February 2019

PCN

PEST CONTROL NEWS®

THE MAGAZINE FOR THE PEST CONTROL INDUSTRY

issue 117

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Bait Shyness...

Bait shyness & Monitoring Baits 6

PCN examines rodent behaviour and the psychology behind 'bait shyness'

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Pest Control News Limited, Wakefield Road, Ossett, West Yorkshire WF5 9AJ.

tel: 01924 268400

e-mail:

editor@pestcontrolnews.com

technical@pestcontrolnews.com

Ficam® D has been successfully re-approved

Changes to the way Ficam® D can be used have come into effect. From the 21st January 2019 you will see that the label has changed on new stock.

Ficam® D can still be used to treat wasps' nests. However, the label has been amended to indoor use for control of ants, wasps, hornets (nests) including Asian hornets. Ficam® D can still be used for treatment of internal voids when the pest control operator is applying it from the outside, such as dusting under roof eaves for wasps.

Any 'old' stock, carrying the pre-21st January 2019 label, will have to be used by the 25th July 2019 and can be applied in line with the 'old' directions on its label. i.e. outdoor use is permitted until the final use date.

If you have 'old' stock of Ficam® D that has a shelf life beyond 25th July 2019 you can re-label it with the new label so it isn't wasted. Contact your supplier for further details.

Some insects have been removed from the label, so do read the label carefully before use.

Significant developments from rodenticide stewardship in 2018

The UK rodenticide stewardship regime implemented a number of commitments in 2018 including point of sale audits for compliance with regime rules on purchaser proof of competence; audits of approved farm assurance scheme members' premises to meet new standards aligned with the CRRU Code of Best Practice; and new professional development (CPD) modules provided by CRRU to support user training and competence.

These are highlights from the third annual UK Rodenticide Stewardship report, published by the Campaign for Responsible Rodenticide Use UK under its remit to an HSE-led Government Oversight Group. It also confirms that all monitoring requirements were met and reports from independent contractors were submitted to HSE/GOG.

One of these is the all-important barn owl liver residue monitoring, according to CRRU chairman Dr Alan Buckle. "This shows some decline in residues but none large enough to be scientifically or statistically significant," he says.

"Even so, it does show that there was no significant increase in residues following the removal of the 'indoor only' restriction on products containing brodifacoum, difethialone and flocoumafen."

New product labels with legally binding instructions for use were also introduced arising from another major review of rodenticides by the European Commission. These place even more restrictions on the use of rodenticides and, particularly, on permanent baiting. Dr Buckle calls for continued vigilance and commitment to rodenticide stewardship from everyone involved. "We must all work to make sure that every element of the stewardship regime is implemented with full rigour to reduce rodenticide residues in UK wildlife in the near future.

"As imminently as 2020, HSE has signalled there will be an in-depth review of the stewardship regime and rodenticide impacts on wildlife, with possible further restrictions if targets are not met."

The 2018 annual report, available from the CRRU UK website (thinkwildlife.org/downloads), is updated and published annually as part of the UK Rodenticide Stewardship Regime's monitoring programme.

Goodnature® A18 Grey Squirrel Trap

The Goodnature A18 Squirrel Trap is now approved for controlling squirrels and rats in England, Scotland and Wales under the individual Spring Trap Approval Orders for each country. The Scottish and English Orders came into force on the 3rd January and the Welsh on 1st February.

Northern Ireland is following the English Spring Trap Approval Order as they have no devolved government to update their Spring Trap Approval Order. However, this isn't written down anywhere.

In Scotland there is a requirement to have the trap set at least 30cm above ground level and be fitted with an artificial tunnel that protrudes at least 70mm from the trap, or set in a natural or artificial tunnel.

A18 use in Scotland – there is the option to use a natural or artificial tunnel as an alternative to elevating 30cm off the ground, according to the text of the Order.

"9a. Goodnature A18 Grey Squirrel Trap manufactured by or under the authority of Goodnature Limited, 4-12 Cruikshank Street, Kilbirnie 6022, Wellington, New Zealand.

The trap is to be used only for the purpose of killing or taking grey squirrels and rats.

The trap must be (a) set in a natural or artificial tunnel or enclosure which is suitable for minimising the chances of capturing, killing or injuring non-target species whilst not compromising the killing or taking of target species or (b) set at a minimum height of 30cm off the ground and entered by an artificial tunnel attached to the trap and that protrudes for a distance of no less than 70mm from the trap entrance, which is suitable for minimising the chances of capturing, killing or injuring non-target species whilst not compromising the killing or taking of target species.

Note: The relevant Spring Trap Approval Orders are:

The Spring Traps Approval (England) Order 2018

The Spring Traps Approval (Wales) Order 2019

The Spring Traps Approval (Scotland) Amendment Order 2018

The Next EVOlution of Bait Stations

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What does Tier 1 mean?

In order to receive this distinction from the U.S. Environmental Protection Agency (EPA), a bait station must pass EPA-established protocols that demonstrate tamper-resistance to both children and dogs, as well as possess performance features for weather resistance.

BELL CERTIFIED TIER 1

What are the tamper-resistance requirements for children?

Testing protocol requires a testing panel comprised of a minimum of 50 children aged 42 to 51 months being unable to gain access to any station.

What are the tamper-resistance requirements for dogs?

A minimum of 12, young and healthy dogs weighing at least 20kg, are provided unrestricted access to a bait station for at least 2 hours. A station will only pass if all 12 dogs are successfully kept from accessing the bait.

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Bait Shyness

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PCN examines rodent behaviour and the psychology behind 'bait shyness'. The similar terms of 'bait avoidance', 'behavioral resistance' and even simple 'food aversion' can all be used. There are classic pest control textbooks that have relevant information on this. Also considered is a study carried out into bait shyness in 'city mice' where mice were avoiding cereal-based baits. There are several different facets to this behavior, including differences between species, and we have also looked at recommendations for overcoming bait shyness.

Bait Shyness – Brown rat (*Rattus norvegicus*)

A familiar term in pest control is 'neophobia', the fear of new things. This is an innate reaction, in other words inherent, which means rats are born with it. It is also known from research carried out, by the Department for Environment, Food & Rural Affairs (DEFRA), that encountering new food initiates a lesser neophobic response than unfamiliar objects. This is also supported by the Chartered Institute of Environmental Health (CIEH) publications.

Bait shyness could be exhibited, for many months, in rats who received a sub-lethal dose of historically available acute rodenticide (it is noted that Alphachloralose, for mouse control, is the only remaining acute rodenticide in the UK). Rats experience the ill effects of the acute rodenticide but survive, they link the ill effects to what they have consumed, subsequently learning to avoid the product.

In some cases, the avoidance can last for six months. Rats can also exhibit learned bait shyness towards bait that is detected on the mouth of a sick rat. This adds to the importance of searching for carcasses and carrying out regular visits when using a rodenticide, to retrieve any deceased individuals but also humanely dispatch any rodents clearly affected by rodenticide. Bait shyness may even be seen when changing bait, due to neophobia. This is possible even if the bait is in the same location within the same bait station.

Overcoming Bait Shyness in *Rattus norvegicus*

Use of second generation anticoagulants (SGARS) should overcome bait shyness once the initial neophobic behaviours have subsided. There is no connection made by the rat, between consumption of the rodenticide and ensuing ill effects, due to the delayed physiological effects. Pre-baiting with a non-toxic alternative food, made of a similar bait base to the rodenticide counterpart, may be beneficial in treatments long term. It can be used to help judge the size and extent of rodent activity prior to using rodenticide. Pre-baiting is often overlooked as it is perceived as too time consuming and not worthwhile. However, with a population exhibiting bait shyness it may be useful to achieve control.

Acute formulations

Historically, the use of acute rodenticides led to rat populations with some bait shyness. This made rat control and management particularly challenging. It has also been shown that use of acute rodenticide is not effective in long-term and complete eradication. Again, we refer to basic principles of rat control – everything in the environment should remain the same, possibly going as far as bait boxes and materials. To add to the management issues of a population with known bait shyness it isn't simply the 'food' (i.e. the rodenticide) that can cause avoidance but any "aversion to the skin, nose, mouth" (Meehan, 1984) can evoke bait shyness linked to neophobia.

Monitoring products as pre-baiting products?

Pre-baiting includes some of the non-toxic preparations, such as Talon track. This contains the same bait base as the rodenticide Talon Soft. Thus, non-toxic monitoring fills a similar role to pre-baiting. Swapping to Talon Soft is initiated upon signs of rodent pests feeding on the companion monitoring product. Other similar products are Sakarat monitoring bait vs Sakarat D wax bait. The same base or carrying agent is used.

See page 18 of this issue, for the article 'A review of non-toxic monitoring baits in rodent management', which has further details of non-toxic baits and their rodenticide partner.

Bait Shyness in House Mice (*Mus domesticus*)

House mice exhibit a very different bait shyness response. Mice are basically the opposite, they are naturally inquisitive, exhibiting neophilia (love new things and novelty) and are known to accept readily new food (Meehan, 1984). Bait shyness in house mice is a learnt behavior, mainly down to the lack of innate neophobia. The issues might arise when mice connect the ill effects felt with consumption of the rodenticide. Again, this can occur due to sub-lethal doses (similar to that in rats). However, with this in consideration the dose of an acute preparation is much more effective on mice with a smaller amount needed. A lethal dose is often consumed in one feeding, therefore not allowing enough time for a learnt behavioral resistance response to form. The only acute active currently available in the UK is Alphachloralose.

Overcoming bait shyness in *Mus domesticus*

Offering many bait points with small quantities of rodenticide should overcome any shyness prior to it occurring in the first place, appealing to the feeding mechanism of 'sporadic and peripatetic' (A.P. Buckle & R. Smith, 2015). The same procedure of using SGARs also applies, in that no connection is made to the ill effects of consuming the rodenticide. What can be done to overcome this behaviour in mice? Appealing to the neophilic response exhibited by mice is the base for the recommended actions. For example, the site can be re-set, bait points can be changed, formulation/ active ingredient can be changed (including a bait base change), varied baits used (in separate boxes) and more feeding points can be placed (appealing to natural sporadic feeding patterns). Use of single feed rodenticides, where possible, can also help. Of course, contact products (foam) and non-chemical measures are important when dealing with bait shy rodents.

Case Study 'city mice'

Background

The study 'Cereal aversion in behaviourally resistant house mice in Birmingham. UK', published in 1999, investigated this behavior in mice. From 1986, mice were found in the West Midlands with strong behavioral resistance towards cereal based baits. At the time, liquid concentrates were still in use. This meant anticoagulants could be mixed with higher protein bait bases to appeal to this strain of Mus domesticus. City mice were originally described in Birmingham but are now thought to be present in other large cities too e.g. parts of London, Manchester, Nottingham, Glasgow and more (anecdotally).

Research Trials

The trials were designed to determine whether the behaviour was genetic or learnt. The mice were found to have an aversion to cereals baits. They were unable to digest the cereal due to lacking certain enzymes. A human analogy to this would be something like a mild gluten allergy. For example, the person does not feel well upon eating and digesting the gluten containing food and avoids it in future to escape ill feeling. Additionally, the parent mice were found to imprint the avoidance behavior on their young. Generation upon generation would avoid cereal based bait formulations. Preferred food sources were tuna, chicken and cheese – all containing higher levels of protein than cereals.

Overcoming the cereal-aversion type of bait shyness in mice

Without liquid concentrates, there are several options. Use of liquid rodenticide and contact foams should be considered because these are non-cereal products. Some paste-based baits are higher in protein and very palatable. Baits with oily seeds are sometimes taken. Use of meat-flavoured food lures/liquids to entice mice onto traps can help with a trapping programme.

In summary

- Avoid using cereal-based products where cereal-aversion in mice is suspected and try non-cereal options
- Use more potent anticoagulants where appropriate e.g. brodifacoum, flocoumafen, difethialone (using single feeds where possible may help avoid certain types of bait shyness before they occur)
- Integrated pest management (IPM): proofing, hygiene, trapping
- Use 'natural cover' / 'covered bait points' e.g. burrows
- Once rodent activity has been cleared, keep bait stations in place so they are part of the natural environment to any invading rodents (thus reducing neophobic responses)
- Try to leave the site intact until after the rat problem has been cleared
- Neophobia in rats can be more pronounced in unchanging environments versus continually changing sites
- Each situation can be different, the same basic principles apply

References and further reading:

Meehan, A.P (1984). Rats and mice: Their Biology and Control

Buckle, Alan.P and Smith, Robert. H (2015) Rodent Pests and their Control 2nd Edition

Humphries, R.E, Sibly, R.M, Meehan, A.P (1999) Cereal aversion in behaviorally resistant house mouse in Birmingham, UK

LICENCES FOR BIRD CONTROL
WHAT'S NEW FOR 2019?

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2019 is on us so it's time to renew your bird licences (if you haven't already). All the new licences have now been published by the relevant regional agencies.

Before carrying out any bird control works; we should always consider if we have done everything that is reasonably practicable prior to any works under licence.
PCN has consulted a bird control specialist who has reviewed all the General Licences for bird control for all UK countries, as well as the Republic of Ireland, to check for any changes or updates compared with the 2018 editions.
Good News – no major changes. The only change is the email contact address for the Scottish General Licence (this is in the notes section of the licence document itself).
The validity period for England, Scotland and Wales remains the same annual term from 1st January to 31st December 2019. The Northern Ireland validity period is 11th September 2018 to 10th September 2019. In Republic of Ireland the validity period is 1st May to 30th April 2019.

England: Natural England **Website:** www.gov.uk/government/collections/general-licences-for-wild-life-management Relevant licence numbers: WML- GL04, GL05, GL06, CL03 & CL12 **Telephone:** 02080261089 **Email:** wildlife@naturalengland.org.uk **Postal Address:** Technical Services (Wildlife Licensing), Natural England, Horizon House, Deanery Road, Bristol, BS1 5AH	**Scotland: Scottish Natural Heritage** **Website:** https://www.nature.scot/general-licences-birds-0 **Email:** licencing@nature.scot **Relevant licences:** GL01/2019, 02, 03 & 04 **Northern Ireland: Department of Agriculture, Environment and Rural Affairs** **Website:** www.daera-ni.gov.uk/articles/wildlife-licensing **Relevant licences:** TPG1, TPG2 & TPG3
Wales: Natural Resources Wales **Website:** https://naturalresources.wales/permits-and-permissions/protected-species-licensing/uk-protected-species-licensing/general-licences-2019-birds/ **Relevant licences:** 001-2019, 002, 003, 004 & 016	**Republic of Ireland: National Parks & Wildlife Service** **Website:** www.npws.ie/licences/disturbance/stop-damage-flora-and-fauna-wild-animals

Finally, it's professional business as usual, always remembering to follow the investigation and thought process through.
Ask yourself prior to lethal activities…

- Have we done all we can before carrying out a shoot or trapping works?
- Have we done all we can that is reasonably practicable such as door control, building proofing or attempts at getting the birds to fly out or move on using other methods (including hygiene improvements)?

PCN interviews Nigel Batten about his upcoming retirement

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Pest Control News interviews industry leading bird specialist Nigel Batten, discussing his plans for retirement and hearing stories from his distinguished career, paying tribute to his immense contribution to the pest management industry over 45 years of sterling service.

Your engaging training style is talked about with enthusiasm by those who have attended your courses – what is the best training experience that you have had? Perhaps a particular course or lecture sticks in your mind…

Oh, there have been so many. I get more of a buzz from training than any other part of my role. The gun courses have probably provided the most amusement, especially when we have a female trainee on the course and the testosterone levels amongst other trainees begin rising. Often having never picked up a rifle before, the ladies are keen to learn and quite often proceed to win the competition against the guys (some of whom will have admitted to shooting all their lives). This to a trainer is priceless and helps prove that we have delivered our training successfully.

I have also enjoyed supporting our European colleagues on occasions in the Netherlands and Poland. Giving a presentation in small sentences, whilst being interpreted by the native, provides for much amusement in body language on both sides.

Not forgetting my practical training courses, where netting around trees, stacks of pallets, and even a pest control van makes the experience for the delegate far more interesting, as opposed to simply netting a wooden frame on top of a table.

Do you have any training course mishaps to confess to?

I once forgot to pre-order a lunch. Probably the most feedback comments we get concern the refreshments. Get this wrong and you have not satisfied your delegate. Never mind the quality of the actual training! Luckily, I was running the course with a colleague, so was able to nip away to the local convenience store and avoid a diplomatic disaster. There have been other incidents, but generally they are solvable if you are adaptable and able to think on your feet. I like to think that I have been able to 'wing it' when needed.

We want to know about some of the glamourous…and less so training venues that you have worked at. Can you tell us something about this?

Bird control training and air gun courses are always held in the less glamorous venues of the world due to their content. For some reason the standard hotel venues used for other meetings and trainings are not happy to hold an event, once the suggestion of holes being drilled into a wall for practical bird proofing or that delegates might be walking around with air weapons on site is mentioned.

So therefore, training in log cabins or shacks in the middle of nowhere is not uncommon, but it is the right venue for the bird control courses I have run, all be it a tad cosy in some cases.

What is the most memorable bird problem that you have had to deal with?

Working with gulls can be scary, especially when being swooped at when on a flat roof. It's not uncommon for them to leave little surprises on your head (faeces and vomit) when you invade their territory. Health and safety are paramount in these cases. But the most memorable, and one that I bring up on every course, is the time a pebble was dropped on the rear windscreen of my two-week-old Toyota Avensis, leaving it shattered. I made the pest press with headlines including, "Gulls Gain Great Revenge on Nigel". I still use the pebble as an exhibit, I guess it was retribution from the gull community for all those roof nets I have installed in the past.

Who had the most influence on you in terms of your experience?

A man called Mick Star who worked for the Big R. Before I got into the industry, I was working with his wife at an animal laboratory, where on a Friday at the local social club he would talk about his pest control experiences. This appealed to me instantly; here was a trade I could do, with basic training, where you were given a van, a round of clients, and then left on your own to manage your day. I loved the variety, the people, and the diverse establishments that I visited on a day-to-day basis.

Do you have any tips for those interested in developing their bird proofing skills?

First and foremost, you need a good head for heights. Ideally, you should be a practical person who is willing to use hand tools and (on occasions) not be afraid of working in unpleasant environments. A mentor or colleague with experience is often needed to help to guide you on the right path, but essentially the skills learnt will develop over time. No job is the same, which is what makes the trade so interesting. Even now, I still now come across the odd project that keeps me on my toes! However, nothing is impossible, there will always be a way.

Where do you see the industry going over the next 5 – 10 years?

Back in the 70's health and safety was not on the agenda; I took many chances on ledges without a harness, for which I am not proud. Move forward to the present day and rightly so health and safety are paramount and for good reason. I am sure legislation will become tighter in the coming years, but that won't affect the industry as much as the major changes including rodenticides and insecticides, which are already creating changes to practice. That makes pest controllers work just that little bit harder.

Thankfully I don't see major changes in the future for bird control methods other than the occasional new system development. Although sometimes changes create more opportunities, which has been witnessed with the increasing using of solar panels leading to additional ledges needing to be proofed – It is all about staying positive and using changes in legislation, society, or even the environment to your advantage.

What has been the biggest challenge during your career?

Without a doubt back in the 90's, when I was a branch manager responsible for a team including sales, technicians, and admin staff. Keeping all the parties happy, whilst trying to successfully achieve all the targets and deadlines was a constant stress at the time. Since 2000 however, I have had the joy of just managing myself, which I have just about managed to grasp.

Which species did you encounter the most often?

Most definitely the Feral Pigeon. It is the number one bird pest, followed by the Herring, and Lesser Black Backed Gulls. But, there are new birds on the block aiming to take over the roost! Namely, the Ringed Neck Parakeet. Rumour has it that in twenty year's time, bird controllers will be dealing with these as often as they are now with pigeons and gulls.

Do you have any pest control 'horror stories?'

Yes, but I'll only share those over a beer in a country pub where the walls don't have ears.

What is your 'pet hate' as a bird specialist?

Poor installations or similarly the wrong choice of system(s) to suit the primary issue. Now with social media, pictures of such issues are easily spread around the world and only lead to questions and comments that are to the detriment of our industry. Training is vital here.

Also, people should not be afraid to ask questions and discuss issues with specialists, who have probably encountered a similar problem previously. I have been able to help several people in this way, when they have called up in a tight spot, simply through the use of Google Earth. Often this enables me to understand the issue better than a confused explanation of the issue with some questionable measurements!

What did you do before you got into the industry?

I was an animal technician for a research company, where I looked after the cages housing rats, mice, rabbits, and guinea pigs. Strange that I should have chosen a path between animal husbandry and killing.

What job would you have done if you hadn't been successful in the pest control industry?

I fancied a life as a farmer, but did not think I could bring up a family on the low wages.

So, make us all jealous – what are your plans for retirement?

I live in Dorset close to the Jurassic coastline, so am looking forward to keeping active. I am also planning to get a motor home to spend more time travelling the UK and finding new spots for the perfect picture or even exploring those areas that I have only been able to briefly visit in my recent 20 years as a bird specialist. My wife and I are also planning a move to Devon next year to be closer to my two daughters and naturally take on the additional grandparent duties that entails. Not forgetting my son, who lives in Indonesia and has provided a base to visit idyllic islands across Southeast Asia that we could only have dreamt about visiting previously. Last year, we missed the volcano eruption by one week, when we were on a small island near Bali. This all adds to the adventurer in me.

What will you miss the most about the industry?

Having worked in the industry since 1973, pest control has been in my blood ever since. I will unquestionably miss this massively. However, my greatest pleasure has been the training and mentoring; especially watching people grow their businesses successfully. I feel proud to have been a part of their journey too. It goes without saying that my colleagues have also provided much support and enjoyment throughout my career, which I will probably miss the most.

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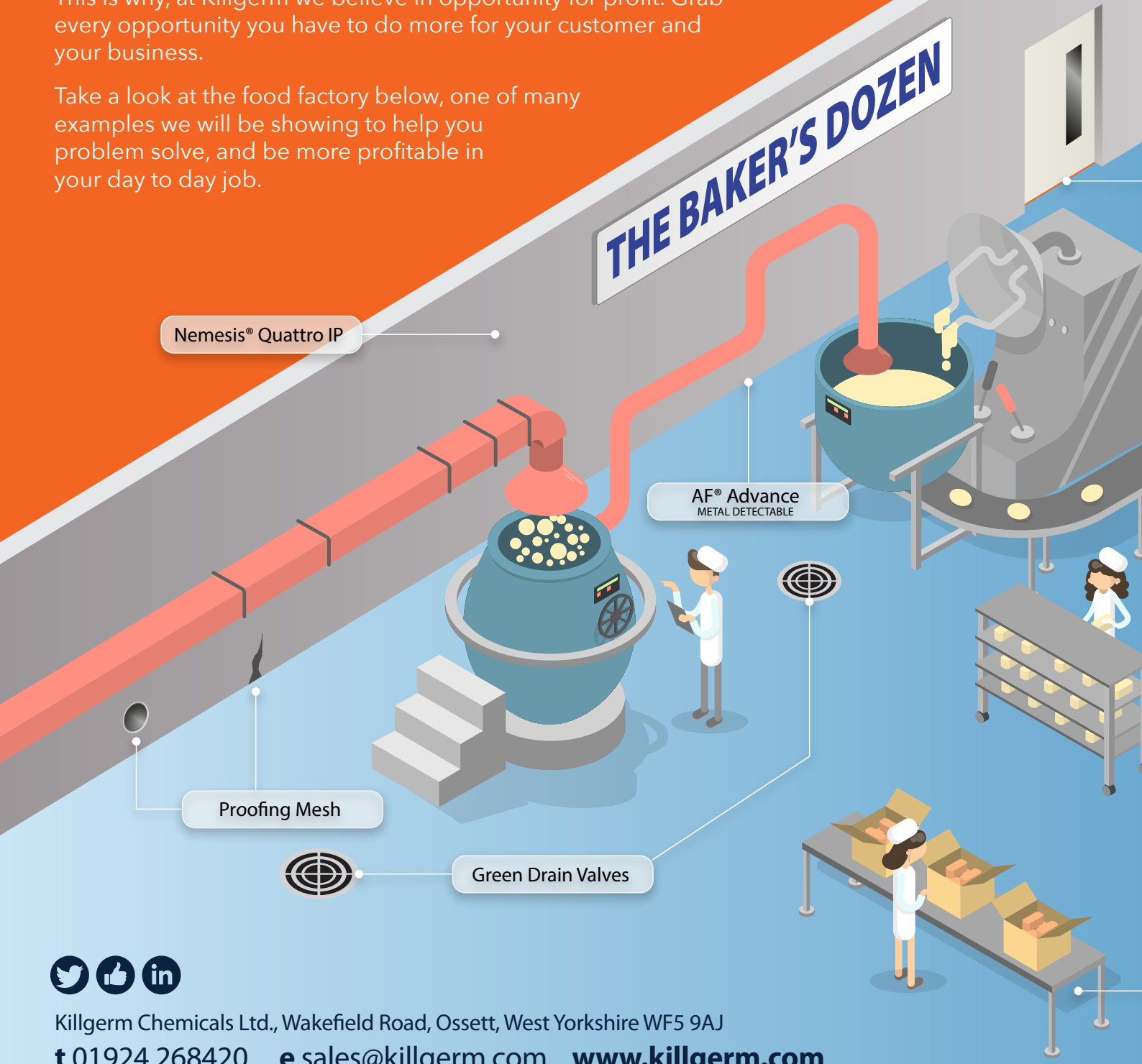

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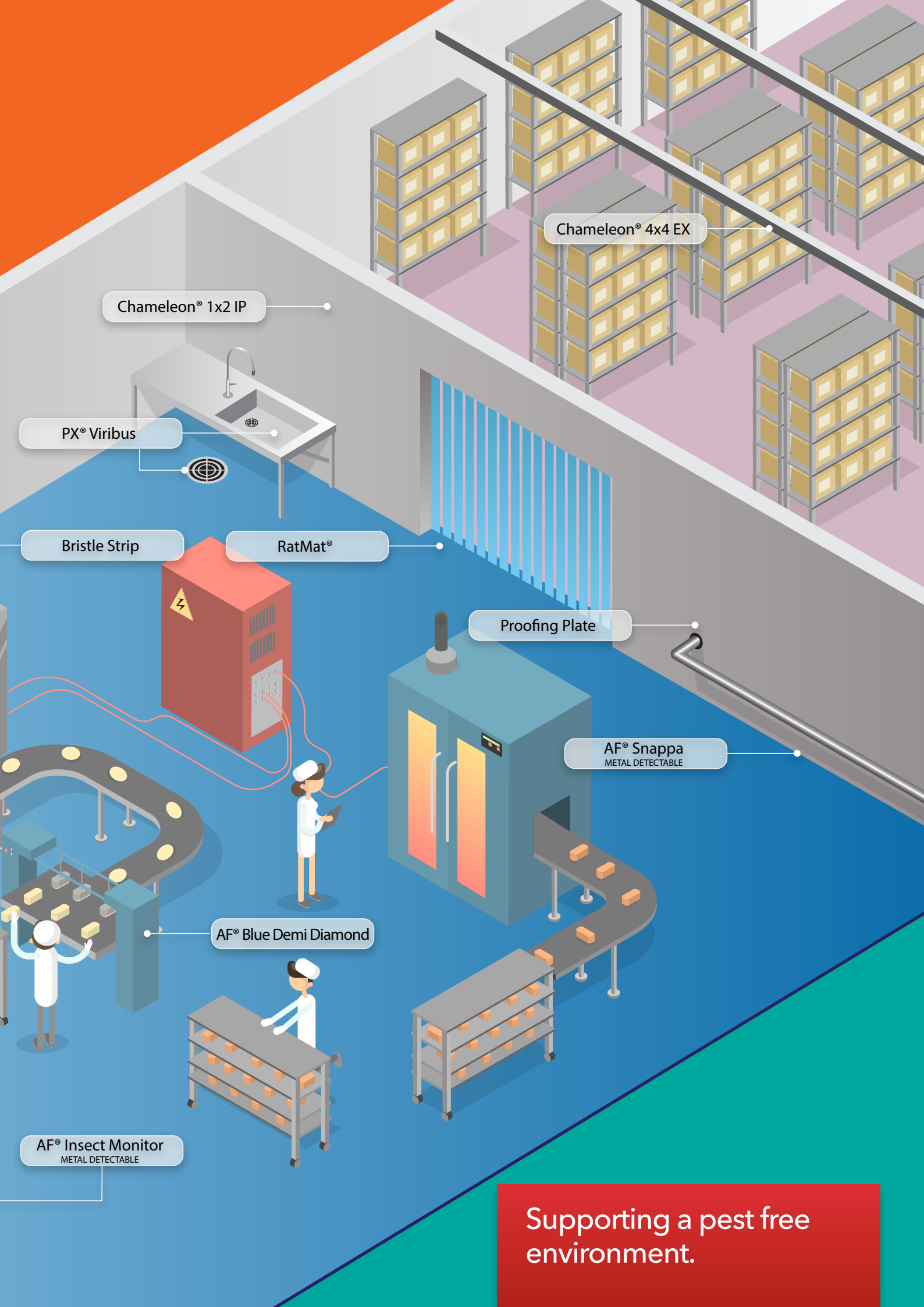

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PIGEON FOULING DEATHS AT GLASGOW HOSPITAL

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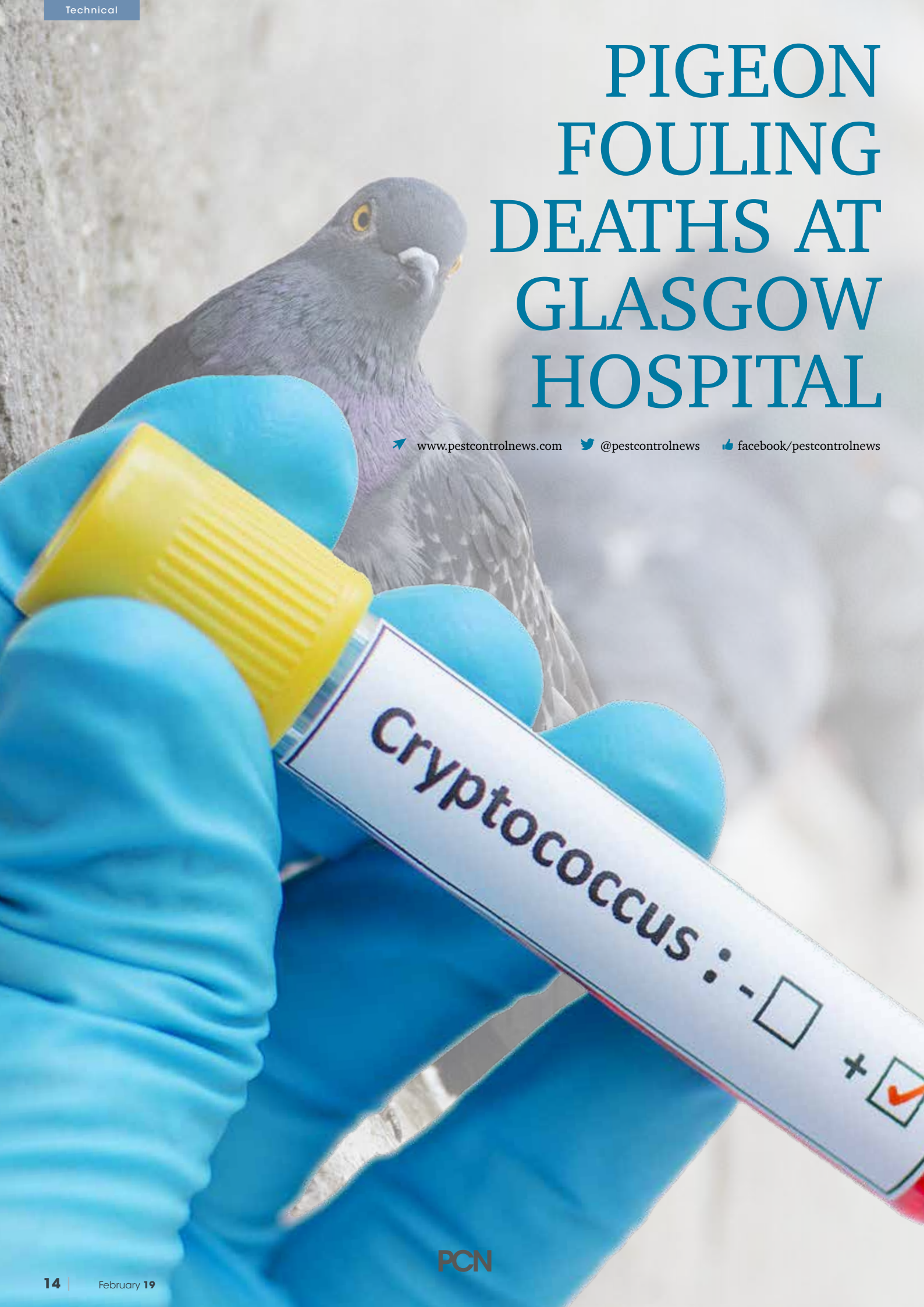

A probe has been launched (as of the 22nd January, reported by The Herald) into recent deaths at the Queen Elizabeth University Hospital in Glasgow. The news report had reached the wider audience of the BBC on the 19th January. It was disclosed that two people had died due to *Cryptococcus* fungal infections linked to pigeon fouling in the hospital.

The reported source of the fouling has been described as a plant room or a room which stores machinery. The probe request was pending, however has been launched after the death of a child at the end of December, linked to the same *Cryptococcus* infection. With speculation already swirling, many members of the public have come forward to the press to air their complaints about the pigeon population residing at the hospital.

Initial investigation begins…

The initial report by Health Secretary [Jeane Freeman] states that the pigeon fouling was 'invisible to the naked eye' -

She said the root of the Cryptococcus infection had been traced to a plant room on the roof of the building, where "invisible to the naked eye, was a very, very small break in the wall".

She added: "And in that small break, pigeons had entered the plant room and excrement was found there.

"That was found by smoke detection, because as I say, [it was] invisible to the naked eye."

She said officials were still investigating how the bacteria then entered the closed ventilation system.

Ref: The Herald. Probe launched into flagship Glasgow hospitals construction following child's death. 22nd January By Alistair Grant. Accessed on 25/01/2019

From a health perspective it seems that the people affected by the airborne fungal pathogen were vulnerable to infection and possibly had compromised immune systems. Already the story is building a much larger picture and justifiably initiating additional investigation.

What do we know about *Cryptococcus*?

Cryptococcus is a fungus, meaning it is in the same taxonomic group as moulds and yeasts. There are many species of *Cryptococcus*, but only a few are known to be severely infectious, the most common being *Cryptococcus neoformans*. The symptoms include meningitis in patients who lack a fully functioning immune system. A depressed immune system could be due to HIV/AIDS, receiving cancer treatments or being an organ-transplant recipient. *Cryptococcus* infections are rare in healthy adults but one of the main culprits is wild bird droppings, namely pigeons.

Wild bird fouling

The droppings from pigeons contain a plethora of pathogens, not just *Cryptococcus*. *Salmonella* and *Campylobacter* are known to be present in pigeon droppings – as they are in most wild bird faeces. Part of the issue with pathogens and droppings is the transmission. Once the droppings are dry, the resultant dust can carry the pathogen into the air and you have potential for airborne transmission. This is the route of entry into ventilation systems or the air around the bird harbourage area. This is the reason why personal protection equipment is used with a minimum respiratory protection of a P3 particulate filter. The use of a biocide is also essential (a product such as a bird-fouling disinfectant based on Chlorhexidine and QACs) to treat areas of pigeon fouling, before and after removal works.

Action taken so far…

HEPA (High Efficiency Particulate Air) filters have reportedly been installed in certain areas of the hospital, with certain patients moved. Maintenance have also attended and carried out works in the area. It is understood that there have been no further confirmed cases since the works and installation of HEPA filters.

Pest control

From the pest control perspective, the area of a plant room calls into question all manner of health and safety restriction and safe access issues. All dependent on how accessible the area was both from inside and out. All sorts of other questions will also need to be answered including going back to building design, construction, final snagging and all the surveys in-between.

No doubt that pest management procedures will be investigated. If the area was inaccessible to pest control, then you would have to look to the outside areas and treat those areas. Again, calling into question the depth of survey, accessibility to that area of the roof/building and its safe access. Hospital compliance is also being questioned, hence the top-level involvement.

Prevention

Bigger picture – was the *Cryptococcus* infection preventable? In theory, yes. However, foresight is something we don't always have and easy in hindsight to say… "we should have done this". It will be likely that several factors will have led to the devastating story so far. Prevention is always key, and the investigative outcome will hopefully prevent any case like this occurring again. Education is also important, especially the knowledge that bird fouling does carry a threat to at-risk patient groups in hospitals. It does seem that if the initial entry hole used by the pigeons had been sealed than none of this would have happened. Ultimately this comes down to responsibility, accountability and due diligence. We await the outcome of the full investigation.

References / further information:

https://www.heraldscotland.com/news/17376358.probe-launched-into-flagship-glasgow-hospitals-construction-following-deadly-infection/

https://www.bbc.co.uk/news/uk-scotland-glasgow-west-46931028

https://www.cdc.gov/fungal/diseases/cryptococcosis-neoformans/index.html accessed 28/1/19

Know your enemy

Brown Marmorated Stink Bug

Halymorpha halys

In issue 113 of Pest Control News, published over a year ago, the article 'Kicking up a stink: Is the brown marmorated stink bug [BMSB] our next invasive pest?' alerted the industry to the possibility of this invasive insect pest reaching our shores.

In December 2018, Killgerm's Technical Manager (South), Melvin Knapp, found the very bug during a site visit in Hampshire.
So, we answered our own question…Yes, they are here!

Melvin's finding was reported in the online news section of the PCN website. Given the news it is only right that we should recap on the BMSB as one of the next invasive species to infiltrate the UK.
The BMSB causes a similar overwintering nuisance to that of the Harlequin ladybird and cluster flies.

Identifying the BMSB

Below is the description provided by the Department for Environment, Food & Rural Affairs (DEFRA):

'Adults are approximately 17 mm long and are generally brown in colour. Distinguishing characteristics found on adult H. halys include lighter bands on the antennae and darker bands on the membranous, overlapping part at the rear of the wings. They also have patches of coppery or bluish metallic-coloured punctures on the head and pronotum. The scent glands are located on the dorsal surface of the abdomen and the underside of the thorax. It is these glands that are responsible for producing the pungent odour that characterizes stink bugs.'

If you think you have found *Halymorpha halys* the advice is to get confirmation from an experienced entomologist, if confirmed a report should be made to the Plant Health authorities in the UK.
Although not a notifiable pest, reports of suspected outbreaks of brown marmorated stink bug would be appreciated by the relevant authority, to help monitor findings:

For England and Wales, contact your local APHA Plant Health and Seeds Inspector or the PHSI Headquarters, Sand Hutton, York. Tel: 01904 405138 / Email: planthealth.info@apha.gsi.gov.uk

Behaviour

Apart from being a significant agricultural pest, the BMSB is a nuisance for homeowners, due to the behaviour of forming large clusters whilst overwintering in premises. There is also evidence from Switzerland showing that damage can be caused to fruits such as apricots, nectarines and cherries, along with soft fruits such as raspberries and blackberries. This is basically the route into houses, as they damage the garden crops then overwinter in the house. When temperatures begin to warm up (March onwards), or on the occasional warmer winter day, the activity increases too. This particular stink bug is capable of flight and will fly from plant to plant. This is the suspected route of travel and wider distribution. Host or affected plants are moved from place to place.

What about global significance?

The USA reports the BMSB as a serious crop pest, damaging apples amongst over 300 reported host plants (over $37 million of lost apple production reported). The BMSB is native to Asia, and found in China, Japan, Korean Republic and Taiwan. Closer to home in Europe, reported incidences spanning the last 18 years come from France, Germany, Greece, Hungary, Italy, Lichtenstein and Switzerland.
The most recent record was in Chile in 2017 and now in the UK.

Stinky bugs

They are not called stink bugs for no reason. If disturbed or crushed, they will emit a strong typical aroma which is described as 'persistent and unpleasant'. There are also reports of allergic reactions in the USA. The odour emitted by the bugs can cause running noses and itchy eyes (rhinitis and/or conjunctivitis) specifically in more sensitive individuals. If the BMSB is crushed against the skin, dermatitis can develop at the point of contact.

Why and how to control

The main issue in the UK is as a nuisance pest, due to overwintering behaviour. However, remembering if a sensitive individual is unlucky enough to have the BMSB move in; the significance increases considering allergic reaction manifestation.
To treat the BMSB it may not be necessary to use any insecticide. Removal of the individuals by vacuuming and secure disposal in an outside bin should suffice. You could also freeze the individuals for 48 hours and then again dispose of securely. Proofing is also key in BMSB management, silicone sealant (or other appropriate equivalent) in the cracks and cervices where they have been harboring will prevent further insects aggregating.
If an insecticide must be used, a product showing 'crawling insects' on the label could be selected. Public health pesticides do not usually have shield or stink bugs (Pentatomidae family) on the product label. However, pyrethroid insecticides have been successful in treatment. There has also been research into alternative biological control with the use of egg parasitoids, predatory insects and aggregation pheromones.

Know your friend

The Sparrowhawk

Accipiter nisus

Sparrowhawks are protected in the UK by The Wildlife and Countryside Act 1981. They are small birds of prey, measuring around 28-38cm with a wing span of 55-70cm. They like to live around dense woodland and you may even be lucky enough to spot one in your garden. Their main food source is small birds and therein lies the threat.

Rodenticide residues

Small birds feed on slugs and snail. Slugs and snails that have consumed rodenticide (with no lethal effects - you may see a slight green tinge to these gastropods) can be taken by small birds who are themselves taken by sparrowhawks which is how rodenticide residues are passed up the food chain.

The Predatory Bird Monitoring Scheme (https://pbms.ceh.ac.uk/) published statistics on the number of sparrowhawks found with second generation anticoagulant (SGARS) residues that had accumulated in their livers.

'One or more SGARs were detected in 89% of 94 birds received between 2010 and 2013.'

Reference: Anticoagulant rodenticides in sparrowhawks: a Predatory Bird Monitoring Scheme (PBMS) report
L.A. Walker, J.S. Chaplow, C. Moeckel, M. G. Pereira, E.D. Potter, & R.F. Shore1 Centre for Ecology & Hydrology, Lancaster Environment Centre, Library Avenue, Bailrigg, Lancaster, LA1 4AP, UK;

The numbers in the report increased year on year, although it should be noted that this data is prior to the implementation of the UK rodenticide stewardship regime.

Prevention of rodenticide contamination of Sparrowhawks

By following CRRU guidance and product labels, regarding the external use of rodenticide, we aim to help manage rodenticide use and limit accumulations in predatory animals including sparrowhawks. By completing our site survey, environmental risk assessment and following up frequently we can minimise rodenticide residues in wildlife by using such products judiciously. There are limited options to protect rodenticide from slug and snail attacks. For example, copper is known to deter slugs and snails with various products available from garden centres. There are also repellent sprays available and these have been applied by some users to attempt to keep slugs and snails out of bait boxes. However, existing measures to deter slugs and snails from entering baits stations and/or consume rodenticide are limited in their effectiveness.

References/Further information:

https://www.rspb.org.uk/birds-and-wildlife/wildlife-guides/bird-a-z/sparrowhawk

https://pbms.ceh.ac.uk/

Anticoagulant rodenticides in sparrowhawks: a Predatory Bird Monitoring Scheme (PBMS) report
L.A. Walker, J.S. Chaplow, C. Moeckel, M. G. Pereira, E.D. Potter, & R.F. Shore1 Centre for Ecology & Hydrology, Lancaster Environment Centre, Library Avenue, Bailrigg, Lancaster, LA1 4AP, UK;

A review of non-toxic monitoring baits in rodent management

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Background

The market for non-toxic preparations for rodent monitoring has grown in the last few years. The Campaign for Responsible Rodenticide Use (CRRU), and the associated UK rodenticide stewardship regime, have gained further and positive momentum whilst audit standards have forced procedures regarding non-toxic monitoring.

Non-toxic preparations help us to monitor inside and outside in the majority of situations without using rodenticide. This helps us adhere to the CRRU guidelines and codes of practice. External use helps species protection, decreasing the risk of non-target species poisoning and therefore secondary poisoning; thus, protecting field mice (*Apodemus sylvaticus*) and other predatory birds and mammals.

They also fill another important role; monitoring baits often contain the same carrying base agent as their anticoagulant counterpart. Therefore, monitoring baits can be used for pre-treatment application to encourage rodents into bait stations and for monitoring. This allows for great continuity when transitioning from a monitoring to a controlling stage. It makes sense to use a monitoring bait that is complementary to the rodenticide that might be used for control purposes.

Monitoring

Rodent monitoring is a key component of integrated pest management (IPM). Non-toxic rodent monitoring products allow us to:

- Monitor safely as a 'pre-treatment', without the risks carried by rodenticide
- Detect early
- Aid identification of species before applying rodenticide
- Protect non-target species
- Encourage rodents to enter bait stations
- Help determine the size and scale of initial rodent activity prior to applying rodenticide
- Undertake post-treatment and continual monitoring in sensitive environments such as in the food industry

Use of a monitoring product, which has a rodenticide counterpart, can lessen treatment time by helping to overcome a neophobic response in rats more quickly. The use of a non-toxic monitoring bait, either at first or for continual monitoring, can decrease neophobic behaviour in rats by providing them with a food very similar to the rodenticide which may be subsequently applied.

The neophobic response of rats is less pronounced towards food compared to when encountering a bait station for the first time. The simple swap can then be made to the rodenticide counterpart, as the bait base will smell and taste very similar, therefore contributing to faster and more likely consumption of rodenticide. Similarly, with mice, they will quickly learn that the non-toxic monitor is a safe food and could be more likely to continue to feed on the rodenticide preparation once detected. Rodents have very limited colour vision so would not likely detect a difference in the colour of the preparation (a benefit for humans as we can clearly see the bright colours!).

Non-toxic	Rodenticide
Sakarat® monitoring bait 	Sakarat® D Wax Bait Contains: 0.005% Difenacoum 
Detex® Biomarker Blox™ 	Contrac® All-Weather Blox™ Contains: 0.005% Bromadilone Solo® Blox Contains: 0.005% Brodifacoum 
Ratimor® Monitoring Fresh Bait 	Ratimor® Difenacoum Fresh Bait Contains: 0.005% Difenacoum Ratimor® Bromadiolone Fresh Bait Contains: 0.005% Bromadiolone Ratimor® Brodifacoum Fresh Bait Contains: 0.0029% Brodifacoum 
Harmonix® Monitoring Paste 	Bayer recommends any Rodilon® products or Racumin® paste Racumin® paste Contains: 0.0375% w/w Coumatetralyl Rodilon® Soft Blocks Contains: 0.0025% Difethialone Rodilon® Blocks Contains: 0.0025% Difethialone 
Talon® Track 	Talon® Soft Contains: 0.005% Brodifacoum 

In the recent past, non-toxic monitoring options were few and, there weren't many ways to combine monitoring baits complementary to rodenticides. Considering the increased need for monitoring products, many of which can now be paired with existing rodenticides, manufacturers have been wise to produce both non-toxic and rodenticide options that have the same bait base to aid continuity of consumption by rodents.

Burrow Baiting

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We are aware of the significant risk to public health when there are rodents around, as the need for rodent control provides much of the business for the pest control sector. However, are we overlooking tried and tested techniques? In reference to burrow baiting, is direct treatment of burrows becoming a lost art due to changes in some rodenticide labels and industry codes of practice? Perhaps less time is being spent on 'field craft' to treat rodents.

Let's start by looking at the basics. Rodent infestations should be removed as quickly as possible in the interest of public safety and hygiene. Uncontrolled populations can spread rodent-borne diseases (Leptospirosis is only one of many pathogens carried and transferred by rats) by contamination and they also cause physical damage.

Standard bait boxes can initiate a neophobic behaviour in rats, resulting in avoidance due to fear of the new item, adding to the expected treatment time. Burrow baiting can lessen neophobia to new items* (due to the item being a 'food' albeit a rodenticide). In some cases, neophobia is avoided when burrow baiting.

So, why choose burrow baiting?

Firstly, to use the rodenticides appropriate for burrow baiting you must be a trained and competent user – adhering to stewardship and the product label in the UK.

Several reasons apply. We know from research that a 'new food' is avoided for much less time than a new bait container. This is supported by DEFRA research*.

The advantages of burrow baiting are clear and cover some of the legal requirements in place. The rodenticide is placed around known target species, located close to the nest (placing the bait on the rats' doorstep), bait is much more likely to be encountered and therefore consumed. Finally, treatment time is likely reduced due to a decrease in neophobia.

The practice of burrow baiting is supported by the Chartered Institute of Environmental Health (CIEH), as a recommended application of rodenticide bait.

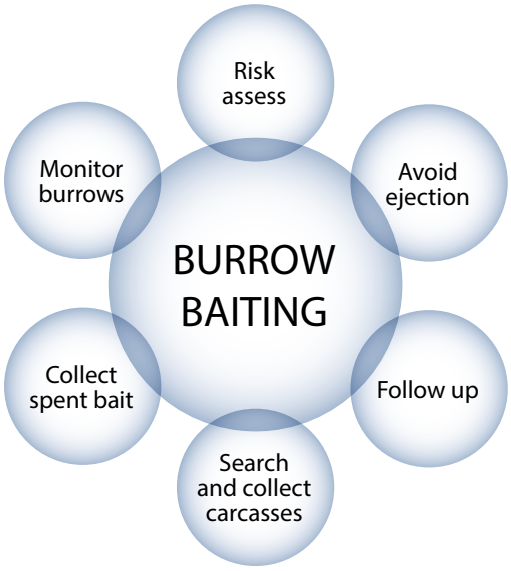
"research has shown that hole or burrow baiting, where loose bait is applied directly into holes or burrows, can give the best results in encouraging bait uptake, resulting in quicker control." ***

Reduced risk

Reduction in the period of time that bait is left available means less risk to humans, non-target species and the environment. This can only be a positive, but it is important to remember that the treated burrows must be checked frequently. The decision to bait burrows must also be backed up by a solid environmental risk assessment. Monitoring burrows can be done before any treatment to check the activity status. For example, to determine an active burrow versus an old burrow which is no longer in use. There are certain things to look for with an active burrow: a clean entry hole, worn ground and tracks to and from the burrow, debris kicked out (including newly dug soil) and lack of cobwebs.

We can reduce risk but not get rid of it. So, to mitigate the risks of burrow baiting it is essential to consider the following -

Risk assessment (standard site specific and the environmental risk assessment) is essential, also to re-risk assess. Avoiding ejection of bait is one of the biggest



challenges when baiting burrows. Healing the burrow in or placing light straw or substrate (e.g. soil, tussock of grass) at the entrance are good ways help prevent ejection. The bait should also be placed as far as possible into the burrow. Follow up procedure should be determined by risk assessment, using the product label for directions. The follow up timing is also an important consideration. The best time is first thing in the morning, which also helps with bait ejection. Nocturnal rodent activity means bait can be ejected overnight. The ejected bait can be replaced or retrieved during the early morning follow up. Use the follow up visit to look for rodent carcasses and ensure that this detail appears on the report / records for the visit. Any unconsumed bait or spent bait can be collected / re-used at this time too. Formulation choice can be important too. Choosing a block bait is preferable as blocks can be wired into the ground and they can easier to retrieve. Loose bait can be used when the product label allows this.

Using technology to monitor?

Remote cameras can be used at all stages of a burrow baiting program:

- Determining burrow status (active or old)
- Species identification (non-target protection)
- Remote monitoring of bait ejection and activity
- End of treatment – no further burrow activity

Best Practice Guidance (CRRU)

We still need to maintain best practice whilst carrying out burrow baiting. Following the 'risk hierarchy' begins with proofing, hygiene and any appropriate environmental changes. Progressing to trapping and then onto first and second-generation anticoagulants can be next. However, in reaching the decision to burrow bait it is expected that the risk hierarchy has been followed already.

You must check carefully that the product can be used for burrow baiting by consulting label directions.

Other considerations – treated sites

Rat burrows are found outdoors in soft ground, banked land and any other substrate that allows a burrow system structure such as low-growing foliage roots, tree roots, gabion baskets or rockeries. Unfortunately, rat burrows can of course be in the same area as non-target species. This is even more reason to follow up, perhaps more frequently at first. The benefits of burrow baiting must always outweigh the risks, considering human and animal health. The reasons why other methods are impractical should also be noted. The environmental risk assessment can act as the vehicle for this. If bait stations are not appropriate, state this on the report or risk assessment.

"Tamper-resistant containers baited with immovable block baits are appropriate if baits are inspected infrequently, but the evidence (presented in this review) suggests that relatively little rodent control will be achieved". *

Labelling

The treated area should also be indicated, in line with the newest product label instructions, an important consideration when burrow baiting in a public area. Labels also state that bystanders should be informed, with signage being very useful for that. This should all be backed up by a written treatment report. Some of the older labels have a phrase about 'public area' use, meaning that signage is a must when products are not in tamper-resistant boxes.

Summary recommendations

- Always carry out your environmental risk assessment (in line with CRRU guidance)
- Follow the CRRU code of practice
- Baiting deep, vertical burrows is preferable – less likelihood of bait ejection
- Place rodenticide as deeply into the burrow as possible
- Lightly block the burrow
- Clearly mark the treated burrow
- Inspect treated areas frequently – essential to keep rodenticide at an appropriate level and search for dead rodents
- Follow up in the early morning
- Don't forget about remote monitoring, possibly using wildlife cameras
- Burrow baiting has its benefits, but remember to keep it to a necessary minimum
- End of treatment – make all reasonable efforts to remove spent or unconsumed bait and make a final search for dead rodents
- Keep diligent records of all visits and assessments.

Foot notes/references:

*DEFRA (2018). Rats: Control of Rats with Rodenticides - A Complete Guide to Best Practice. Department for Food and Rural Affairs. Available from: http://adlib.everysite.co.uk/adlib/defra/content.aspx?id=000HK277ZX.0B4M93RRD547JA. Date accessed: 16.01.18.

**Quy R.J. (2011) Review of the use of bait boxes during operations to control Norway rats, Rattus norvegicus – a report to CIEH. Chartered Institute of Environmental Health (CIEH), London, UK. 11 pp. Available from: http://www.urbanpestsbook.com/downloads/CIEH_Rodent_Procedures_Roger_Quy.pdf. Date accessed: 12 August 2015.

***CIEH (2015). Pest control procedures in the food industry. The Chartered Institute of Environmental Health, Chadwick Court, London. October 2015. 52 pp. Available from: http://www.cieh.org/policy/pest_control_food_industry.html. Date accessed: 16.01.18.

https://www.thinkwildlife.org/training-certification/continuing-professional-development-cpd-and-stewardship/

Science-sense

Insect pest resistant packaging

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PCN has run a series of new 'science sense' articles in recent issues, examining the latest research in the scientific literature and providing a common-sense summary to readers. Themes have included insects found in association with 'eco-roofs', the carriage of antibiotic-resistant bacteria by pests and practical advice about protecting yourself against pest-borne salmonella infection. The most recent instalment tackled the global issue of insecticide resistance in bedbugs Cimex lectularius. We now ask questions about food packaging and how resistant, or not, it is to stored product insect (SPI) penetration.

Our aim continues, which is key for scientific information to be communicated exactly where it matters – to pest management professionals. Too often the bridge to practitioners isn't made, but not anymore…

There are limited options to treat bulk commodities which have been infested by stored product insects (SPI). There are two options for infested stock, firstly fumigants and secondly quarantine with consequential write-off. Using tainted stock which has been infested can affect the quality of the products made with it. A range of qualities can be affected, from flavour to material behaviour. Humidity and heat (created by SPI's) often cause fungus and mould growth. Finished products that have been affected by SPI's are not fit for purpose and therefore must be disposed of. Not to mention reputation and end consumer dissatisfaction.

Other options

Initially at factory level hygiene procedures will remedy most SPI issues. With all-round good hygiene standards as part of an integrated pest management program (IPM), the risk of SPIs is lessened. There are some in-line processes which decrease the risk of SPI, such as entoleters and heat treatment processes; for example, in flour production. There are limited chemical treatments available due to the sensitivity of the food products. Ideas turn to what can be done when the product has been heat treated or finished (after a final 'kill stage'). After the packing stage the high-quality control of the factory can be limited or lost once the food goes to storage and transport. Once this has been identified as a weak point for product risk the need for insect prevention increases, pest resistant packaging may be able to maintain some control over food quality for longer.

Types of SPI

In general, the types of SPI able to damage products or commodities fall into two categories. The penetrators and the invaders. Penetrators can bite through some packaging. Invaders are not able to bite into the packaging but are able to enter through tiny holes or openings. The larvae of the majority of the SPI tend to be the most damaging. The adult sometimes feed, and some don't feed at all. Some SPI's fall into both categories – able to gnaw through and invade.

Table 1. Classification of pests that commonly infest packaged food[1].

Penetrators	Invaders
Red flour beetle (*Tribolium castaneum*)	Red flour beetle (*T. castaneum*)
Confused flour beetle (*T. confusum*)	Confused flour beetle (*T. confusum*)
Warehouse beetle (*Trogoderma glabrum*)	Merchant grain beetle (*Oryzaephilus mercator*)
Rice weevil (*Sitophilus oryzae*)	Sawtoothed grain beetle (*O. surinamensis*)
Almond moth larvae (*Cadra cautella*)	Almond moth larvae (*C. cautella*)
Indian meal moth larvae (*Plodia interpunctella*)	Indianmeal moth larvae (*P. interpunctella*)
Lesser grain borer (*Rhyzopertha dominica*)	Squarenecked grain beetle (*Cathartus quadricollis*)
Cadelle (*Tenebrodes mauritanicus*)	Flat grain beetle (*Cryptolestes pusillus*)
Drugstore beetle (*Stegobium paniceum*)	Rice moth larvae (*Corcyra cephalonica*)

[1] Adapted from Highland 1984

David W. Hagstrum, Thomas W. Phillips, Gerrit Cuprus. 'Stored Product Protection' K-State Research and Extension (January 2012)

Invaders were found throughout several trials to exploit holes in packaging and existing damage. It was also found that the lure for various SPI species was the aroma of the product. Damaged packaging, or loosely packed products allow odour seepage, thus attracting the SPI's to the product. This highlighted another facet that could be used to protect products - limitation of attraction in the first instance, using air tight sealing an active preventative measure is created.

Cost vs food quality protection

Most packaging is usually paper and board with plastics and foils now commonly incorporated. Paper and board are particularly weak when it comes to penetration resistance from insects. Several studies over the years have investigated different types of packaging and their penetration resistance. As a base rule, as

the layers of packaging increase so does the cost. Compare a paper sack to a foil lined plastic sealed pouch. It does tend to be value added products that are encased in multilayer impenetrable packaging. The actual cost of damaged stock due to SPI's is unknown. However, Food Quality and Safety magazine published an article in 2007 stating the following:

"Although small in size, these pests can cause considerable damage. Worldwide, insects destroy about 10 percent of grain production each year. In the U.S., this figure translates into an annual economic hit of about $3 billion."

Reference: https://www.foodqualityandsafety.com/article/small-pest-big-problem/2/?singlepage=1

'Small Pest: Big Problem, Avoid Stored-Product Pest Damage'

There is a fast-growing environmental concern over packaging, especially in the UK. Decreased waste collections and encouraged recycling on all levels culminating as our current war on waste. Tracking to the point of sale and packaging at the supermarket; this all leads to less packaging. Which of course, makes the products more prone to SPI attack.

Repellents

There was a study carried out in South Korea published online in 2015* which investigated and developed a SPI repellent film using a cinnamon oil emulsion. The results of the research found that the plastic film developed did work to repel Indian meal moth larvae (*Plodia interpuntella*). Moreover, the addition of a repellent in this case did not have any adverse effects on the products it wrapped. The trial used attractive items such as cookies and caramel candy – so ideal for *P. interpunctella* attack.
Another study from 'Food Control Volume 73' (March 2017)** found that printed areas on packaging films are more resistant to insect penetration in comparison to unprinted areas. This could be used as an addition to film packaging, but will no doubt be pricey due to the ink application. Another interesting fact from this research found that thicker films did not give any further protection features. So, we can conclude that it is down to the material used to package and not necessarily how thick it is.

In Conclusion

So, we now know that packaging can be made insect resistant. Various materials can be used, and the use of multi-layer packaging systems are better than a standard plastic film, paper or board. It remains to be seen if the packaging systems developed in trials and lab research are commercially viable. Although with the massive global commodity market it's a no brainer to use insect resistant packaging. However, it isn't used all the time, possible down to an 'accepted loss' and a hit that manufacturers are willing to take. The factories may trust their procedures and IPM to the extent that an insect resistant packaging is simply not needed, therefore risk has been mitigated. In consideration of food safety and quality it should be on the radar of food manufactures for products at high risk of SPI attack. Ensuring the quality of a product is paramount at all stages of production and an insect resistant packaging would extend that right up until the product is opened by the customer. The only failings may arise if the procedures and the IPM fail during the process and a customer opens a food item…with SPI's sealed inside.

References available on request from:
technical@pestcontrolnews.com

How is HACCP applied to pest management?

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Hazard analysis of critical control points (HACCP) has evolved since its original introduction in the 1950's and 1960's. Progression of food law, and audit standards pushing quality, have forced food innovation and therefore customer expectation. The main aim behind HACCP is to ensure the delivery of the highest quality food to the end-point – the customer.

If you were to talk to a pest controller, who works in the food industry, about HACCP they are likely to be aware of it. However, some individuals have limited comprehension of how integral HACCP is in pest management for food manufactures. In this article, we will look in detail at how HACCP applies to pest management.

With increasing standards required by law the pest controller is strongly featuring without even realising it. By performing to the standards required they are already adhering to HACCP principles.

How is pest control implemented within HACCP principles?

Let's start with HACCP principles

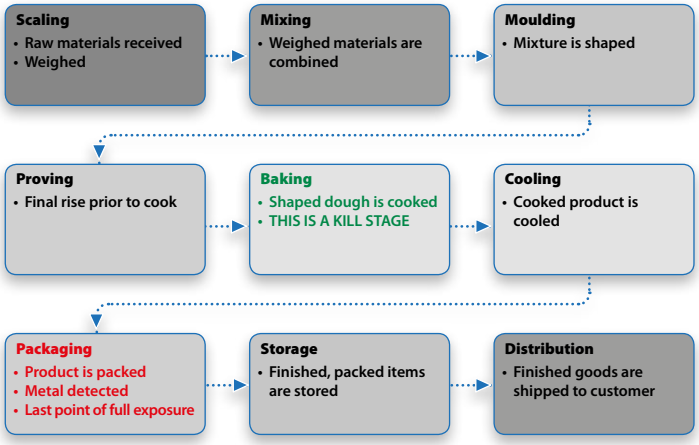
There are seven basic principles which form the foundations for HACCP.

- The 'Hazard'
- Critical control point (CCP) – the stages of the process where hazards must be controlled
- Critical limits
- Monitoring
- Corrective action
- Verification
- Documentation

The main 'hazard' in relation to pest control is the pests themselves, whatever form they may take. Including rodents, birds, stored product insects, flying insects, casual intruder insects. The potential impact that a pest may have on a food product could be catastrophic. Contamination, spread of disease and brand damage all feature in the threat posed by public health pests.

How would pest control be analysed as a critical control point?

This can be assessed by pest risk appraisal or alternatively termed by the British Retail Consortium (BRC) as a pest risk assessment. The risk at each production stage can be risk assessed to calculate the potential damage a pest could cause at that stage in food production. This will obviously differ from site to site. An industrial bakery forms a good example: we would look at the various 'kill' stages along the process and consider the state of the product at that point and dependant on the type of pest. For example, the risk from stored product insects to a product at the raw material stage is high, but it is prior to a kill stage (the high temperature baking stage) which in general no pest would survive. However, we must still act to minimise the risk at this stage to protect product quality and integrity. Further down the line we reach the packing stage. This is very close to the end point and the customer, we have finished product (no further 'kill' stages!) so this is the



most at risk a product could be in the process. The potential for a pest to enter the product prior to wrapping is high (if pests are present) and reach the customer if the pest becomes enclosed with the product and wrapped/trapped inside. At this point the greatest level of control is needed due to the highest risk of the food being affected.

Critical limits

Not easy to apply generally in pest control. The simple way is to say one pest is too many and a breach of control. For fly control the process is made easier by the provision of fly counts from electronic fly machines. We have an actual number (the fly count) which can be analysed and assessed and have a critical limit or a threshold added to it. Acting as a trigger for action if the threshold or 'critical limit' is breached. With rodents the critical limit applied would be any evidence found, prompting the action to form an eradication plan.

Monitoring

Probably the most applicable part of HACCP when considering pest management. The monitoring system on site would consist of monitoring bait points (or boxes, usually containing non-toxic monitoring preparations), crawling insect monitors, ultra violet fly units, pheromone traps for stored product insects. Therefore, this is easy to implement and maintain.

Corrective action

This is taken when a critical limit has been breached at a critical control point. This is the action plan formulated when a treatment for a pest issue kicks into force. The increased visits to site (follow up treatments), increased vigilance, trapping methods, use of rodenticide or insecticide, potential escalation to an expert in pest management. This also translates to hygiene and proofing which will need to be part of a corrective action plan.

Verification

Pest control is demonstrated within HACCP by evidenced reports by the pest controller or field biologist. Often the field biologist report contains photos therefore provide solid foundation for verification and provision of evidence. Independent verification may also be present, whereby a pest control consultant or other independent pest expert is employed to check the pest management system on site. All relevant matters should feature, from evidence of pests to preventative actions. There is also cross over from this principle into the next topic, documentation.

Documentation

Essential for audit standards such as BRC (British Retail Consortium) or AIB (American institute of Bakers) and underpins the whole pest management service provided. Crucial for traceability and provides the evidence needed for verification of the service arrangements. It should support all actions by the pest controller and servicing personnel. All pest risks posed should be documented and will provide all details of the following:

- Monitoring points
- Type of service
- Site plans
- Checklists
- Inspection reports
- All other documentation regarding health and safety

Fundamentally providing evidence for all the HACCP principles when applied to pest management.

Where does the pest controller and pest management feature in the HACCP system on site?

This can be considered in two ways. Firstly, the pest management system in its entirety (as discussed already) or each monitoring point individually. In general, the system itself constitutes a critical control point and therefore must be treated as such.

If we are to look at the other perspective of applying HACCP to the pest control system itself we raise much more complexity (although this is often covered in the site pest control documentation as it is, simply by risk assessment). For example, by introducing a rodent monitoring point into a site we are adding a risk that is in place to minimise another risk. When we add rodenticide to that point, we are adding to the risk posed (a toxic chemical) and that must be controlled. We do this by checking frequently and use of a tamper resistant style bait box. This is in theory mitigating risk, but as part of HACCP it's debatable. The use of something of risk to mitigate a greater risk! This is only acceptable when verified and documented.

In Summary

It's important to keep HACCP in mind when carrying out pest control for food manufactures. The production site will also have a designated HACCP team. Work with them, the pest control service can only improve and better cater to the standards required. With a little understanding of HACCP and how it relates to pest management you can strengthen your skills. HACCP principles and pest management must be supported by accurate and detailed paperwork to provide the documented evidence needed.

Further reading:

https://www.gov.uk/food-safety-hazard-analysis

https://www.food.gov.uk/business-guidance/hazard-analysis-and-critical-control-point-haccp#.UH1ku-1OE20

New Products

RatMat®

RatMat® is an innovative, humane and cost effective solution to protect property from rodents.

Using the principles of an electric fence, the RatMat® tiles can be used as a long term solution to prevent rats and mice causing expensive damage to property such as motor vehicles. The RatMat® is safe, scalable and transportable and doubles as a hardwearing floor surface.

The main safety feature of the RatMat® is the low energy pulse it uses. This is dramatically less powerful than a standard electric fence.

www.killgerm.com

Silvercheck Trap

This ready-to-use Silverfish and Greyfish Trap is a self-contained and user friendly cardboard station with a powerful sticky base.

Included with this product is a sachet of lure powder which is highly effective in attracting crawling insect pests. The trap can be used to effectively control both Common Silverfish (*Lepisma saccharina*) and Grey Silverfish (*Ctenolepisma longicaudata*) infestations. Simple and effective, these traps are ideal for use in large or small spaces in both private and public areas.

Size 200mm x 94mm.

www.killgerm.com

Neporex 50SP

A novel larvicide to prevent flies developing in animal housing.

It can be applied either as a spray or granules onto slurry/manure or litter pits. Also approved for fly control on landfill sites. Now available in a soluble powder.

Contains: 50% w/w Cyromazine

www.elanco.com

Goodnature® A18

The Goodnature® A18 Squirrel Trap is a CO_2 powered, multiple kill device, suited to a number of environments including roof spaces, woodlands, industrial sites and farms.

- The trap is easy to install and maintain and will automatically reset 18 times per CO_2 canister.
- Each kit is supplied with a tree mount, 250g lure pouch, lure basket, 2 x CO_2 Cylinders, counter and success guide.
- The included automatic counter notifies how many squirrels have been caught in the event of them being moved after being killed.

www.killgerm.com

AF® Tunnel

Small, low-profile and discreet

- A compact and robust rat bait tunnel with the same outstanding quality of the AF® range.
- New design key locking system for increased security.
- This versatile tunnel can be used with blocks, grain, pasta, pasta trays and can hold two Snap-E Mouse Traps.
- The new bait bar is attached inside the lid, favouring the natural feeding behaviour of rodents.
- The lid can be removed completely for better access.
- Locator key hole in base.
- Corporate printing available.
- Dimensions: W: 130 mm x H: 111 mm x D: 320 mm.

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Vazor® Fumigator

A novel water-activated smoke generator, based on the modern fast-acting pyrethroid Cyphenothrin.

As Vazor® Fumigators are water activated, they do not require a wick or a flame, which reduces risk to the operator and client. A further safety feature is the delayed emission of smoke particles, which reduces operator exposure. The fine smoke particles give good penetration into cracks and crevices, providing excellent efficacy against a range of flying and crawling insects, with no staining or dust residues.

Crawling Insects 55m^3, Flying Insects 110m^3

Contains: 7.2% Cyphenothrin

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New Products

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BPCA PestEx

The pest management show

20-21 MARCH 2019 / EXCEL, LONDON

PestEx is the UK's trade exhibition and conference for the pest control industry. It's the largest get together for the pest management sector in the UK. Hosted every two years by the British Pest Control Association, PestEx takes place at the ExCeL London. It's completely free for anyone interested in public health pest control to attend. Visitors and exhibitors alike choose to connect at PestEx because of the unrivalled technical and business seminar schedule, the wide range of manufacturing, distributing, and service companies exhibiting, and the quality of delegates from around the world.

For a list of exhibitors visit: www.pestcontrolnews.com/pcn_events/pest-ex

Seminar Schedule
DAY ONE - WEDNESDAY 20th MARCH

Technical Theatre Sponsored by BASF

Can we Stem the tide? Invasive non-native species: Niall Moore, Non-Native Species Secretariat	10.00 -10.45
Cockroach foraging behaviour and biolog: Steve Broadbent, Ensystex	11.00 -11.45
Rodent control; Challenges and Solutions: Sharon Hughes, BASF	12.00 -12.45
Bed bugs - new findings on how to detect an unwanted sleeping partner: Dr Jette Knudsen, Nattaro Labs AB	13.00 -13.45
10 years of rat and mouse control procedures: Paul Charlson, National Pest Advisory Panel (NPAP), CIEH	14.00 -14.45
Building great pest management programmes: Richard Moseley, Bayer	15.00 -15.45
British Pest Management Award Ceremony	16.15

Business Theatre Sponsored by BPCA BusinessShield

Site-specific pest risk assessments: John Lloyd, Technical Consultant and Company Entomologist	10.00 -11.00
When it goes wrong: Martin Ball, Health and Safety Executive	11.15 -12.00
Rodent risks: Closure and prosecution stories: Dr Belinda Stuart-Moonlight, Chartered Environmental Health Practitioner and expert witness	12.15 -13.00
How to hack smart homes and business: Tony Gee, Pen Test Partners	13.15 -14.00
How to hack smart homes and business: Tony Gee, Pen Test Partners	14.15 -15.00
Should I give up, or just keep on chasing payments? Peter Wallwork, The Credit Services Association	15.15 -16.00

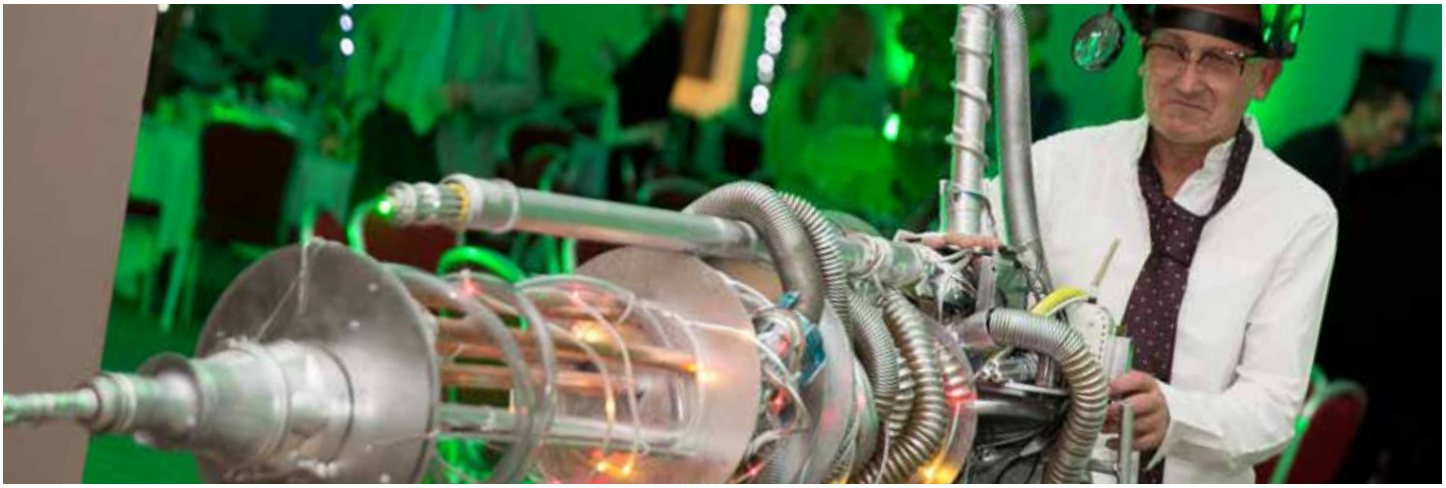
Seminar Schedule
DAY TWO - THURSDAY 21st MARCH

Technical Theatre Sponsored by BASF

Acquisition, incubation and transfer of bacteria by household insects: Matthew Davies, Killgerm; Federica Boiocchi, Aston University, Birmingham	10.00 -11.00
Protecting Jersey from Asian hornets: Absolute Pest Control; Jersey Beekeepers' Association	11.15 -12.00
A world without pesticides: Alex Wade, Pelgar	12.15 -13.15
Winning big: SLAs and tendering: Kevin Higgins, BPCA; Dee-Ward Thompson, BPCA	13.30 -14.00
BPCA open forum / The BPCA team: Chaired by Ian Andrew, Chief Exec, BPCA	14.15 -15.00

Business Theatre Sponsored by BPCA BusinessShield

Our terms and conditions apply...maybe? David Quinton, Which?	10.15-11.00
Don't get caught in the GDPR trap! Louise Coldwell, Killgerm	11.15-12.00
Site-specific versus general risk assessments: Stallard Kane and BPCA BusinessShield	12.15-13.00
TBC	13.15-14.00



PCN Dinner 2018

www.pestcontrolnews.com @pestcontrolnews facebook/pestcontrolnews

HONEY, I SHRUNK THE PEST CONTROLLER

Based on the childhood favourite film, Honey I Shrunk the Kids, PCN dinner 2018 was a roaring success. Following the PestTech 2018 exhibition the dinner was hosted at a new venue, the MK Dons in Milton Keynes. Hosting a dinner at a new venue for the first time always comes with its challenges, but the venue bent over backwards to ensure the guests had a fantastic evening.

Our sponsors are fundamental to the evening, with Bayer sponsoring the welcome drinks at the bar, BASF providing wine and buckets of beer on the tables and Bell organising the live entertainment for the evening. Dotted around the room were over-sized pest control related props sponsored by Killgerm and PestWest, including a giant ant, oversized rodenticide blocks, mouse trap and play dough.

The table plan was presented in our very own monster sized Pest Control News magazine and each guest was given a tub of play dough to take home, a memorable article from the original movie. It appeared guests were keen to collect these and take them home for the kids.

As you entered the room a laser machine was ready to greet you, creating the illusion that you had been shrunk by the scientist manning the apparatus.

The charity raffle always goes down a storm and this year was no exception. Syngenta, NPTA, Bird Free and BPCA all sponsored a fabulous prize which consisted of a Gordon Ramsey Michelin Star dining experience for two, Play Station 4 Pro an Apple Watch Series 3 and a luxury wine hamper for a year.

The raffle raised a whopping £2,255 for Water for Kids and Pest Control News contributed £2,745 making a total of £5,000 raised for the charity. This amount of money can make a huge difference in providing safe drinking water and hygiene education.

Richard Hall from Water for Kids said...

> *"Water for Kids trustees were amazed with the generosity of all those who donated at the Pest Control News Dinner on 7th November 2018 and raised funds for Water for Kids. We would like to thank everyone. We would especially like to thank Pest Control News for their generous match-funding, bringing the total to a huge £5,000.*
>
> *This money will make a big impact in helping to deliver projects like the seven water sources in Uganda we are currently working on. We are always seeking more funds to deliver more much-needed projects. Each of these seven communities approached our team in Uganda, requesting assistance in providing access to clean, safe water instead of the existing open ponds which were contaminated, difficult to collect water from and presented a risk of drowning for children. Each villager had to walk over 1km to access safe water. During a site visit, Water for Kids identified these seven communities in the Iganga District as urgently in need of safe water."*

An eye spy game was placed on each table with a disposable camera to keep attendees entertained. Some of the photographs can be seen here or on our Facebook and Twitter pages.

Following the 3-course meal the band, The Grouper, performed rock classics well in to the night while guests danced on the light up dance floor.

The dinner this year will be held on the 6th November. Keep up-to-date on what we have planned for the evening here:

www.pestcontrolnews.com/pcn-dinner/

killgerm

RSPH Gain Positive Results in a Centre Satisfaction Survey

Last December RSPH carried out a satisfaction survey with their training centres. The response rate to the survey was very encouraging, with over 130 centres taking part and the feedback that was received as a result of the survey was very positive.

The average scores for some of the key questions in the survey were:

How satisfied are you with the quality of our qualifications?	**8/10**
How satisfied are you with our administration processes?	**8/10**
How reliable and consistent are we in our service to you?	**8.5/10**
How easy are we to contact?	**8.5/10**
How friendly, knowledgeable and professional is our team?	**8.5/10**

The survey also calculated their Net Promoter Score from the responses to some of the survey questions. This is similar to the satisfaction ratings that you often see in newspapers that are given to prominent politicians. In the case of politicians, the ratings are usually negative. Any positive scores indicate that more centres like the RSPH than don't, and any score over 30 is regarded as being very good.

The RSPH Net Promoter Score was 43.

They were also able to filter out from the survey the results from the pest management training centres. The average scores from the pest centres (11 respondents) was very similar to the overall results.

How satisfied are you with the quality of our qualifications?	**7.9/10**
How satisfied are you with our administration processes?	**7.4/10**
How reliable and consistent are we in our service to you?	**8.3/10**
How easy are we to contact?	**8.5/10**
How friendly, knowledgeable and professional is our team?	**8.3/10**

Some of the comments that were received from the pest control centres were:

"RSPH offer excellent qualifications, very happy with the services offered."

"I view RSPH qualifications as well respected professional qualifications."

"Very helpful, reliable and easy to deal with if queries are raised."

"Couldn't ask for more!"

"Always polite and approachable, and able to respond to enquiries."

"On any occasion where we have needed to speak with a team member they have always been friendly and helpful."

"Very pleased with the service we receive and the professionalism of RSPH."

The Net Promoter Score from the pest control centres alone was 27. Given the small sample size, a lower score than for the survey as a whole is only to be expected.

While RSPH is understandably very pleased with the response to the survey they are not complacent. They want to continually improve on them and their service to the centres. Over the next few weeks they will be reviewing the survey responses in detail to ensure that they learn from any common themes that arise and address areas for development.

RSPH

All RSPH approved centres that deliver training for RSPH qualifications are entitled to display the RSPH logo on their website, advertising material and stationery. This includes a number of pest control companies and servicing companies for the industry. This is the only mechanism that enables companies to display the RSPH logo. Unfortunately, a number of pest control companies, whose staff are holders of an RSPH qualification, also display the logo on their website. RSPH respectfully request that these companies remove the logo.

RSPH understand that pest control companies are rightly proud that their staff have achieved their qualifications and they certainly have no objection to a company stating on their website that their staff hold the RSPH Level 2 Award in Pest Management. Holders of these qualifications can also apply for Associate Membership of RSPH which will entitle them to use the letters AMRSPH after their name. Those pest controllers who hold an appropriate qualification at level 3 or above can apply to become a full member of RSPH, which enables them to put MRSPH after their name. The higher level qualification does not have to be in pest control.

For anyone interested in RSPH membership, full details of how to apply can be obtained from the membership section of the RSPH web-site www.rsph.org.uk

RSPH will be at PestEx in March.

BRITISH Pest Management AWARDS 2019 AFTERPARTY

Bigger. Better. BOOGIE!

AFTER DAY ONE OF PESTEX 2019

Join us in celebrating pest management at the PestEx and BPMA aftershow party.

Whether you were up for an award or just want to unwind after a busy day at PestEx, join us for the biggest pest party in town.

WEDNESDAY 20 MARCH 2019

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Brexit...

what does it mean for your business?

In, out ... and the usual turmoil surrounding "Brexit" and the debacle of a "No-Deal Brexit Britain". You will now be aware of the news, unless you have had a media blackout for the past lifetime, that Parliament has rejected the Withdrawal Agreement - but what does this mean for your business from a consumer, business and employee/employer perspective where a No-Deal Brexit is a real possibility come 29th March? A mere month or so away?

What does it mean for your business from a consumer's perspective?

The United Kingdom is renowned for having strong consumer protection laws. A no deal Brexit means that any consumer laws derived from the EU, through the passage of time, may be fettered away and may provide for further complications down the consumer line for businesses selling to the UK and EU.

Should there be a rise of costs of imports, this may mean, from a commercial prospective, that businesses can only recoup the costs from passing such cost onto the consumer. Any change to any of this legislation will be developed over time post-Brexit and as such may take a while to trickle down to the consumer. It may mean your customers can't stand those added costs so expect volatility and do not plan for anything like the usual.

What does it mean from a Commercial/ business perspective?

There is a real possibility that companies may have to incorporate, what is being dubbed, a "Brexit Clause". This plan is that this clause will spring into action should there be a situation which arises where a contract becomes commercially unviable as a result of Brexit. Should a situation like this arise businesses would be best placed to allow parties the option to renegotiate or terminate the contract, under strict terms of course. This would provide some layer of comfort to businesses, and from a consumer perspective, of course in a time of certain uncertainty.

With a no-deal Brexit, and without access to the single market, the movement of goods between the UK and EU will undoubtedly become subject to new tariffs and taxes concerning imports and exports. Commercial Contracts, as above, should be reviewed to see who bears responsibility for the uplift in prices. Careful consideration should be given as to whether or not these uplift in prices should be passed onto the consumer, so as to not damage a business and consumer relationship. Beware also the delays forecast in delivering goods as the whole customs arrangements seem to be far from agreed.

It may also serve you well to have separate Terms and Conditions of Business for clients within the UK and separate ones for clients within the EU, in order to limit any potential liability in providing Services/goods, in the absence of a well thought out Brexit Clause.

Your Employee and Employers

This is not considered to be a high risk area in the event of a No-Deal Brexit. The Government has issued a series of technical notes regarding workers within the United Kingdom which state that workers will continue to enjoy the same rights they are currently entitled to under EU Law. In any event most employment laws, which are derived from the EU, are expected to be converted into UK law come 29th March.

So, at a time of political and economic certain uncertainty, I reiterate what I said in my 2018 article: no matter where you are in the supply chain, its effects on companies and consumers alike will be felt and it would be in your best interests to be capable of accommodating the, now very real, possibility, of a no-deal Brexit.

What this means for the Pest Control Industry

It is not outside the realms of possibility that any effect on EU legislation could also have an effect on the pest control industry in relation to various regulations which regulate our industry. Fifty percent of environmental law is derived from the EU. Any change to the rules and regulations surrounding uses of pesticides and chemicals could be subject to review and therefore subject to change in the very near future – for the good or the bad? We just don't know yet. What we do know is that the EU heavily governs the use of pesticides. If the UK were to be able to create its own rules, within confines it could potentially open an unopened window in the world of pest control.

Should you require any advice or assistance on this Pandoras Box please contact the author Giles Ward at Milners Solicitors:
Email: giles.ward@milnerslaw.com
Telephone: 0113 3801 850 or 07789 401 411

Your guide to the pest control
2019 TRAINING DATES

To book visit: www.killgerm.com

Killgerm Training run courses nationwide offering different types of courses for different levels of experience and knowledge. Details of all course dates and locations are available online at:
www.killgerm.com/pest-control-training-calendar

There is also a full list in the Killgerm catalogue on pages 223-225.
For further information or to book your place on a course call:

01924 268445 or email **training@killgerm.com**.

2019 TRAINING DATES

Killgerm Principles of Rodent Control
6th March 2019, Kendal
12th March 2019, Ossett
19th March 2019, Newbury
26th March 2019, Grangemouth
26th March 2019, Norwich
2nd April 2019, Coventry
9th April 2019, Ossett
16th April 2019, Belfast
16th April 2019, Bristol
14th May 2019, Ossett
21st May 2019, Perth
28th May 2019, Lingfield

Insect Control
27th March 2019, Norwich
3rd April 2019, Coventry
10th April 2019, Ossett
22nd May 2019, Perth
29th May 2019, Lingfield

Safe Use of Pesticides
28th March 2019, Norwich
4th April 2019, Coventry
11th April 2019, Ossett
23rd May 2019, Perth
30th May 2019, Lingfield

Selling & Marketing for Bird Control
12th June 2019, Aldershot
20th November 2019, Ossett

Trapping Techniques
6th February 2019, Killamarsh
27th February 2019, Killamarsh
1st May 2019, Killamarsh

Safe Use of Aluminium Phosphide for Vertebrate Control
To be confirmed

Sales Skills Course
To be confirmed

IOSH Working Safely in Pest Control
1st October 2019, Aldershot
21st November 2019, Ossett

Starting Out in Pest Control
26th March 2019, NPTA House
11th July 2019, Ossett
15th October 2019, Donnington Grove CC

To book visit: 01773 717 716

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20th February 2019, Nottingham
6th March 2019, Manchester
27th March 2019, Belfast
28th March 2019, Portlaoise
10th April 2019, Durham
25th April 2019, Falkirk
15th May 2019, Bristol
11th September 2019, Tonbridge
19th September 2019, Farnborough
16th October 2019, Dudley

To book visit: www.bpca.co.uk

Using Rodenticides Safely
13/05/2019 Wigan

Practical Vertebrate Trapping
27/02/2019 Hitchin
14/05/2019 Wigan

Practical Insect Control
28/02/2019 Hitchin
15/05/2019 Wigan

Customer Service essentials
01/05/2019 Derby

Starting and Managing Your Own Pest Management Business
25/03/2019 Derby
10/05/2019 Stirling, Scotland

General Pest Control - Level 2 Award in Pest Management
02/06/2019 Stafford

Certificate in Bird Management
16/05/2019 Wigan

Pest Management on Waste Sites
30/04/2019 Derby

Bed Bug Control
07/05/2019 Stirling, Scotland

Insect Identification
08/05/2019 Stirling, Scotland

Safe Use of Air Weapons for Effective Pest Management
09/04/2019 Nantwich

Managing Pest Control Contracts
26/06/2019 Derby
24/07/2019 Derby

Becoming a Technical Inspector
21/05/2019 South

Becoming a Field Biologist
22/05/2019 South

Level 3 Award in the Safe Use of Fumigants for the Management of Invertebrate Pests
04/03/2019 Derby

To book visit: www.pestsolution.co.uk

February 28, 2019
RSPH Level 2 Award in the safe use of Rodenticides

March 7, 2019
RSPH Level 2 Award in Pest Management
Day 1 - 7th March 2019
Day 2 - 8th March 2019
Day 3 - 14th March 2019
Day 4 - 15th March 2019
Day 5 - 21st March 2019
Day 6 - 22nd March 2019

March 7, 2019
RSPH Level 2 Certificate in Pest Management
Day 1 - 7th March 2019
Day 2 - 8th March 2019
Day 3 - 14th March 2019
Day 4 - 15th March 2019
Day 5 - 21st March 2019
Day 6 - 22nd March 2019

March 29, 2019
RSPH Level 2 Award in Pest Management

March 29, 2019
RSPH Level 2 Certificate in Pest Management

April 4, 2019
RSPH Level 2 Award in the safe use of Rodenticides

April 25, 2019
Practical Wasp Control

May 16, 2019
RSPH Level 2 Award in the safe use of Rodenticides

May 23, 2019
Practical Wasp Control

June 6, 2019
RSPH Level 2 Award in Pest Management
Day 1 – 6th June 2019
Day 2 – 7th June 2019
Day 3 – 13th June 2019
Day 4 – 14th June 2019
Day 5 – 20th June 2019
Day 6 – 21st June 2019

June 28, 2019
RSPH Level 2 Award in Pest Management

May 28, 2019
RSPH Level 2 Certificate in Pest Management

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STAND 24

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The trap is easy to install, maintain and once set, will be capable of dispatching 18 Grey Squirrels per CO_2 canister. The trap comes complete with a long life non-toxic hazelnut lure. The Trap has been added to The Spring Traps Approval (England) Order 2018.

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P.S. Did you know...

Grey Squirrel Bait is back!

The kit includes:

- Trap
- Tree Mount
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- Lure Basket
- 2 x CO_2 canisters
- Counter
- Success Guide

Supporting a pest free environment.

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