

Managing indoor infestations by mice

Final Report

A pan-European survey of professional
technicians working in the environmental
public health protection sector

Carried out in 2023

Foreword

In the wild, mice are part of the natural fauna and flora and an important part of the world's biodiversity.

However, when they cross over into the human living space, they present a real risk to people, to public health, to the integrity of the food chain, to human services like schools, hospitals and other care facilities and to public and private property.

Mice can spread infectious diseases (like hantavirus, leptospirosis, tularaemia and salmonella) and damage property, especially when infestations occur at scale. Infestations, small or large, must be tackled rapidly and effectively to ensure that they do not get out of control. Small infestations can become major infestations in just a few weeks.

The best “remedy” is, of course, prevention – taking action to avoid mice crossing over from the natural world into the human-built environment. That is why professional technicians will always incorporate prevention into their control strategies, especially after infestation to avoid recurrence.

When infestations do occur, the key challenge is to bring them under control in the most efficacious manner.

The question is, what are the most reliable and sustainable means of removing the demonstrated risk posed by the “unwelcome little visitors”, while also minimising any potential risk to people or property from the control techniques and treatments used?

With this background, CEPA is proud to present this report of the first ever pan-European survey of professional technicians working in the field of environmental public health protection.

The goal was to ask professional technicians around Europe to share their experience, insights and opinions on the practical challenge of dealing with mouse infestations, notably indoors. The outcome of the survey is truly revealing and remarkably consistent across the continent.

This initiative is the product of cooperation between CEPA, the European association for providers of professional environmental public health protection services (often referred to as “pest management”), its national association members and its professional service company members.

Above all, **we would like to thank the nearly 4,400 dedicated individuals working in the industry across Europe** whose daily vocation is to protect people, property and the planet and who took the time to respond to the survey.

They shared their views on the challenge of dealing with mouse infestations in practice – now we are delighted to share them with you.

CEPA

Brussels

July 2024

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I. Introduction

About CEPA

CEPA is a Brussels-based association representing Europe's professional providers of environmental public health protection services. Our vocation is to protect people and public health, private and public sector property, businesses and human services. Often unseen, the sector works behind the scenes every day to protect society and the economy across Europe.

Background

In 2021 and 2022, the **European Commission**, via the **European Chemicals Agency (ECHA)**, formally requested the **EU's Biocidal Products Committee (EU-BPC)**¹ to work on a number of questions relating to the comparative assessment of anticoagulant (AVK) rodenticides. In particular, it was asked to consider mechanical traps as an alternative for dealing with indoor infestations by mice.

The subsequent **EU-BPC Opinion**² on the matter formally concluded that "mechanical traps can be effective at controlling house mice infestations"³. This statement is no surprise – mechanical traps have been used successfully for centuries to deal with infestations of mice and are still widely deployed today by professional providers of environmental public health protection services. Today mechanical traps are typically used in parallel alongside rodenticide bait stations.

This EU-BPC conclusion was based on a single narrowly construed field trial unrepresentative of the wide range of differing infestation scenarios encountered in practice. The reality of pest control is far more varied and complex than the scenario considered in the referenced study.

Under the current EU legislative system for biocidal products, such a conclusion in the EU-BPC Opinion nevertheless provides the potential basis for banning the use of anticoagulant (AVK) rodenticides for all types of indoor infestation by mice.

This is a major concern because in many situations mechanical traps alone cannot resolve mouse infestations, especially where rapid results are essential to protect people and property.

The European Commission did not recommend an EU-wide ban in its subsequent **Implementing Decision**⁴ under the EU Biocidal Products Regulation. On the other hand, a regrettable precedent

¹ Established by the EU's Biocidal Products Regulation (EU) No 528/2012

² See the Opinion ECHA/BPC/386/2023 of 7 June 2023, available here: <https://echa.europa.eu/regulations/biocidal-products-regulation/approval%20of-active-substances/opinions-on-article-75-1-g>

³ See the press release of the European Chemicals Agency here: <https://echa.europa.eu/-/rodent-traps-can-be-effective-at-controlling-house-mice-infestations>

⁴ COMMISSION IMPLEMENTING DECISION (EU) 2024/816 of 5 March 2024 addressing questions regarding the second comparative assessment of anticoagulant rodenticide biocidal products in accordance with Article 23(5) of Regulation (EU) No 528/2012 of the European Parliament and of the Council https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202400816

was set – a comparative assessment of a mechanical alternative versus a chemical product for controlling mice in all indoor situations has been based on a single study unrepresentative of reality.

The pan-European survey

The outcome of the EU-BPC Opinion and the associated process highlighted the lack of data on the practical experience of those dealing with rodent control on a regular basis.

To remedy this situation, CEPA and the DSV (German pest control association) decided to conduct a **pan-European survey of technicians who deal with mouse infestations** frequently. The objective was to understand their experience with and insights into the different tools used to manage mouse infestations, notably anticoagulant (AVK) rodenticides and mechanical traps.

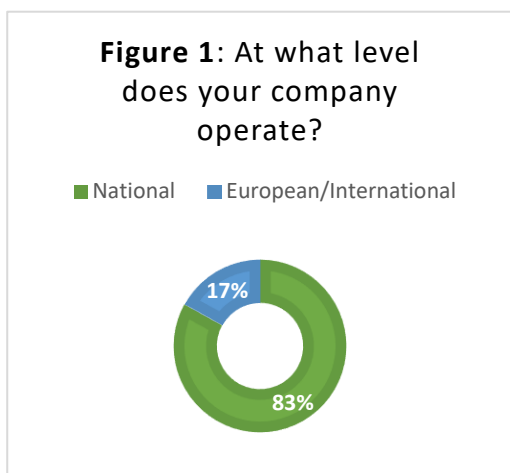
The survey was launched on 4 May 2023 and remained open until the end of 2023. The questionnaire was available in **multiple languages**, meaning that respondents could reply to questions in their own vernacular.

This report presents the most interesting findings that emerged from the survey, providing much needed data that underlines the importance of **preserving the “toolbox” of essential remedies** required by professional service providers to be able to protect people and property in a safe and sustainable way.

II. Overview of respondents

The survey was disseminated all over Europe via more than 20 national associations of professional providers of environmental public health protection services, who shared it with their members. Participating companies were expressly requested to ensure that questions were answered by their professional technicians, staff actually working in the field and regularly dealing with mouse infestations in a variety of situations.

This report is based on the **4,377 individual responses received**, though not all respondents answered all questions.



83% of respondents work for companies that operate at national level, 17% for companies working on a larger, European or worldwide scale (see Figure 1).

Responses came from **33 different countries**, with a large number coming from **Germany** and the **UK** (both providing around 1,000 individual responses each), followed by **France** and **Spain** (both around 500 each), (see **Figure 2**, below).

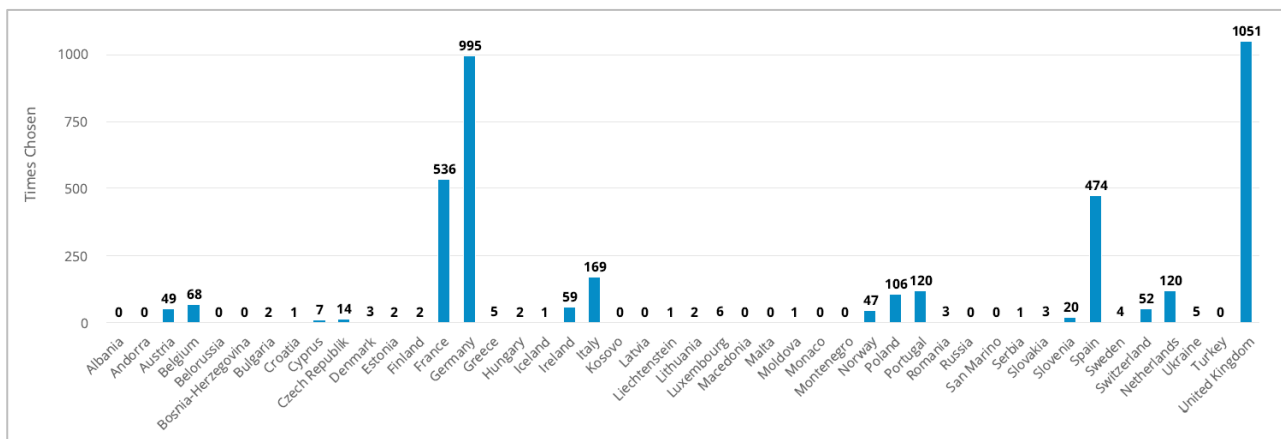


Figure 2: Country of operation

93% of respondents work in urban pest control, 31% in agriculture pest control and 29% in other related services, such as bird control, wood control, or cleaning services.

Overall, the results of the survey tend to be fairly similar depending on the country of origin of the respondents. There are sometimes slight variations between countries, most likely due to differing national legislative measures⁵.

⁵ While it would be interesting to analyze the national variations and understand their origin, this will not be done in this report.

III. Integrated Pest Management

Before going into further details, it is important to observe that trained professionals do not act randomly. All their actions are part of a careful process that respects the IPM approach.

IPM (Integrated Pest Management) is a holistic and systematic way to deal safely and effectively with organisms like insects, rodents and birds, with the goal of protecting people’s health, keeping food safe, and avoiding economic and financial loss. A key objective is to be sustainable, notably by focusing principally on preventing problems before they become a risk and by using chemical products only where they are essential.

IPM is the approach used by serious providers of professional environmental public health protection services (often referred to as “pest management” services) because it is the most effective method to control such challenges in **a safe and sustainable way**.

In recent years, the uptake of IPM has significantly increased producing a sharp increase in more sustainable practices and the further professionalisation of the sector. This was confirmed by the survey results.

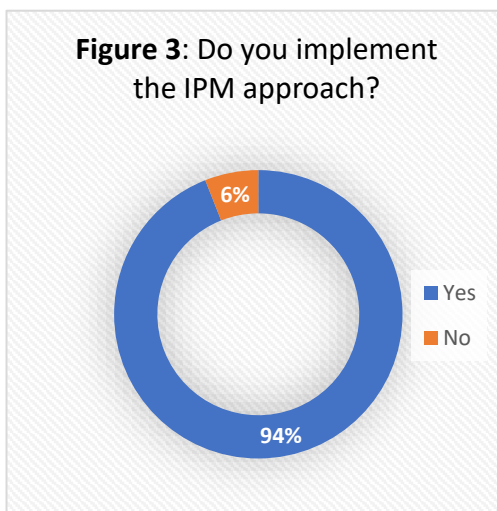


Figure 4: Which elements of the IPM approach do you implement in your work?

94% of CEPA members systematically implement IPM (see **Figure 3**).

A number of steps need to be carefully applied by the trained technician before proceeding to the treatment of the infestation itself. **Figure 4** shows the steps applied “as often as possible” or even “systematically” by survey respondents.

It is important that professional usage of the various tools considered in this report is part of a coherent, integrated and carefully controlled process to be sustainable.

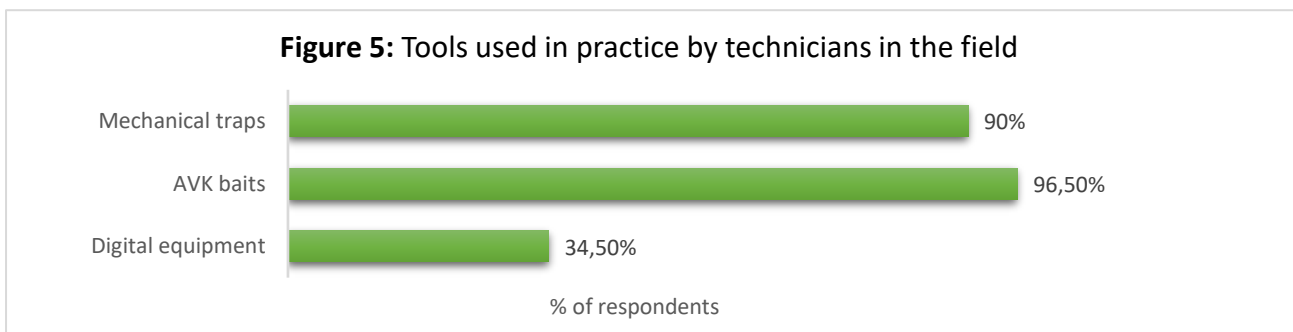
IV. Uptake of mouse control tools

1. The toolbox - definitions

Please see *Appendix*.

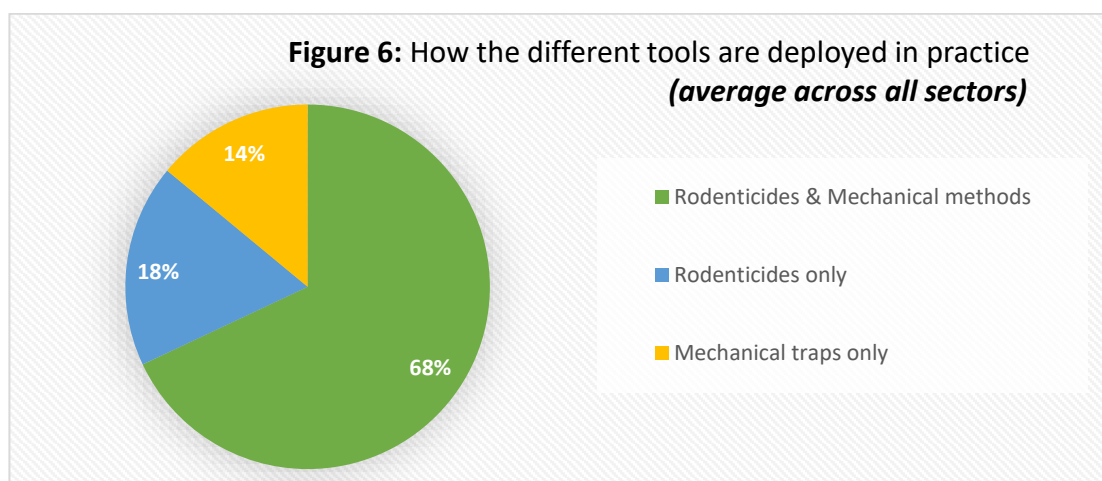
2. Uptake of various tools by trained professionals

Over 90% of respondents indicated that they use mechanical traps in their work, while 96.5% stated they use anticoagulant (AVK) rodenticide baits. The precise deployment of these tools varies in practice according to the nature or context of the infestation. Only 33% of respondents declared using connected devices in their work (see **Figure 5** - multiple-choice question).

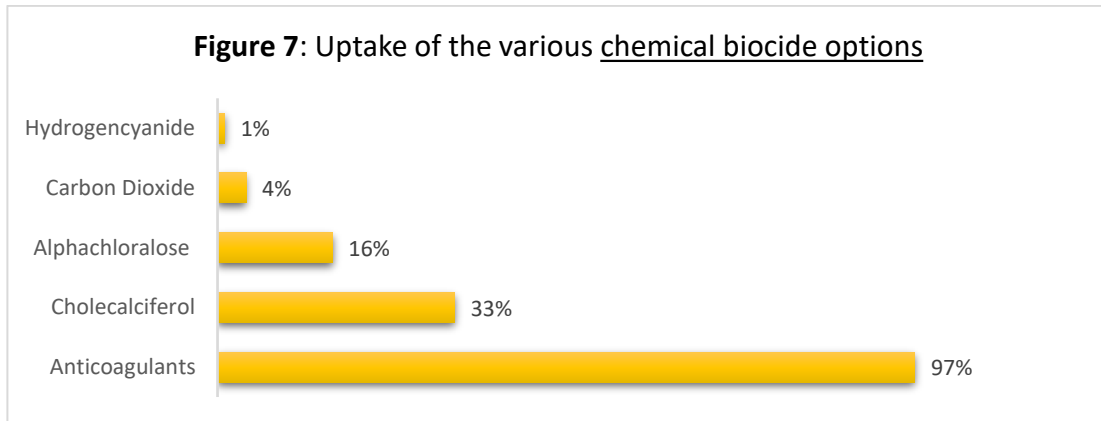


Important note: The “digital” capability of certain equipment (such as bait stations, traps, etc.) does not improve the efficiency of the equipment, as such; rather, it helps with remote monitoring of the presence of rodents in and/or around the traps.

The services of the environmental public health protection specialist are called for on occasion by many different sectors. Survey responses show that, on average, a significant **68% majority of professional technicians need in general to deploy both mechanical traps and anticoagulant (AVK) rodenticide bait stations in parallel to be effective** (see **Figure 6**) (see also **Figure 9** in paragraph 3., below, for more detail on the different sectoral usages).



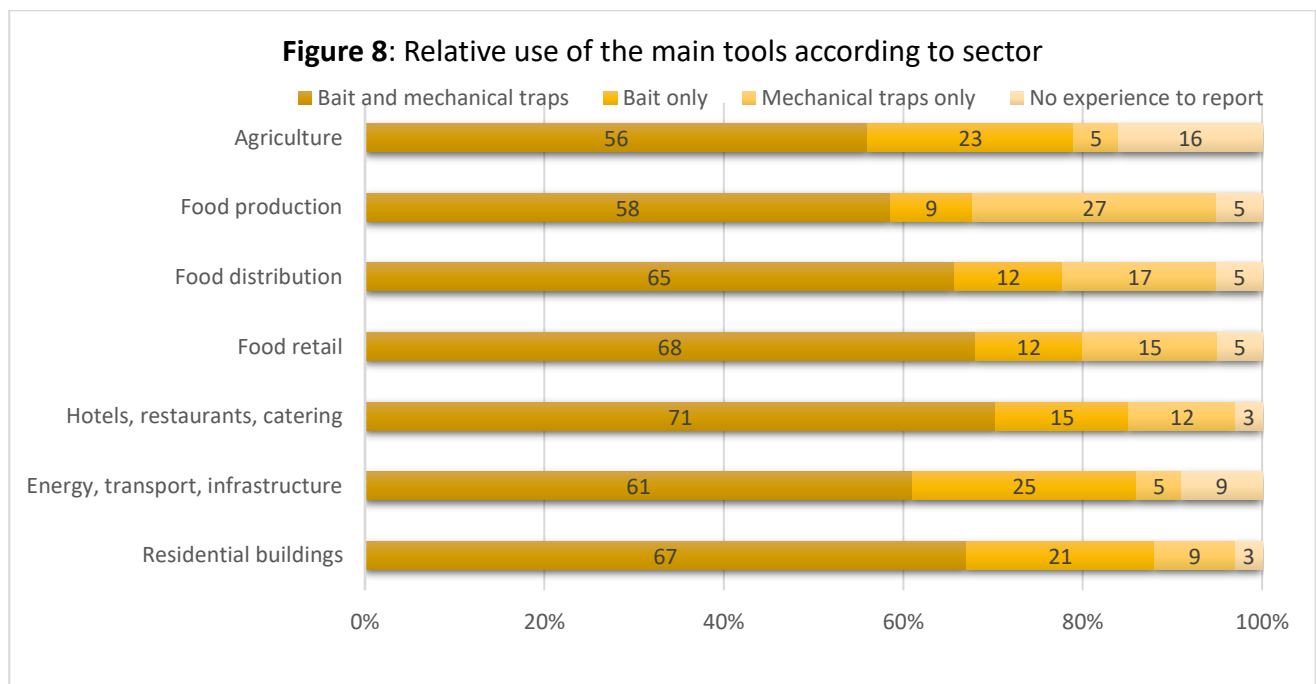
When traps alone fail, **almost 90% of technicians are obliged to incorporate anticoagulant (AVK) rodenticides into their strategies to be successful** (see **Figure 11**).



Alongside anticoagulant (AVK) rodenticides, **various other chemical options exist for dealing with mouse infestations** but their uptake is significantly lower. This is likely due to regulatory restrictions or their lack of practical use in specific situations. It also appears from the survey results that **technicians who use other chemical rodenticides continue to use anticoagulant (AVK) rodenticides as well** (see **Figure 7** - multiple-choice question).

3. Use of anticoagulant (AVK) rodenticides and/or mechanical traps according to sector of activity where infestations occur

Professional service providers can face a wide range of situations when it comes to indoor mouse control, with various factors entering into consideration when it comes to designing and implementing control strategies. While every intervention is different, some of these variables remain the same for specific sectors. That said, professional service providers will always have to adapt their intervention to the specificities of the different sectors they are called on to treat.



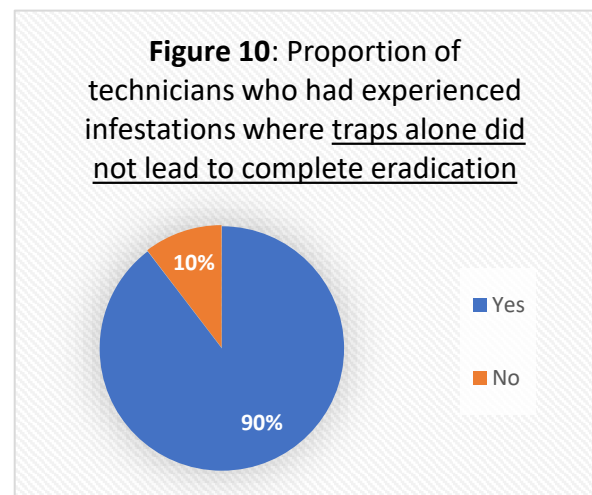
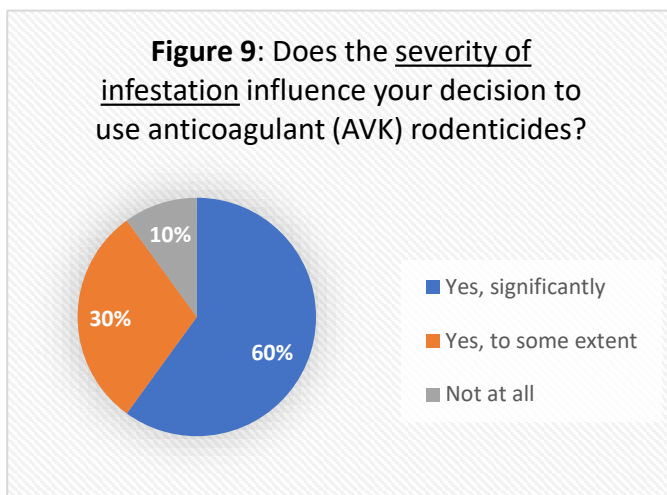
Once again, we see that **the vast majority of professional service providers need to use both traps and AVK rodenticides** to deal effectively with the infestations they encounter (see **Figure 8**).

In areas like agriculture and energy provision, transport and infrastructure, the tendency to use only anticoagulant (AVK) rodenticides has a relatively higher incidence (although combination use is still by far the most common approach). On the other hand, the use of mechanical traps alone is relatively more widespread in the food value chain (notwithstanding that combination use is also the predominant strategy here too). This shows once again that each sector has its own specificities.

4. Severity of mouse infestation

One very important factor for professional providers of environmental public health protection services to assess in determining their control strategies is **the severity of the infestation**. Are we talking about a dozen individual animals or hundreds? This will very much influence the choice and combination of tools that will be used.

90% of respondents agreed that the severity of the infestation had an impact on their decision to use anticoagulant (AVK) rodenticides (see **Figure 9**).

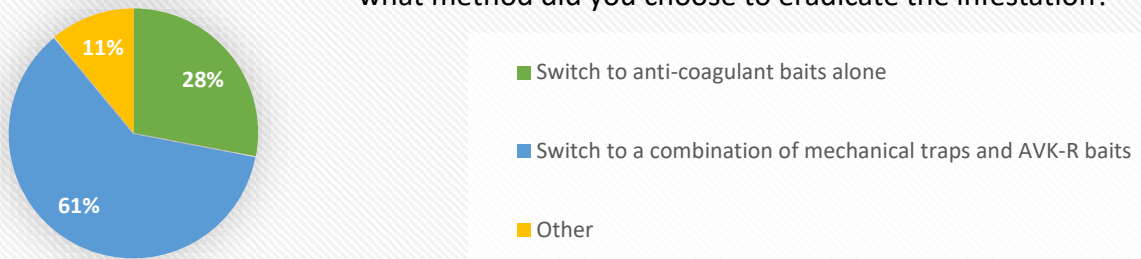


90% of respondents have experienced at least one case where the use of mechanical traps alone did not lead to a complete eradication of an indoor infestation of mice (see **Figure 10**). This result means that, in the experience of the vast majority of respondents, **mechanical traps alone are not efficient enough** to completely eradicate indoor infestations every time.

When asked about their fallback solution once it became clear that the mechanical traps were not working, at least **28% said they switched to anticoagulant (AVK) rodenticides alone and abandoned the traps**, while at least **61% opted to supplement the mechanical traps with parallel deployment of bait stations loaded with anticoagulant (AVK) rodenticides** (see **Figure 11** overleaf)⁶.

⁶ Some respondents answered by choosing the option “**Other**” and then clarified their response by inserting the word “*anticoagulants*” in the comments box provided. This suggests that the final proportion of respondents that switched to

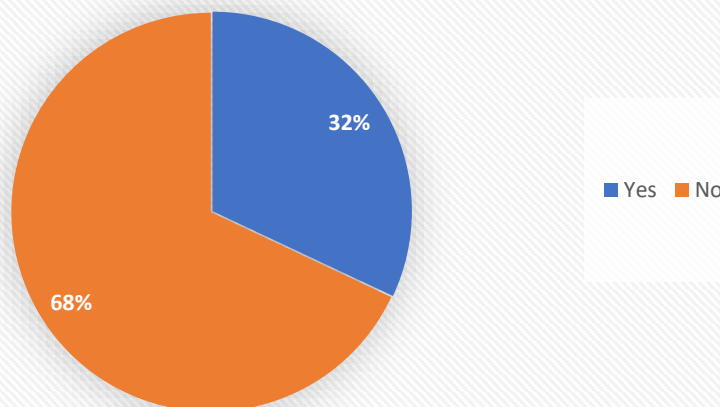
Figure 11: When eradication was unsuccessful using mechanical traps alone, what method did you choose to eradicate the infestation?



Looked at another way, the responses in **Figure 11** show that **in the practical experience of almost 90% of respondents, the use of anticoagulant (AVK) rodenticides (alone or in parallel deployment alongside mechanical traps) proves to be the most efficacious way to eradicate an infestation.**

Figure 12:

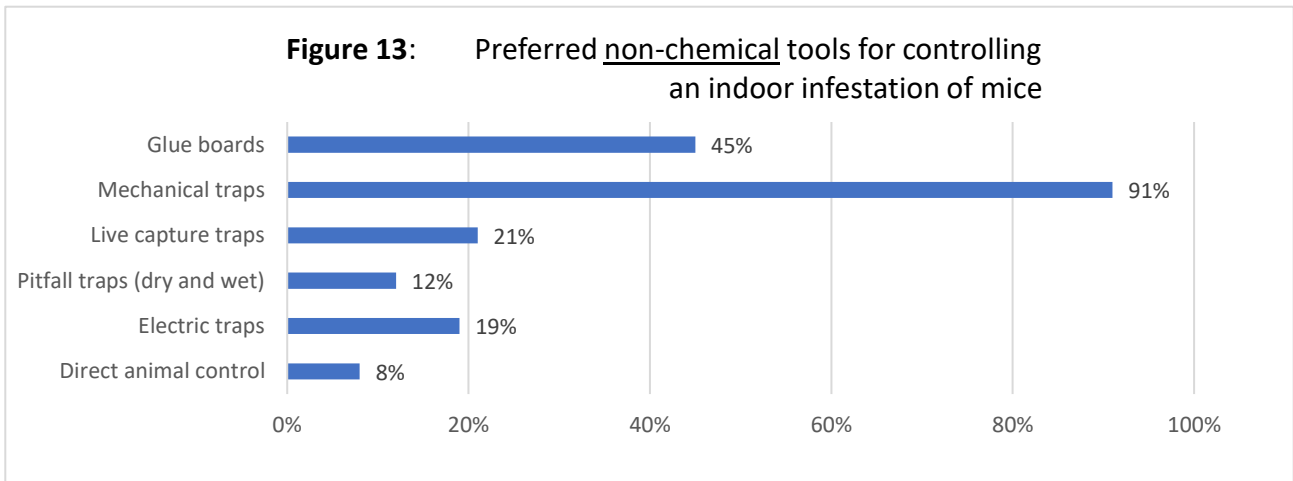
Proportion of technicians who had experienced infestations where switching from feeding baits to mechanical systems was successful in obtaining eradication.



On the other hand, **32% of respondents reported that they had experienced a case where they had to switch from anticoagulant (AVK) rodenticides to mechanical traps** to successfully deal with an infestation, underlining the fact that such devices are an integral part of the technician’s “toolbox”. However, over two-thirds of respondents have never experienced such a case in practice (see **Figure 12**).

some use of anticoagulant (AVK) rodenticides when the traps failed to eradicate the infestation is actually somewhat higher in practice. This is why we state, “at least 28%” and “at least 61%”, respectively.

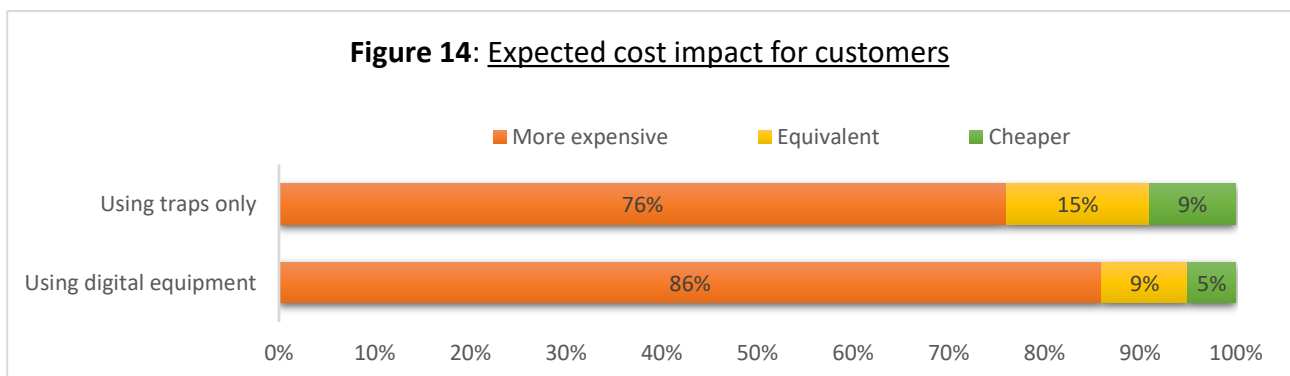
The answers displayed in **Figure 13** (based on a multiple-choice question) clearly show that **over 90% of respondents consider mechanical traps (e.g. snap traps or jaw traps) as the number one non-chemical alternative to anticoagulant (AVK) rodenticides.**



It should be noted that so-called “Glue Boards” were still in use at the time of the survey, especially in the UK. However, for reasons of animal welfare, “Glue Boards” are used only occasionally today in most of Europe.

V. Economic Impact

Beyond the technical aspects, it is also relevant to understand the **relative economic impact** of deploying the different tools. The professional technicians were asked to indicate their experience of the relative costs for customers of using mechanical traps alone and for using digital equipment in the mouse control programme.



Cost impact on customers where mechanical traps alone are deployed:

According to **76% of respondents, using mechanical traps alone would lead to significant cost increases for customers.** This can be explained by the fact that labour is the most important cost in the provision of professional services and traps require more frequent interventions by the professional technician. Indeed, in some countries regular visits by the technicians are required by law (e.g. every day in Germany) when mechanical traps are deployed.

Cost impact on customers where digital equipment is deployed:

Similarly, **86% of respondents believe that use of digital equipment drives up costs for customers.**

VI. Conclusion

Overall, the findings of this survey have highlighted that:

- (1) Professional service providers around Europe are applying the **IPM approach**. They only deploy control tools after careful consideration of the specifics of each situation.
- (2) Professional service providers today use **both anticoagulant (AVK) rodenticides and mechanical traps, often in combination**, and consider them essential.
- (3) **Many infestations are impossible to control rapidly and effectively with mechanical traps alone**. According to 80 to 90% of respondents, deployment of anticoagulant (AVK) baits is necessary in some way to achieve eradication.
- (4) **90% of professional technicians have experienced cases where traps alone were not sufficient to deal with an infestation**. The overwhelming majority of respondents assert that use of mechanical traps alone would lead to increased service costs for customers.

Therefore, given that these products are essential in practice and that effective alternatives are not available, CEPA recommends that continued access to anticoagulant (AVK) rodenticides be prolonged so that professional providers of environmental public health protection services may go on protecting people, public health and public and private property effectively in Europe.

VII. Appendix – Definitions

IPM (Integrated Pest Management) is a systematic, holistic way to deal safely and effectively with organisms like insects, rodents and birds, with the goal of protecting people's health, keeping food safe, and avoiding economic and financial loss. A key objective is to be sustainable, notably by focusing principally on preventing problems before they become a risk and by using chemical products only where they are essential.

Biocides are chemical substances or microorganisms intended to exert a controlling effect, render harmless, deter or destroy any harmful organism.

Anti-coagulant rodenticides are biocides used for rodent control (rats and mice) that work by interfering with the activation of Vitamin K in the rodent, a critical component to promote blood clotting. The rodent dies as a result of internal haemorrhaging.

Other biocides used in rodent control include Cholecalciferol, Alphachloralose, Carbon Dioxide and Hydrogencyanide.

Mechanical traps are devices that work with a mechanical or other kind of trigger mechanism activated when the rodent comes in contact with a bait, the triggered action of the trap kills the rodent.

IoT (“Internet of Things”) devices or connected devices are used by environmental public health protection service providers to monitor infestations.