Chemical Review
Office of the Chief Regulatory Scientist
Australian Pesticides and Veterinary Medicines Authority
GPO Box 3262
Sydney NSW 2001

Thursday, 21 May 2020

Dear Sirs

Re: Consultation on use patterns for anticoagulant rodenticide products

I write in response to Gazette No. APVMA 7, Tuesday, 7 April 2020, published by the Australian Pesticides and Veterinary Medicines Authority. Specifically, we are providing our written submission in response to the '*Consultation on use patterns for anticoagulant rodenticide products*' and your request for public comment.

Our submission is raised on behalf of the Australian Environmental Pest Managers Association Limited (AEPMA), representing the Australian professional pest management industry. The AEPMA mission is to set the pest management industry standard in harmony with community attitudes and environmental standards; to represent all professional pest managers who meet these standards; to effectively communicate these standards to government, consumers and the wider community in such a way as to enhance the image of our 450 members (who employ approximately 8,000 pest management technicians); and to promote the interests of the professional pest management industry.

AEPMA is of the belief that rodent management should be based on the best science available, considering the overall cost versus benefits to the wider community. In this respect, the public health costs of failing to control pest rodent activity and infestations are significant.

Summary of AEPMA's Recommendations

1. Anti-coagulant rodenticide use should be restricted to state and territory licensed professional pest managers; and, also to persons directly involved in primary production or wildlife management, who have completed appropriate training through an Agsafe (or equivalent) product stewardship program.

2. Usage by the above persons should continue in and around industrial, commercial, agricultural and residential buildings.

3. If anti-coagulant rodenticides should continue to be made available to untrained domestic users in residential areas, they should only be available in a form where an extruded bait block(s) or soft bait sachet(s) is secured within a lockable bait station that can itself be secured in position. The maximum weight of rodenticide in such a station should be 60 g.

4. Pelletised or grain-based baits should not be allowed for residential use.

5. Anti-coagulant rodenticides sold as soft baits, block baits, loose grain or pelletised baits should be restricted to pack sizes of 4 kg or greater to discourage retail purchase for household use.

   Specialist products such as rodenticide gel baits, liquid baits and tracking powders should not be subject to this weight restriction due to their mode of application.

6. Anti-coagulant rodenticide packs should bear wording that the product must be used in accordance with the AEPMA Industry Code of Best Practice for Rodent Management. This Code is freely available and represents best practice in the use of rodenticides.

7. Rodenticide powders and liquid baits should be restricted for professional use only, with a front panel labelling requirement of:

   RESTRICTED CHEMICAL PRODUCT –
   ONLY TO BE SUPPLIED TO, OR USED BY, A STATE LICENSED PROFESSIONAL PEST MANAGER, OPERATING IN ACCORD WITH THE AEPMA CODE OF BEST PRACTICE FOR RODENT MANAGEMENT.

   These are specialist products that are not frequently required. There use is however sometimes essential in certain challenging rodent infestation situations and it is important that they remain available for professional use only.

8. Anticoagulant Rodenticide active constituent levels in formulated products must remain at the current levels to avoid the risk of rodenticide resistance arising due to sub-lethal dosing.

   We must not follow the European path of requiring lower active levels in domestic situations, which makes rodent control more difficult and increases the risk of rodenticide resistance. Control failures are experienced in Europe through resistance issues and it is vital that we avoid this in Australia.

9. There should be no distinction between first-generation anticoagulant rodenticides and second-generation anticoagulant rodenticides with respect to use directions or restrictions.

Rodents in Australia

Rodents have been closely associated with humans for several millennia, to the extent that three species of rodent, the Norway (or brown) rat, *Rattus norvegicus*; the black (or roof) rat, *Rattus rattus*; and the house mouse, *Mus musculus*; are regarded as being 'commensal rodents' that exist primarily in association with people [1]. As a consequence of this association, commensal rodents have become a major global pest with diverse impacts across human health, food production, our buildings and social activities, and the natural environment.

The economic impact of commensal rodents varies across countries and can be difficult to measure directly in nations not primarily involved in agricultural production. However, it is conservatively estimated that in Australia, losses of up to $96 million dollars in lost crops and damage to livestock industries and rural communities have occurred [2, 3]. Additional costs in the urban environment are not reflected in these numbers.

In addition to food destruction and contamination, structural damage from commensal rodents can also be one of the most obvious and troubling factors associated with their presence. Both rats and mice are known to cause damage through gnawing of insulation, PVC pipework, timber, plastics, stonework, and even metal [4]. Rats may also cause structural damage and undermine buildings, floors, and walls through their extensive burrowing [4-7]. Gnawing through electrical wires is common, and potentially highly hazardous, and has been linked to both power and telecommunications blackouts, and even building fires [4, 8-10]. Repairs are often expensive and inherently fall to home and building owners and other municipality or commercial entities to cover the cost [11].

Given their close association to urban environments, commensal rodents can also be involved in the transmission, both directly and indirectly, of numerous infectious diseases [12-15]. This includes (but is not limited to) several viral or bacterial infections, such as: Salmonellosis, Leptospirosis (Weil's disease), *Escherichia coli*, and Hantavirus. Additionally, rodents may act as reservoirs for several clinically important protozoal diseases, including: Cryptosporidiosis, Toxoplasmosis, Leishmaniasis, and the causative agent of Chagas' disease, *Trypanosoma cruzi* [12-15].

In the current COVID-19 situation, whilst there is no evidence that the current human SARS-CoV-2 virus can infect other animal species, it is something that cannot be conclusively ignored. More possible is that a rodent could transport the SARS-CoV-2 virus on their body from an infected surface. Researchers from Princeton, UCLA and the US National Institutes of Health have reported that the virus can survive two to nine days on surfaces such as stainless steel, wood, paper, plastics and glass [16]. Since we know that rodents do transport various viral diseases and, given the persistence of SARS-CoV-2 on surfaces, it is prudent that we maintain vigilance and ensure premises can be effectively protected from infestations by rodent pests.

Rodents themselves have continued to evolve, with issues such as resistance to rodenticides, and aversion to baits and bait stations emerging, and complicating control efforts [17-21].

Professional Rodent Management

Best practice for professional pest managers is to consider all available management strategies and does not simply rely on the use of rodenticides. Nevertheless, anticoagulant rodenticides remain a fundamental control measure. Each site is different and typically requires a different set of measures and baits to remove a rodent infestation.

In determining their approach to rodent management, professional pest managers are expected to comply with the AEPMA's Industry Code of Best Practice for Rodent Management, a copy of which is provided.

This lays down professional standards for rodent management to ensure the success of control programs and to minimise the negative effects of rodenticides on worker exposure, public health and environmental safety. This approach commences with consideration of the Risk Hierarchy.

Risk Hierarchy

The concept of a 'Risk Hierarchy' should be at the forefront when planning a rodent management program. The concept is to implement effective control measures with the lowest risk first. It is not necessary that all options in the Risk Hierarchy are implemented sequentially, or at all, before an effective solution is reached, but all methods must be considered. An effective rodent management strategy must also determine how success will be measured. The Risk Hierarchy consists of:

Inspection and assessment

Exclusion

Removal of Food and Water

Harbourage Reduction

Trapping

Use of Rodenticides

AEPMA recognizes that use of rodenticides presents the greatest risk to people, non-target animals and the environment [22]. Where practicable, rodenticides should be contained within locked, tamper-resistant stations that are secured in place.

Available data suggests that it should not be assumed that first-generation anti-coagulant rodenticides or pro-hormone rodenticides (cholecalciferol) pose any less risk than second-generation anti-coagulant rodenticides from the perspective of primary or secondary poisoning risk.

Risk Management

A Risk Management Plan is a fundamental part of an effective professional rodent management program. The elimination of hazards where possible, and the evaluation of Safety, Health and Environment (SHE) risks is the basis of proactive management and effective incident prevention.

Any risk management plan also requires an environmental assessment prior to implementing a rodent management program. This plan includes:

Removal of dead or dying rodent. Ii is important, when undertaking a professional rodent management program, that time is allocated during each site visit to search for any rodenticide (bait)-affected rodents or carcasses. If affected rodents are found, they must be humanely euthanased.

It is unlikely that residential householders will perform this task or be aware of the importance of doing so. Nor are they likely to humanely euthanise bait affected rodents. For this reason, consideration should be provided to restricting anti-coagulant rodenticides to professional pest managers and persons directly involved in primary production or wildlife management, who have completed appropriate training through an Agsafe (or equivalent) product stewardship program.

The importance of this process is emphasised to professional pest managers and we can have a higher expectation that trained persons will perform this task.

Possible pollutants. This covers the removal of all unused bait and bait containers in accordance with APVMA-approved product labels.

Professional pest managers are clearly trained and attuned to provide a more responsible approach to the use of rodenticides. Residential household users are less likely to perform this important step, which is why, if access to anti-coagulants is approved to continue for such persons, baits should only be sold in securable, tamper-resistant bait stations.

Rodent Control – Rodenticides

Professionals require a wide range of bait options to control serious rodent infestations. The current range of options available in the market includes, powders, gels, liquids, pellets, grains, wax-based blocks, and soft bait sachets.

Rodenticide block baits and soft ‘sachet’ baits are the most commonly used formulations since they can most easily be secured inside lockable, tamper-resistant bait stations.

Liquid formulations are generally only recommended where other formulations have provided insufficient control or in exceedingly dry environments where the availability of water (or high-water content foods) is limited. Liquid rodenticides must be used in liquid dispensers secured inside lockable, tamper-resistant bait stations. AEPMA recognizes that liquid presentation has high risks associated with its misuse and liquid rodenticide use

should be restricted to professional use only, strictly in accord with the AEPMA Industry Code of Best Practice for Rodent Management.

Rodenticide tracking powders are available that adhere to the rodents' feet and fur, leading to ingestion of the toxicant during grooming. Care is required to place tracking powders in areas accessible to rodents, but inaccessible to non-target animals and humans. Due to the hazards associated with these powders, tracking powders must not to be used in or near ventilation ducts or in areas where they may contaminate food items or food preparation surfaces. Application of rodenticide tracking powders in areas of moisture, airflow or where disturbance by non-target species or occupants may occur, must also be avoided. Use of bait powders has high risks associated with misuse and powder rodenticide use should be restricted.

Powders and liquids are only required for occasional specialist purposes and should not be generally available in the market.

Given the above noted approach of professional pest managers, and the fact that they undergo training in rodent management procedures, we consider it important that liquid and powder bait presentations should only be allowed for professional use.

We would suggest that the use of powders and liquids should be restricted for professional use only with a label wording of:

> RESTRICTED CHEMICAL PRODUCT –
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> ONLY TO BE SUPPLIED TO, OR USED BY, A STATE LICENSED PROFESSIONAL PEST MANAGER, OPERATING IN ACCORD WITH THE AEPMA CODE OF BEST PRACTICE FOR RODENT MANAGEMENT

Monitoring and/or Maintenance Treatments

The use of rodenticide baits at sites where there is no current rodent infestation is not recommended under the AEPMA Code. In these situations, the use of non-toxic monitoring baits and/or traps is recommended to monitor for the early presence of rodents.

Where the prevention of rodent infestation is considered essential to maintaining the integrity of safe food production or the prevention of risks to human health, permanent placement of rodenticides may be warranted. However, continued rodenticide use must comply with the conditions of the APVMA-approved product label.

This should be considered as a warning statement on APVMA rodenticide product labels.

Anticoagulants

Anticoagulant rodenticides are the most commonly used rodenticides, and work by blocking the vitamin K cycle which leads to internal haemorrhaging, anaemia, and eventual death. Anticoagulant rodenticides act with a delayed effect which may mitigate the development of bait shyness or bait aversion.

If poisoning of non-target vertebrates should occur – either primary or secondary – the emergency administration of vitamin K1 may be an effective antidote.

First-Generation Anticoagulant (FGAR)

First-generation anticoagulant rodenticides, also called 'multiple-feed' rodenticides, are a group of anticoagulants that were developed before 1970. Examples of FGARs available in Australia include warfarin, diphacinone and coumatetralyl. These compounds are much more toxic to rodents when feeding occurs on several successive days rather than on one day only. They generally have shorter elimination half-lives [23] but usually take longer to control infestations.

Second-Generation Anticoagulant (SGAR)

The second-generation anticoagulants rodenticides were developed during the 1970s to control rodents that had developed resistance to first generation anticoagulant rodenticides. Examples of SGARs available in Australia include brodifacoum, bromadiolone, difethialone, difenacoum and flocoumafen.

SGARs are more likely than FGARs to be able to achieve a lethal dose after only a single feeding, although a delayed action still occurs, with death occurring 3-5 days after ingestion. This delayed effect greatly reduces the risk of bait aversion within a population and maximises effective control of infestations. Whilst SGARs may kill over a similar course of time to FGARs, SGARs tend to remain in the animal tissue longer.

To date there is very little evidence, either anecdotal or scientific, of genetic resistance to SGARs in Australia. It is important that we maintain this situation and do not follow what has occurred in Europe, where reductions in the dosage of SGARs in household situations from the typical 50 ppm to less than 30 ppm has resulted in baits that are less than optimal from a performance perspective and are leading to increased levels of resistance and control failure.

Non-Target Species Protection

The use of rodenticides presents risks to non-target species from consuming rodenticide baits directly (primary poisoning) or by consuming rodents that have consumed rodenticides (secondary poisoning).

Domestic Situations

People, particularly children, are at risk from accessing incorrectly placed rodenticides. Domestic pets such as dogs, cats, rabbits and guinea pigs are potentially subject to primary poisoning. It is therefore important that bait is deployed in locked and secured bait stations or in such a way to prevent access by non-target species. Unused bait should also be removed from the site and disposed of according to label instructions.

Dogs, cats, pigs, poultry and native wildlife will also all potentially feed on rodents and/or carcasses that have consumed and/or died as a result of rodenticide baiting. It is therefore

important to collect and properly dispose of any rodent carcasses that result from the use of rodenticides, in urban as well as farm animal housing situations. Carcasses should be disposed of by burning or burying.

Given these requirements, we believe the general public in residential areas should not have access to anticoagulant rodenticides. If access should continue to be made available to untrained residential users, product availability should be limited to extruded blocks or soft bait sachets of up to a maximum weight of 60 g which are securely contained within a tamper-resistant bait station that conforms with section 16.2 of the AEPMA's Industry Code of Best Practice for Rodent Management. A tether should be included to ensure that the stations can be easily secured in position.

Protection of Native Species

Use of rodenticides may negatively impact non-target native species from either primary or secondary poisoning. Various native species, such as native rodents and marsupials, may find rodenticide baits palatable and are therefore subject to primary poisoning. Native rodent species are not generally considered pests in urban situations, although some species e.g. native *Rattus* spp. and the giant mosaic-tailed rat (*Uromys caudimaculatus*), may occur in houses and farm buildings in rural areas, and other species, such as the climbing rat (*Melomys burtoni*) and ground rat (*Rattus sordidus*) are crop pests. Unless specifically included on the label or approved for use under permit, rodenticides must not be used to target native rodent species.

Secondary poisoning of predatory animals, notably birds of prey, can arise from them feeding on rodents that have consumed rodenticides. It is therefore important to search for and remove any dead rodents resulting from a baiting program, and dispose of them safety, in line with product label recommendations. Dispose of carcasses by burning or burying.

With this in mind use of anti-coagulant rodenticides in general should be restricted to state licensed professional pest managers; and persons involved in primary production or wildlife management who have completed appropriate training through the Agsafe (or equivalent) product stewardship program.

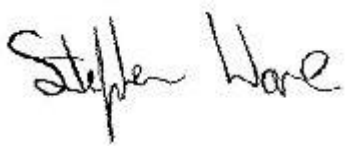
Conclusion

AEPMA urges caution and common sense in dealing with the vexed issue of Rodent Control. Importantly, changing the availability of anticoagulant rodenticides, without such change being supported by good science, will place serious food safety challenges on Australian food businesses and potentially result in food processing businesses relocating overseas. The worst-case scenario would be that these regulations are imposed and without viable alternatives there is an increase in the cases of food contamination and spread of disease resulting in illness and potential loss of human lives.

As the peak pest management industry body in Australia, AEPMA is committed to promoting and implementing safe and responsible rodent control practices according to a risk hierarchy approach, within a fully integrated rodent management program. AEPMA is acutely aware of the issues relating to the use of anticoagulant rodenticides and their correct use, as detailed in the AEPMA Code of Best Practice for Rodent Management.

AEPMA firmly believes that trained and qualified Australian professional pest managers should continue to have access to anticoagulant rodenticides as recommended in this submission, in order to perform the Industry's essential role in the protection of public health, food and property.

Yours sincerely



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