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Campaign for Responsible Rodenticide Use

CRRU Stewardship

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Environmental Risk Assessment

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The Campaign for Responsible Rodenticide Use (CRRU) UK

The CRRU UK Rodenticide Stewardship Regime

ENVIRONMENTAL RISK ASSESSMENT WHEN USING ANTICOAGULANT RODENTICIDES[1]

All anticoagulants rodenticides, both of the first generation and the second generation, 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 the thorough and careful application of environmental risk mitigation measures.

REMEMBER: APPLY ALL AVAILABLE AND APPROPRIATE RISK MITIGATION MEASURES EVERY TIME YOU USE AN ANTICOAGULANT RODENTICIDE

Because of these risks, and irrespective of both the type of baiting techniques used and the area to be treated, it is good practice to conduct an Environmental Risk Assessment (ERA) when an anticoagulant rodenticide is to be applied. This guidance document provides information about the reasons for conducting an ERA and advice about how to conduct one. The rare circumstances in which an ERA may not be needed are also explained.

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. As the name suggests, an ERA is conducted to determine risks to the environment, mainly risks to wildlife. The risks to companion animals, domestic and farm stock and human bystanders are not considered here, although some of the measures to keep them safe during rodenticide applications are similar.

This document is not intended to explain how to implement environmental risk mitigation measures. Refer to other advisory documents, including the CRRU UK Code of Best Practice, for that information[2].

ALWAYS READ THE PRODUCT LABEL AND COMPLY WITH ITS REQUIREMENTS

REMEMBER: EVERY SITE IS DIFFERENT AND WILL REQUIRE ITS OWN ERA AND THE IMPLEMENTATION OF RISK MITIGATION MEASURES SPECIFIC TO THE SITE

[1]This advisory document and accompanying Environmental Risk Assessment form are provided for qualified professional pest control technicians by the Campaign for Responsible Rodenticide Use (CRRU) UK. CRRU UK accepts no responsibility for the application of any rodenticide product used on the site that is the subject of an Environmental Risk Assessment as proposed here.

[2] CRRU UK Code of Best Practice – Best Practice and Guidance for Rodent Control and the Safe Use of Rodenticides, March 2015, 24 pages. Available at: http://www.thinkwildlife.org/crru-downloads/crru-uk-code-of-best-practice/?wpdmdl=3220

1. The Role of the Site Survey

A site survey is always conducted prior to the implementation of measures to alleviate or remove a rodent infestation. A major purpose of the survey is to determine the extent of the infestation to be treated. The site, and its immediate environs, must be thoroughly examined. It is essential to discover the boundaries of the infested area so that the entire infestation is dealt with and no undetected peripheral rodents are left to become quickly re-established. Guidance about how to conduct a site survey is provided in all approved training courses and further information is available from CRRU UK[3].

Much other important information is also collected during this survey, such as the possible presence of companion animals and farm livestock, and areas to which site workers, or even 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.

When completed, the site survey will provide all information necessary to determine what needs to be done to alleviate the problems caused by rodents at the site most efficiently and with the least risk to non-target animals, such as wildlife. It is essential to note that, according to the concept of 'risk hierarchy', the least severe but effective methods should be employed and that it may be possible to achieve the aims of an effective rodent control programme 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 harborages to prevent infestation, may also pose risks to wildlife and the wider environment.

2. Environmental Risks

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. For example, wildlife is present even in urban environments and may include feral pigeons, house sparrows, foxes and raptors, such as kestrels and sparrowhawks. Suburbia is home to a much richer variety of wildlife and environmental risks are obviously more severe in rural areas where wildlife is even more abundant, such as on farms and shoots, and in other rural locations. Risks to non-target animals, especially wildlife, are greater when anticoagulants are applied outdoors.

All competent professional users of rodenticides will know that the main environmental risks of anticoagulant rodenticides are:

- Primary risks to non-target animals that gain access to and consume anticoagulant rodenticide baits.
- Secondary risks to non-target animals that consume organisms that have already themselves ingested rodenticides and therefore carry residues of them in their bodies.

Obviously, a large variety of animals and birds are at risk of primary exposure to rodenticides when they consume rodenticide baits which are usually made from cereals, and other foodstuffs, attractive and palatable to rodents.

Scavenging and predatory species are those most likely to be exposed to secondary poisoning. However, it must be recognised that when under stress from lack of normal foods, many species will take anticoagulant baits that might not normally be thought to do so.

No attempt will be made in this document to provide a list of wildlife species likely to be at risk of primary and secondary exposure to anticoagulant rodenticides when they are applied, and therefore which should be considered in an ERA, because the list would include almost all vertebrate terrestrial wildlife species to be found in the UK.

A most important point to keep in mind is that anything smaller than the target rodents may enter protected bait placements, including tamper-resistant bait boxes, to take rodenticide baits. This is especially true for the wild small mammals, such as field mice and voles, which are the primary prey base for many species of wildlife in the UK. There is good evidence that it is the contamination of these small mammals, and not rodenticide carried by the target rodents, which is the main source of the widespread wildlife contamination that we now see in the UK and elsewhere.

The wide extent of this contamination of wildlife makes apparent the scope and frequency of wildlife exposure to anticoagulant rodenticides, via both the primary and secondary routes. For this reason the frequency and quantity of anticoagulant residues in a sentinel species, the barn owl, will be measured annually to monitor the effects of improved use practices on the wildlife exposure.

[3] CRRU UK Code of Best Practice – Best Practice and Guidance for Rodent Control and the Safe Use of Rodenticides, March 2015, 24 pages. Available at: http://www.thinkwildlife.org/crru-downloads/crru-uk-code-of-best-practice/?wpdmdl=3220

Also remember that, although they are initially reluctant to enter bait boxes, small birds such as sparrows and finches will certainly enter bait boxes (and improperly covered bait points) to access and feed on rodenticide baits. Spillage from bait boxes also enables larger birds, such as pigeons and doves, to feed directly on baits.

As a possible result of this we now commonly find contamination of predatory birds, such as sparrowhawks and peregrine falcons, which mainly prey upon other smaller birds while hunting on the wing. Of course, baits spilled from bait boxes will present risks to many non-target species.

Insects and molluscs (slugs and snails) also enter bait boxes to feed on baits and, in their turn, are consumed by many animals and birds. This is another possible source of the residues we find in sparrowhawks and peregrines, and also of those in mammal species such as the hedgehog, fox and badger.

Thus, while the use of tamper-resistant bait boxes is important in many circumstances, they provide no certainty that non-target animals will not be exposed to the rodenticides they contain.

These are all risks to the terrestrial environment but there is also risk to aquatic systems if rodenticides enter water. Most anticoagulants are highly insoluble in water and so will not dissolve into water bodies. However, when particulate baits fall into water they may be taken by aquatic vertebrates, particularly fish, which are susceptible to poisoning by anticoagulants.

There are also increasingly frequent reports of anticoagulants being found in otters and it may be from this source, or the direct consumption of baits, that these animals are acquiring anticoagulant residues.

Norway rats are particularly attracted to water and often burrow into the banks of streams and ponds. Special care is needed in these situations because the signs of Norway rats and protected water voles are difficult to distinguish. Guidance is available from a number of sources, including the UK Wildlife Trusts, about the application of rodenticides in areas where water voles may be living.

IT IS IMPORTANT TO CONSIDER ALL ENVIRONMENTAL RISKS. LIST ALL THOSE YOU IDENTIFY AT THE SITE. YOU CAN THEN DECIDE IF THE APPLICATION OF RODENTICIDE IS JUSTIFIABLE AND, IF SO, THE MEASURES NEEDED TO MINIMISE ENVIRONMENTAL RISK.

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[4] Rat Control and Water Vole Conservation. Sussex Wildlife Trust. March 2013. 6 pp. Available at: http://archive.sussexwildlifetrust.org.uk uploads/rat % 20controlandwater % 20vole % 20conservation.pdf.

3. When to Carry Out an Environmental Risk Assessment

An ERA will usually be carried out when a rodenticide is to be applied at any new site. This applies both if it is the first time any rodenticide has been applied at the site and when a new professional individual rodent control operator, or new servicing company, is applying rodenticide at the site for the first time.

It should never be assumed that the way a predecessor operator, or servicing company, has applied rodenticide at a site is safe. Carry out the ERA after the preliminary site survey, because much of the information obtained during the survey will be useful for the ERA.

It may not be necessary to conduct an ERA if all rodenticide application is made indoors against house mice using tamper-resistant bait stations specific to that species. It may also be unnecessary to conduct an ERA in heavily built-up areas with no green-space within several hundred meters and no environmental risks are noted during the site survey. However, some wildlife, such as foxes, feral pigeons, house sparrows and other birds, may be present even in the most urbanized areas.

If likely to be present, it is sensible that these should be considered using the CRRU ERA form provided. If you make a decision not to conduct an ERA you should record the reasons for not having done so on the form.

It is not necessary to conduct an ERA each time baits are checked and replenished during a baiting programme. But environmental risks should be considered throughout the campaign and the programme modified if risk mitigation measures are found to be insufficiently effective.

4. Protected Areas and Species

Competent professional users of rodenticides must be conversant with legislation that protects wildlife species in the UK, most importantly the Wildlife and Countryside Act 1981 and the Wildlife (Northern Ireland) Order 1985. These deal with the responsibilities of all who may interact directly and indirectly with wildlife species and accord protected status to some of them. The placement of anticoagulant baits in areas where wildlife may be present is one such interaction.

It is important to know if a part or all of the area to be treated with an anticoagulant falls within the boundaries of one of the following, because local ordinances and national legislation determines what may be done within them:

- Local Nature Reserve (LNR)
- Marine Nature Reserve (MNR)
- National Nature Reserve (NNR)
- Site of Special Scientific Interest (SSSI)
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)

Local Wildlife Trusts may provide information about the presence of certain animal species in specific localities. For those species which are protected or of high conservation value, such as barn owls, red kites, peregrine falcons, otters and others, it may be necessary to consult specialist bodies that hold more comprehensive information about the species concerned.

5. Measures to Reduce Environmental Risk

The most effective way to reduce environmental risk is avoid any activity that causes it – such as the use of anticoagulant rodenticides. Thus, 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.

More information on risk hierarchy and other aspects of rodenticide application, including how to apply risk mitigation measures, is provided in the CRRU UK Code of Best Practice.[5]

Long-term (i.e. permanent) baiting presents a particular risk to non-target organisms. It should only be carried out under circumstances in which a threat to human or animal health has been identified that cannot be alleviated in another way. See CRRU UK guidance for more information on permanent baiting.[6]

When a product containing an anticoagulant rodenticide is used it is a requirement of its application that all available and appropriate risk mitigations measures should be adopted. Examples of such measures are given here but there may be others that are also appropriate:

- conduct a thorough site survey to ensure that the entire rodent infestation is treated,
- choose which rodenticide products to use 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),
- choose a rodenticide active substance that is appropriate to the resistance status of the infestation to be treated,[7]
- ensure that all who have access to the treated site are aware of the conduct of the application, where baits are situated, what to do if a bait placement is disturbed and if dead or dying rodents are encountered,
- visit the site frequently during the treatment, with the frequency of visits determined by (among other things) 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 carcases that must be picked up for safe disposal,
- search for and remove rodent carcasses each time the site is visited and dispose of them correctly (see below),
- use tamper resistant bait stations or natural/artificial cover to protect the bait from access by non-target species as far as practicable, and clean up any bait spilled from them during visits to check bait stations,
- conduct the application in the most effective and expeditious manner possible, and review the methods used as soon as it becomes apparent that the treatment is not going to plan,
- remove bait if there is evidence of take by non-target species at certain bait points or if bait points are repeatedly disturbed,
- remove all bait from the treated area after an adequate level of control is achieved, and clean up any spilled bait,
- use non-toxic monitoring bait, or other appropriate monitoring measures which do not employ rodenticides, where applicable,
- after the treatment, employ all necessary measures to minimise the risk of establishment of a subsequent infestation at the site.

6. Disposal of Dead Rodent Bodies

An important risk mitigation measure is the frequent search for, collection and disposal of dead rodents that may be contaminated with rodenticides. Do this at least as often as when baits are checked and/or replenished. Follow the advice given on the product label about the frequency of these visits. Daily inspection may be required in some circumstances.

[5] CRRU UK Code of Best Practice – Best Practice and Guidance for Rodent Control and the Safe Use of Rodenticides, March 2015, 24 pages. Available from: http://www.thinkwildlife.org/crru-downloads/crru-uk-code-of-best-practice/?wpdmdl=3220

[6] CRRU UK Guidance Permanent Baiting. April 2016. 8 pp. Available at: http://www.thinkwildlife.org/about-crru/

[7] Advice on the treatment of resistant rat and mouse infestations in the UK is provided by the Rodenticide Resistance Action Group: http://www.bpca.org.uk/pages/index.cfm?page_id=53&title=rrag *

Several options are available for the safe disposal of rodent bodies and these may vary depending on the type of user (i.e. amateur, professional, etc.). Generally, these options are in the order of preference:

- disposal via on-farm small carcass incinerators (regulated under the Animal By-product Regulation);
- removal along with other waste as part of the domestic waste collection round (subject to local authority agreement);
- disposal off site at a suitably authorised incinerator or landfill; or where this is not possible;
- burial on site, provided this is done away from sensitive areas and in line with the requirements of the Environment Agency and, in Scotland, the Scottish Environmental Protection Agency. [Note that only farmers are permitted to use this method of disposal in Scotland.]

For further information on disposal contact the Environment Agency (http://www.environment-agency.gov.uk) or SEPA (http://www.sepa.org.uk).

7. After the Treatment

An important risk mitigation measure is to make modifications at previously infested sites to reduce the likelihood of re-infestation and the need to use rodenticides again. All practicable means should be used including the following:

a) Modifying or eliminating actual and potential harbourages.

b) Clearance of materials that could provide attraction for rodents.

c) Undertaking proofing or other measures aimed at denying access to rodents including faulty drainage systems and features that could provide secure movement routes.

d) Reducing or preventing access to food sources and supplies.

Leave written instructions to the owner or occupier of the site about these recommended measures and refuse to apply rodenticides again at the site until the instructions are implemented in full.

Having completed an Environmental Risk Assessment you should:

- provide a copy of the completed ERA to the customer or other person with responsibility for the treated site,
- keep a record for future reference and as a demonstration that these aspects have been considered and acted upon where appropriate,
- ask the customer to sign both copies of the ERA.

During the course of the treatment period, if there are any significant or relevant changes to the site conditions or circumstances then this assessment should be reviewed, amended as necessary and appropriate actions taken.

8. Environmental Information Sheet

The following pages provide an Environmental Information Sheet (EIS) for ready-to-use rodenticide baits containing anticoagulant active substances. The EIS supplies general environmental impact information. It highlights any situations where risk management is essential to ensure environmental protection.

The EIS reinforces, and supplements, the information presented on product labels. The risk information on the EIS assumes operator compliance with both the product's recommended conditions of use and the applicable Codes of Best Practice.

Ready-to-Use Rodenticidal Bait

containing brodifacoum, bromadiolone, chlorophacinone, coumatetralyl, difenacoum, difethialone, flocoumafen and warfarin. Application rate and permitted areas of treatment: as specified on the product label.

WILDLIFE Birds of Prey Scavenging birds Other birds Wild mammals	WILD MAMMALS AND BIRDS MAY BE AT RISK WHEN THIS PRODUCT IS USED. Wild mammals and birds will be at risk if they feed directly on the bait. Use protected bait stations that exclude animals larger than the target pests to reduce this risk. Wild mammals and birds will be at risk if they eat dead or dying rodents, and other organisms, that have eaten this product. Search for and remove any dead or dying rodents during site visits and dispose of the carcases safely by an approved method (see below). Visit baited sites frequently to make sure that baits remain secure and to search for and remove dead or dying rodents. Daily visits may be necessary. Low-level residues of rodenticides have been detected in a wide range of wildlife species. The possible impact of these residues is a cause of concern. Proper use of products in accordance with the label, these instructions and applicable Codes of Best Practice will help to minimise the exposure of wildlife to rodenticides.
SOIL AND GROUNDWATER	Use bait trays and bait stations to reduce soil contact. If soil contact does occur, (i.e. during burrow baiting) the product has low mobility in soil and is not taken up by plants. Avoid contamination of watercourses. This product is of low water solubility and has very low mobility in soil; it presents negligible risk to groundwater.
BAITING STRATEGY	It is important that the label instructions are followed. A quick and efficient baiting programme is important to keep risks to non-target animals to a minimum. Overbaiting, underbaiting, not protecting bait adequately and leaving bait down for long periods increases the risks to wildlife. During treatments, you must search for rodent bodies at each site visit. Dispose of rodent bodies safely by an approved method (see below). Rodent bodies may be found away from baiting points and wherever the baited rodent infestation is active. This product should only be used in long-term (permanent) baiting under exceptional circumstances and, when it is, the reasons for doing so should be documented. Note: attention must be paid to permitted areas of use such as 'sewers', 'indoors', 'in and around buildings', 'open areas' and 'waste dumps'.[1]
CLEARING UP	When rodents have been satisfactorily controlled (which is normally within 14-28 days but should be no longer than 35 days), it is most important that all bait is cleared away. If the condition of the bait is such that it cannot be re-used it must be disposed of safely by an approved method (see below).

GAMEKEEPERS AND OTHER USERS OF RODENTICIDES IN THE COUNTRYSIDE Use away from buildings (e.g. pheasant pens etc.)	Wildlife is at particular risk when these products are used away from buildings (e.g. in hedgerows and around pheasant rearing pens). Prevent the risk by using alternative methods of rodent control whenever and wherever feasible. When baiting, apply bait directly into burrows or use bait stations that exclude animals larger than the target rodents, keep the duration of treatments to a minimum and remove all bait and bait stations from the site at the end of the treatment. Note: attention must be paid to permitted areas of use such as 'sewers', 'indoors', 'in and around buildings', 'open areas' and 'waste dumps'.[2]
DISPOSAL OF RODENT BODIES AND SPENT BAIT[3]	Amateur users may dispose of rodent bodies and spent bait with the domestic waste, i.e. securely bagged in a dustbin or wheelie bin. Professional users may dispose of rodent bodies at an incinerator or landfill permitted to accept that type of waste, or should have them collected by a registered waste carrier and taken for disposal at a suitably permitted site. Spent bait is hazardous waste. For farmers and professionals working on farms, one of the following methods of disposal may be used for rodent bodies, in this order of preference: • disposal via on-farm small carcass incinerators (regulated under the Animal By-product Regulation); • removal along with other waste as part of the domestic waste collection round (subject to local authority agreement); • disposal off site at a suitably authorised incinerator or landfill; or where this is not possible, • burial on site provided this is done away from sensitive areas and in line with the requirements of the Environment Agency (England and Wales) and the Scottish Environment Protection Agency (Scotland).[3] Note this means of disposal is only available to farmers in Scotland and not to other user groups.

[1] Definitions of these use areas are given in: CRRU UK Code of Best Practice – Best Practice and Guidance for Rodent Control and the Safe Use of Rodenticides, March 2015, 24 pages. Available from: http://www.thinkwildlife.org/crru-downloads/crru-uk-code-of-best-practice/?wpdmdl=3220.

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[3] If in doubt about appropriate methods of disposal contact your local office of either the Environment Agency ((http://www.environment-agency.gov.uk) or, if in Scotland, the Scottish Environmental Protection Agency (http://www.sepa.org.uk).

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