

UPMTC Rodenticide Stewardship Document

Introduction

Preventing rats and mice from jeopardizing health and property is essential to preserving the basic quality of human life. This document will use the term *rodent* to refer to commensal rodents, the target species of rodenticides. Commensal rodents are those rodents that achieve pest status by living in and among humans and activity. Along with a few other regional species, the commensal species are Norway rats (*Rattus norvegicus*), roof rats (*Rattus rattus*) and house mice (*Mus musculus*), which have been tightly tied to human activity from antiquity. The negative impacts rodents have on people include the destruction of our food supply through consumption or contamination, the spread of pathogens and causing property damage including, but not limited to, causing fires and technological disruptions.

Steps taken to eliminate the threats from rodents almost always carry risks of their own. Rodenticides have been found in non-target wildlife species and have caused secondary poisoning in a number of predatory species. It must be determined that the benefits of rodent control will outweigh the risks. Rodents represent a greater threat in some situations than they do in others. Food and pharmaceutical manufacturing, health care facilities, schools and day care settings represent some of the environments where there is no tolerable level of rodents. Regardless of the objectives and circumstances for rodent control, decisions on when and how to use rodenticides should emphasize the importance of best practices. When rodenticides are necessary, their use should align with responsible stewardship to minimize risks while achieving effective control.

The essence of reducing the risks of rodenticides is the application of Integrated Pest Management (IPM). Integrated Pest Management is an ongoing dynamic system that combines and utilizes different methods into one program that alters the environment of a site or a structure to the point it will not support a pest population above a given threshold. Stewardship of rodenticide use will, of necessity, include the steps necessary to minimize having to use rodenticides, or in some cases eliminate its use entirely. The sections of this document will focus on maximizing the efficacy of rodenticides while minimizing the risks. This document was created by industry leaders with decades of experience within the structural pest management industry including technical service representatives, quality assurance auditors and training development managers, in collaboration with representatives of rodenticide manufacturers, scientists and educators. The focus of this document is to help industry professionals utilize rodenticides in the safest and most efficient manner to allow for effective management of rodents, while keeping the risks to the environment and non-target organisms to a minimum.

Pre-application

Risk Assessment

A *risk assessment* is a three-dimensional appraisal of a site that includes the structure(s) and adjacent areas within and beyond the property as it relates to a target pest(s). It may be formal (documentation created to track trends, device maps, etc.) or informal (good notes taken about the account). It will assist with making decisions and putting together the plan for the site using the steps of IPM. It should, at a minimum:

- Identify the target pest(s) involved
- Document signs of activity and descriptions of the magnitude of the activity
- Provide rough estimates on the population size (i.e. light, moderate or heavy)
- Identify any nontargets (children, pets, wildlife, livestock, potential for human exposure, e.g. through food contamination)
- Highlight any conducive conditions that impact the property and adjacent areas
- In addition to the use of rodenticides, determine if any mechanical and/or cultural controls can be used.

Identify Rodent Pest(s)

The assessment should emphasize an accurate identification of the target pest and the basic biology and behavior of that species. Considerations should focus on the characteristics of the species targeted by the rodent management program. This is likely to be the greatest factor in devising effective control measures while reducing the risks associated with rodenticides. In some instances, more than one target pest may be present based on resources and conducive conditions. When armed with this information, insights into the biological needs of the pests(s), likely routes of entry onto the site or within the facility, and potential threat to public health can be better grasped when developing a control strategy.

Monitor and Evaluate Rodent Activity

Rodent activity can be difficult to assess before control measures and monitoring begin. A short-term monitoring program, using traps or non-toxic food (such as non-toxic block or soft baits), may give some results. However, rodents have demonstrated that they may not respond to traps or new food sources for a few days to weeks so short-term monitoring may not yield results. A visual inspection of the site will always be helpful. On the exterior, signs of activity include burrows, runways in vegetation and droppings. The exterior of a structure may show gnawing around doors, or pipe and utility penetrations. Sebum stains may be visible along the base of walls and near entry points. Inside the structure, signs of activity also include droppings, sebum stains, pawprints and tail-drags in dusty environments, and gnawing damage. Estimating the magnitude of an infestation from an inspection can be challenging. Heavy sebum stains are evidence of a large number of rodents. Since droppings are often hidden by the rodent, large deposits can be considered evidence of heavy activity.

Historical data for the site, if available, should be reviewed as a part of the risk assessment. Acquiring permission to access and review previous pest management service reports and/or pest trend analysis can point to current or past problem areas. These findings may consist of feeding activity on bait stations or rodent captures within or around the structure(s) and/or site as well as which species and gender/development stages were present to better determine the extent of the population.

Identify Non-Targets

Non-target animals consist of any animal not listed as a target on the label. These can range from birds to small mammals to people. Nesting or roosting birds in landscaping should be noted. Evidence of larger burrows at a distance from the structure indicate other wildlife in the area. Larger animals, such as coyotes and racoons are more difficult to detect, but there may be droppings near trash areas.

Prevent or Address Conducive Conditions

Reservoir reduction comes into play when outdoor populations cause on-going concerns in and around structures. A site evaluation should include the space between the structure and the edge of the property in all directions. Conducive conditions can allow rodent populations to peak, creating overwhelming rodent pressure on a structure. Conducive conditions may not always be apparent at the time of the assessment. The location and nature of conducive conditions can change over time. In some instances, seasonal changes or weather patterns may contribute to peaks of activity at any time of the year. Environmental factors such as snow melts, tide charts, river systems, and flooding events should all be considered as potential conducive conditions. Storage practices may contribute to seasonal peaks as well. Facilities that operate seasonally may have other conducive factors that occur during or after season. Decommissioned equipment and seasonal machinery can support rodent populations when not in use. Seasonal changes may increase vegetation growth at certain times of the year.

Population reservoirs may exist on adjacent properties. These reservoirs may not be accessible, or special permission may need to be obtained in order to evaluate areas of concern that may be contributing to on-going pressure. Consideration must be given to the use of rodenticides in these situations if the adjacent property is inaccessible for any reason to prevent non-target interactions.

Identify and Select Control Methods

Once a site evaluation has been performed where conducive conditions have been identified and the rodent species have been identified along with an estimate of the population size, informed decisions about rodent management can be made. There are many available

methods and, as with any pest management program, an integrated approach (utilizing multiple tactics) is preferred. No one single method should be defaulted to or used in isolation. Rodent management methods must be dictated by the results of the site evaluation. Sound pest management relies on a feedback loop of implementation, assessment, and adjustment. Therefore, having more tools in the proverbial toolkit is advantageous when dealing with pestiferous species that are highly prolific and adaptable, like rodents.

Various management methods are not of equal worth; there will be large differences in efficacy and economy among the options. Some of the available methods* include:

- Sanitation (limiting food resources)
- Harborage reduction
- Mechanical traps
- Physical exclusion
- Repellents
- Toxic baits
- Fertility inhibition

*Note: These methods are not listed in any form of hierarchical order.

Discussing the pros and cons of each method is outside of the scope of this document, given the present focus on rodenticides. Rodent management is ultimately about protecting people, or a resource that humans have deemed desirable, meaning a cost/benefit analysis (formal or informal) is appropriate to make before proceeding. Sometimes the best rodent management decision (the benefit of a long-term solution which will ultimately lead to lower pest management costs and better protection for the facility, the organisms within it and the product(s) it holds) will have unwanted consequences (potentially high financial costs in the short-term).

When to Use Rodenticides

After completing the risk assessment, the applicator must have the ability to take decisive action to minimize the greatest risk to public health and property. Some structures and/or sites will have a situation that only a combination of rodenticide products can rectify. Certain sites demand this based on the nature of the account and geographical location. An example can include derelict structures that have large populations that must be contained prior to demolition to prevent displacement into adjacent areas to protect public health and property. Another example may be a trash collection site or incinerator that may be used to produce power for utilities that would require containment to prevent populations from establishing nesting sites on the exterior. The social impacts on communities with abandoned or poorly maintained commercial and residential structures or sites may require containment and knockdown through the use of rodenticides to protect both public health and property from the threat of a target pest.

Rodenticides have historically been used preventatively and remedially both within structures and around the exterior perimeter. However, usage of rodenticides under some circumstances creates a risk of exposure to non-target wildlife. While interior usage of rodenticides does carry

risks to human occupants (especially children) and pets, it also greatly limits exposure to non-target wildlife, such as raptors. Interior placements should be the preferred method of application, when justifiable. While rodenticide usage will inherently vary by location the following are guidelines that an applicator can use to compare and select usage patterns with lower risk (assuming all label directions are followed, and listed uses are in compliance with municipal, state/provincial and federal regulations).

Some factors that should justify deployment of permanent (i.e. regularly replenished) exterior rodenticide placements include:

- Along the exterior of sensitive sites with a zero tolerance of rodent ingress (e.g. food, pharmaceutical, medical, and related facilities). These facilities may have inherent restrictions on interior rodenticide placements, outside of the control of the applicator, as outlined by third-party or governmental standards.
- Facilities where interior placements are not possible or are more likely to expose non-targets (e.g. aquariums, pet stores, prisons, zoos).
- To protect rodent vulnerable infrastructure or resources stored outside (e.g. agricultural commodities, electrical substations)
- Industrial sites where heavy equipment, storage practices, or site layout make interior rodenticide placements difficult, labor intensive, or unsafe to the applicator (e.g. waste handling facilities, warehouses with extensive racking and high-low traffic, etc.).

Some risk factors that should be considered before deployment of exterior rodenticide placements include:

- Sites known or suspected to contain endangered species that are susceptible to rodenticide exposure such as small mammals, ground birds, birds of prey, and scavengers (e.g. consulting EPA Bulletins Live! Two).
- Sites known or suspected to contain threatened, or otherwise prized species (including pets) that are potentially susceptible to rodenticide exposure such as small mammals, ground birds, birds of prey, and scavengers.
- Sites where children regularly play or large impacts, capable of breaking tamper resistant stations, are likely (e.g. playgrounds, sports fields, high traffic zones of parking lots).
- Sites where non-target species have pilfered previous rodenticide placements (e.g. known pressure from raccoons, squirrels, arthropods, etc., as well as locations prone to vandalism). Note: if modifications can be made to greatly reduce the pilfering of rodenticide placements, treatment may proceed if otherwise justified.

The majority of sites where rodenticide is considered will not fall into one of these neat categories. A good practice is to review the risk assessment and consider all the available management methods and choose options that best serve the environment where they will be placed, again giving priority to interior rodenticide placements when rodenticides are thought to be needed.

Application

Choosing and Applying Rodenticides

When choosing a rodenticide to use, there are many factors that need to be accounted for. Refer to the risk assessment section for the factors.

Begin by reading and following all pesticide label directions before you apply any rodenticide. The label and any labeling will give you specific instructions on what pests can be targeted, how much rodenticide can be used, any sites that can be treated and any limitations that you should be aware of. Also, it is important to identify which rodent you are targeting to comply with label directions regarding quantity of rodenticide applied and specific locations where this can be utilized.

The active ingredient is a small percentage of the actual rodenticide, so the formulation of the product becomes important. The following information is helpful when selecting the correct rodenticide.

Formulation

There are a number of different rodenticide bait formulations including block, meal, soft, and pelleted. Baits include an active ingredient to kill the rodent and various other ingredients to be attractive to the rodents you are targeting.

Soft baits:

- Very palatable to rodents by adding oils to the bait and no wax (paraffin).
- Resistant to high heat environments and do not mold.
- More likely to become translocated by rodents than extruded blocks, but less often than meal bait or pellets.

Extruded blocks:

- Wax construction offering high-moisture environment effectiveness and water resistance.
- Will melt in high heat.
- Offer environmental longevity, but susceptible to mold in damp environments.
- Ease of use in required tamper-resistant bait stations for regular maintenance.

Meal bait and pellets:

- High palatability to rodents since it is similar to their regular diet.
- Susceptible to mold in damp environments.
- Cannot be secured easily and are susceptible to moisture ruining them.
- The only bait formulations labelled for burrow baiting.
- Pellets in pre-measured place packs can keep the product protected from contamination and moisture damage, until they are opened by the rodents.

Active Ingredient

The active ingredient that you choose can be very important as well. Rodenticides may be broadly classified into two categories: anticoagulants and non-anticoagulants. An anticoagulant is commonly referred to as a blood thinner because it is a chemical that prevents or reduces coagulation of blood, meaning that it prolongs clotting time in affected animals.

First-generation anticoagulants (FGARs) were first developed and registered in the early 1950s. FGARs include the active ingredients warfarin, chlorophacinone, and diphacinone. These rodenticides generally require multiple feedings for a lethal dose. Second-generation anticoagulants (SGARs) were developed in the 1970s in response to resistance to the FGARs and are more potent than the first-generation compounds. Included in this class of anticoagulants are bromadiolone, brodifacoum, difethialone, and difenacoum. These active ingredients generally require fewer feedings and smaller doses for a rodent to accumulate a lethal dose.

Acute or non-anticoagulant rodenticides work differently than anticoagulant baits. The three active ingredients that fall into this category are bromethalin and zinc phosphide, which act as neurotoxins, and cholecalciferol which causes hypercalcemia, resulting in multiple organ failure. Generally, bromethalin and zinc phosphide are lethal in a single feeding while cholecalciferol can take multiple feedings.

Bait aversion and the resulting bait shyness can be issues when using acute rodenticides. Bait aversion occurs when a rodent has consumed a sublethal dose of a rodenticide and associates the ill effects with the product. Bait shyness occurs when a rodent has consumed a sublethal dose of a rodenticide bait and will not consume other baits as a result.

Managing Non-Target Animal Risks

Rodenticides can have lasting effects on the environment. While targeting rodents with rodenticide applications, non-target animals may be affected. Non-target animals can include predators that are exposed secondarily to rodenticide by consuming treated rodents, as well as other animals that could directly feed on rodenticide placements.

Routes of exposure

There are multiple ways a non-target species might be exposed to a rodenticide: primary, secondary, and additional routes, with further levels of exposure possible from the same application depending on the active ingredient and the composition of the food web. All types of exposure can have lasting impacts on the environment and should be avoided if possible.

- Primary exposure is when a non-target animal comes into direct contact with and consumes a rodenticide.
- Secondary exposure is when a predatory or scavenging animal consumes a rodent or a non-target primary consumer that has consumed some rodenticide.
- Additional exposure occurs when a predatory or scavenging animal eats another animal that has been secondarily exposed.

Rodenticide active ingredients have different potentials to persist and accumulate in tissues; some active ingredients have lower or unknown risk of causing effects beyond primary exposure.

Mitigating non-target exposure risk

All who apply rodenticides have the responsibility to reduce the risk by these routes of exposure. Here are some examples of how to limit non-target exposure.

Tamper resistant stations

Tamper resistant stations are the most effective way to limit primary non-target species exposure. Place rodenticide inside tamper resistant stations whenever possible (including void areas such as attics or crawlspaces) so that they are easier to retrieve. Additionally, apply the smallest amounts of rodenticide as deemed sufficient to solve the infestation per the label. This amount can be increased if heavy feeding activity occurs, but it must remain within the label directions of the rodenticide used. Use non-toxic monitoring bait in secure stations to independently determine if there is activity. If it is necessary to apply rodenticides in an area where a bait station is not feasible, then secure it with a wire or another apparatus that allows for proper retrieval. Monitor these placements for translocation of rodenticide, and retrieve them from the site when the account is being transferred or closed. This is only permitted by some labels in areas inaccessible to children, pets, and non-target wildlife.

Carefully choose where bait stations are placed. Place stations in areas of noted rodent activity and document their number and location. Use discretion when the risk assessment determines that rodenticide in domestic areas accessible to residents, such as bedrooms or living rooms is necessary.

Avoid Burrow Baiting

Burrow baiting involves placing rodenticide directly into rodent burrows. Burrow baiting should generally be avoided due to the risk of rodents pushing the rodenticide out of their burrows, exposing it to non-target animals. However, in some situations - particularly when burrows are located close to structures and other control methods are restricted - burrow baiting may be the only or most effective option. In these cases, it is critical to follow the product label exactly. Only

active burrows should be treated, and the rodenticide must be placed deep within the burrow as specified on the label to help prevent its ejection. While not required by the label, it is a wise practice to inspect the site the day after application to ensure the rodenticide has not been pushed out. Ongoing monitoring of rodent activity is also important to determine whether continued applications are necessary. Always prioritize safety and compliance by choosing methods that minimize exposure risks to non-target species.

Loose or unsecured rodenticide formulations, such as burrow baiting pellets and tracking powders, carry a high risk of translocation. Rodents can easily move these materials out of the target area, spreading toxicant to unintended locations and increasing the risk of exposure to non-target animals or humans. Use extreme caution with these products and ensure application methods strictly follow the label to minimize these risks.

Disposal of expired rodents

Frequently, rodents will die in inaccessible locations. If dead or dying rodents are observed, they should be disposed of according to the label directions to help prevent secondary poisoning by eliminating the source of the toxicity.

Disposal of unused bait/product

Refer to *Rodenticide Disposal*

Rodenticide Disposal

Currently, most rodenticides are disposed of without any rodents feeding on it. While this may sound counterintuitive, many rodenticides are made with food ingredients that become less palatable and can spoil overtime. Responsible usage by adhering to these guidelines are expanded upon in the next sections:

1. **Rodenticide Application Amounts:** Apply rodenticides according to the label, using only the amount necessary based on target species and activity.
2. **Efficient Use of Rodenticides:** Use rodenticides efficiently by ensuring they are placed where they will be consumed and remain effective.
3. **Rodenticide Disposal Considerations:** Dispose of rodenticides responsibly and according to the label directions to prevent exposure to non-target animals and the environment.

Rodenticide Application Amounts

Always apply rodenticides according to the product label, which specifies rates based on the target species and level of activity. Labels require maintaining an uninterrupted supply of rodenticide. If the rodent population is unknown, start with a lower rate, monitor the site (it may take rodents two or more weeks to start entering a station), and increase or decrease the amount based on activity. Thoughtful application not only increases effectiveness, but also reduces unnecessary rodenticide waste and the need for its' disposal.

Efficient Use of Rodenticides

Efficient use of rodenticide means ensuring that a large portion of the applied rodenticide is consumed by the target species. Choose formulations that hold up under site-specific conditions (e.g., heat, moisture, mold) and place them where they are protected from environmental damage. For example, choose a formulation that does not melt in a hot environment, or avoid placing a rodenticide in areas where there is excessive moisture that would dissolve the product or accelerate mold formation.

Only judiciously replace unconsumed rodenticide. Applicators should follow the general rule that if the rodenticide appears effective and attractive, it should not be disposed of. Certainly, there is no need to change rodenticides every month. Moreover, rodenticide with minor feeding may continue to be used, though consideration must be taken on a method to best monitor if there has been new feeding.

Rodenticide Disposal Considerations

- Always follow label instructions.
- Be cognizant of where you are placing rodenticides when disposing.
- Always consider the access of non-target animals to the disposed rodenticide.
- Understand and follow any state/provincial and local restrictions on rodenticide disposal. Remember: used rodenticide is a pesticide.
- Dispose of rodenticides in covered receptacles, preferably secured industrial ones, where they are not accessible to non-target animals.
- Do not dispose of rodenticides in receptacles that are not emptied regularly, such as those at remote sites.
- Do not dispose of rodenticides at residential or public locations.
- Assume that dead rodents you encounter have been exposed to rodenticides and dispose of them in a covered trash receptacle. Although some labels allow it, never bury dead rodents.

Post-application

Evaluation

Evaluation and adjustment are at the core of a strong rodent management plan. Based on inspections after the initial application, the applicator should adjust the plan, if it is needed for greater effectiveness and reduced impact to non-target animals.

The applicator should be evaluating the program at every service and at regular intervals or at predetermined milestones. Included in this re-assessment should be rodent activity, rodenticide efficacy, and conducive conditions. This information should be reviewed and discussed with the customer.

Evaluating Ongoing Rodent Activity

Rodent activity trends

Compare the activity observed at each service interval over time to determine if rodent activity is going up, down, or staying the same. This can be done by answering the following questions: Is the rodenticide being consumed by target rodents? Are placements being fully depleted between visits? Is there evidence of non-target organisms feeding on the rodenticide? Use these observations to determine if:

- Rodenticide placement should be adjusted (fewer or more placements in specific areas).
- Adjustments to the formulations, brands, and/or active ingredients of the rodenticides might improve control in an area if “bait take” is inconsistent with the level of activity observed.

Assessing rodent activity trends gives the applicator insight on how to develop a more effective and efficient control program. Some general non-quantitative methods are described below.

Responding to Non-Target Activity

Non-target rodenticide consumption generally falls under two categories: rodent and arthropod/slug activity.

Arthropods and slugs can pose secondary rodenticide exposure issues, and also contribute to product spoilage and rodenticides becoming unpalatable. This invertebrate activity should be addressed. Examples include relocating the station, and managing the invertebrates by following the directions under appropriate pesticide labels that target those pests.

Non-target bird and mammal activity is a significant concern. While rodenticides are formulated for commensal rodents, they can still be consumed by and impact a non-target rodent, other mammals, or small birds. If such non-target activity is discovered, and the site is not required to have exterior rodenticide placements, consider removing the placement altogether.

Where secondary consumers are present, such as raptors and/or larger mammals that consume rodents (e.g., coyotes, foxes, bobcats), if third-party auditing standards or other requirements do not allow the placements to be removed, apply a product containing an active ingredient with a lower risk of secondary poisoning.

Evaluating Rodenticide Efficacy

Each placement should be examined, noting the amount of rodenticide consumed, and the current condition of the rodenticide and/or bait station. There are some individuals that will not enter bait stations, so you may need an independent assessment method for determining activity. Traps, cameras, tracking boards and gels, and non-toxic monitoring baits NOT placed in bait stations are methods to help determine if rodent activity is present.

The following are items to look for on or near the rodenticide placement:

- Gnaw marks on the bait station or on the placement.
- Footprints on top of or within the bait station.
- Droppings.
- Rub marks.
- Urine pillars.
- Nesting materials.
- Rodent carcass(es) (remove and properly dispose of immediately).

Look for signs of consumption by invertebrates and other non-target organisms. Use this information to help you decide whether to alter the placements. When rodenticide consumption is heavy, assess whether it is being consumed by target rodents and if so, consider adding more placements or more rodenticide.

If rodenticide consumption can be attributed only to non-target organisms, and one or more independent monitoring methods determine that there is no evidence of target pest rodents in the area, consider what to do with the placement within the overall rodent control plan for the site. Options are to remove it, move it to another location, or remove the rodenticide and leave a non-toxic monitoring bait in place.

Evaluating Rodent Conducive Conditions

In the same way that a rodent control program evolves, the conditions conducive to rodent activity may evolve also. Optimistically, conditions will be corrected and closed quickly, however, some may persist. Additionally, correcting unresolved conditions may expose more conducive conditions that will also need to be addressed.

At a minimum, every service should reevaluate open conditions to ensure they are prioritized and that closed conditions are documented as such. The more formal evaluation ought to review how efficiently corrective actions are taken as well as inspect to discover conducive conditions not previously observed.

Updating the Risk Assessment

Assess changing risk factors as the rodent management program progresses. Since risk factors, such as population size, availability of resources, and the location of the target pest change, the risk assessment should change also.

Competing resources, population estimates, and non-target pest impacts are all factors that play a role in selecting which, if any, rodenticides should be applied and in which formulation and in what quantity.

Communication

Finally, but importantly, the applicator's ability to clearly and concisely communicate findings, recommendations, and corrective actions to the business or homeowner are paramount to ongoing success in keeping rodent populations in check. It is important to understand a client's expectations going into a rodent management program, and to maintain an open dialogue to see implementation of non-chemical control measures (such as sanitation) through to completion. As each account, infestation, and client is different, ongoing communication is essential to solve a rodent issue.

Summary

Following these stewardship practices should reduce the impact of rodenticides on children, pets, and non-target wildlife. These practices represent a series of choices regarding the use of rodenticides based on the specific characteristics of the environment at hand. The basis for these decisions is the *risk assessment* and the best method for obtaining the necessary information is to perform an inspection before applying rodenticides.

Apply rodenticides only after you have ascertained which species are present, the severity of the threat they pose, and what are the conditions conducive to infestation.

Choose the active ingredient, the formulation, the locations for placement and methods of application to allow for the greatest benefit with the smallest amount of rodenticide necessary to still get the job done effectively and efficiently.

Rodenticides only threaten our environment when they are consumed by non-target organisms or when the target rodents are eaten by predators. This occurs when non-target wildlife gets access to rodenticides in our placements or when disposed of in landfills. This can happen even when placements and disposal are performed properly. Apart from facilities/environments where it is required, applying rodenticides before you know if rodents are even present drives the loudest arguments for their removal from the market. Performing an appropriate risk assessment can help prevent this from becoming an issue.

The amount of rodenticide in the environment should be reduced when:

- Conditions conducive to infestation are eliminated as much as possible.
- There is no evidence of active rodents within the area.
- Children, pets, endangered and other non-target species are known to be present.
- Service frequency is set to reduce the time between the end of activity and the removal of rodenticides.
- Formulation and application methods are chosen to minimize translocation of rodenticide.
- Active ingredients are chosen to reduce secondary poisoning, but cannot be guaranteed.
- The disposal of the reduced amounts of spent rodenticides are carefully performed.

The Rodenticide Stewardship Document is basic integrated pest management and this works by combining different methods to reduce reliance on any one method. In this case, it reduces reliance on rodenticides. To apply rodenticides without implementing these practices is to invite results that are both unintended and unwanted.