SEPTEMBER **2022**

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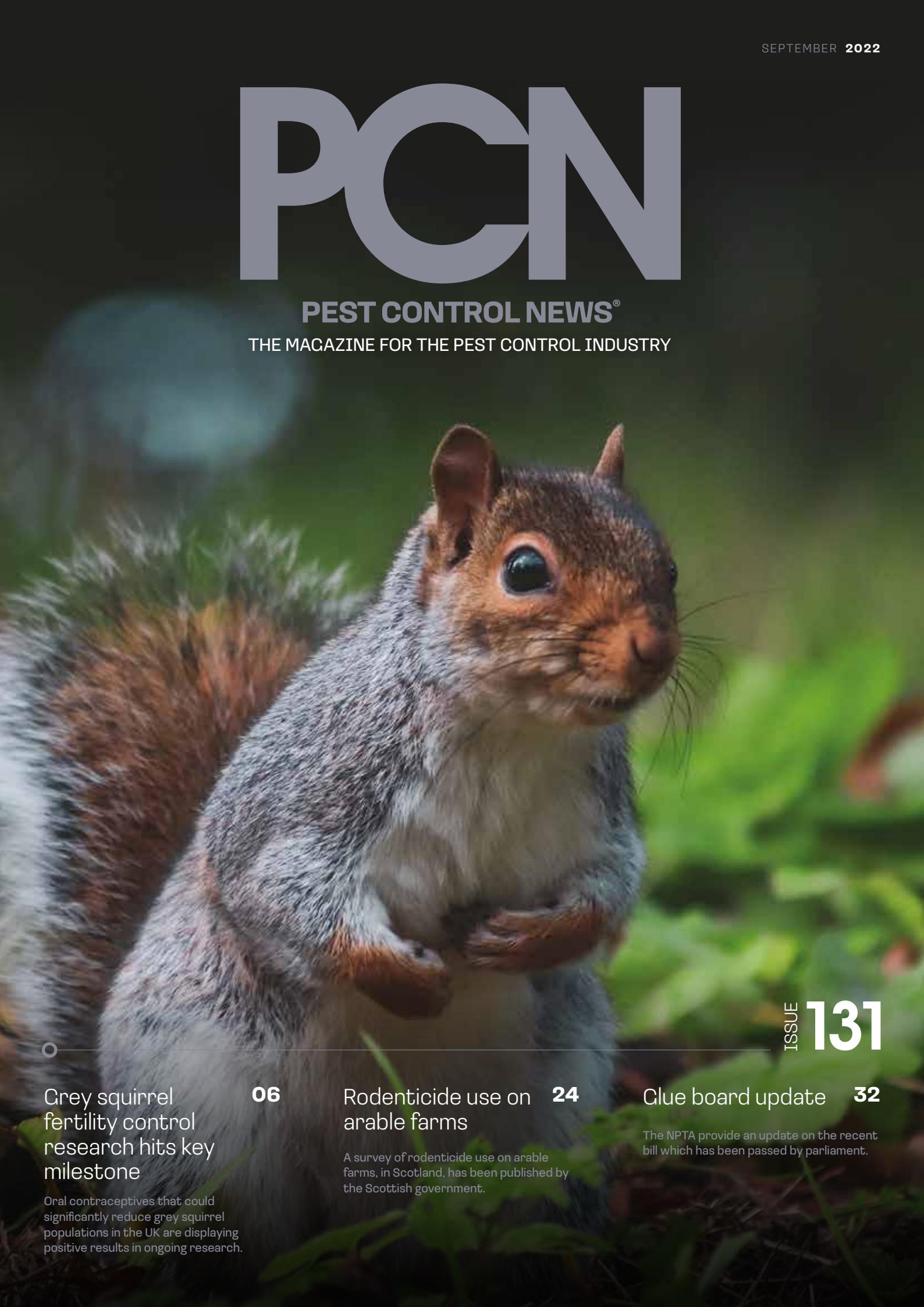

ISSUE 131

Grey squirrel fertility control research hits key milestone **06**

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Rodenticide use on arable farms **24**

A survey of rodenticide use on arable farms, in Scotland, has been published by the Scottish government.

Glue board update **32**

The NPTA provide an update on the recent bill which has been passed by parliament.

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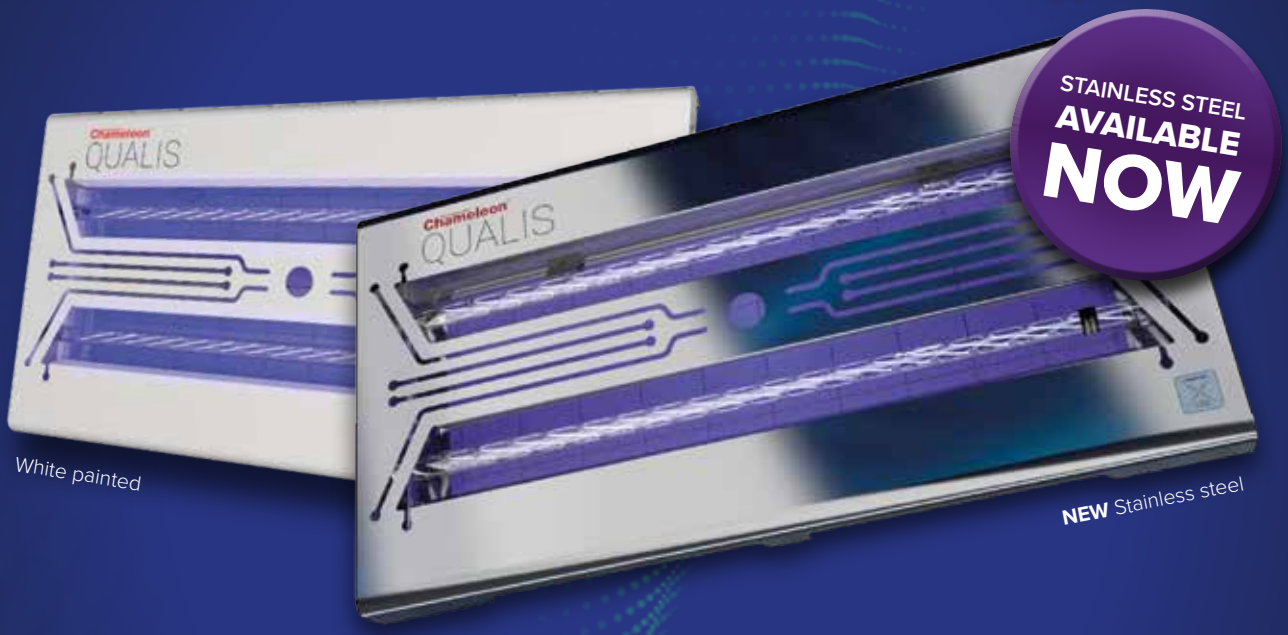

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Grey squirrel fertility control research hits key milestone 06

Oral contraceptives that could significantly reduce grey squirrel populations in the UK are displaying positive results in ongoing research.

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John Charlton

Our industry is much the poorer with the sad passing of John Charlton who has lost his battle with illness.

John had worked in the UK pest control industry since the late 1970's and had the benefit of working overseas in Asia, Europe, Africa, and North America. Valuable knowledge and practical experience earned John the right to become Technical Director at Rentokil Pest Control, before he left in 2007 to set up his own consultancy.

Too few people fully appreciate the massive and positive contribution John has made to our industry, be it from his 'day job', his wonderful training courses or from one of the many influential committees he sat on such as Rodenticide Resistance Action Group (RRAC), National Pest Advisory Panel (NPAP), British Pest Control Association Executive Committee and the industry's Training and Education Forum.

We have asked a few selected individuals, who knew John well, to give their thoughts.

Killgerm Company Biologist Mark Butler said "John possessed incredible technical knowledge and understanding of all things pest control and was without doubt, the best 'all-rounder' we have ever known. Having previously worked for John for almost 10 years, I look back and appreciate how he very deliberately gave me opportunities for self-development. I remember John not only as a hugely skilled man-manager but as a loyal and long-standing friend. He had the capacity to find humour in all things and had a remarkable turn of phrase. He enjoyed a good beer and a good laugh. He will be sorely missed but his pest control legacy lives on"

PestAssess Director Mike Rimmer said "I first met John Charlton in 1982 when he ran the initial training course for newly recruited Rentokil Servicemen, as they were called then. It was instantly very clear to me that John was different to anyone I had ever met. In fact, he was very different. With a glint in his eye, a jet-black moustache and a razor-sharp sense of humour, John put the building blocks in place for me to have a long career in pest control.

Our paths crossed several times as I progressed through the company. I was eventually lucky enough to go on to work for John, from 1993 to 2007. Then we were all made redundant, John included, as the Technical Department was disbanded.

From 2007, John and I worked closely together until he retired in 2021. He remained good humoured, spirited, and brave throughout his illness.

John is the most remarkable man I have ever known. I use the present tense since his spirit, knowledge, humour and unusual sayings will live on through those who were fortunate enough to know him well.

John was a bloody brilliant mate who made my life significantly better than it would have been otherwise.

A huge loss to those who knew him and to the pest control industry.

Cleankill's Chris Davis said "It was a great privilege to work in John Charlton's Technical Team for ten years, and at its peak there was nothing else like it in pest control. Whilst demanding high standards of performance from everyone, John loved a practical joke and/or a windup and lighter moments with a few bevvies were never very far away. He commanded such a high level of respect for his technical expertise, that people were often caught unawares by his antics and left without the least suspicion that John was involved, which was the way John liked it.

He will be greatly missed by all his old team – a real friend whose knowledge and 'elephantine' memory of all things relating to mammals and pest control cannot be replaced.

Consultant Adrian Meyer, on behalf of RRAC, passed on condolences, "John was a member of the Rodenticide Resistance Action Group for many years and contributed very significantly to the current strategies that we apply in the UK. I have been asked by all those on the RRAC to send their very best wishes. John will be sadly missed, not just because of his technical contributions, but also because he was such good company and a friend."

David Oldbury and Paul Charlson, on behalf of NPAP, recognised John's contribution to the industry. "We worked closely together on a number of NPAP documents, his knowledge of urban pest management was really first-class. He will be sadly missed" said David. Paul commented that "John's knowledge was exemplary and he was such a nice person too – a great loss. My condolences go out to John's family."

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Mike Kemp 1935-2022

Mike Kemp died peacefully on 2nd August 2022.

Mike was the founder of PestWest Ltd in 1984 sub-contracting the manufacture of EFK's (electronic fly killers), then in 1991 Mike teamed up with Jonathan Peck of Killgerm Group Ltd and PestWest Electronics Ltd was born. Mike continued in the position of Managing Director of PestWest Electronics and the company began to grow into what it is today - a major global manufacturer of high-quality professional flying insect control units. His passion for the industry was exemplary and the business soon had a footprint in Europe, USA and Canada.

One of Mike's proudest moments was in 2004 when PestWest was awarded the Queen's Award for Enterprise in the International Trade division. The highest award of excellence a UK company can be awarded.

Mike retired in 2006 but always kept one eye on the business, he even took the time to drive from Malvern to Ossett to celebrate PestWest's 25th Anniversary in 2016, making a moving and passionate speech.

There will be a celebration of Mike's life which will take place at Barnard's Green Cricket Club, North End Lane, Malvern WR14 2ET.

Rest in peace Mike, from all your colleagues at Killgerm Group ltd.

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Appeal for more rodent tails for FREE resistance testing

In a recent Killgerm podcast*, CRRU chairman Dr Alan Buckle appealed for more rodent tail samples to be submitted for resistance testing (*No.29, bit.ly/3cRNJgf).

"To date, sampling has been weighted to areas where control problems prompt the thought that resistance could be present," he said. "One exception arising from Reading University's long-standing interest is that we have much more data for central southern England than anywhere else.

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New Technical Support Advisor

Killgerm Chemicals Ltd is pleased to announce the appointment of a new Technical Support Advisor. Louise Loben has joined the team from within the industry, where she worked as a Pest Control Technician and Technical Inspector.

Louise comes to Killgerm with almost 12 years of experience within the industry and holds the BPCA Accredited Technician in Pest Control (now called the Certificated Advanced Technician). She brings numerous other qualifications / certifications to Killgerm including: RSPH Level 2 Award in Pest Management, RSPH Level 2 Award in using Aluminium Phosphide Safely for the Management of Vertebrate Pests, NPTC Level 2 Certificate of Competence in the Safe Use of Pesticides PA6 & PA1 and Safe and Effective Use of Air Weapons.

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New Name of Future Standalone Company Reflects Commitment to Partnering with Customers and Innovation

Bayer's Environmental Science Professional business today announced it will become Envu as a standalone company, contingent on the successful close of Cinven's acquisition of the business from Bayer*. Pronounced "ehn-VIEW", the name is derived from "environment" and "vision" and developed with input from both employees and customers around the world.

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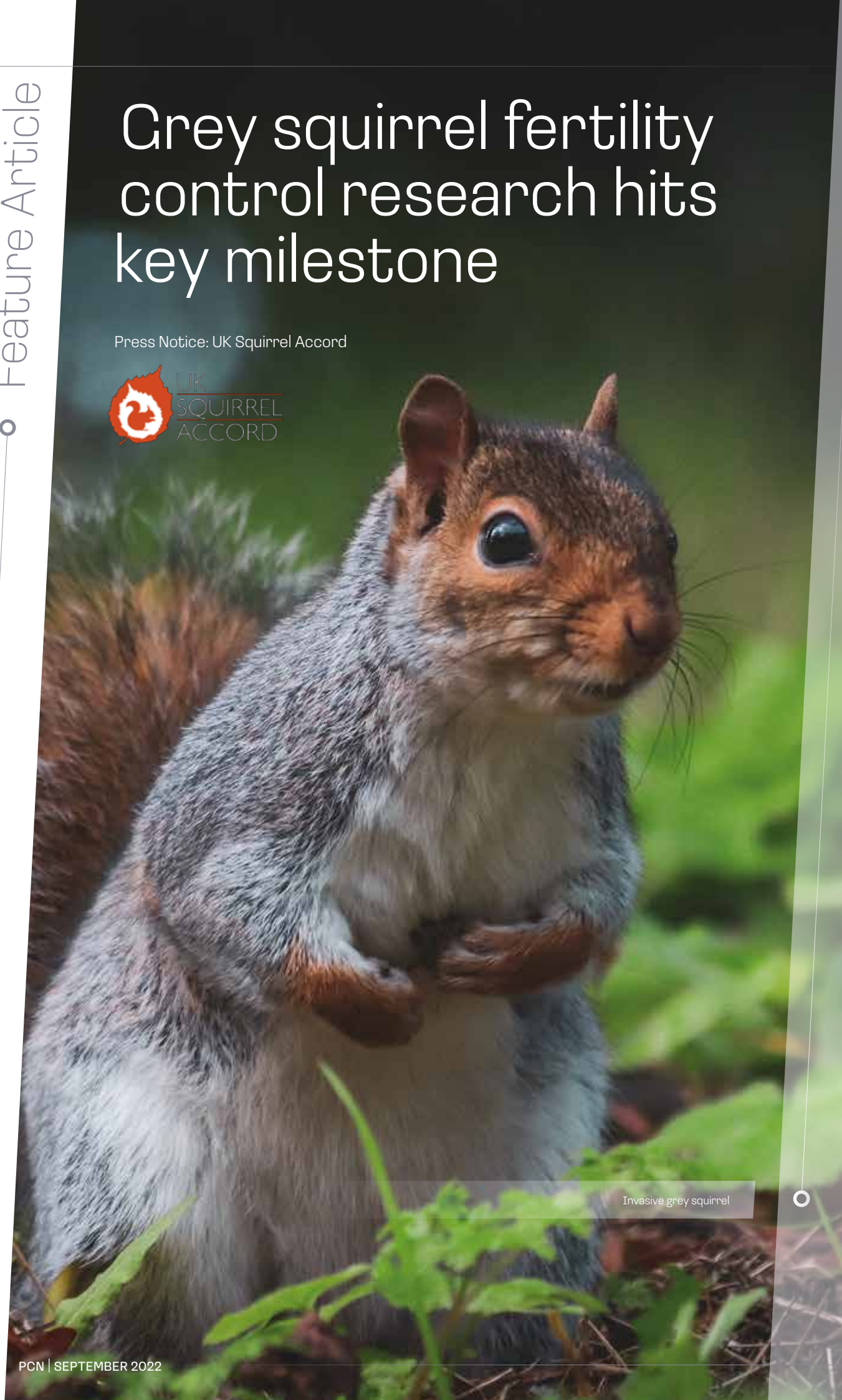
Grey squirrel fertility control research hits key milestone

Press Notice: UK Squirrel Accord



Invasive grey squirrel

Oral contraceptives that could significantly reduce grey squirrel populations in the UK are displaying positive results in ongoing research, the UK Squirrel Accord (UKSA) has announced today.

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UKSA is funding research into a fertility control for grey squirrels that will offer an additional, non-lethal method to manage the population of this species. The resulting oral contraceptive and species-specific feeding hopper will support reductions in grey squirrel numbers to protect red squirrels and trees.

Important progress has been made in the development of a contraceptive for grey squirrels in laboratory trials as part of research being carried out by a team at the Animal and Plant Health Agency (APHA), with further tests being carried out to ensure it is safe and effective.

Vital progress has also been made in developing methods to deliver oral contraceptives to populations of grey squirrels, which is essential for practical field applications.

APHA has shown that a feed hopper with a weighted door will exclude most other species of wildlife, while still allowing more than 70% of local grey squirrel populations to access and eat from them. APHA is now testing different methods of keeping red squirrels out of the feeders, so contraceptives could be used in areas where there are both types of squirrel. So far, research has suggested that body weight could be used to distinguish between greys and reds. No oral contraceptive has been used in the field at this stage of the research.

UKSA is celebrating reaching its funding target for the research phase of the grey squirrel fertility control development. UKSA's funding focus will now shift to the landscape-scale field trials and testing needed for registration of the final products, and knowledge sharing and awareness raising activities. The four phases needed to deliver the fertility control are:

1. Research and development – ending January 2024
2. Landscape-scale trials – in development
3. Testing for registration – in development
4. Widespread availability of registered methods

Kay Haw, Director of the UK Squirrel Accord, said

"Wonderful to see support for this novel work increasing exponentially. We are incredibly thankful to everyone that donated to the research phase. Donations came from across the forestry and conservation sectors (including UKSA signatories), private individuals and estates, and grant-making organisations. We will now focus on fundraising for the next key phases of the programme and wider UKSA activities."

Lord Kinnoull, Chair of the UK Squirrel Accord and Red Squirrel Survival Trust, said

"This is a vital milestone on the road to enabling forestry to play fully its part in the climate battle, while preserving our native broadleaf trees and allowing our native red squirrels to return."

Rebecca Isted, Squirrel Policy Advisor, Forestry Commission, said:

"We have supported the grey squirrel oral contraceptive project from its inception and I'm optimistic these trials could eventually lead to a significant change of approach in the management of these animals.

"The Forestry Commission is currently updating the Government's Grey Squirrel Action Plan, and will set out our plans to better understand and manage the negative impacts of grey squirrels in due course.

"Reaching the funding target is an amazing achievement and testament to the strength of the UK Squirrel Accord Partnership, of which we are proud to be a member."

Vanessa Fawcett, Fundraising Director for Red Squirrel Survival Trust, said:

"Without effective conservation management, red squirrels could face further local extinctions across the UK. Research into developing an oral contraceptive for the grey squirrel is at an advanced stage. We are deeply grateful to all those who supported us so far on our journey to offer a new solution to effectively manage grey squirrel populations."

Gideon Henderson, Chief Scientific Adviser at the Department of Environment, Food and Rural Affairs, said:

"Fertility control can be an effective method complementing other approaches to wildlife management. This UK Squirrel Accord & Defra funded study aims to produce an immuno-contraceptive that can be orally administered to grey squirrels through a species-specific delivery mechanism.

"This innovative research has great potential to provide an effective, easily-applied and non-lethal method for managing grey squirrel populations. It will help red squirrels - native to the UK - expand back into their natural habitats, as well as protecting UK woodland and increasing biodiversity."

Environment Minister Lord Benyon, said:

"The grey squirrel is an invasive species that is causing untold damage in the British countryside where these pests continue to wreck our fledgling broad-leaf trees like oak by stripping bark, and disrupting the delicate balance of nature and biodiversity, whilst diminishing our ability to tackle climate change.

"That's why we continue to support the UK Squirrel Accord and APHA as this important research on oral contraception shows promising signs that could help to eradicate the grey squirrel in the UK in a non-lethal way, as well as helping to recover our beloved red squirrel."

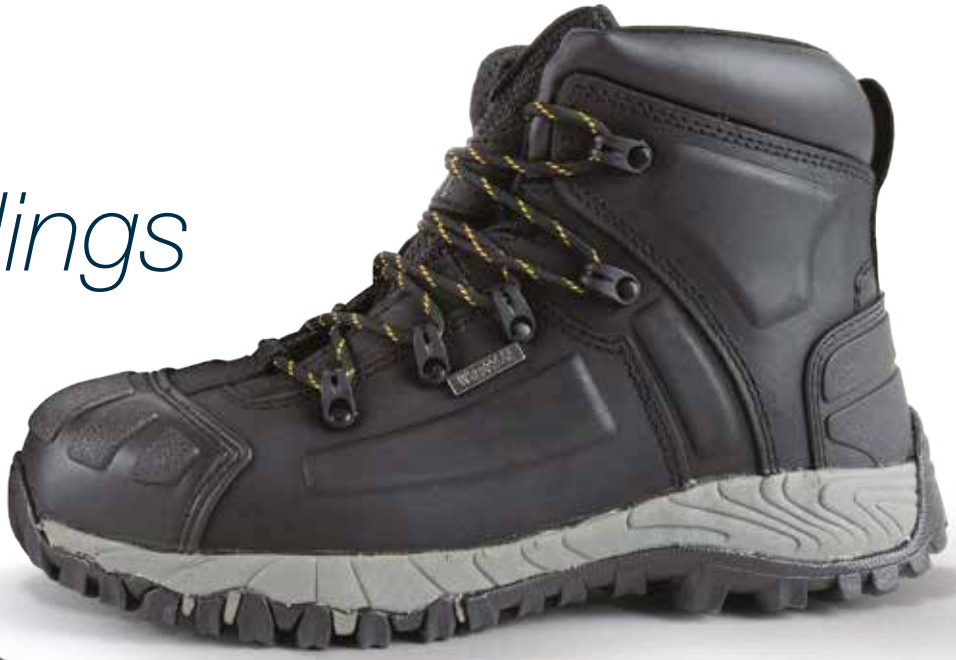
Grey squirrels cause damage to woodlands by stripping bark from trees aged between 10-50 years, the young trees in a forest. They are also one the main reasons for local extinctions of red squirrels in large areas of the UK.

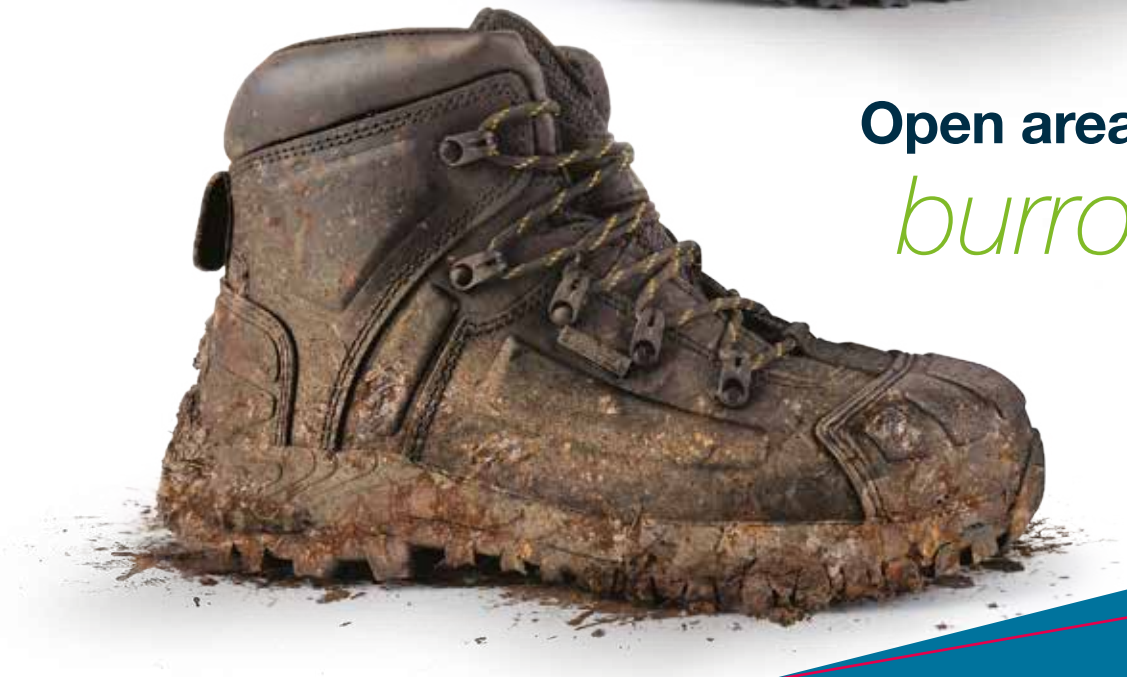
They target broad-leafed varieties, including oak, which are ecologically important because they support so many other species. It is estimated the UK is home to around three million of these invasive rodents.

For further information or to donate to support this important work, please see our website www.squirrelaccord.uk or contact info@squirrelaccord.uk

Go where
the rats go

In & around
buildings





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Being raised in a town which acts as a gateway to the national park, I've always had an affinity with the Yorkshire Dales. So, when the opportunity arose to spend a day out of the office and work in the countryside, it was a no-brainer.

My inclusion in the event was facilitated by a corporate partnership. Our company's energy supplier, United Gas and Power (UGP), has keenly supported the work of the Yorkshire Dales Millennium Trust (YDMT) for years. So much so that United Gas and Power has actually managed to raise over £10,000 to help fund the environment-focussed charity.

Killgerm Group had previously made UGP aware that we'd love to be involved in their charitable pursuits. Given this, when YDMT were organising a woodland maintenance day, UGP graciously invited four members of the Killgerm Group staff along to partake in the philanthropy.

As part of the quartet, we were instructed to meet near Snaizeholme, deep in the Yorkshire Dales. With the destination being in such a remote area, the accentuated travelling through the Dales' rolling hills and tranquil scenery was a great start to the day.

Once I had arrived and greeted the rest of the team, grabbed some water and applied sun cream, we were guided further into the dense wilderness.

The YDMT representatives, and our guides for the day, were Michael and Mike. The pair begun their spiel by giving the group an understanding of YDMT's provenance and ethos. The 25-year-old organisation places an emphasis on helping to protect and enhance the people, landscape and wildlife of the Dales, through passionate and practical endeavours.

Michael expressively spoke of how the precious landscape acts as a vital resource for people and nature. Which neatly brought us on to the participants' roles for the day.

The area where we were situated was not always a notable wildlife haven. Apparently,

it had undergone a transformation from being some of the bleakest uplands in the Yorkshire Dales. The man responsible for this metamorphosis was Hugh Kemp. 40 years ago, Hugh intended to turn the region into a commercial Christmas tree forest. But, as he lost his ideas changed and Hugh lived out his life indulging his two passions. He'd paint in the mornings and plant trees in the afternoons.

Due to Hugh's planting efforts, the land has become a desirable habitat for nature and animals alike. It is now home to a red squirrel sanctuary, as well as housing roe deer and a variety of woodland birds, such a siskin, lesser redpoll and common crossbill.

It's because of this nature, and YDMT's fundamental belief in sustainability, why the day's focus was on the removal of plastic tree guards. As part of the organisations wider 'Plastic-Free Woodland' project, YDMT wanted to understandably distance itself from single-use plastics; hence, ridding the current landscape of such materials.

So, despite a simple yet idyllic final chapter which mirrors folklore, Hugh had managed to plant 1.6 million trees which were all surrounded by these plastic tree guards. Back then, the reason being, is the plastic helps the burgeoning trunks grow and protects them from feeding predators.

Through the commendable work catalysed by the 'Plastic-Free Woodland' initiative, last year, Mike mentioned that YDMT had managed to rid 38,000 trees of their plastic tree guards.

Removing the plastic tree guards

With the target set, Michael and Mike, almost with the lofty figure of 1.6 million on their minds, put us to work.

The activity itself consisted of manoeuvring through the boscage and identifying the aforementioned plastic tree guards. Then, we'd use knives to split the plastic, which freed them up to be ripped away from the trunk.

The camaraderie the mission spawned throughout the group was palpable. This kinship also seemed to be cultivated by a shared understanding of our corporate social responsibility. Spending a day in the company of the committed YDMT staff, who so clearly care for the cause they are serving, was infectious.

There's nothing quite like spending a day in an area of outstanding beauty to reinforce our duty to care for such land. Killgerm Group's philanthropy doesn't stop here. Whether it be our tangible sustainable actions of joining the woodland maintenance day or a wider holistic approach to caring for our ecosystem, these environmentally friendly beliefs have undoubtedly permeated into Killgerm Group.

In fact, the part Killgerm Group plays in the overall corporate responsibility role is actually much wider than the trees that have been planted through our energy provider.

Killgerm has, for years been advocates of corporate social responsibility. We help to raise money for Water for Kids, a charity that we proudly continue to support.

The bait boxes we have in our product range are made from 100% recyclable plastic and have come from the interior side boards of used cars.

We also sponsor a Flo Hive at the Manchester City Council, which allows them to collect honeybee swarms and relocate them. Honeybee swarms are collected and rehomed into Flow Hives which allows extraction of honey from a hive with minimal disruption to the bees.

It doesn't just stop with Killgerm, of course, because YOU are all helping us too! If you have been to a Killgerm workshop or breakfast meeting and taken some of our giveaways away with you, you are helping the planet just as much as us! Each giveaway we have chosen this year has been specifically chosen from a sustainability range.

We are finding more and more ways to help the environment and will continue to support our partners too.

A Killgerm volunteer makes a new friend

No more Warfarin.

Warfarin rodenticides to be withdrawn

Warfarin is to be withdrawn in the United Kingdom. This affects Sakarat Warfarin Whole Wheat UK-2017-1059 (warfarin 0.05%).
Also, Grey Squirrel Bait UK-2019-1169 (warfarin 0.02%).

Relevant dates:

Both products can be sold until 31st December 2022. Sakarat Warfarin Whole Wheat can be used up until 15th March 2023. Grey Squirrel Bait can be used up until 31st December 2023.

What are the alternatives?

For grey squirrel control, please see the article regarding DOC traps in this issue – they are one potential alternative. The Spring Traps Approval Order 2018 lists many spring traps that are approved for grey squirrels https://www.legislation.gov.uk/uksi/2018/1190/made

Live capture traps for squirrels are also available. We report, in this issue, on research regarding oral contraceptives as a method of grey squirrel control.

Regarding rat control in the UK, there will be no other available first-generation anticoagulant baits. This includes the fact that Racumin Paste UK-2016-0953 (0.0375% Coumatetralyl) is no longer available for sale and its final authorisation date is 27th February 2023. Coumatetralyl remains available as a contact foam formulation. If users were selecting first-generation baits to lower the risk of secondary poisoning to non-target species, such as birds, cholecalciferol baits are an option. Cholecalciferol is not persistent in the environment and therefore it may be assumed to present a lower risk of secondary poisoning to some non-target species such as birds.

Could delinquent minority restrict rodent control options for responsible majority?

THINK WILDLIFE
Campaign for Responsible Rodenticide Use

Another year of "stubbornly static", and in some cases rising, rodenticide residues in barn owls has prompted an uncomfortable question about the use of poison baits: could irresponsible practices by a delinquent minority restrict future pest control options for the responsible majority?

This applies equally to all three professional user groups, pest control, farming and gamekeeping, according to Campaign for Responsible Rodenticide Use chairman Dr Alan Buckle.

"Undocumented allegations of misuse or abuse are not difficult to come by in conversation with responsible operators at trade events," he says. "These include, for example, rodenticide blocks thrown liberally along hedge bottoms and old tractor tyres laid flat and filled with poison bait along field edges."

In the latest two years of surveillance, nearly 90% of barn owls, the officially selected sentinel species, were found to carry rodenticide residues. Dr Buckle says this is despite detailed best practice information being made widely available via CRRU's UK Rodenticide Stewardship Regime.

"There can be little doubt," he adds, "that rodenticide leakage into non-target wildlife arises largely from rural use, whether by gamekeepers, farmers or pest controllers. Equally, there is little doubt that many rodenticide users employ responsible best practice.

"The problem, we believe, is a disinterested or, worse still, unscrupulous minority who either don't care about the harm that can be caused by rodenticides and use them indiscriminately, or deliberately employ them unlawfully to kill, for example, predators like birds of prey, foxes or badgers.

"Unfortunately, these people are out of reach to CRRU's best practice guidelines, user training and certification, secure point-of-sale controls, standards audited by farm assurance schemes, and widespread promotion of responsible use principles and practice," he says.

Proposed ways to toughen up the stewardship regime, currently a voluntary programme, are being considered by CRRU's steering group. This body includes representation from all rodenticide user groups along with wildlife and environmental bodies.

Whatever is decided, Dr Buckle emphasises that changes will follow. "The next phase of stewardship cannot simply be more of the same," he says. "For stewardship to be judged effective by its HSE-led Government Oversight Group, lasting reductions are expected in rodenticide residues carried by non-target wildlife.

"Without such evidence, we might anticipate ever more stringent restrictions on how rodenticides can be used, and by whom. Clearly, this may be to the detriment of our ability to control rodents and protect human and animal health.

"Right now, of course, responsibility for avoiding even more severe measures is squarely in all users' hands to eliminate shoddy practices. We have all been warned.»

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*Tickets can be cancelled up to 4 weeks prior to the event, tickets cancelled after this time will be charged at full price.

The 10th ICUP conference proved a roaring success

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Delegates from across the globe were clearly excited to once again be present, face-to-face, at the 10th International Conference on Urban Pests (ICUP) held at the Pompeu Fabra University in Barcelona, Spain from 27-29 June 2022. It had been a long wait for this event, as it was originally planned for 2020, but the covid pandemic prevented this, so five years had passed since the last ICUP event held in Birmingham, UK, in 2017 , chaired by Dr Matthew Davies.

In total, over 250 academics, manufacturers, regulators and service professionals representing all sectors of the urban pest management sector attended this unique event. Delegates came from 28 different counties from as far away as Argentina, South Korea, Australia and India but, as to be expected, there were strong contingents from European countries, in particular Italy, Germany, France and of course, the host country Spain.


Dr Bill Robinson

Opening the event was Dr Bill Robinson, chair of the ICUP Executive Committee, who greeted all the delegates, referring to them as 'the ICUP family'. This is certainly a very apt description as these events have a very loyal following with well over half of those present having attended at least one, if not several, or even all, of the previous nine conferences going back to Cambridge in 1993.

Dr Robinson implored all those present to "Get out of your box and think laterally about urban pest control. Economics are coming into pest control. The world is changing. We are all safe and sound here in Barcelona, but the world is no longer such a friendly place. Some of our East European colleagues are absent. And several of us have had to battle with airline and train cancellations as well as lost luggage." Problems certainly, but this failed to dampen the excitement and enthusiasm of those lucky enough to be present.


Dr Ruben Bueno

Dr Ruben Bueno, chairman of the ICUP Organising Committee welcomed everyone to Barcelona. He highlighted the challenges and new problems faced within Europe, such as the growing threats posed by the arrival of invasive species, such as the Asian tiger mosquito (*Aedes albopictus*) Asian hornets (*Vespa velutina*), blackflies and termites. With these insects comes an increase in arboviruses such as Dengue fever, West Nile virus and leishmaniasis.

At the opening ceremony, Dr Bueno was joined by Elisenda Realp Campalans, director of Environmental Health in the Public Health Agency of Barcelona. She welcomed delegates on behalf of the City and explained how the monitoring of urban pests was an increasing issue, especially with the changes in climatic conditions. She stressed how Barcelona is committed to the health of its residents and the challenge it faces.


Dr Bill Robinson, Elisenda Realp Campalans and Dr Ruben Bueno

Emerging threats

Changes in climatic conditions and the related threats emerging from vector-borne diseases proved one of the conference themes. Management strategies designed to combat these threats were addressed by several speakers during the event, including three of the four invited plenary speakers.

One of these plenary speakers was Dr Rachel Lowe, ICREA research professor and Global Health Resilience team leader in the Earth Science Department of the Barcelona Supercomputing Center who detailed their work creating probabilistic models capable of forecasting diseases outbreaks, such as of dengue fever, up to six months in advance. She also announced the establishment in June this year, of IDAlert. This is an infectious diseases decision support and alert system designed to tackle the emergence and transmission of zoonotic pathogens. By developing novel indicators, innovative early warning systems and efficient tools for decision-makers, it aims to make Europe more resilient to emerging health threats.

Dr Josep Maria Jansa from the European

Centre for Disease Prevention and Control (ECDC), an EU Agency, outlined their experience dealing with outbreaks and epidemics caused by vector borne diseases. And at the very end of the conference Dr Raman Velayudhan, head of the Control of Neglected Tropical Diseases unit of the World Health Organisation (WHO) in Geneva detailed the actions contained within the Global Arbovirus Initiative launched by WHO in March 2022.

By no means overlooked, rodents featured in the fourth plenary presentation given by Dr Jason Munshi-South based at Fordham University in New York City, USA. He outlined his work looking at the ecology and evolution of rat populations species living in Manhattan, New York. He explained how individual rat populations are connected over tens to hundreds of meters in NYC and how the age of buildings, socioeconomics and residential density can be used to predict rat numbers. Whilst rat movements can be predicted by the type of built environment and urban infrastructure with small parks providing ideal rodent reservoirs.

He concluded by saying: "Management programmes need to be proactive rather than reactive. Larger scale strategies are required. Neighbourhood level interventions can drastically reduce rat populations."

These results seem to be hitting home as on 15 July a number of New York City councillors put forward a series of bills they are calling a "rat action plan." These aim to tackle the growing rat population across the five boroughs. One bill would require construction companies to submit a rat mitigation plan before obtaining permits, whereas another would set up rat mitigation zones.

The packed auditorium

Following each of the plenary sessions were a series of concurrent presentations. These covered the full range of urban pests ranging from rodents to bed bugs, to mosquitoes and wasps, cockroaches, flies, termites and some of the more specialist pests including grey silverfish and insects of wood packaging materials. Frequently delegates were faced with an unenviable choice as they wished to attend overlapping sessions.

All was not lost though, as copies of the presentations are included in the printed proceedings given to each delegate, or there was opportunity to catch up on the topics during the breaks. It is these informal conversations and networking opportunities that are frequently cited by delegates as one of the prime reasons to attend ICUP events.

Doing things differently...

Complementing the scientific research papers there was a series of presentations where more practical user experiences were presented. One theme which stood out from these was that the industry had to do things differently and better.

At least two speakers drew parallels from the agricultural sector. Dr Bill Robinson reminded everyone that the classic sprayer used today is still based on those developed for agriculture back in the 1940s. "We are applying 21st century pesticides with 70-year-old equipment and technology." Dr Dini Miller from VirginiaTech, USA drew another parallel saying: "We all talk about Integrated Pest Management. This is a term developed for use with crops in agriculture. We need to switch this to Assessment Pest Management. We need to asses insect populations, not just spray them."

Doing things smarter...

Looking more to the future several speakers emphasised the growing significance of digital remote monitoring equipment. With good and experienced technicians ever hard to attract and retain, remote monitoring offers the advantage of achieving more for less time spent – technicians are released from simply being 'bait box checkers'.

In his presentation Byron Reid from the Bayer Digital Pest Management team explained that he estimated there were over 20 million rodent monitors in use in the US alone. Just think how many there must be if you multiply this up globally? "The use of electronic monitoring allows us to shift our approach from task-orientated bait box checking to strategic analysis, investigation and corrective planning. We need to shift the expectation placed on PCOs from being reactive to proactive. From putting out fires to being the smoke alarm," he stated.

Another new smarter application on the horizon is a lateral flow test designed for detecting the presence of bed bugs. Presented by Alexander Ko from Bayer Environmental Science based in Cary, USA it has a similar set-up to a covid test, and detects specific proteins left on surfaces by bed bugs. Still in the final development phase, it is hoped the product will be introduced next year.

In addition to the near 70 oral presentations accompanied by the poster presentations, were three Workshop sessions consisting of nine sessions. Delegates could register for these on a one-day ticket and were aimed at local Spanish pest controllers. Some of the presentations were given in Spanish and some where not, but there was simultaneous translation.

Enjoyed by all

Having had to wait five years for this ICUP event certainly seemed to make delegates even more enthusiastic and were very appreciative that the event was finally happening. The good will towards these ICUP events was neatly summed up by one delegate who wrote on their feedback form... I love this conference, whilst another touchingly said... Long-live ICUP.

A local traditional band

In addition, the social events added local flair. During the reception on the opening night, a local traditional band provided the entertainment. On the second night there was an organised tour of the Saló del Cent (City Hall) and on the final night the gala dinner, during which, as is now an ICUP tradition, there was the making and flying of paper airplanes!

Delegates went home with a copy of the printed and bound proceedings, which contained the text of the oral presentations together with abstracts of the 60 posters. In the autumn, these papers and posters will all be added to the permanent ICUP website www.icup.org.uk. Here they, as well as the papers and posters from all previous ICUP conferences, can be searched, viewed and downloaded free-of-charge.

The next ICUP Conference, when the 'ICUP family' will once again be able to get together, will be in 2025. Further details, including the location, will be announced when available.

The organising committee and team

Kit maintenance: AR8 Pro

Here's hoping it's been a busy wasp season for all!

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If you're standing down your wasp dusting equipment, give some thought to kit maintenance measures. A popular piece of kit is the AR8 Pro and we tackle care, maintenance and troubleshooting here. For the uninitiated, the AR8 Pro is a telescopic dusting lance with a working height of 8m for precision dusting at height. It is powered by a 1 litre stainless steel refillable pressure tank.

Product Care Advice: AR 8 Pro
Storage places to avoid:

1. Areas subjected to rain, high humidity or dirty environments.
2. In direct sunlight, or places of extreme heat such as a closed car on a hot summers day or extremely cold environments.
3. Places which experience strong vibrations.
4. Moisture will cause clogging of dust that can cause a blockage. Store your lance in dry conditions, with an empty powder chamber.

Caring for your AR 8 Pro:

1. Use a soft brush or soft, dry cloth to remove dust from the lance, hose and carry case.
2. Do not scratch hard objects against the lance.
3. The product should be cleaned with a soft, dry cloth only. Do not use volatile substances or cleaning products as these can cause damage.

Maintenance Instructions: AR 8 Pro Replacing a damaged pole section

When ordering a replacement pole section, they are referenced (AR8-01 to ARP-11), with section 1 (AR8-01) being the handle (thickest) and section 7 (ARP-11) being the top section connecting to the powder chamber.

1. Remove the main tubing by pulling through the lance. (KEEP FOR REUSE).

2. Pull the rubber end foot off the lance.

3. Remove the damaged section from the lance.

4. Insert the new section by sliding it back into the lance.

5. Put the hose kit back through the lance as shown above.

6. Refit the rubber end foot to the lance.

Problem	Possible causes	Solutions
No powder coming out of the flexible nozzle.	Check if the flexible nozzle tip cap is removed. Check that the flexible nozzle isn't damaged or kinked. Ensure powder chamber is securely screwed onto the lance and the caps of the powder chamber and flexible nozzle are tight. Check that the 1L stainless steel tank is pressurised to 3 bar / 44 psi. Check powder is not damp as this can cause blockages.	If the flexible nozzle is damaged, please order: Reference: ARP-03 Flexible Nozzle Kit - Standard tube size (8 mm Diameter x 35 cm).
No pressure in the 1L stainless steel tank.	Check if the front trigger outlet valve is screwed onto the tank securely. Check if the inflator valve inner core is not leaking air. If air leakage is audible the inflator valve inner core needs tightened. (Use a standard bike valve core remover tool to tighten). Check if the trigger head is screwed onto the tank securely. Check if the inflator valve is securely tightened.	If the front trigger outlet valve is damaged, please replace with: Reference: ARP-07 6 mm Compression push fit outlet valve If the tank is still leaking air, then please replace with: Reference: ARP-06 Inflator valve inner core (Inc fitting tool).
Powder falling back down inside of the lance.	Check if the powder chamber's internal non-return valve located at the bottom is damaged. To do this hold the filled powder chamber upright and over a container, gently shake the chamber from side to side (ensure the powder chamber top cap is in place). If the internal non-return valve is damaged, powder will fallout from the bottom of the chamber.	If the powder chamber's internal non-return valve is damaged, then please replace with: Reference: ARP-02 Powder chamber internal non-return valve (supplied with special fitting tool).

Take care to pack it down before storing in the van...

There have been some breakages reported and a number of these have been attributed to the AR8 not being packed down before being stored in the van.

Soldier flies as food

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Edible insects are on the menu for PCN as we look at Fera Science Ltd research regarding solider flies as food

Here at PCN we are not averse to trying new things. Our very own Technical Editor, Dr Matthew Davies, is pictured – about to tuck into some Trichoptera larvae as part of his chairmanship of the 9th International Conference on Urban Pests, Birmingham UK, 2017. They were presented to him by researcher Kimio Hirabayashi. 'They tasted like a kind of fishy liquorice!' according to Matthew.

What exactly are 'soldier flies'?

Their full common name is the 'Black soldier fly', with the species name being *Hermetia illucens*. They are the globally preferred insect species for commercial scale animal feed production. In a typical pest control fashion, let's learn something about their life cycle. Being a fly, they go through complete metamorphosis – egg, larva, pupa adult. We're not talking about eating the adult flies though – it's the larval stage that is being researched. The swift life cycle and rich supply of proteins, lipids and minerals, plus the ability to recover up to 70% of proteins from organic waste, mean the larvae of black soldier flies are an attractive proposition. Their life cycle goes like this: eggs 4 days, larva 18 days, pupa 14 days, adult approximately 9 days.

The big question – what do they taste like?

Some reports describe the larvae as 'nutty and meaty, with a texture of soft meat.' Here, this isn't really the intention. The Fera Science Ltd project is about using soldier flies as animal feed and for bioconversion of waste.

Let's hear about the science

In March this year Fera Science Ltd created an insect research lab, billed as 'first of its kind', at its York base. The prominent bioscience centre is situated at York Biotech Campus, at Sand Hutton on the fringes of York, and this new development will grow the business's footprint by over 2,000 square feet.

The new Fera laboratory will permit the upscaling of its insect services. This will aid in matching the needs of customers throughout the food industry. The ability to show insect bioconversion at a larger scale and act as an example of the future of factory insect farming.

What is insect bioconversion?

Insect bioconversion is where insects are fed waste to convert to further materials. Typical examples are protein or fertiliser. This is an attractively sustainable thing to do as it minimises waste and provides different food options for animal feed. Other likely impacts are reducing the environmental footprint of sourcing protein, which can eventually tackle climate change.

Growing demand for meat and fish

According to recent research (by Asia Research and Engagement), there is an increasing demand in Asia for meat and

fish products. It is thought that this will lead to a 78% increase in seafood and meat demand ahead of 2050. This will of course put pressure on currently utilised sources of protein sources for animal feed. Typical sources are soy as well as fishmeal. To meet the demands for 2050, production of protein will need to grow by 50%. This will be difficult to sustain as 85% of arable land is already being utlised.

Sustainable food production

As the population grows and global warming continues, there is a need to progress on delivering a sustainable method of food production.

A benefit to the economy could be the conversion of waste that would normally end up in landfill and the creation of further revenue opportunities. Insects are able to recover nutrients from organic residues and bring them back into the food value chain, thereby contributing to a circular economy. Since no fertile land is needed for their production, they are a promising and sustainable new source compared to today's main alternatives. Some species, such as the black soldier fly (BSF), are well-suited for growth on large scale.

Damian Malins, Fera Science Venturing Projects director, said the laboratory would mean the business would be able to deliver far more to all its clients including commercial and public sector, as well as research partners.

"What's better is that we're growing our base at York Biotech Campus. The campus sits at the heart of an agricultural region that is driving the circular economy and bio-based industry. The collaboration it encourages is fantastic and through connections with other tenants and near neighbours we have already established links to food producers, community groups and agri-businesses who wish to explore the potential of insect farming as part of their net carbon zero objectives."

Insects are consumed by 2 billion people per year

UK Research and Innovation (UKRI) announced, in its annual report on global issues, that 2 billion worldwide are consuming insects as a food source. This will help to lower carbon emissions. "There is a need to promote insect consumption more widely, including as animal feed. Insects provide key ecosystem services including decomposition of organic matter, nutrient recycling, soil bioturbation and seed dispersal and can help to enhance soil quality and carbon sequestration."

Solider flies – what is the advice if we come across them during normal pest control?

Soldier flies are from the fly family Stratiomyidae.

Members of this family are small, flattened flies and are called soldier flies due to their bright, metallic coloration. They are weak fliers, although the males are accomplished at hovering.

These flies feed on nectar from flowers and are often seen sunbathing on the ground and on low-growing vegetation.

Control

They are harmless to humans and do not bite, therefore insecticidal control is rarely necessary.
Their presence indoors is by casual invasion and may indicate that attention to proofing is needed.

Why use insects as feed?

- Insects are highly efficient in the rapid conversion of organic materials into biomass
- They are a natural component of the diets of carnivorous fish and free-range poultry
- Protein digestibility is higher than most vegetable-based proteins
- Land use requirements are lower compared to crop protein
- Higher protein content (30-80% on a dry matter basis) dependant on species and development stage
- Fat content (5-60% dry mass)
- Black soldier fly (BSF) larvae can be reared at scale on organic material
- BSF do not carry human or livestock diseases and are not considered an invasive species risk
- Protein from BSF larvae is proven to be of high quality and suitable for use as a partial replacement of both fishmeal in compound fish & pig feed and soyameal in poultry & pig feed
- Well-balanced highly digestible amino acid profile of BSF larvae is superior to soyameal and more comparable to fishmeal, which typically commands 4-5-fold higher prices as compared to plant proteins in the animal feed sector
- Residue following rearing of BSF larvae on organic material has commercial & environmental value as a fertiliser
- Processing BSF larvae generates valuable additional by-products including chitin, oils and antimicrobials

Image 1. DOC 200 and mustelid tunnel being used at Roy's Peak on the outskirts of Wanaka 1500m above sea level in New Zealand. This is protecting the alpine lizards and insects. Over a two week period, nine ferrets and a weasel were caught.

Alternatives for Grey Squirrel Control: Trapinator – DOC TRAPS

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With the withdrawal of Grey Squirrel Bait, detailed in this issue, it is worthwhile looking at alternative options for control of this important pest species. It is especially relevant to consider spring traps, as the popular Kania 2000 is currently out of production. One new option is a particular set of spring traps, all the way from New Zealand.

Who are Trapinator?

Trapinator is based in Auckland, New Zealand where it's part of the group CMI who also specialise in springs and direct drills. In early 2003, a representative of the Department of Conservation (DOC) New Zealand engaged with CMI Springs. They were challenged with developing an innovative trap that kills, humanely, the following target species: brown and black rats, stoats, weasels, and ferrets. All the current traps had, at the time, failed humaneness standards. With different designs and concepts tried and inspiration taken from other traps, all factors were considered to ensure that the trap met all operational needs when used out in the field. One of the key things was to ensure that the trap triggered at a suitable weight, not too sensitive to protect against non-target species, but also lightweight enough to trigger to the targeted pests. With trials and modifications, the DOC trap was born.

It was then once the DOC trap was designed, that Ross Mitchell at CMI challenged the teams to develop a possum trap. This was a trap and box to be designed to fix against trees, fences and walls, and could easily be reset with a piece of string. Not only that but it should be assembled without a single bolt or screw. A big challenge, but with innovative thinking, the trap was designed. This greatly helped with the deployment of the traps out in the 'bush'.

What is available in the UK?

In the UK there are the three DOC spring traps. The DOC 150, DOC 200 and DOC 250, all of which are on the relevant Spring Trap Approval Orders for England, Scotland, Wales and Northern Ireland. They're also on the Agreement on International Humane Trapping Standards which is an agreement negotiated between the EU, Canada and the Russian Federation (with a similar agreement with the USA).

The traps go through rigorous testing before approval for use against the targeted pests to ensure that a humane and timely kill is met. In the UK the DOC 150 has approval against grey squirrels, rats, stoats and weasels (note that Weasels are absent from Northern Ireland and Ireland, which is why they are not included on the Spring Traps Approval Order (Northern Ireland) 2019.). The DOC 200 has the same approval, but also covers against mink. The DOC 250 has approval against rabbits and, in Northern Ireland, ferrets as well.

Predator Free 2050 – New Zealand

The traps have shown great organic success over the years. This stems from back in New Zealand where they have a national project called Predator Free 2050. From being initially driven by the Department of Conservation, the people of New Zealand have really bought into this project to help their native species thrive. Their goal is to remove all non-native species from the island by 2050. It's a big challenge but certainly seems one that New Zealanders believe can, and will, be achieved. People all over NZ are taking part – back garden trapping, planting natives, volunteering and donating.

The movement brings together expertise from government, businesses, NGOs and communities throughout.

The DOC traps have, and are, playing a huge part in the conservation of the native wildlife in New Zealand where it's reported that predators kill an estimated 25 million native birds each year. Some 4,000 native species are at risk. With the DOC proving so successful and reliable it has built a good reputation with other wildlife and birdlife conservation programmes around the world.

Since 2006, The Ebony Forest Project in Mauritius has worked hard to reverse the impacts of habitat degradation and invasive species to create a sanctuary for the island's unique and rich biodiversity. Since then, it has seen a rise in the numbers of pink pigeon, mauritius kestrel and echo parakeet to name a few.

Trapping in the UK - a conservation tool

Here in the UK, the DOC traps are playing a huge part in controlling the stoat population on the Orkney Islands. In fact, if you went up there walking there's a good chance that you would see the DOC traps within wooden boxes. Stoats aren't native to the Orkney Islands and were only reported initially in 2010. Unfortunately, in this time they've thrived on the island causing severe threat to the island's native wildlife and economy. Globally, invasive non-native species have contributed to 40% of animal extinctions in the last 400 years. Stoats are a threat to native wildlife in areas where they are not native, particularly on islands where they have no natural predators, and which have large resident bird populations as they do on the Orkneys. Where there are ground nesting birds, stoats are a real threat, and they are the main cause for birds on the islands now being on the red-list. With the deployment of the DOC traps throughout the island and the help of volunteers, charities, and NGOs the numbers of stoats are decreasing and seeing the native birdlife begin to thrive.

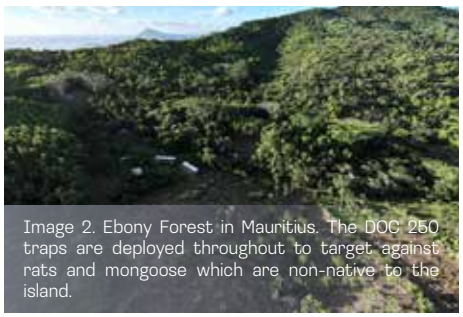

Image 2. Ebony Forest in Mauritius. The DOC 250 traps are deployed throughout to target against rats and mongoose which are non-native to the island.

Setting the traps

But what is it that's unique about the DOC traps? Firstly, it's the large powerful springs. Once you see the traps and set for the first time, you'll see the tension and power that is behind these. You'll find that the DOC 150 and 200 have the same spring but due to the height of the DOC 200, it provides more leverage to cock the trap and is easier to set. To set the trap it's very simple. You pull the kill bar back using the safety handle over the 'waddington trigger'. The trigger will then move forward in front of the tab. You then slowly release so the trigger sits in front of the tab. At this stage the trap is set. Do note that the trap needs to be in a suitable tunnel and fixed down.

Image 3. The DOC 150, 200 and 250

Use within a tunnel

The DOC 150 with a height of 15cm is intended to fit the same tunnel dimensions as the Fenn MK IV or Springer. It's important to note that the Fenn trap can no longer be used to capture stoats and is no longer on the Spring Trap Approval Orders for them. With this change we've seen the DOC trap thrive with gamekeepers throughout the UK and become the 'go to' trap for them. The 150 has the benefit of a high strike force but in a small package, making it a valuable trap for the UK pest control market. The DOC traps treadle plate design is large and almost twice the length of a Fenn type trap. They're a trap designed to last due to them being made with stainless steel.

The traps are designed to be inside either a run through or closed end tunnel, depending on the pest you're trying to catch. Trapinator have designed their own tunnel to meet the requirements needed. It's very durable and lightweight. A smart feature on the tunnel is the Perspex baffles. This concept makes it easier, and quicker, to check to see if a pest has been caught or not. The holes in the Perspex allow for the air to regulate and prevent the box from getting too hot. When the DOC traps are set with the required baffle configuration and position in relation to the side of the tunnel, it ensures that once the pest enters the tunnel it can't skirt around the trap and is less able to jump over it.

Underneath the treadle plate is a small secondary spring which maintains the height of the treadle plate. The factory setting of the trap is such that it will only fire when a weight of 80g or more is applied to the treadle. This smart feature reduces false activations which are caused by mice, voles or shrews and other similar sized non target species. To then increase or decrease the sensitivity of the trap it's a simple adjust you can do yourself.

The traps are clearly labelled. Any traps manufactured from 2020 onwards are stamped in the metalwork with the name engraved on the framework and strike bar. They also come with stickers on the framework and treadle-plate.

Having focused on conservation projects which then leads to opportunity with gamekeepers due to licensing changes, the DOC trap continues to grow in popularity. With this popularity and increasing demand of the traps, it was necessary to have the traps readily available for retailers and to branch out into the pest control sector. With this, Trapinator set up with their sister company Aitchison Agri in Retford, Nottinghamshire where they supply direct drills.

Image 4. DOC 150 set inside a green tunnel.

An interesting and innovative monitoring product, brought over by Trapinator, are chew cards. They're made of corflute with a synthetic flavour of either cinnamon or peanut butter. These can be a real time saver. You can fix this card to any surface with a screw, nail or glue. They are designed to help identify what the pest is, so you can correctly identify it, and then they let you know where the pest is feeding from. From there you can strategically place down your control methods. What they also offer is piece of mind to yourself as the professional pest controller, and to show the customer at the end that there is no longer any activity present.

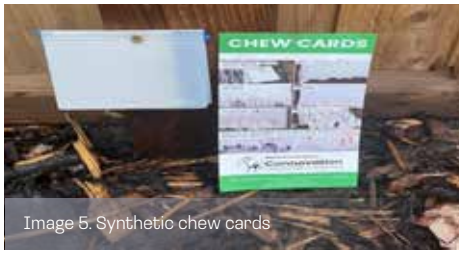

Image 5. Synthetic chew cards

In a summary it's exciting to have a new trap on the pest control market. With its power and reliability, it's going to be a popular choice. Its versatility is beneficial, not only as a grey squirrel trap, but also as part of rat riddance programmes, sites with ongoing persistent rat issues, waste sites, agricultural sites and more.

The Rice Weevil

Sitophilus oryzae | Family: Curculionidae

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A significant pest of cereals. Unlike what the name may suggest, the rice weevil attacks not only rice but also corn rye, wheat, millet...

Adults measure about 2-3mm, are brown in colour, with 4 reddish spots on the elytra. Wings are completely formed and it is capable of flight.

Control involves the location and removal of all relevant stored product residues to prevent feeding and breeding. Heat and freezing treatments can also be beneficial.

The weevil lays an egg in a small slot that has been bored in the grain. The larva develops by hollowing out the grain within. Throughout its life the female can deposit around 300 eggs.

It is cosmopolitan in distribution and prefers the heat. It does not complete its development in cold places (this ceases at 17 degrees C) such as warehouses without heating.

The family of curculionids are characterized by having the head elongated in a 'trunk' or 'weevil snout' called the rostrum.

Top photo: *Sitophilus oryzae.* Udo Schmidt . Flickr.
Bottom photo: side view *S. oryzae.* Natasha Wright . Bugwood.org.


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Rodenticide use on arable farms

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A survey of rodenticide use on arable farms, in Scotland, has been published by the Scottish government. While the data relates to Scotland only, the results are of interest to all users of professional use rodenticides in the whole of the UK – there is likely to be 'read-across' and similar patterns observed so we can all learn.

The full report is available online...

https://www.gov.scot/publications/pesticide-usage-scotland-rodenticides-arable-farms-2020/

... and summary extracts follow below.

Introduction

The Scottish Government (SG) conducts post-approval surveillance of rodenticide use. This monitoring is conducted by the Pesticide Survey Unit at SASA, a division of the Scottish Government's Agriculture and Rural Economy Directorate. The current rodenticide surveillance programme consists of surveys of rodenticide use on arable farms (biennial), grass and fodder farms (every four years) and use by Scottish local authorities (every four years). As part of this programme, a survey of rodenticide use on farms growing arable crops was carried out in 2020. This is the 15th survey in this series carried out biennially since 1992.

Key findings

This report presents the results of a survey of rodenticide use on arable farms in Scotland in 2020. Information was collected from 268 holdings, collectively growing seven per cent of the 2020 arable crop area. Data from this sample was used to estimate total Scottish rodenticide use in this crop sector.

How many farms were using rodenticides and who applied them?

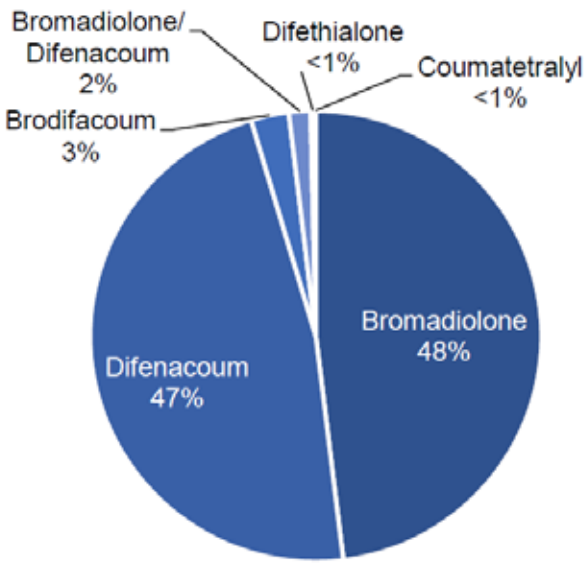
It was estimated that rodenticides were used on 61 per cent of all arable farms in 2020, slightly higher than the 55 per cent reported in 2018 but significantly fewer than the 78 per cent reported in 2016. Farmers conducted the baiting on 57 per cent of holdings using rodenticides and applied 59 per cent of rodenticides by weight, with the remainder being applied by pest control professionals (PCPs).

How much rodenticide was used on farms and which active ingredients were used?

In 2020 an estimated 62 tonnes of rodenticide products were used on arable farms. This is an increase of 27 per cent since 2018 and a decrease of 32 per cent since 2016. The products used contained ca. 3 kg of rodenticide active substance.

As in previous surveys, almost all products used (>99 per cent) were second generation anticoagulant rodenticides, primarily bromadiolone and difenacoum (97 per cent by weight).

Percentage weight of rodenticide product used on arable farms - 2020

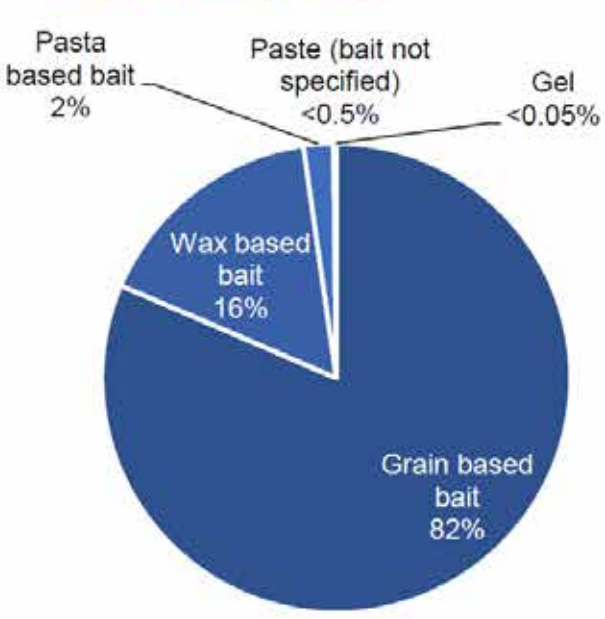


What time of year were baits application and which formulations were used?

Forty five per cent of rodenticides were applied throughout the year, either used permanently or in multiple individual baiting operations. This is a decrease in year-round use from 2018 (61 per cent) but similar to 2016 (46 per cent). Most rodenticides were used in autumn and winter (73 per cent).

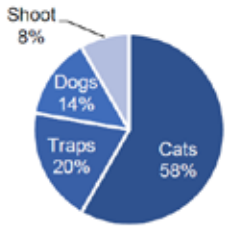
Grain baits were the most common product type (82 per cent) and the main targets were a combination of rats and mice (51 per cent).

Type of rodenticide bait used on arable farms (percentage of total weight) - 2020

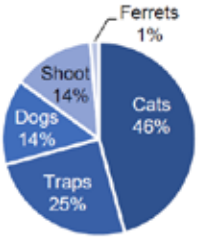


Fifty one per cent of farms that did not use rodenticides and 52 per cent of those that did, employed non-chemical rodent control; most commonly cats and traps.

No rodenticides used on farm
(51% used non-chemical control)



Rodenticides used on farm
(52% used non-chemical control)



What level of training, best practice and stewardship were users following?

Data were collected about training, compliance with best practice and aspects of farm operation. Eighty seven per cent of farmers were aware of rodenticide stewardship, of these 28 per cent had completed stewardship compliant training and nine per cent planned to in the future. As in previous surveys, significantly more PCPs had completed training than farmers. In relation to best practice, the majority of farmers and PCPs stated they complied with all elements and responses were similar to those in 2018. In relation to farm operation, farmers that practised rodenticide baiting were significantly more likely to be members of a quality assurance scheme and to have a grain store than farmers that did not use rodenticides.

Has the CRRU stewardship regime made an impact and what about COVID-19?

This dataset is the third in this series to be conducted since the industry led stewardship scheme was introduced in 2015. The previous surveys in 2018 and 2016 reported decreased rodenticide usage, increased adoption of nonchemical control and increased uptake of best practice which was likely to have been influenced by the introduction of the stewardship and regulatory changes. The increase in rodenticide use in 2020 and the reduction in use of PCPs could potentially indicate that the impact of the stewardship scheme has plateaued. However, it is also possible that rat populations, farmer use of PCPs and, as a consequence, bait volumes were impacted by COVID-19 restrictions during 2020. The impact of the pandemic on trends in baiting operations may be clearer in subsequent surveys.

Indoxacarb

How does it work and what does it do?

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Indoxacarb is a member of the oxadiazine class of insecticides that act by inhibiting sodium ion entry into nerve cells, resulting in the paralysis and death of target insect pests. Classed as 'reduced risk' by the United States Environmental Protection Agency, Indoxacarb is 'bioactivated' by insect enzymes. It is typically used in cockroach baits and ant baits in the UK.

More on how it works - the 'mode of action'

1. The insect ingests or comes into direct contact with indoxacarb
2. The insect's enzymes break down indoxacarb, cleaving off the carbomethoxy group
3. The resulting molecule is the insecticidally active compound that is the more powerful form
4. This active form binds to the target site, blocking the insect's sodium channels. The insect experiences paralysis and death

What about non-target species?

In insects the metabolism to the more insecticidally active form (bio-activation) is very rapid. However, in mammals (e.g., rats) conversion to the more insecticidally active form is a minor pathway, and it is extensively metabolized and eliminated in the urine.

Cockroach control

A Purdue University study by Buczkowski *et al*, from 2008, examined the 'Horizontal Transfer of Bait in the German Cockroach'. The department of entomology at Purdue demonstrated 'tertiary kill' of German cockroaches *Blattella germanica*. This means the bait is passed on / cascades to two levels in cockroaches - not just secondary poisoning. To explain this, one male cockroach (treated with indoxacarb) placed among nymphs resulted in mortality of a proportion of these nymphs. The dead nymphs were then placed with adult cockroaches which resulted in death of adult cockroaches. The bait is clearly being passed on from cockroach - to - cockroach. We explain more below.

What is tertiary kill?

Tertiary kill (or transfer) is a type of horizontal transfer of insecticide. Horizontal transfer occurs when the insecticide is passed among individuals of the same population. Research has shown a primary donor can transfer an active ingredient to primary recipients, which then become secondary donors.

For example, a single adult cockroach can consume a lethal dose of indoxacarb to kill many nymphs (secondary mortality). These nymphs then become donors and can kill other cockroaches (tertiary kill) when their faeces or dead bodies are consumed.

What facilitates transfer among German cockroaches?

There are three main mechanisms that contribute to the effective transfer of insecticides among cockroaches:

- Coprophagy is the ingestion of faeces. Cockroach nymphs readily feed on the faeces or rectal region of fellow cockroaches
- Necrophagy is the ingestion of dead cockroaches
- Emetophagy is ingestion of excretions from dying cockroaches

All three mechanisms contribute to the transfer of indoxacarb throughout the cockroach population. Because of the action of indoxacarb, dying cockroaches can become 'walking bait stations' as they return to harbourage areas. That means they can share the insecticide with difficult-to-reach stages, including nymphs and gravid females, that often remain in the safety of cracks and crevices.

Ant control

Indoxacarb also features in ant gel products and a mechanism called 'trophallaxis' is important in the distribution of the active ingredient and therefore control of the colony. Worker ants forage for food and store it in their gut – later regurgitated and distributed to others in the colony. The process of sharing liquid food in this way is called 'trophallaxis' – a type of horizontal transfer. The results in death of the ant colony at source, via distribution of bait by workers, controlling the Queen and larvae within the nest.

Grey silverfish control

Indoxacarb for control of grey silverfish *Ctenolepisma longicaudatum* is not yet available in the UK. However, it is an option in some countries in Europe, where indoxacarb baits provide good control of *C. longicaudatum*. These baits also have low chronic toxicity in humans. Using indoxacarb bait, Norwegian field trials (Aak *et al*., 2020) have shown more than 90% population control of *C. longicaudatum* within 10 to 12 weeks. These results were when the bait was presented in competition with food, so they are realistic. Indoxacarb also produced high mortality when dead conspecifics were consumed (secondary poisoning) and resulted in more than 75% mortality via this route.

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BRCGS version 9

The new revision for the Global Standard Food Safety Issue 9 is here and goes live for auditing in February 2023. So there is plenty of time to check that procedures and paperwork are in place. There is good news for Pest Management especially in the specified section which is, as usual, '4.14 Pest Management' found starting on page 61. In the pest management section alone there are minimal changes, with slight wording alterations only. A real positive that there are no significant changes, showing that the previous incarnation (version 8) was working well regarding pest standards.

Section 4.14 – Pest Management

We see all the standards items that we are now used to seeing from a BRCGS Food Safety standard. These are whole site pest monitoring and a preventative programme. Legislation compliance is, as always, a must. As there are many specifics regarding pest legislation the area is always left open (as trained professionals we should know the laws that govern our industry). The Campaign for Responsible Rodenticide Use (CRRU) documentation and of course labels and COSHH assessments (Control of Substances Hazardous to Health) are the most likely documents to be requested. Recently, on site, these were the documents requested by the BRC auditor – the environmental risk assessment, the pest risk assessment, and the site-specific risk assessment from the servicing company.

Risk based

Again, there is a risk-based thread running through the entire section. As before, the requirements state that contamination by pests is unacceptable and if pest activity is identified it 'shall not present risk of contamination to products, raw materials or packaging.' A pest risk assessment to determine number and frequency of visits is of course still required.

Minimum requirements also stated include (4.14.4):

- "An up-to-date plan of the full site, identifying pest control devices and their locations
- Identification of all baits and/or monitoring devices on site
- Defined responsibilities for site management and the contractor
- Details of pest control products used, including instructions for their effective use and action to be taken in an emergency
- Any observed pest activity
- Details of pest control treatments undertaken."

All formats of report system are accepted, (paper or controlled electronic). We can also add to the list of minimum documents the pest risk assessment, found in section 4.14.2 – clearly stating that is shall be documented.

Another important aspect is use of baits in certain more sensitive areas of food manufacturing sites, such as production areas. This has not changed from version 8, but there is a clear reminder…" Toxic rodent baits shall not be used within production or storage areas where open product is present except when treating an active infestation. Where toxic baits are used, these shall be secured. Any missing bait stations shall be recorded, reviewed and investigated."

The last portion on this section (4.14.5) is in essence what BRC is all about, traceability and accountability.

Insects and birds

The very general 'insect killing devices' is used alongside 'pheromone/and or other insect -monitoring devices' appropriately located and in working order. There are no clear definitions of how far devices, that are capable of blow out of insects, should be sited from sensitive surfaces. Nevertheless, we can risk assess this and follow the specification. Alternative devices (such as glue board fly units as opposed to electrocution kill grid units) can be used to allow a location closer to product with a lower risk of contamination.

Bird proofing is mentioned briefing in section 4.14.7, simply stating that bird proofing is adequate to prevent birds entering buildings or roosting. So, the same requirements apply. This is particularly important for reporting of proofing and hygiene, with a sign off by the customer, in a timely manner.

The remaining sections refer directly to our comfort zone, including the usual requirements for in-depth, documented pest management assessment (frequency based on risk – but as a minimum once per year) but more importantly by a 'pest management expert.' Note that a technical inspector or a field biologist is not specified, just a pest expert. Our old friend trend analysis is still present – no changes there. Finally, it is noted that staff shall understand signs of pest activity and be aware that they need to report anything to their designated manager. Industry lingo denoted as 'pest awareness' will cover this but also be aware that staff may have this as part of their induction when they start at the site.

Other references – not in the pest management section

As usual, pest management has a mention in the main section 2.2 – Prerequisite programmes. It states simply that the site should have this as part of creating a safe and legal environment. Pest control gets a mention in section 3.5.3.1 under 'management of suppliers of services.' Once again this is rated on risk and monitoring of the company that provides those services. Simple documentation of trade association membership, insurances and, noted in the next section, a contract are required. A further requirement is a documented process for ongoing performance review. A documented review meeting could satisfy this as regards pest management.

External standards, as normal, has references to well-tended and maintained grassed and planted areas, so feel free to report on these if they are not in good order. Buried in section '4.4 Building fabric, raw material-handling, preparation, processing, packing and storage areas clause 4.4.5' - 'Where suspended ceiling or roof voids are present, adequate access to the void shall be provided to facilitate inspection for pest activity, unless the void is fully sealed.' This is a problem if the site insists the void is sealed. Ensure that this is noted in the pest management records for traceability as to why these areas may not be accessed.

Proofing

Normal proofing requirements are stated, which is nothing out of the ordinary. Doors need to be maintained in good condition, minimally close fitting or adequately proofed. Strip curtains also get a mention - maintained, fitted correctly, clean for the purpose to 'prevent pest ingress or for temperature control.'

Class, brittle plastic, ceramics, and similar materials

Fly units get a special mention in section 4.9.3.5, 'bulbs and strip lights (including those on electric fly killer devices) shall be adequately protected. Where full protection cannot be provided, alternative management such as wire-mesh screens or monitoring procedures shall be in place.' The easy solution is shatter proof bulbs as standard.

In review

This is a good standard to work with. As usual, with a BRCGS specification, the wording is clear and easily relatable. Clear and simple actions are the best way forward. There is nothing too complex about version 9 for pest management – a real positive. With high standards of service and good documentation it won't be a challenge to conform. As a bonus, there are no 'curve balls' with this revision. The only standout feature with version 9 is the heavily mentioned HACCP (Hazard Analysis of Critical Control Points) or food safety plan. There is increased emphasis regarding HACCP. If you are not aware of HACCP – you have been conforming anyway if you look after food factories! Pest management itself is a Critical Control Point and the mitigation of a hazard – the pest. We do not come across HACCP that much in day-to-day pest control. However, it is there and we may have to answer the HACCP requirement in future audit standards.

All quotations are taken from the BRCGS Global Standard Food Safety Issue 9. Available from brcgs.com.

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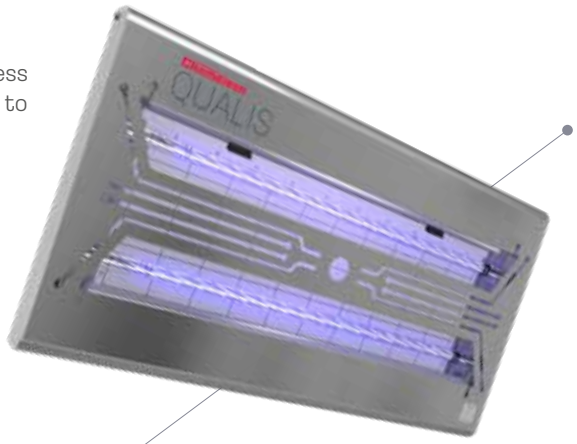

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DOC Traps

DOC Trap 150 and 200:

The DOC traps are a very powerful, durable and reliable innovative humane kill spring trap developed by the Department of Conservation in New Zealand. In the UK they are approved for use in trapping grey squirrels, rats, stoats and weasels (note that Weasels are absent from Northern Ireland and Ireland, which is why they are not included on the Spring Traps Approval Order (Northern Ireland) 2019.). These traps pass the Agreement on International Humane Trapping Standards (AIHTS) which is an internationally recognised criteria for effective kill trap performance. As well the DOC traps are on the Spring Trap Approval Order 2018 in the UK.

DOC Trap Tunnel:

Specifically designed to be interchangeable with the DOC 150 and 200 Traps. This closed end tunnel has clear baffles, therefore making it easy to check for any catches, an easy set plate for setting the traps, and also lure station. They're lightweight, strong, UV stabilised, durable and recyclable.

DOC Trap Chew Cards:

These chew cards are made of corflute card filled with a peanut butter lure that is attractive to predators. They can be used to identify rats, stoats, weasels and squirrels. Animals will chew the card and their teeth marks help to identify them. By identifying what the pests are, and where the predator is eating, you can then strategically place your traps and stations.

DOC Trap Safety Clip:

Trap setting tool for DOC 150 and DOC 200. The tool makes setting a DOC Trap easier and safer.

Glue Board Update

Readers will no doubt be aware that the Clue Traps Bill recently achieved Royal Assent in the Houses of Parliament which in essence, passes the bill.

The NPTA along with other interested parties, including the British Pest Control Association, National Pest Advisory Panel, Humane Society International, the RSPCA and others have just entered into a period of consultation with DEFRA in order to try and reach a consensus on a usable licensing agreement.

Negotiations are still at a very early stage and any licensing arrangements will not come into force until April 2024 at the earliest, although DEFRA have confirmed that it is their intention to bring this into force no later than July 2024. Until this time, users of Clue Boards can continue to use these products as they currently do and in the case of professional users, in accordance with the Pest Management Alliance Code of Best Practice.

To clarify, licenses are issued for the following reasons:

- Activities that may normally be considered illegal
- Are available only in limited circumstances
- It's use needs to be justified and is usually subject to conditions.

How the license looks in practice and any agreement reached with DEFRA, will ultimately need to be approved by Government Ministers, but can take three different forms:

1. Individual License. This is reserved for high-risk activities and is subject to compliance checks
2. Class License. Issued annually and is subject to compliance checks
3. General License. Reviewed within an agreed timeframe and not subject to compliance checks

Which format the glue trap licensing will take is yet to be decided, but we are fairly confident that it will not take the form of a general license. We at the NPTA would prefer to see a class license system, whereby the pest controller can use glue boards without the need for applying for each individual scenario. We did raise concerns that the speed of license applications would be a concern, particularly if individual licenses were considered. Natural England, who will be overseeing any license applications, assured us that if the individual license system were to be adopted, they have a mechanism in place to ensure swift license approvals.

Hopefully, this will be the case, as we pointed out that in situations where glue boards are required there is often a critical public health need, and a speedy resolution would be needed.

In terms of the criteria for license, this is to follow very closely with our current code of Best Practice, i.e.

- for the purposes of preserving public health or safety
- where there is no other satisfactory solution

Although this sounds workable and is in line with how we currently employ the use of glue boards, we must remember that it will ultimately be someone else making that decision. At present, this is decided by the pest controller (or pest control company) proposing their use. It will also be subject to very strict conditions for example, if alternatives are considered appropriate, i.e., traps, proofing, use of anticoagulants then license applications are likely to be rejected.

When deciding upon the type of license to be issued, DEFRA highlighted that this would be based upon the welfare risk to the target (and non-target animals and the risk of non-compliance). However, as pointed out by Ian Andrew of the BPCA, the risk to public health also needs to be considered.

Other conditions that may well be imposed are a requirement to undergo some form of formal training, in addition to the current requirements under RSPH Level 2. How this will look is again still to be formalised.

There is a high probability that written records will need to be kept and evidence provided to justify the license application. Without wishing to appear critical, members of the pest control community have expressed concerns over Natural England's handling of the Cull licensing arrangements, so the proof of the pudding, with regard to the practical working of license arrangements is yet to be seen.

Overall, however, we were very impressed with how DEFRA appear very keen to fully engage and take the industry's views into account. We are still of the opinion that any ban should have been restricted to amateur and non-professional use, but now have to accept that this is not going to be the case and therefore, have to try and achieve the best outcome possible.

We do still have concerns about the impact on public health, particularly given the reticence of house mice to consume cereal-based anticoagulants in town and city centres, and the increased incidents of behavioural resistance. This was highlighted to DEFRA.

Finally, we also need to remember that any license arrangements can be revoked at any time, therefore although we may consider this to be a less than ideal situation, it is at least not a total ban. We need to continue to use these products proportionately and responsibly if we are to ensure that this useful control function can be maintained well into the future.

Here at the NPTA we always have the interests of our membership and the wider industry in mind, so will continue to push for the best possible outcome and will continue to provide updates as they occur.

BPCA begins pest control qualification framework consultation

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Do pest control qualifications need an overhaul? Happy with what we have and don't want to see anything change? Whatever your view, we want to hear it!

BPCA is holding a series of online consultation events for anyone in the UK pest management sector. Members and non-members are invited to contribute.

The outcomes of this review could change the landscape of the pest management industry. If you have an opinion, you should make your voice heard and join one of the sessions!

Background

Over the last few months BPCA's Training and Development Manager, Karen Dawes, has been attending BPCA Forums to consult on a project overseen by the Professional Standards Committee, a group of BPCA member volunteers.

The project is reviewing what a modern qualification framework for professional pest technicians might look like. A professionalised sector has training, qualifications, demonstration of competency and continual professional development at its heart.

Karen explained:

"My presentation on this at a recent BPCA digital forum caused quite a stir. While there was a lot of positive feedback, there was a sense that some of what we're trying to achieve might have been misunderstood.

"I think it's important that we clear up some of those misconceptions. That's why we're holding a series of events for members and non-members to ask us about the project. Your opinion matters!"

About the consultation

This consultation asks:

- Is change is needed?
- What qualifications might look like?
- How might pest professionals be assessed?
- What training is needed in the sector?
- The benefits new qualifications would bring?
- How might any transition be managed?

Feedback into this consultation from everyone involved in pest management is invaluable if we are to ensure that any new qualification framework is fit-for-purpose.

Karen will present the work done to date by the Professional Standards Committee, and invite questions and comments from those attending as contributions into the wider consultation.

Join in

We will be holding four consultation dates which will take place on Zoom and will last up to 45 minutes:

- Tuesday 16 August, 12.30pm
- Wednesday 7 September, 8am
- Thursday 29 September, 5pm
- Tuesday 11 October, 12.30pm.

After registering, you will receive a confirmation email containing instructions for joining the meeting on the day.

Register for the events at bpca.org.uk/consult

The Golden Thread

0113 245 0845 giles.ward@milnerslaw.com or uk.linkedin.com/pub/giles-ward/31/187/6b3 @MilnersGiles

Construction can be a complex job. With numerous different parties and contractors involved how do we keep all the documentation in one safe place? What happens if years down the line you need to claim against the developer, but crucial documents are missing? In the wake of recent tragedies such as Grenfell, this has been a highly scrutinized and reformed area of the law with the recent introduction of the Building Safety Act 2022 and Fire Safety Act 2021.

We now have a Building Regulations Advisory Committee (the BRAC) which was set up to provide advice and suggested amendments to the current building regulations. Within the BRAC there is a group named the 'Golden Thread Working Group' whose job it is to implement the new building regulations standards. The aim of this group is to create transparency and clear organisation of all information relating to the construction of buildings and specifically safety matters. A key element is to have one centralized digital record containing every single document and piece of information relating to the building in question. By doing this, owners, residents or even emergency responders will know where to find crucial information and have it easily accessible if required. It is hoped this will provide an extra layer of safeguarding to protect against some of the risks that we have sadly witnessed can be borne from poor construction practices.

When implemented the new legislation will impose a legal duty on accountable persons who will be responsible for creating and maintaining the "golden thread" of information. Should they fail to do so it may either stop or delay the buildings completion.

So, what difference will this make? Building regulations will undoubtedly be adhered to much more strictly, creating a safer environment for residents and a reduction in construction catastrophes. In the event problems do occur it will be much simpler and quicker to access all the required information. Accountability will be more prominent which will consequentially increase the competency of contractors involved, creating a positive outcome of longer lasting, safer buildings. It's not only the residents who will see a benefit however, as it is hoped the construction industry as a whole will adopt a much more supportive and collaborative culture.

If you are currently facing problems relating to a property or construction issue, Milners have over 30+ year's experience in dealing with these matters (including Grenfell, and Providence Wharf of late back to the Parliament street collapse, Harrogate in the 80s) and can help you along the way. Please contact our Senior Partner, Giles Ward, on 0113 245 0852 or at Giles.Ward@milnerlaw.com.

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4th Oct 2022	Ossett	* £115 / £145
8th Nov 2022	Ossett	* £115 / £145
6th Dec 2022	Ossett	* £115 / £145
Killgerm Principles of Insect Control		
7th & 8th Sept 2022	Ossett	* £160 / £190
9th & 10th Nov 2022	Ossett	* £160 / £190

SOUTHERN COURSES 2022

Date	Venue	Cost + VAT
MIDLANDS		
BASIC PRINCIPLES OF PEST CONTROL		
Killgerm Principles of Rodent Control		
22nd Nov 2022	Burton on Trent	* £115 / £145
Killgerm Principles of Insect Control		
23rd & 24th Nov 2022	Burton on Trent	* £160 / £190

SOUTHERN COURSES 2022

Date	Venue	Cost plus VAT
EAST ANGLIA		
BASIC PRINCIPLES OF PEST CONTROL		
Killgerm Principles of Rodent Control		
12th Sept 2022	Norwich	* £115 / £145
Killgerm Principles of Insect Control		
13th & 14th Sept 2022	Norwich	* £160 / £190

Date	Venue	Cost plus VAT
BRISTOL		
BASIC PRINCIPLES OF PEST CONTROL		
Killgerm Principles of Rodent Control		
28th Nov 2022	Bristol	* £115 / £145
Killgerm Principles of Insect Control		
29th & 30th Nov 2022	Bristol	* £160 / £190

Date	Venue	Cost plus VAT
SURREY		
BASIC PRINCIPLES OF PEST CONTROL		
Killgerm Principles of Rodent Control		
19th Sept 2022	Lingfield	* £115 / £145
Killgerm Principles of Insect Control		
20th & 21st Sept 2022	Lingfield	* £160 / £190

SCOTTISH COURSES 2022

Date	Venue	Cost plus VAT
PERTH		
BASIC PRINCIPLES OF PEST CONTROL		
Killgerm Principles of Rodent Control		
22nd Nov 2022	Perth	* £115 / £145
Killgerm Principles of Insect Control		
23rd & 24th Nov 2022	Perth	* £160 / £190

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