to avoid having them in the first place, or at least to make sure that food and cover are in short supply, thereby keeping rat infestations at a minimum. If measures to modify the habitat are ineffective, or cannot be undertaken at all, it becomes necessary to conduct rat control programmes.

This booklet now deals with these two aspects of rat management.

i) Feed and habitat management

Usually, the main attraction to rats provided by game management activities is an abundant source of food. Every effort must be made to restrict rat access to this resource. There are many actions that can be taken to achieve this:

Give careful consideration to the feeding of game-birds at release sites as the food will inevitably attract rats.

Supplementary feeding

When feeding at rearing and release pens:

- Use purpose-made feed hoppers rather than open feeding troughs. If they are well-constructed and maintained, hoppers can substantially reduce the amount of food taken by rats.

  Some feeders can be closed, or removed entirely, to prevent the access of rats outside of the times when birds are feeding.

- If feeding on the ground, provide only enough food for poults so that they consume the food quickly and little is then left around for rats.

- *Where possible* place food dispensers at a distance from any cover. Rats do not like to move and feed out in the open because they are then vulnerable to predators.

- Keep the area as clean and tidy as possible. Do not leave excess spilled grain on the ground for rats. Also, do not leave clutter, such as stacks of old grain bags and old equipment around, in or near release pens.

- Release pens should, where possible, be sited in areas that are less attractive to rats. Pens put near to water-courses will always be more likely to become rat infested. Also, pens with a wide cleared area around the fencing will allow the keeper to see rat runs early and deal with rats before infestations build up.

When feeding on rides:

- Only put down sufficient food for the birds present at each feeding location, so the food is quickly taken by the birds and not left for rats.

When feeding, spread the food thinly and only provide sufficient food so that birds can consume it quickly, leaving none for rats.

- Scatter the feed as widely as possible. Again, rats prefer to eat in quantity in one place and in short feeding bouts. They do not like to have to 'work' in the open to find small quantities of food as this leaves them vulnerable to predators.

When feeding from food hoppers in hedgerows;

- Use hoppers that do not provide easy access to rats to the food they contain. It is better to use purpose-made metal hoppers.
- Clean up spillage on a regular basis.
- If rats become established at a feed hopper, remove the feed from it for a few days so that rats have to find alternative food and can be more easily trapped and baited.

Good housekeeping is essential in all areas. Make sure that all debris, such as empty feed bags and dead birds, is cleared up regularly and removed from the site for effective disposal. This will also help minimise rat problems.

Overall, the health and well-being of the birds will always take precedence, but the careful consideration of when and how supplementary feed is available to the birds will be important in reducing problems with rats.

Cover crops

The planting of cover crops is a fundamental part of modern game management but this practice can help to support rat populations by providing both food and cover during the difficult overwinter period. If cover crops are planted, there is not much that can be done to deny them to rats. However, in areas where rats are known to be a problem the planting of alternatives to seed-bearing crops will help to keep rat numbers down.

ii) Controlling rat infestations

Most keepers are faced, at some point, with the need to get rid of rats that are established before they can have a negative impact on game and wildlife. First and foremost, this should be done as soon as rats are noticed. It is much easier to deal with a few rats that are not yet established than with a full-blown substantial infestation. It requires less time and effort and, if rodenticides are needed, less will be used. This keeps down the cost and means that less rodenticide enters the environment.

When rodenticides are used in the countryside, it is inevitable that some will enter the food chain and will contaminate wildlife. The only way to prevent this entirely is not to use these rodenticides.

Therefore, these products should be seen as a last resort and not the first things to be used when rats appear. It is important to know that from 4th July 2024 no anticoagulant rodenticides can be sold for use in 'open areas' (i.e. away from buildings) and none can be used in such places from 1st January 2025. From these dates the only rodenticide baits containing cholecalciferol (see below) may be used away from buildings. These changes make anticoagulants illegal for rat control in any circumstance associated with outdoor rat control on the shoot.

(a) Trapping, shooting and terriers

Many keepers will run a system of tunnel traps as part of a managed programme of pest and predator control. This will help prevent rats from becoming

Trapping is an excellent method of rat control. Always set traps in robust tunnels to prevent access by non-target animals and check traps in accordance with legal and best practice guidelines.

Terriers and other dogs may be used legally to take rats.

a problem at release pens and in hedgerows by keeping up a constant control pressure on them. Even considerable rat infestations can be removed by a skilful and well-managed trapping programme.

Trapping, if done well, also has a minimum impact on non-target animals and the wider environment. However, traps that are poorly set and not properly protected as they must be in tunnels can cause casualties among non-target species. Trap tunnels should be established before rats become apparent, so that they are accustomed to moving through them from the start. The traps should be set as soon as rodent signs are noticed and rats are using tunnels confidently. More detailed advice is available on trapping for controlling rats around game-rearing facilities from the British Association for Shooting and Conservation (BASC) and the Game and Wildlife Conservation Trust (GWCT).

Shooting can be a very effective method of rat control. It presents little risk to other wildlife and can be carried out using different types of guns e.g. shotguns and air rifles depending upon the specific situation. Shooting MUST be carried in accordance with all relevant legal requirements and best practice guidance e.g. BASC night shooting code (https://basc.org.uk/pest-and-predator-control/night-shooting/).

Terriers and other suitable dogs are also used for killing rats. This is lawful under the Hunting Act (2004) and can make an effective contribution to rat control in certain circumstances, for example when an old stack of bales is being dismantled. Like shooting, it is highly unlikely to provide a sufficient control method on its own but deployed alongside other methods, it may have a useful role to play. Be aware of animal welfare issues.

(b) Gassing

Fumigant gases, evolved by the application of aluminium phosphide tablet and pellet formulations, provide a very effective method for rat control on shoots. The use of fumigants has the added benefit that its effects are virtually immediate. Burrow fumigation should be used in preference to the application of anticoagulant baits because, when used in the approved manner, adverse impacts on non-target animals are rare and no significant residues of fumigants remain in the environment or enter the wildlife food chain.

However, the use of gassing for rodent control requires considerable skill. It is not a job for the inexperienced and only those who are properly trained can use gassing chemicals and equipment safely and effectively. The use of fumigants by gamekeepers also brings with it additional responsibilities concerned with the safe storage and

Gassing is a specialist operation and should only be done by those who are properly trained. However, it is not likely to cause harm to wildlife so long as only rat burrows are gassed.

Here a robust rat baiting station is established below a feed hopper. Rodenticides should only be put in such stations when there are rats present and should never be left out permanently. Mouse droppings seen in stations like this are an indication that wild small mammals are being poisoned. It is not recommended to feed pheasants and bait rats simultaneously at the same location.

transportation of fumigant products. Procedures introduced within the Register of Accredited Metallic Phosphide Standards (RAMPS UK) mean that only individuals who are qualified and certificated can purchase and use these materials. Approved trainers can be found by contacting RAMPS UK at http://www.ramps-uk.org.

(c) Rodenticides

Only use rodenticides when the other methods described in this booklet are either ineffective or impracticable. Always read and carefully follow product label instructions for the specific bait that you are using. These differ among baits and the active substances contained in them.

Users need to be aware of two mechanisms by which rodenticides can affect non-target animals.

- Firstly, non-target animals may gain direct access to rodenticide baits and consume them. This is called 'primary poisoning'. Much can be done to prevent this by the careful placement and covering of bait points (see below). Note in particular that non-target wild small mammals, such as wood mice, bank voles and field voles, easily gain access to rat baits put out for target rats and mice and are a primary source of contamination of wildlife.
- Secondly, predators and scavengers may eat animals, both the target rodents and non-targets, which themselves have taken rodenticide baits. This is called 'secondary poisoning'. It can be reduced by frequently checking and picking up the bodies of poisoned rodents, although those not yet dead may still be caught and eaten by predatory species. An equally important task, therefore is to deny access of non-target rodents to bait points as far as possible.

Several classes of rodenticide active substance are authorised for use in the UK. Among them, the second-generation anticoagulants (SGARs) and cholecalciferol may be of particular interest to gamekeepers because they are widely available and can be used outdoors.

The SGAR substances are brodifacoum, bromadiolone, difenacoum, difethialone and flocoumafen. Professional products containing these compounds can be purchased by those with proof of competence certification. They are available under a range of trade names and in a variety of formulations. They are slow-acting substances, sometimes taking several weeks for

an infestation of rats or mice to be eliminated. However, they do not cause bait-shyness and accidental poisoning may be reversed with the antidote vitamin K_1. They have the disadvantage that they may remain in the bodies of poisoned rats and mice after death and, therefore, are found as contaminants in many wildlife species, particularly predatory and scavenging birds and mammals. All SGARs are labelled 'Hazardous to wildlife'. From 1st January 2025 all products containing these substances are restricted to use only 'indoors', 'in and around buildings' and 'outdoors – around buildings'. Therefore, they may not be used away from buildings in the open countryside. Guidance on what may be considered to be a building is provided in the CRRU UK Code of Best Practice (available for download at: (https://www.thinkwildlife.org/downloads/). Some rat and mouse infestations in the UK are known to be resistant to the active substances bromadiolone and difenacoum.

Professional products containing the active substance cholecalciferol are also authorised for use in the UK. As well as authorised uses 'indoors', 'in and around buildings' and 'outdoors – around buildings' already mentioned, the labels of some products containing cholecalciferol permit applications in 'open areas' (i.e. away from buildings) and with the use of the burrow baiting technique. Not all cholecalciferol products can be used in these ways however and, as always, it is essential that users read product labels, preferably before purchase, and follow their requirements. The mode of action of cholecalciferol is different to that of the anticoagulants, and users will notice this difference when they apply these baits. In particular, rodents that feed on cholecalciferol baits may stop feeding on them some time before they die. Therefore, generally, less bait is consumed by rodent infestations than would usually be the case for an anticoagulant. Cholecalciferol is not considered to be persistent, bio-accumulative and toxic (PBT) but, as with all rodenticides, great care should be taken to ensure that baits containing this substance cannot be consumed by any non-target animals. Cholecalciferol baits are labelled 'Hazardous to wildlife'. This substance is effective against anticoagulant-resistance rats and mice.

Dead rats can carry residues of the rodenticides that killed them and these can be passed on to any other animals that feed on the dead rats.

If rodenticides must be used it is often advisable to bait rat burrows. Get the bait as far into the burrow as possible.

A third class of active substance, alphachloralose, is authorised for the control of house mice indoors.

If rodenticides are needed, they should always be applied using the general recommendations from the Campaign for Responsible Rodenticide Use (CRRU) and the CRRU Code of Best Practice which is available for download: (https://www.thinkwildlife.org/downloads/). This guidance is intended to reduce both primary and secondary exposure of wildlife. However, even with the use of recommended methods of application, some contamination and/or exposure of wildlife is

THINK WILDLIFE
Campaign for Responsible Rodenticide Use

When a rat burrow has been baited it should be lightly blocked with grass, paper or straw help prevent the bait from being kicked out of the burrow. Ideally check baited burrows daily and clear up any bait that has been kicked out.

likely when gamekeepers use rodenticides in the countryside and, consequently, further advice is required.

The application of bait directly into rodent burrows is a preferred method of application. If this is done, it makes it less likely that non-target small mammals will have access to the bait.

The following recommendations will allow efficient bait application with the minimum likelihood of exposure of wildlife:

- Get the bait as far into the burrow as possible.
- Always record baited burrows, so that they can be found again and checked.
- Lightly block the baited burrow with a little loose soil or a twist of grass or paper.
- Come back frequently, preferably in the early morning each day, to remove bait kicked out of the burrow by rats.
- When it is clear that burrows are no longer occupied by rats, remove all remaining bait, as far as possible, and dispose of it according to instructions on the product label.
- Heel in the burrow to make sure that any remaining bait residue is inaccessible and will rot down quickly.
- Remember that only baits containing cholecalciferol can be used in this way away from buildings.

If burrow baiting is unfeasible, it is essential to put bait out in protected bait stations. Never leave rodenticide baits out in the open. However, even when bait is put out in bait stations it is accessible to any animals smaller than rats. In particular, wood mice and bank voles will enter boxes and feed on rodenticide baits. Even some small birds will overcome their fear of entering a confined space and will eventually enter bait boxes to consume bait.

If mouse droppings are found in bait boxes, these will inevitably be those of non-target rodents. This is because house mice hardly ever inhabit hedgerows. Baits should not be left in boxes that are being used by non-target rodents, as this is the main cause of wildlife exposure and contamination.

Bait stations must be robust enough to deter animals such as dogs, foxes and badgers, as all these animals will take rat baits if they are accessible to them. Rats tend to take bait more readily when the interiors of the bait stations allow them plenty of room.

Consideration should be given to the practice of pre-baiting. In this, unpoisoned bait such as whole wheat is put out in the same places as the poisoned bait will be placed. Poison bait is substituted for the pre-bait when rats are feeding freely. This may reduce the overall duration of the poison baiting programme and allows the identification of the species feeding on the bait to be made. Only bait stations that are used by rats should be baited with poison bait.

Short, effective, targeted treatments are the thing to aim for. Only leave bait out when there is a rat infestation to control. It should never be left out on a continuing basis 'just in case'.

Finally, it is obvious that efficient baiting programmes, which are as short as possible, will control rats quickly, while minimising the exposure of wildlife to rodenticides. Conversely, wildlife exposure is prolonged during ineffective baiting programmes, in

which baits are badly positioned, are too few, contain the incorrect amount of rodenticide and are not managed according to label instructions. In short, if you need to use rodenticides, use them properly.

Always keep careful records of all activities when conducting rat control using rodenticide baits. Such records could include:

- An assessment of the size and distribution of the rat infestation.
- The trade name of the bait used and the active substance it contains.
- Measures adopted to minimise non-target access to the bait.
- The numbers of bait points put out and their exact locations.
- The amount of bait put down and the dates of bait laying operations.
- Whether bait was applied directly into burrows or whether bait stations were used.
- The dates and times of visits to check bait points and to pick up dead rodents.
- The numbers of dead rodents found and how they were disposed of.
- The dates when baits were removed from the baited area.
- The approximate quantity of uneaten bait picked up and how it was disposed of.
- An assessment of the effectiveness of the treatment.

By following these recommendations, we can be sure that rodenticide baiting is carried out by gamekeepers in the best possible way, with a minimum impact on wildlife and the wider environment. Correct use will also forestall calls to restrict rodenticide use and help to keep this important rat control method available to gamekeepers when necessary.

Acknowledgements

Written for CRRU by Dr Alan Buckle, CRRU Chairman and Visiting Research Fellow, School of Biological Sciences, University of Reading. CRRU would like to express grateful thanks to Glynn Evans (BASC) and Mike Swan (GWCT) and colleagues at the National Gamekeepers' Organisation and Scottish Gamekeepers Association for helpful comments on early versions of this booklet.

Further Reading

Campaign for Responsible Rodenticide Use. More information available on-line at:
http://www.thinkwildlife.org.uk

Predatory Bird Monitoring Scheme. More information available on-line at:
https://wiki.ceh.ac.uk/display/pbms/Home

Campaign for Responsible Rodenticide Use. CRRU UK Code of Best Practice. Best Practice and Guidance for Rodent Control and the Safe Use of Rodenticides.
https://www.thinkwildlife.org/downloads

The Game Conservancy. (1996). Gamebird Releasing. 77 pp. Fordingbridge, Hampshire.
ISBN 0 901369 00 5.

The British Association for Shooting and Conservation. Night Shooting.
https://basc.org.uk/pest-and-predator-control/night-shooting/

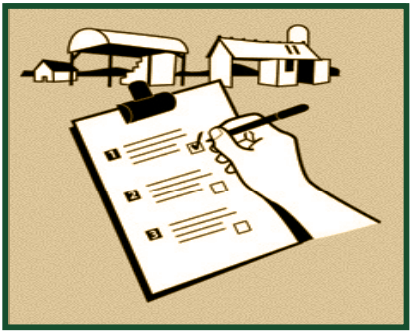
The British Association for Shooting and Conservation. How to create a pen that meets The Code of Good Shooting Practice's requirements.
https://basc.org.uk/gamekeeping/stock-and-poultry-advice/pheasant-release-pen

The Game Conservancy. (2005). Predator Control. 85 pp. Fordingbridge, Hampshire.
ISBN 0 9500130 6 4.

The British Association for Shooting and Conservation.

Quy, R. (2010). Review of the use of bait boxes during operations to control Norway rats, Rattus norvegicus – a report to CIEH. The Food and Environment Research Agency, York, and the Chartered Institute of Environmental Health, London. 12 pp.
http://www.urbanpestsbook.com/downloads/CIEH_Rodent_Procedures.pdf.

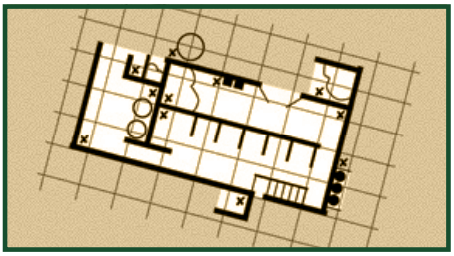
Register of Accredited Metallic Phosphide Schemes (RAMPS UK). More information available on-line at:
http://www.ramps-uk.org.



The CRRU Code

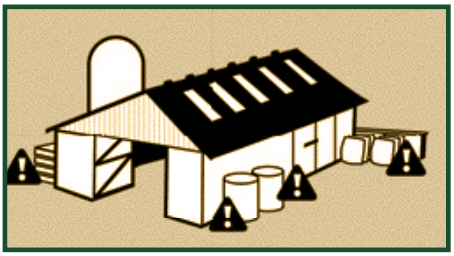
1. Always have a planned approach

- 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, removing rubbish and weeds providing 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.



2. 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.



3. 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.

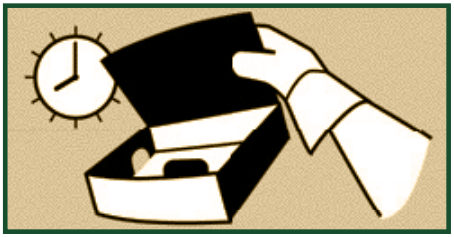
THINK WILDLIFE
Campaign for Responsible Rodenticide Use

4. 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 v 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.

5. 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.



6. 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.

7. 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.

Notes

Campaign for Responsible Rodenticide Use

to protect wildlife while promoting and providing effective rodent control through the responsible use of rodenticides in rural areas.

For further details please visit the CRRU website:
www.thinkwildlife.org.uk
or contact office@thinkwildlife.org.uk

Campaign for Responsible Rodenticide Use is a company limited by guarantee.
Registered in England No. 05394358.

CRRU is supported by the following companies:

Babolna Bioenvironmental Centre Ltd | BASF plc | Bell Laboratories Inc | Envu CropScience Ltd | Killgerm Group Ltd | LiphaTech S.A.S. | LODI UK Ltd | Pelsis Ltd
PelGar International Ltd | Rentokil Initial plc | Syngenta Crop Protection AG | Unichem d.o.o. | Zapi SpA