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PCN

PEST CONTROL NEWS®

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PCN
PEST CONTROL NEWS®

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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

Bitesize...

Pest magazine has new owners

Pest magazine, Pest+ e-news and website for pest management professionals published by Foxhill Publishing, has a new owner, Lewis Business Media (LBM). LBM is an independent, specialist business to business publisher. Founders Frances McKim and Helen Riby say the move has secured an exciting, long-term future for Pest.

Helen Riby commented, “We are very proud of what we’ve achieved with Pest over the past 11 years, but there is a limit to how much two people can do.”

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Bell Laboratories is pleased to announce the appointment of Michael Sims as the UK/Ireland and Sub-Saharan Africa Regional Manager.

“Michael is highly appreciated and respected by his peers within the pest control industry,” said EMEA Director Arnaud Del Valle. “He’ll be an integral part of our growing business by maintaining our strong relationships with partners, as well as introducing new products and technologies to his markets. I’m thrilled to have Michael start at Bell!”

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The University of Reading are collecting rat AND mouse tails for resistance testing – FREE OF CHARGE

For the full guide in how to do this go to www.pestcontrolnews.com/send-in-your-tails-for-resistance-testing-free-of-charge.

The online guide will explain how to collect the tails, cut and bag them, label correctly and send to the University. The University aim to email you the results within 3-4 weeks of receiving your samples. You will be advised on how your rat/mouse strain could affect control and recommend the most effective rodenticides.

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Tetramethrin Reclassification

Insecticides containing tetramethrin at a concentration of 1% and greater will, from the 1st of May 2020, be required to feature a new hazard phrase on the label: ‘H351: Suspected of causing cancer’ due to their reclassification as category 2 carcinogens. Such labels will also feature the ‘health hazard’ warning symbol.

For full information on this change go to www.pestcontrolnews.com/tetramethrin-reclassification/

www.pestcontrolnews.com/news

ANT-icipating the ant season: Options for control

The withdrawals of Fendona® (hopefully a temporary issue) and Ficam W have been making waves in the industry. PCN examines the options for ant control with this in mind, having consulted a technical advisor for the industry, ahead of the upcoming ant season.

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Ficam® W will certainly be a loss for ant control, especially as the useful label phrase 'in and around buildings' allowed exterior perimeter / barrier spray treatments for black garden ants Lasius niger. The trend seems to be for outdoor use of residual insecticides to disappear from labels. This leaves fewer options for ant management externally. Let's not forget changes to the Ficam D label following its re-authorisation. All outdoor use was lost for Ficam D and although ants remain on the label the product can only be applied to an indoor area.

A key alternative to Ficam W is K-Othrine Partix. As just mentioned, the outdoor use of insecticides has been significantly curtailed as new authorisations come through under the Biocidal Products Regulations. In fact, few 'old' Control of Pesticides Regulations approvals allow external application of residual insecticides. Swinging back to K-Othrine Partix, although the label references outdoor application it is only for outdoor control of wasps in free hanging nests. Note that ant treatments are permissible with K-Othrine Partix, due to the 'crawling insects' phrase, but of course being limited to indoors only.

Future directions

Where does this leave us then, in the near future, for garden ant management that may benefit from residual insecticides as a barrier treatment? Before we get onto that, a fair question is 'do we need to be controlling ants outdoors?' The answer, in plenty of cases, is likely to be 'no' as garden ants in just the garden are not particularly a pest problem. The real pest issues with garden ants are when they begin to forage indoors especially where food is stored or prepared. The merits of residual spray treatments can be debated – there is potential for such treatments to interfere with the action of gel baits. For example, foraging worker ants returning gel baits to the nest will be unable to do so if they are killed by other insecticides while foraging. On balance then, perhaps looking to a future where residual insecticides for ant control externally are unavailable, maybe it isn't as big a problem as some may believe?

Diatomaceous earth

There are, of course, diatomaceous earth products available for external use that can affect foraging ant workers. The same principle still applies though, that the key to ant control is destruction of the nest by way of controlling the queen and the larvae. Diatomaceous earth does not perform that function when only affecting worker ants. Furthermore, outdoor diatomaceous earth usage in the British climate (wet!) certainly has its limitations.

Ant baits

What is really needed is a discussion / refresher regarding ant bait options as this is absolutely the main route for ant control now and into the future. While we have spent time thinking about outdoor use of products, the indoor use of ant baits is a very important area, especially with knowledge of tropical, invasive, multi-queened species that can only be dealt with via baiting. However, the outdoor usage deserves the main attention in this article, due to the described changes to more traditional insecticides.

Outdoor use of ant baits

Regarding the outdoor use of ant baits for *Lasius niger* control, using a popular Indoxacarb-based bait as an example, typical label directions are as follows:

- When used outdoors, ensure the product is applied to areas that are inaccessible to wet washing or wash-out by rain (Tech editor note – seeing as the UK is pretty wet(!), this points users towards bait stations)
- Wipe up product spills or excess product at the end of treatments with paper towel and dispose of used paper towel to landfill (Tech editor note – this means a revisit to collect unused bait at the end of the treatment, similar to rodent control).
- Do not use where a significant number of birds are known to actively feed on the ants being treated, without removing access to the area by birds e.g. netting over the ground (Tech editor note – this part of the label is an interesting one and should not be overlooked)

The outdoor scenario is also tackled well on a high-quality, imidacloprid-based, ant bait giving good examples of treatment areas:

- Outdoors: Terraces, pavements, patios, entrances to sheds and garages and public areas, (hospitals and nursing homes)
- Not for use on soil, lawns or flower beds

Relevance again to the British weather (another reason to check the weather reports!) for the imidacloprid bait:

- Place bait preferably in an area protected from rain.
- If an exposed area has to be treated, apply if no rain is expected for the next 24 hours. In case of rain fall within 24 hours, retreat once (Tech editor note – we expect rain in the next 24 hours most of the time, so be careful)

While labels prohibit use on soil, lawns, flower beds, bare soil used as ant runways, there is a particularly useful label phrase on the imidacloprid bait regarding ant nests:

- If nest entrances can be identified, inject preferably bait liquid directly into nest entrance.

With imidacloprid (a neonicotinoid) and bees being an oft-discussed issue, the label does give good advice, especially relevant outdoors:

- Protect from bees and the weather by covering, e.g. with a flower pot or a tile.

Relevant to the earlier point about residual insecticides conflicting with baits, this label phrase for the indoxacarb product addresses it clearly:

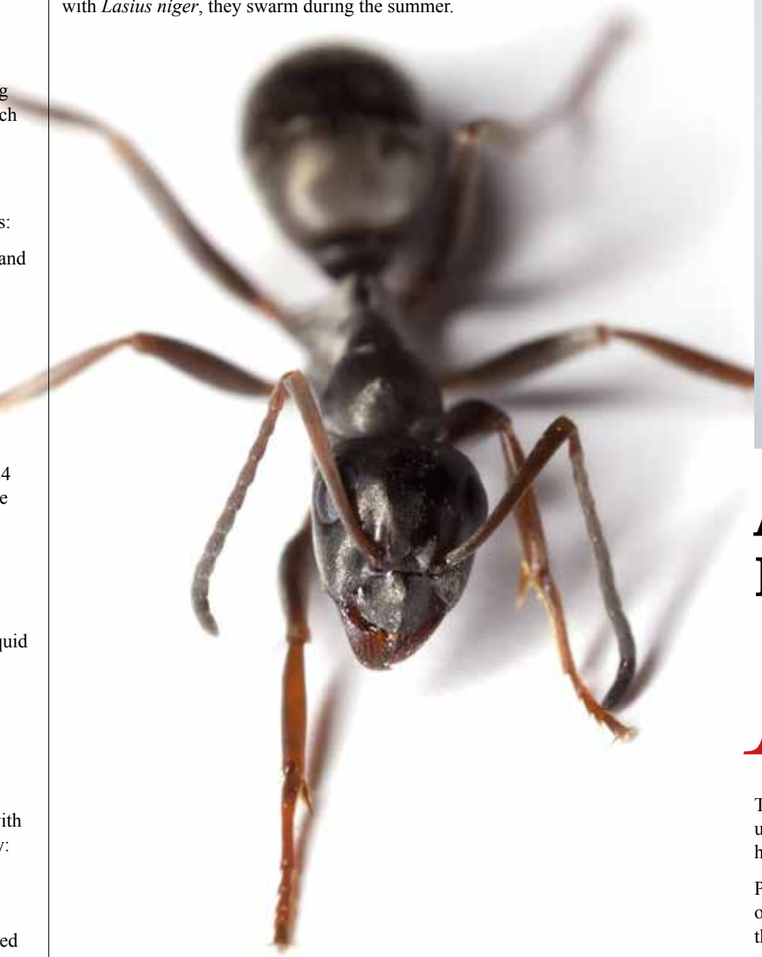
- Avoid applying Ant Gel to surfaces recently treated with repellent residual insecticide sprays
- Areas where Ant Gel has been applied should not be sprayed with repellent residual insecticides

With key label phrases, regarding outdoor ant baiting, now addressed it's time to turn our attention to a particular species to keep an eye on this Spring.

The red ant, *Myrmica rubra*

While the black garden ant *Lasius niger* is abundant in gardens, don't forget about the red ant *Myrmica rubra*. This is also a garden species and problematic one due to its ability to sting humans and cause an irritating nuisance. Why mention it though? *Myrmica rubra* is featured on the label for a popular indoxacarb-based ant bait, meaning that the manufacturers have efficacy data for this species. We have something in the arsenal for this species then, whereas requests for technical advice were met previously with the response of "sorry, nothing approved / authorised for red ants…"

As a reminder then, here are some useful nuggets of information regarding this species. They are locally abundant in Britain, as far north as Sutherland, not yet recorded from the Channel Islands, living in woods, fields, meadows and gardens. They are also found throughout the whole of Europe, the temperate belt in Asia, and Japan. An active species, often found on flowers or attending aphids, will sting freely with an effect like stinging nettle. Nests are usually constructed under shallow stones, decayed tree trunks or walls. Several Queens are usually present in each mature colony, which contains a hundred or more workers. Winged Queens are produced in July and mating flights occur in early August. The colonies formed by the Myrmica ants tend to be smaller than those of *Lasius niger*, the Black Garden Ant. In common with *Lasius niger*, they swarm during the summer.



"While the black garden ant Lasius niger is abundant in gardens, don't forget about the red ant Myrmica rubra. This is also a garden species and problematic one due to its ability to sting humans and cause an irritating nuisance."

A NEW AGE FOR INSECTICIDES, AS FICAM® W IS TO BE WITHDRAWN

It is understandable to be crestfallen at news of the upcoming withdrawal of the extremely important insecticide, Ficam® W (8th June 2020 is the last date for sale and supply. 10th December 2020 is the last date for storage, use and disposal), but could this be the bolt from the blue that benefits the pest control industry?

To use a famous quote 'necessity is the mother of invention', the unfolding situation may stimulate and shake-up ideas in the public health pest control industry.

Perhaps we will see a race from manufacturers, to attempt to fill the void of popular products, with a drive towards new formulation technology that enhances the effects of existing active ingredients while minimising environmental and health risks?

Pest Control News contacted the Killgerm® Chemicals technical department, to ask for their take on the upcoming withdrawal of Ficam® W and the following is based on their thoughts.

Just before we proceed, remember that we've been here before and survived, from Empire 20 to Demand® CS via Stingray. It's an enormous disappointment when excellent products are faced with withdrawal but not quite 'the end of pest control as we know it'.

What just happened?

The original press release from Bayer:

Bayer are disappointed to announce after significant investment in time and money on the resubmission of Ficam W that it is to be removed from the market, following a vote from the EU Biocide commission.

Alan Morris, Bayer head of environmental science, explains that the industry can expect an update in the coming weeks with regards to sell-out and use-up dates of Ficam W.

"It's expected that there will be a 180 day sell-out period for manufacturers and distributors, followed by a 180 day use-up period for pest controllers, but the Bayer Pest Solutions team will keep the industry informed on all of the latest updates," says Alan.

"Ultimately, this product is a big loss to the industry after offering successful pest control for over 40 years. This is another reason why Bayer constantly invest in research and development of new chemistry, to continue to deliver solutions to our customers for the future," he adds.

Alan explains that Bayer have recently launched an alternative solution which will cover most scenarios where Ficam W would have been used.

"Our newly launched product, K-Othrine Partix is a broad-spectrum insecticide providing 12-week residual control of a broad spectrum of pests. The state-of-the-art formulation technology has allowed us to reduce the active substance levels in the treatment environment while still offering a high level of control," he concludes.

This decision does not affect the reapproval of Ficam D.

Bayer have now confirmed the dates regarding the withdrawal timeframe Ficam W:

- 8th June 2020 is the last date for sale and supply
- 10th December 2020 is the last date for storage, use and disposal

These dates are explained as follows. The Ficam W revocation was issued 11th December 2019. This means that under Article 89 (4) the phase out period for use of existing stocks is 365 days. The phase out period for Ficam W is 180 days for making available and 365 days for use of existing stocks, starting from 11th December 2019.

What alternatives do we have?

Novel formulations are now available

A feature of Ficam W is the residual formulation and suitability for porous surfaces such as brickwork.

It is timely then that Bayer have released K-Othrine Partix, a residual suspension concentrate suitable for porous surfaces, based on a novel formulation involving carnauba wax. The natural wax further reduces the environmental impact following application while also protecting the active from degradation, UV light and moisture which helps to provide better residual control. The product can be effective for up to 12 weeks when controlling general insects and up to eight weeks for bed bugs and spiders. Furthermore, this novel formulation has particles 10 times the size of typical insecticides, so the application remains on the surface increasing bioavailability and contact to the pest, allowing more effective residual control. This increased particle size means it provides a much more consistent performance on absorbent surfaces such as wood and concrete, resulting in increased product efficacy. This avoids a problem of smaller particles getting lost in microscopic gaps on surfaces. Aside from the formulation, K-Othrine Partix is based on the 'top end' highly-effective 4th generation pyrethroid Deltamethrin, which provides broad-spectrum control of a range of pests in many areas of use.

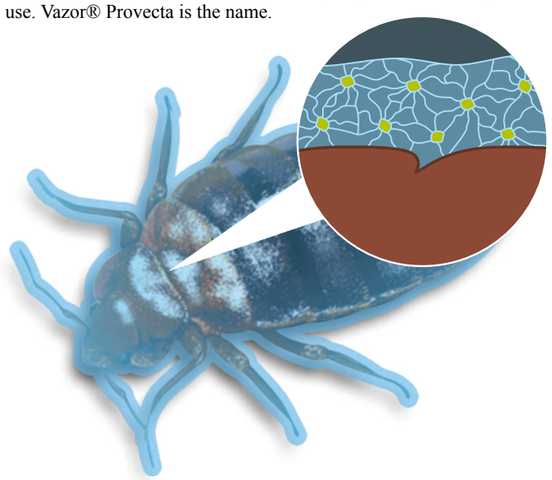
Resistance management is still possible

A huge benefit of Ficam® W is its use in resistance management, thanks to the different mode of action versus the many pyrethroids on the market. Naturally, there is concern regarding resistance management in bedbug control. However, evidence from Australia shows an intermediate level of resistance to the active ingredient in Ficam® W in selected bedbug populations, so no product is 'resistance proof'. Furthermore, data from London shows similar resistance issues to Ficam® W in bedbug populations.

It is expected that alternative products will come to the fore in terms of resistance management, such as those containing insect growth regulators (IGRs), with options for physical control including immobilisation and temperature.

Physical mode of action products coming to the fore

Under the radar somewhat is the recent introduction of a 'molecular mesh' / 'sprayable entrapping' product, for insect control, described as a resistance-breaking and novel technique that causes external immobilisation of target species. The drawbacks, of direct application being required and no residuality, are outweighed by the significant benefits. Crucially the 'molecular mesh' works purely by physical means (by external immobilization) and, as confirmed by the Health and Safety Executive, falls outside of the definition of biocidal products and therefore the requirements of the Biocidal Products Regulations. What this means, in practice, is a degree of flexibility in application including treatment against a broad range of arthropod pests across many areas of use. Vazor® Provecta is the name.



Another option for insect control is the use of aerosol freezing sprays, such as Vazor® Ice and similar, that work by lowering the temperature of the treated insects to below their tolerable threshold. While a freezing aerosol may not always be suitable for an entire treatment, there is a place for these products especially for spot treatments in sensitive situations to supplement other control measures.

Other wettable powders and sachet products still exist

If the wettable powder aspect of Ficam® W is key, remember that Cytrol Forte® WP is available. Yes, 'WP' stands for wettable powder! Another benefit of Ficam® W is the comprehensive label, with many areas of use and a vast list of target species listed. Cytrol Forte WP has a similarly comprehensive label: 'For professional use in and around domestic and industrial establishments, hospitals (not in occupied wards), Military areas, restaurants and eateries (not for use on food preparation areas), stores, storage areas, slaughter houses, refuse tips, dustbins and around manure heaps. For use on soft furnishings, and hard horizontal and vertical surfaces where pests may rest, with the exception of food preparation surfaces. For use against cockroaches, fleas, ants, bedbugs, silverfish, woodlice, earwigs, millipedes, centipedes, houseflies, clusterflies, mosquitoes and wasps.' If the sachet feature of Ficam® W was a main reason for use, i.e. convenience, there are of course other insecticides on the market that utilise the sachet presentation.

More new insecticides are on the horizon

Fans of Syngenta's Advion® cockroach bait will be interested to know that a sprayable indoxacarb based product, Advion® WDG, is available in certain parts of the world. This is certainly 'one to watch' for the future in terms of the UK. Indoxacarb benefits include the 'reduced risk' classification as applied by the Environmental Protection Agency (EPA) in the United States, and the novel mode of action that breaks pyrethroid resistance. It is also worth noting that Indoxacarb is non-repellent, another well-known feature of Ficam® W. Finally, keep an eye out for an 'encore' for Demand® CS!

Seek technical support

There are of course many other control options and this article is by no means an exhaustive examination of alternatives, with heat treatment being a notable and underrated alternative that should be considered.

At a potentially difficult and confusing time, regarding changes to familiar insecticides, it is important to contact highly qualified and experienced technical advisors to help guide you through this period. With six technical advisors and a dedicated in-house entomologist having vast insect knowledge at Killgerm Chemicals UK, boasting more than a combined 165 years of experience in insect biology and control, you know who to trust for unbiased and reliable technical support when you need it most.

FICAM HOTLINE 01924 268441

Natural England gull licence changes

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Natural England has set out changes to licences for the lethal control of herring gulls and lesser black-backed gulls in England to protect these declining species.

Owing to their poor conservation status, herring gulls and lesser black-backed gulls were not included in Defra's general licences issued last year. The breeding population of herring gull has fallen by 60% in recent decades, with lesser black-backed gulls declining by an estimated 48%.

Assessment carried out by Natural England has since indicated that the scale of activity carried out under licences in recent years is above a sustainable level. Continued activity at these levels is likely to have a harmful impact on the population levels of both species.

For this reason, it is necessary to scale back the lethal control of these gull species. In rural areas, where populations overall are known to be in decline, Natural England will set upper 'safe' number of birds that could be killed. Upper 'safe' levels have not been identified for lethal control in urban populations of gulls, as these are faring better.

Marian Spain, Interim Chief Executive of Natural England, said:
Populations of herring gulls and lesser black-backed gulls have declined significantly in recent years and it's essential that we do all we can to reverse this worrying trend.

I hope that by prioritising the licences we issue, we can ensure that action is taken where it's most needed while at the same time securing the long-term future of these important species. Meanwhile we are working with Defra to explore options for filling current gaps in evidence around urban gull populations, so we can continue to make decisions in the best interests of people and wildlife.

What you should do if you need to undertake lethal control of herring gull or lesser black-backed gull

We have issued a class licence to permit any wild bird control necessary to preserve air safety which covers herring gulls and lesser black-backed gulls.

Beyond this, Natural England will license gull control through individual licences, which will need to be prioritised. Natural England will consider the strength of need in each licence application individually but generally protecting human life and health will be the overriding priority. Any control undertaken under other purposes such as preventing serious damage and conserving wild birds and flora or fauna will need to be targeted.

In more rural areas, where lethal control may have contributed to declining populations, we have established a sustainable number of birds that could be killed or taken - equivalent to no more than 5% of the natural mortality total of each species - without harming their conservation status.

Control levels of nests, eggs and chicks will not be limited in urban areas, where populations are thought to have better breeding success rates. However, Natural England will continue to promote the use of non-lethal methods through integrated management strategies that reduce opportunities for gulls to nest and scavenge in problem areas within the built environment. These include installing netting or wire over vulnerable roosting areas, keeping food storage and waste facility areas secure and discouraging deliberate feeding of birds by the public.

We are working with Defra to explore options for filling current gaps in evidence around urban gull populations, which would enable us to refine our licensing approach in future.

People who need to carry out licensed activities will be encouraged to submit individual licence applications in February and March in preparation for the bird breeding season, which is consistent with the majority of user needs. This period will enable Natural England to assess the cumulative scale of control across the applications submitted and take this into account in prioritising the licences to be granted. Natural England will continue to accept licence applications outside this period and will issue licences where there is an imperative need.

Further guidance to inform potential applicants for licences to control lesser black back gulls or herring gulls is available here. We encourage potential applicants to refer to this information before submitting their applications. Applications that have already been made will still be considered by Natural England. In these cases, Natural England will contact applicants if any further information is required in order for Natural England to assess the application.

A useful Q&A is available to download http://publications.naturalengland.org.uk/publication/6241655512629248

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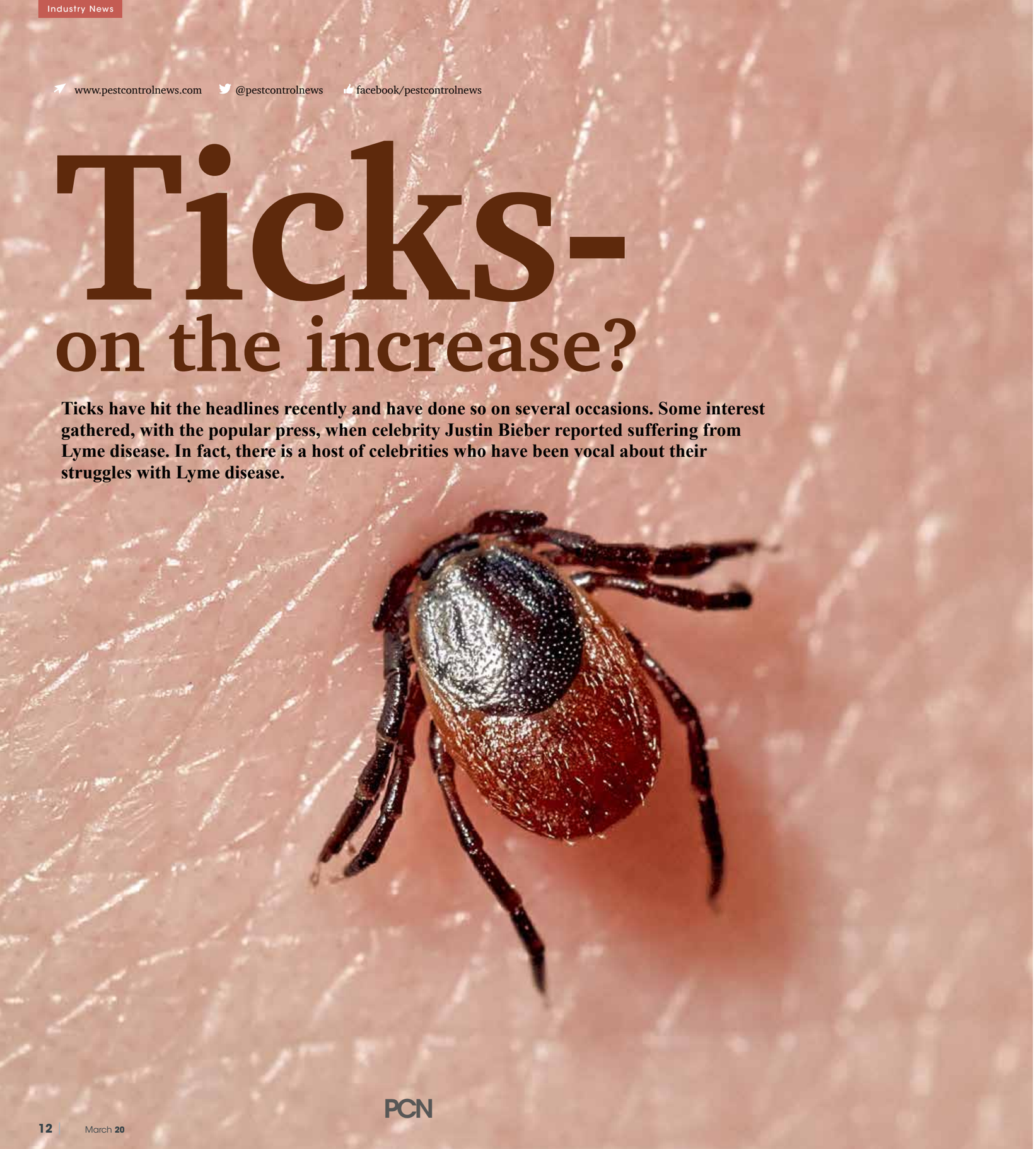
Ticks- on the increase?

Ticks have hit the headlines recently and have done so on several occasions. Some interest gathered, with the popular press, when celebrity Justin Bieber reported suffering from Lyme disease. In fact, there is a host of celebrities who have been vocal about their struggles with Lyme disease.



Famous sufferers of Lyme disease include Shania Twain, Alec Baldwin, Avril Lavigne, Kris Kristofferson and various members of the Hadid family; to name a few. They have all gone public with their Lyme disease battles, which can only help, to prevent cases and raise awareness.

Lyme disease is tick-borne. One of the main concerns is that as tick numbers increase so will the potential for cases of Lyme disease in humans. As always, the message from HSE (Health and Safety Executive) and PHE (Public Health England) is…deal with the pest, control the spread of disease. However, ticks are a little more challenging than your average biting nuisance.

Do all ticks carry Lyme Disease?

In short, no, only a small percentage do. The concern is that as tick numbers increase so could cases of Lyme disease. Public Health England (PHE) set up a tick monitoring surveillance scheme for the UK in 2005. They have seen a definite increase in numbers in the last few years. There are also areas which have higher numbers of infected ticks, such as southern England and the Scottish Highlands. Furthermore, there are records of another pretty nasty virus named 'tick-borne encephalitis (TBE)'. This virus attacks the central nervous system, can cause long term neurological symptoms, and could cause death. It depends on the area where you were when you were bitten, how long the tick fed for, and how the tick was removed. There is a recommended device used to remove ticks - specialised tick tweezers should be employed. The risk is that the tick mouthparts remain in the skin, transferring pathogens, if they aren't removed properly. Ticks are not particularly clean feeders, regurgitating into the 'bite', compounding the potential transfer of pathogens and therefore possible disease transmission.

Lyme disease symptoms:

- Circular rash around the bite (although not always present) developing up to three months after being bitten
- A high temperature, or feeling hot and shivery
- Headaches
- Muscle and joint pain
- Tiredness and loss of energy
- Other symptoms: e.g. neurological (developing months or years after the bite)

Treatment for several weeks with antibiotics is the best course of action. Early treatment can lessen longer-term associated health problems. A course of antibiotics is often started before the results of blood tests to confirm Lyme disease. Make sure you actively check for ticks, after working or walking, in forest areas or areas of long grass and remove any from your body as soon as possible.

The advice, if you don't have the special tick-removal tools, is to use tweezers. Make sure to grasp the tick, as close to the skin as possible, and pull straight up and away from your skin.

Prevention is always better…

Cover up all exposed skin and wear insect repellent which contains more than 20% DEET. This is especially important in known tick areas (you can check this on the government website **https://www.gov.uk/guidance/tick-surveillance-scheme#tick-distribution-maps)**

The common species of tick found in the UK is *Ixodes ricinus*. It has several common names (Castor Bean Tick, Sheep tick). PHE are interested in any other ticks too and helping to map their distribution throughout the UK. *Ixodes ricinus* has a complex life cycle and is well known as a three-host-species. A host is required for the various lifecycle stages. Each nymph stage has a different vertebrate host. Once emerged the first stage larva feeds on a vertebrate host, moults into a nymph stage, again feeds on a vertebrate host, moults again and emerges as the adult. The female will then feed again, lay eggs, and the cycle continues. *Ixodes ricinus* is not particularly host-specific like some blood-feeding pests. The life cycle can be as short as two years and as long as six years.

Tick feeding

Ticks have a slightly different mechanism to find a host compared to other blood feeders. They 'quest' for the next host, climbing to the tops of blades of grass, putting their front pair of legs up and waiting for a host to brush past. They then cling onto the host using special sticky 'claws' on the end of their 'feet'. They seek out exposed hairy and sweaty areas – lucky us. The tick clamps its mouthparts into the skin and inserts its hypostome (imagine a straw coated in barbed wire). The tick then takes a blood meal. The tick 'bite' introduces anesthetic, as a courtesy, so you don't feel it. They also have immune suppressants in their saliva to delay any skin reaction whilst they feed.

Summary

- Be aware
- Check for ticks
- Check the PHE tick surveillance website
- Send any ticks you find to PHE (details on the website)
- Get medical advice if you have been bitten
- Remove ticks carefully and correctly
- Cover exposed skin and use insect repellent with at least 20% DEET

* Details of all references, quotations, data and research can be obtained by contacting *technical@pestcontrolnews.com*

To download a copy of the 'Pest control procedures manual: Ticks' visit www.urbanpestsbook.com/downloads/

A tick surveillance scheme is running in the UK, information is available about this on the government website.

https://www.gov.uk/guidance/tick-surveillance-scheme

Preparing for the Asian tiger mosquito, with help from Gibraltar

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Dr Matthew Davies, head of technical department at Killgerm Chemicals, talks to Pest Control News regarding his recent and rather personal(!) experience of the Asian tiger mosquito in Gibraltar. The most invasive mosquito species on earth, a ferocious daytime-biter, and a vector of Dengue and Chikungunya certainly deserves attention.

"Having kept up-to-date with Asian tiger mosquito activity in England I decided to take action to boost the technical department's level of preparedness, so that Killgerm can be ready to advise our customers, in the not unlikely event of *Aedes albopictus* becoming an established and significant biting nuisance in this country."

It has been with great interest that I have followed details of Public Health England (PHE) reports of Asian tiger mosquito, *Aedes albopictus,* in England from 2016 onwards. I thank Jolyon Medlock and Alex Vaux, from PHE, for being extremely helpful in topping up my mosquito knowledge. Gibraltar was to be my next stop, to learn some more, and this took place in October 2019.

UK reports so far (all of which were eradicated), are:

September 2016 *Aedes albopictus* eggs at a lorry park, Folkestone service station, near Westenhanger, Kent, close to the Eurotunnel.

Summer 2017, Ashford international truck stop, eggs and larvae of *Aedes albopictus*

12th July 2017 and again on 22nd August 2017, *Aedes albopictus* eggs were found in one ovitrap at the M25 Clacket Lane services.

25th July 2018, three *Aedes albopictus* eggs were found in one ovitrap at a truck stop near the M20 at Sellindge, Kent.

Why Gibraltar?

With the frequency and consistency of UK sightings being made over the years I decided the timing was right to get some hands-on experience of *Ae. albopictus* work. The idea behind this was to pre-empt future technical queries and requests for training from Killgerm customers. We absolutely need to be up-to-date, to maintain our reputation of quality technical advice, especially when it comes to an invasive species as important as *Ae. albopictus.*

In practice, this did mean me seeking out a sunny trip abroad. Gibraltar was the obvious choice as we have an excellent relationship with the Environment Agency there, having provided various training events in recent years as well as being suppliers of products. The Asian tiger mosquito was confirmed as present in Gibraltar in 2016 and is now classed as established. This means Gibraltar has gone through various stages of dealing with *Ae. albopictus,* from first detection to encompass monitoring, pro-active measures, re-active management and public awareness campaigns. Marry this with a high level of knowledge and experience of staff in Gib and it becomes a perfect opportunity.

Kevin Desoisa, Senior Environmental Health Officer, at the Environment Agency of Gibraltar was my guide and mentor throughout the visit and cannot be thanked enough for being so generous with his time and knowledge. We teamed up with Gibraltar's expert entomologist, Dr Rhian Guillem at the Botanical Gardens, visiting various sites of activity and taking numerous mosquito samples. We were also able to sample for mosquito activity at Ministry Of Defence sites, thanks to Danny Davidson and Chris Marlow.

From left: Danny Davidson (MoD), Matthew Davies (Killgerm Chemicals Ltd), Dr Rhian Guillem (Gibraltar Botanical Gardens), Kevin Desoisa (Environment Agency Gibraltar)

Sampling for mosquitoes

Where to look – typical habitats

Kevin and Rhian knew exactly where to look when it came to hunting down aquatic habitats for *Ae. albopictus* development. In fact, Kevin's catchphrase of, "irrigation and vegetation" became stuck in my mind and rightly so. In 'Gib', to give Gibraltar it's affectionate shortened name, vegetated areas that are irrigated act as hotspots for *Ae. albopictus* development. This is because eggs are laid in standing water with feeding larvae and developing pupae in this same habitat. Water can also collect in small urban containers but note that evaporation can be rapid due to the climate.

Egg sampling

Sampling for *Ae. albopictus* eggs is reassuringly straightforward and can be done with simple 'home-made' devices, which is one of the reasons entomology can be so enjoyable – basic equipment can be really helpful. All you need is a section / block of polystyrene foam with a metal screw pushed into it, to weight it down slightly into a small amount of water in a black plastic container. That's it, you have an 'ovitrap'! The water is attractive to egg-laying female mosquitoes and the eggs are deposited on the side, as you can see here.

Larval sampling

Taking samples of mosquito larvae is even more straightforward than finding eggs. Take a saucepan and paint the inside of it white, 'gaffer-tape' it to a broom handle and away you go… 'pond dipping for grown-ups' is what I call it. You can dip this into standing water to detect any mosquito larvae swimming in there. The contrast of the white background allows easier visible detection of larvae. Of course, the key is knowing *where* to sample for mosquitoes, including standing water, pools, road drains and artificial urban containers. Larvae (and pupae) can be collected from the 'dipper' with a pipette which can also be used to sample small accumulations of water. Having retrieved larvae, they can then be taken back to the lab for confirmatory identification.

Adult sampling

To sample for adult mosquitoes, Rhian had Mosquito Magnet traps in place. These burn propane, producing heat, carbon dioxide, moisture which the mosquitoes smell as a victim. Human scent lures can be added – armpit flavour! Mosquitoes are sucked by an internal fan into the net where they dehydrate and die.

Another option to monitor for mosquitoes is to use a gravid *Aedes* trap (GAT). These attract female *Aedes* mosquitoes with water and oviposition cues. Mosquitoes trying to find an oviposition site enter the transparent chamber through the black funnel on top of the trap. In the transparent chamber they are exposed to a sticky surface, oil, or insecticides. The netting can be sprayed with a residual insecticide to kill the mosquitoes that get in. The transparent chamber makes it difficult for the mosquitoes to escape, and the black mesh net provides a barrier between mosquitoes and the infused water. You can see one, on the right here, next to two ovitraps.

Arguably the best (but a little risky!) method for finding adult *Ae. albopictus* is to 'get your kit off'. Having encountered *Ae. albopictus* in a foliated area of Gibraltar, noticing that they weren't readily landing on my exposed arms, I took the decision to remove the bottom half of my trousers and was bitten straight away… Clearly the message is "don't try this at home" due to risk of infection.

Mosquito bites!

Having fallen victim (or 'taken one for the team' if you prefer) to *Ae. albopictus* 'bites' I can report that the raised red and itchy lump came up overnight. A day later these developed into unsightly fluid-filled vesicles as you can see in the following image. Unpleasant indeed and illustrates perfectly the severe biting nuisance from *Ae. albopictus.* That's an important point to make – they are aggressive **daytime** biters. Their flight range is short, less than 200m. They are also low-level flyers, usually biting around the legs of humans, as I now know all too well.

Yes, I gave in and popped this - it was rather satisfying

Recognition of mosquitoes

Eggs

For Aedes albopictus you will find black eggs, laid singly, on the substrate of the ovitrap above the water line. Have a look at the earlier photo of eggs on the ovitrap.

Larvae

Aedes larvae have a relatively short siphon vs *Culex* (you get used to 'eyeballing' this surprisingly easily in the field) and *A. albopictus* can be separated from similar species by looking at 'comb scales' although this requires microscope use and a level of entomological skill. I was grateful to Rhian for guiding me in this when looking at collected samples back at the Botanical Gardens laboratory.

Adults

Take a good look at the photos in this article and focus on the distinctive black and white colouration. It's a small mosquito with a wingspan of only 7-8mm. Crucially, the thorax of *Ae. albopictus* has a single white central line from front to back. Having seen the live mosquitoes 'in action' thanks to the generosity of time afford to me by Kevin and Rhian, these features really hit home as I had only encountered dead specimens before.

Control measures

Of course, an integrated approach to mosquito management is absolutely required. The best UK reference text is the CIEH and Public Health England publication 'Management of invasive species of mosquitoes' which can be downloaded at **urbanpestsbook.com** While there are useful mosquito control briquettes available in Gibraltar, I have concentrated on UK-relevant measures below.

Removal of water

It goes without saying that removal of water, the breeding site, is vital although this is invariably easier said than done! Just imagine if it was this easy…no water in any artificial urban containers…

Liquid mosquito film

There are liquid mosquito film products available, with a physical mode of action, that work by creating a silicone film across the surface of standing water. The film prevents mosquito larvae from obtaining sufficient oxygen while prohibiting female mosquitoes from depositing eggs successfully on the treated surface. The film remains in place for approximately four weeks and there are no negative effects on the water environment which is really important. I applied this product myself, while working out in Gibraltar, and saw it take effect.

Bti

Larvicidal products based on *Bacillus thuringiensis var israelensis* (yes, I actually *can* say that out loud) are available for application to standing water for control of mosquito larvae. These work by causing gut disruption upon ingestion of Bti by the larvae.

Adulticides (insecticides)

These are the traditional insecticide treatments aimed at adult mosquitoes, including; aerosols, fogs, mists, ULV treatments and residual surface sprays to mosquito-alighting surfaces. This is the 'last line of defence' with removal of water being a priority followed by physical / larvicidal treatments.

Public awareness campaigns

A hugely powerful tool is raising public awareness and engendering engagement. This is where an advisory leaflet produced by the Environment Agency of Gibraltar and Public Health Gibraltar comes in really useful.

Removing water

In terms of removing water, the Agency recommend that residents remove standing water (that has been left for more than one week without being changed) from home and around patios and gardens. Examples of specific areas are given as flower pots or dishes, pet bowls, old buckets, open bins, food or drink containers, tyres, car covers etc. It is also recommended to drain puddles, gutters, gullies, inlets to sewers and outdoor water systems to prevent accumulation of stagnant water. It also pays to keep water tanks and wells covered with a fine mesh if possible.

Preventing bites

In areas where *Ae. albopictus* is established, tightly-fitting and good condition door and window screens are recommended. Mosquito netting can be used to protect infants outdoors. Although the weather might be hot you can create a physical barrier by wearing shoes (not sandals – poor Rhian in the mosquito magnet photo), socks, longer trousers / long-sleeved shirts of tightly woven material when outdoors for a longer period of time. Insect repellents should also be used to minimise the risk of 'bites'.

Final thought

With a fair amount to consider when dealing with invasive mosquito species, it is reassuring to know that there is help available. There are reliable guidance notes, UK mosquito experts at Public Health England with a thorough monitoring programme in place, international advice available and keen UK technical advisors / entomologists to call on, should *Ae. albopictus* become a real problem sooner rather than later…

To download a copy of the 'Management of invasive species of mosquitoes' visit www.urbanpestsbook.com/downloads/

Controlling pests while protecting our bats

A joint article by the Bat Conservation Trust and Killgerm

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All UK bat species eat insects and as such do play a part in insect pest control in the UK – a single bat can eat thousands of insects each night. Bats are also considered to be one of our bio-indicator species; where there is a healthy bat population, there is a healthy local environment. We're just beginning to realise what that means not just for plants and wildlife present, but for us too; the health of our surroundings is closely linked with both our physical and mental well-being.

© Hugh Clark/www.bats.org.uk

Sadly, all the UK's bat populations have declined massively (some by up to 90%) due to habitat loss and persecution; however, populations are starting to stabilise, albeit at much lower levels than originally. This article explores the role bat awareness and best practice within industry has in relation to accessing and managing properties for pest control which can contribute to their protection.

Which bats use buildings?

Bats are often found using buildings for roosting (somewhere to sleep, raise young etc), particularly as their natural roosting places in tree holes and caves become scarcer as they are destroyed or disturbed. Bats can use all areas of a building; however, they are most commonly found in the walls, eaves and roofs. Unlike birds or rodents, bats do not make nests when roosting in buildings or cause structural damage.

Bats can use buildings at any time of year but are most often found in houses between April and September, when female bats give birth to single young. Pipistrelles and long-eared bats are commonly found in houses.

Pipistrelle bats

There are three different species of pipistrelle: the common pipistrelle, soprano pipistrelle and the rarer Nathusius' pipistrelle. They sometimes use houses as maternity roosts, choosing confined spaces such as cavity wall voids. However, roosts are usually on the outside of buildings, using features where these crevice dwelling bats can rarely be seen, such as under hanging tiles or fascia boards.

Common pipistrelle on adults thumb ©BCT / Daniel Hargreaves Brown long-eared bat

This species mostly prefers older houses with large roof spaces, and as they roost in the roof void, they are the species most frequently seen by householders. Small clusters may be seen at junctions of roof timbers or under the ridge.

Brown long-eared bats roosting at the apex of a roof void ©BCT / Hugh Clark

Bats can often be found in the same spaces as common pests. However, unlike rodents, wasps and clusterflies, bats are not pests and need your help.

Their vulnerability coupled with the population losses suffered in the last century are why bats are fully protected under both international and domestic legislation.

Why look out for signs of bats?

There are 18 species of bat in the UK and all bats and their roosts are protected by law, whether the roost is occupied or not, because bats are very roost faithful and tend to re-use the same roosts year after year. All bats and their roosts are protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended).

Bats should be considered during pest control activities, as it is illegal to damage, destroy or disturb any bats or their roosts without having taken the necessary precautions. In this context 'damage' could include such operations as treatment with chemicals found in wood preservatives or leaving open trays of bait within a roost for rodents. If bats contact a rodenticide or it gets on their fur, they could then be poisoned when grooming. This can happen when bat droppings are mis-identified as rodent droppings (see below).

The law does not prevent pest control occurring within a property where a bat roost is present, and free advice can be sought via the Statutory Nature Conservation Organisation (SNCO) for your country as to how this may be carried out within the law:

- ENGLAND Natural England (via the Bat Conservation Trust (BCT): 0345 1300 228
- NORTHERN IRELAND Northern Ireland: Environment Agency 028 9039 5264
- SCOTLAND Scottish Natural Heritage: 01463 725 165 or batsinhouses@nature.scot
- WALES Natural Resources Wales: 0300 065 3000 (ask for the species team).

How do you identify a bat roost?

You must take great care when seeking to identify a potential bat roost and it is very important not to disturb any bats. There are a few simple signs to look for:

- Are there any bat droppings? Similar in appearance to rodent droppings, bat droppings will be very dry and will crumble to dust under very little pressure. If you notice droppings, a quick crumble test (with gloves or a tissue) is a good way to get an indication of bat presence. On extremely rare occasions there are health risks from allergic reactions, dust inhalation and gastro-intestinal infection, all of which can be avoided by following simple precautions (e.g. wearing a dust mask and gloves when clearing droppings) and maintaining basic standards of hygiene.

Moth wing feeding remains ©BCT / Steven Roe

- Potential access points? You may see or know of these on or around the property, our smallest bat species can access gaps as narrow as an adult's thumb and many species may roost in outside features such as:
  - Under weather boarding or hanging tiles
  - Between timber frames and stonework
  - Between window frame and wall brickwork
  - In gaps behind cladding tiles
  - Between underfelt and boards or tiles

Potential roosting and access points in historic building with bat roost © BCT

- Is there a known history of bats at the property?
- Look around before planning your work. Have you or the builders / surveyors seen bats or their signs in the loft space or elsewhere on the property? Inside roof spaces they roost:
  - Along the ridge beam
  - Around the gable end
  - Around the chimney breast

Staining and droppings indication the presence of bats ©BCT / John Haddow

If you are in any doubt, please visit the Bat Conservation Trust's (BCT) website: **www.bats.org.uk** or contact BCT's National Bat Helpline: **0345 1300 228** (Mon-Fri 9.30am-4.30pm) or enquiries@bats.org.uk

How do bats affect pest control?

The control of pests such as wasps, clusterflies, hornets and rodents may unintentionally affect bats or their roosts, so care should be taken when controlling pests in an area where bats are, or are known to have been, present.

Wasp nest treatments

In some circumstances, e.g. where wasps are a health and safety issue, insecticides suitable for use in bat roosts can be used, but advice must be obtained from the appropriate SNCO about when to apply them, particularly if bats and wasps share a common access point or the nest is close to the area used by the bats.

Usually a survey by a bat worker/roost visitor would be required to determine the case specific advice.

Rodents

Always do the crumble test to check droppings are identified correctly.

Where a roost is present or suspected and rodents are also present, it is advisable to lay enclosed forms of bait (typical product label phrases are 'tamper-resistant bait stations' or 'covered and protected bait points'. Note that block baits are preferred and that if loose bait is used it should be bagged or in packs) when bats are not present, if possible. Care should be taken to minimise any disturbance caused to the bats, particularly during the critical hibernation period (November to February) and breeding season (May to September). Ideally work should be timed for between March and April, or September/October, when any baby bats will have been weaned, and the bats will not have entered hibernation yet.

- Provide a copy Bat Conservation Trust's advice leaflet to the pest control technicians involved for them to follow (available in the BPCA member area or from the Bat Conservation Trust directly). Inform them of the presence of a roost and that there is always the possibility of bats being present in loft spaces any time of year.
- Working in line with the CRRU code of practice and following product label directions;
  - Use enclosed forms of bait (e.g. wax blocks in bait stations) only and if loose bait is used it must be bagged within a tamper-resistant bait station or a covered and protected bait point (check product labels).
  - Distribute the appropriate number of bait points throughout the roof void at floor level only.
  - Before embarking on a baiting programme, you should read the product label carefully and follow the instructions given to ensure that the correct, legal and safe procedure for that specific product is followed.
- Take care not to disturb any bats when laying fresh bait or when removing old/unused bait and dead rodents. Always access the loft only when necessary and allow any bats access to an undisturbed area .

Please do not use;

- Open trays of rodenticide or loose bait. If bats should meet the poison, there is a risk they could ingest it.
- Spring, cage or sticky traps should not be used in/near bat roosts as there is a risk that bats, particularly babies, may accidentally fall onto them and become injured.
- Open trays of bait should not be used; although bats are not attracted to them, there is a possibility that they could fall into one or meet rodenticide and accumulate poison on their fur, which they could ingest upon grooming.
- Ultrasonic deterrent devices anywhere near to a bat roost. Little is known as to their effect on bats and the use of them may be classified as disturbance.
- Block any access points. If access blocking is to occur, it must first be confirmed by a bat worker/roost visitor that these are not also being used by bats.

Cluster flies

If bats are present, it may be possible to alleviate the fly problem by blocking the routes that the flies enter the living areas of the house. Alternatively, vacuum cleaners can be used to collect the flies. Suitable flytraps include a partially enclosed trap containing 'quicksand', which is placed at the bottom of windows, to contain cluster flies *Pollenia rudis*.

Insecticide application is not recommended in bat roosts but can be undertaken (using SNCO approved chemicals) where it can be confirmed by a bat worker/roost visitor that no bats are present.

Insecticide application should always be a last resort, used only after all non-chemical methods have been considered and deemed unsuitable in that situation. If electronic fly killers are to be used, advice should be sought from the SNCO beforehand since their operational hours must be monitored and tailored according to the time of year. Any servicing required at intervals must also be agreed with the SNCO. Sticky traps should never be used in the vicinity of a bat roost.

Wood destroying insects

The use of timber treatment chemicals in roofs to control for woodworm used to be responsible for the deaths of whole colonies of bats. Since the problem has been recognised, many products have become available that are more suitable for use in bat roosts to treat the timber and to treat infestations.

Prior to undertaking any form of treatment, it is essential to establish if the infestation is active, or historic. All timber should be investigated by a suitably qualified person to determine evidence of current activity to justify any form of treatment. Some timbers may show signs of historic activity. The insect may have already died out due to unsuitability of the timber, decreased moisture content or due to previous treatments - therefore treatment is not justified.

Two of the more notable woodborers found in UK buildings are Common Furniture Beetle (*Anobium punctatum*) and the Deathwatch beetle (*Xestobium rufovillosum*).

The Common furniture beetle is the most abundant of the wood destroying insects found in buildings in the UK. It naturally inhabits dead stumps and fallen branches in woods and hedgerows but is more abundant in building timbers and furniture. One of the most distinguishable indicators of an active infestation by this beetle is trails of fresh bore dust particularly on vertical surfaces. Other indicators include the presence of adult beetles, larvae in the timber, and holes with a fresh cut appearance.

Due to its preference for certain partially decayed hardwoods, principally Oak, Deathwatch beetle is most commonly found in historic buildings. The best indicator of an active infestation by Deathwatch beetle is the presence of adult beetles, which are typically found on surrounding floors.

Even if bats are absent from the roof space there is still the chance that they will move in in the future, we therefore recommend that only a fluid suitable for use in bat roosts are considered. These treatments have a much lower level of active ingredient than formulations in the past - although all insecticides maybe harmful to bats so care must always be taken when using them. The correct amount of insecticide should be used and treatment should be kept as localised as possible. Since recommendations change regularly, details of insecticides and fungicides can be obtained from SNCOs (eg **https://www.gov.uk/guidance/bat-roosts-use-of-chemical-pest-control-products-and-timber-treatments-in-or-near-them**).

No treatment should be undertaken whilst bats are in the roost. Not even so-called 'bat friendly' emulsion chemicals as there is a danger that bats will come into direct contact with them.

To protect bats and ensure no offence is committed, full advice on any pest control activity that might impact bats should be obtained on a case specific basis following a survey by a bat worker/roost visitor

Generally, advice for avoiding impacts upon bats

To avoid an offence from being committed, if bats are known to be or have been present, or bats or their droppings are discovered at any stage (including after operations have started), work must not commence or must stop immediately and advice be taken from the Statutory Nature Conservation Organisation (SNCO).

In addition, be aware of this pest control best practice to protect bats:

- Rodenticides in an open tray should never be placed below roosting bats.
- Spring, cage or sticky traps should never be used in bat roosts.
- Ultrasonic deterrents should not be used in a bat roost.

The Bat Conservation Trust (BCT) has been working closely with the pest control industry for a number of years, working on a number of specific advice notes and awareness articles to help promote bat awareness and to liaise on best practice advice. BCT can now count a pest control company as a Corporate Member.

Want more information on bats?

For further information please go to the BCT's website: **www.bats.org.uk** or you can contact the BCT's Built Environment Manager Jo Ferguson: jferguson@bats.org.uk or BCT's Helpline Manager Becky Wilson bwilson@bats.org.uk

Or if you find a bat, please contact the BCT's **National Bat Helpline** immediately on: **0345 1300 228**.

Parts of this article have appeared in Listed Heritage magazine, the membership Journal for the Listed Properties Club and Professional Pest Controller.

RODENTS: Sense and sensibility

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Taste is the final sense that we are going to cover in our senses mini-series. All rodents senses are important to us as pest controllers. Once we have overcome neophobia, bait avoidance and the complexities of figuring out where rodents are coming from and going to, we still have more to do. For example, it takes learning about their colony and site-specific behaviors before we finally arrive at the destruction stage of IPM (integrated pest management) - the actual control. Knowledge about the multifaceted maze of rodent senses will help you to manipulate them to increase effectiveness of rodent treatments.

If it smells good, it tastes good

While there is increasing emphasis on non-chemical control, rodenticides remain a great tool of choice for many situations. This is partly because they appeal to the fantastic and heightened sense of smell of rodents, as covered in PCN issue 118. The smell of the rodenticide, or more specifically the rodenticide base material, needs to be attractive. Without the attractiveness of the rodenticide, as a food source, you will be fighting a losing battle from the start. However, using quality rodenticide preparations, from reputable suppliers and manufacturers, should ensure that what you are using is palatable and smells good.

Let's take a look at the mechanics of taste for rodents and how well they are adapted. Physical structures are a standout feature. The diastema more specifically. This is the name given to the gap between the front teeth (incisors) and the back teeth (molars). Rodents lack canine teeth. Instead of canines there is a gap called the diastema. In fact, any gap in the teeth is called a diastema and this is the case even in humans. The gap forms an essential role in rodent behaviour. Rodent teeth grow throughout their lifetime which leads to habitual gnawing to keep the teeth worn down. This also helps to keep rodent teeth sharp. The gap provides an area to hold materials or food whilst being tasted. The diastema is jam-packed with taste reception cells. The tongue does have a very high concentration of groups of cells organized into taste buds, but they are also present all around the mouth and throat structures. House mice have a higher concentration of taste reception cells per bud compared to Norway rats, an average of 85.8 for the mouse per bud vs an average of 68.4 per bud in a rat. This makes us wonder whether the mouse could perceive taste more efficiently compared to a rat – simply based on the increased density of taste reception cells.

Salty, sweet, sour, bitter, umami and….

The classic five taste sensations that we know and love. Research from several years ago indicated that another should be added for rodents, particularly mice.

Scientists found calcium receptor cells in the tongues of mice. So, we could add 'calcium' to the perceived taste spectrum of the rodent.

There is the very bitter denatonium benzoate, also known as Bitrex. This is added, for health and safety purposes, to prevent rodenticides being consumed by humans [mostly aimed at preventing children eating it]. It is understood that Bitrex is not detected by rodents to the same sensitivity as humans and inclusion in baits still allows adequate consumption to occur.

The attraction is the taste?

Attractive bait preparations will naturally smell good-enough-to eat. Once tasted, a good food will trigger a longer-term imprinted behaviour (as covered in PCN 117 'Bait Shyness') with regard to aversive behaviors. If the taste is not good the rodent will remember for up to six months. The same mechanism applies for good tasting food sources and will trigger the return to the same food repeatedly. This re-emphasizes the importance of using highly palatable bait bases, from reputable manufacturers / distributors, with research and science behind each product. There is much more behind all the rodenticide products, and the accompanying non-toxic bait bases, than you might expect (see PCN 117, 'Review of non-toxic monitoring baits in rodent management' where various rodenticides and their non-toxic partners were considered).

New rodenticides and old favourites

Due to the complexities and limitations of rodenticide actives, and the investment required for new actives, we do see re-formulated active ingredients. It is beneficial that there are palatable pre-baiting bait bases, which are the same as those used in the anticoagulant version. It follows that if you know that if there is good bait uptake, of the non-toxic preparation, the conversion to the anticoagulant preparation of the same bait base should be simple. The rodents will know the taste already and not be averse to it. We know from the previous senses articles that they cannot see the bright colours of the baits anyway.

Summary

This brings us to the end of the senses mini-series. The individual articles have hopefully given a little more insight, information and a systematic approach to how we can manipulate rodent senses to aid management and ultimately control. In conclusion, rodent taste is excellent…but not as good as human taste perception. Although comparing them to us may not be fair, the rodent may have a broad taste spectrum but not as defined as our own. Their taste capacity is for survival. With the main aim of consuming something that won't kill it, returning to the swallow or reject capacity…little do they know the vast science, research and lengths pest controllers go to!

*Details of all references, quotations, data and research can be obtained by contacting technical@pestcontrolnews.com

Clothes moths: numbers are steadily on the increase, what can we do?

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In a survey carried out by English Heritage, in 2017, moth traps were distributed to visitors of their historic houses. The results they received back, from the willing volunteers, showed many more moths than expected in homes. The results highlighted a surprise – a different moth species than expected. Common clothes moth (*Tineola bisselliella*) and case bearing clothes moth (*Tinea pellionella*) were present. However, the pale-backed clothes moth (*Monopis crocicapitella*) was found and this is where the surprise lay. It is not known yet if the pale-backed moth will be able to get a foothold and how much damage it has the potential to cause in homes.

Moths were also reportedly on the increase, according to the pest control industry, in 2019. There could be various factors at play, whether it's down to more favorable temperature and environmental conditions for the moth lifecycle or changes in mothballs is open to debate. Many mothball products have been withdrawn or banned and the effect of natural remedies is debatable. Perhaps it is due to an increasing trend for cashmere jumpers and luxury clothing using natural fibres, an increased food source for textile moth.

Moth life cycle

The clothes moth may take around a year for completion of its life cycle, however in ideal warm temperatures they can complete as many as three cycles in a year (65-90 days from egg - adult). Clothes moths have a complete metamorphosis life cycle, egg – larva – pupa – adult, with the larval stage key for feeding. Adults don't feed and live to breed (sometimes surviving as adults for up to 30 days). However, its essential to remember not to use an insect growth regulator (IGR). An IGR used on the larval stage will maintain this most damaging part of the life cycle. This could result in more damage, as the larvae continues to feed, on the textiles for an artificially extended period.

Eggs are laid in batches near or on the textiles or food source. The feeding commences once larvae emerge from eggs. The larval stage is of course the most damaging stage of all. The larvae will munch through textiles of animal origin, wool carpets, wool jumpers, some building materials (lamb or sheep's wool insulation is a prime target) even hair…chomping their way through the keratin contained within these materials. The first signs you may see will be small holes in clothing (they typically appear at sweaty areas or near any food residue), or bald patches on carpets. The bottom tether of the carpet fibre, in the matting, is a favourite snack. Once this has gone, the rest of the fibre is no longer attached, resulting in typical bald patches. The common clothes moth will weave silk tunnels as it feeds, under the carpet matting, leaving large areas of silk bound frass (moth larvae droppings bound together with silk strands). These are visible clumps in and on carpet and materials.

The larvae are cream-coloured with a dark head. The adults are pale gold (apart from the pale-backed clothes moth, which is pale gold and dark striped). They are not strong fliers, flitter about in dark places, and shy away from light.

They also have the special ability to diapause. Diapause is a kind of suspended animation; the pupating larvae will stay in that stage and emerge as an adult when conditions are most suited for survival.

You may therefore see dramatic increases, and decreases, in moth numbers as temperatures affect diapause. Worst case is when you think you have solved the problem only to see them back again – the silken pupal case seems to repel water-based insecticides whilst the developing insect is diapausing.

What to do?

Moth control treatments should include extensive monitoring with species specific demi-diamond monitors (check the pack for clothes moth species). The glue pad contains a synthesised female sex pheromone which attracts the male moths. A residual insecticide should also be employed to treat crevices, cracks and any areas where moths are found. In severe cases a space treatment (ULV, smokes, vapours, fogs, aerosols) could be used to remove adults as long as a residual is in place to treat emerging adults.

Moths are also highly susceptible to heat, so heat treatment could also be employed. Washing any items at 60 degrees C on an hour cycle will also be enough to kill all life cycle stages. However, many clothing items cannot be washed at these higher temperatures. Dry cleaning is a viable option, known to kill all moth lifecycle stages, where clothing cannot be washed on a hot setting. One option is oxygen scavenging, a more specialist technique, whereby the items being treated have the oxygen removed. This results in insect mortality due to a lack of oxygen. Freezing is also known to be effective. However, temperatures must reach -18 degrees Celsius for a suitable length of time. This is to ensure that the core temperature of whatever is being treated reaches the right level. It may take several hours for the correct core temperature to be reached and even longer for dense items.

Hygiene measures can be very effective. For example, vacuuming will remove eggs. Just remember to transfer vacuum contents to a black bag and ensure this goes to an outside bin.

Summary

A multipronged attack is required to treat clothes moths:

- Monitor, record, monitor and monitor some more
- Insecticides are usually used
- Remember other treatments such as heat and cold
- Don't forget about diapause
- Oil based insecticides could be used to penetrate pupa, although use with care on sensitive surfaces
- Severe cases may need space treatments
- Clean, clean and clean some more
- Rotate insecticide actives on a regular basis as part of best practice

English Heritage have kindly agreed to speak to us for the next issue of PCN. We'll learn all about how they handle moth problems in historic houses. In such situations the damage by moths could ruin priceless articles and irreplaceable items…

* Details of all references, quotations, data and research can be obtained by contacting **technical@pestcontrolnews.com**

How do Insect Growth Regulators work?

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PCN looks at how insecticides work. While we use them every day, we perhaps don't fully appreciate their mode of action and true relevance to pest control.

In this instalment we examine the insect growth regulators or 'IGRs'.

Insecticides that Affect the Insect Endocrine System

These chemicals are typically referred to as insect growth regulators, or IGRs. IGRs act on the endocrine or hormone system of insects. These insecticides are specific for insects, have very low mammalian toxicity, are nonpersistent in the environment, and cause death slowly. Most of the currently registered IGRs mimic the juvenile hormone produced in the insect brain. Juvenile hormone tells the insect to remain in the immature state. When sufficient growth has occurred, the juvenile hormone production ceases triggering the moult to the adult stage. IGR chemicals, such as, S-methoprene and pyriproxyfen mimic the action of juvenile hormone and keep the insect in the immature state. Insects treated with these chemicals are unable to moult successfully to the adult stage and cannot reproduce normally.

Which pests are these best used against?

Insect growth regulators such as S-methoprene and Pyriproxyfen are especially effective against bedbug nymphs. For example, bedbug nymphs can become trapped within the partially ecdysed exuvium (shed exoskeleton in other words).

Another effect is for the nymph to suffer a mid-gut prolapse through their abdominal wall. The result is the same – prohibited development so adult form isn't reached. In some cases, a 'supernumerary' sixth instar nymph can be produced under the effects of these juvenile hormone mimics. The oversized nymph might be able to take a blood meal but it isn't sexually mature and so cannot propagate the bedbug population.

It's not just the nymphs that can be affected. Adult bedbugs are not killed by IGRs of the juvenile hormone mimic type. However, a female bedbug finds her ability to lay eggs vastly reduced. Furthermore, of the eggs she does manage to lay, most of them will not develop.

Insecticide resistance in bedbugs has been covered in previous editions of PCN and with the loss of Ficam W we will miss an important resistance management tool. IGRs will perhaps take on more emphasis in the treatment of pyrethroid-resistance bedbug populations when the loss of Ficam starts to be felt.

Flea control can be enhanced using insect growth regulators. S-methoprene can contribute to 6-9 months effectiveness for flea control. The effects are on flea larvae, preventing their development and also by hindering the production and development of eggs by female fleas. It's not just while the eggs are carried by the female that they can be affected by S-methoprene. Freshly laid flea eggs are affected on contact with S-methoprene.

Why are IGRs not recommended for textile pests or stored product moth?

Quite simply, there is potential for them to prolong the larval stage of textile moth and stored product moth larvae. As it's the larval stage that causes the damage, we don't want to extend that period at all.

I've been told that IGRs are useful against adults but surely not?

Well, they don't have a lethal effect on adult insects. So, they are not suitable for adult control. However, as mentioned earlier they do influence egg production by female fleas and bedbugs so perhaps that is where confusion sometimes arises.

Insecticides that Inhibit Cuticle Production

These chemicals are known as chitin synthesis inhibitors or CSIs. They are often grouped with the IGRs. In the UK market, cyromazine is used against fly larvae in manure. These chemicals inhibit the production of chitin. Chitin is a major component of the insect exoskeleton. Insects treated with CSIs are unable to synthesize new cuticle, thereby preventing them from moulting successfully to the next stage. The big benefit here, regarding places like poultry farms, is that these options control housefly larvae but do not impact on the predatory Carcinops beetles that take fly larvae – a good 'biological control' that can be preserved with the correct choice of product.

As the industry is seeing key 'adulticide' products withdrawn, it pays to revisit IGRs as a perhaps underused and underrated option…

INSECT ID: CARPET BEETLE

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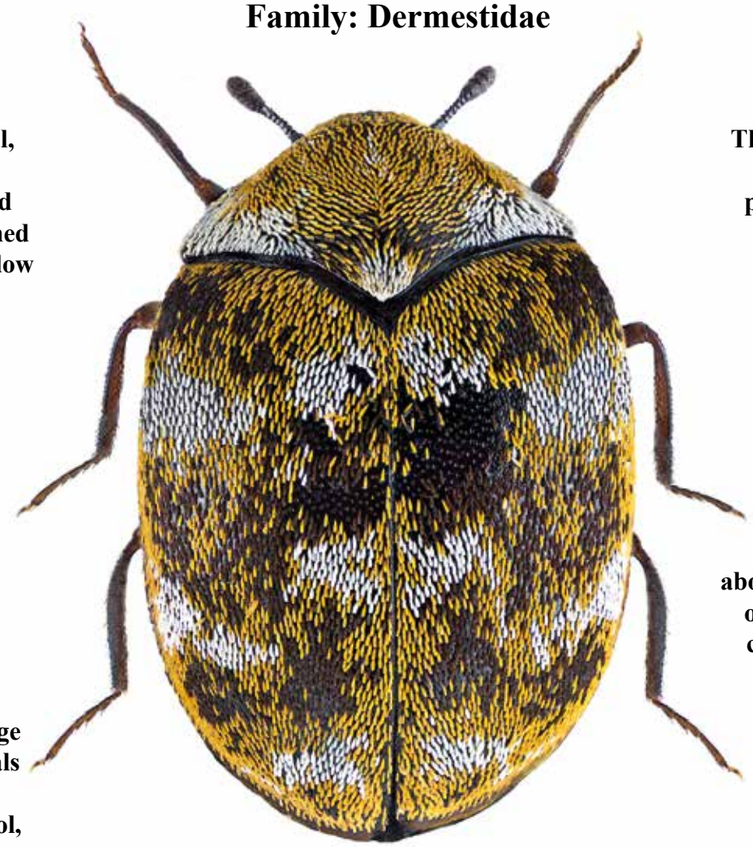
Anthrenus verbasci

Family: Dermestidae

Small beetle, oval, 2-3mm. With an attractive mottled appearance formed by black and yellow scales.



The adult lives for 2 to 6 weeks. During this period they mate and lay eggs.

The life cycle lasts about 1 year depending on the environmental conditions. The larva stage is the longest.

The larvae cause significant damage to textile materials of animal origin. They feed on wool, hair, leather. They can also attack stored food products.

Larva up to 4-5mm in length. Yellow to brown in colour.

The body of the larva features segments marked with rows of bristles ("hairs /setae").

Top photo: Anthrenus verbasci. Udo Schmidt (cc). Flickr.

Bottom photo: Larva Anthrenus verbasci. André Karwath (cc). Wikipedia.

Health & Safety Glossary

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Do you ever feel bamboozled by some of the technical phrases and scientific jargon used on pesticide labels and throughout pest management? Here are just a few of the more common acronyms, phrases and their meanings…

Active ingredient
The active component or mix in a formulation that confers the efficacy of a product. Initially a COPR [see later for COPR] term but is now often used as a synonym to ''active substance'.

Active substance
Defined by the EU BPR (Regulation 528/2012) as "A substance or micro-organism that has an action on or against harmful organisms"

Approval (COPR)
A company wishing to advertise, sell, supply, store and/or use a non-agricultural pesticide which is still regulated under the Control of Pesticides Regulations in the UK must apply to HSE for an approval under the COPR.
An approval will only be given when all the required evidence and information on the safety, efficacy, and where relevant, the humaneness, of the pesticide has been submitted and evaluated. The final decision on approvals rests with Ministers. The product cannot be advertised, sold, supplied, stored and/or used until the approval has been granted, and any conditions of the approval must be met.

Approval holder (COPR)
The applicant (company or individual) that is granted the product approval under the Control of Pesticides Regulations.

Biocidal product
Defined by the EU BPR (Regulation 528/2012) as " Any substance or mixture, in the form in which it is supplied to the user, consisting of, containing or generating one or more active substances, with the intention of destroying, deterring, rendering harmless or otherwise exerting a controlling effect on, any harmful organism by any means other than mere physical or mechanical action.

Any substance or mixture generated from substances or mixtures which do not themselves fall under the first indent, to be used with the intention of destroying, deterring, rendering harmless, preventing the action of, or otherwise exerting a controlling effect on, any harmful organism by any means other than mere physical or mechanical means.

A treated article that has a primary biocidal function shall be considered a biocidal product."

Biocidal Product Committee
A Committee set up within ECHA (European Chemicals Agency) responsible for preparing the opinion of ECHA:

- applications for approval and renewal of approval of active substances;
- review of approval of active substances;
- applications for inclusion in Annex I of active substances meeting the conditions laid down in Article 28 of Regulation 528/2012 and review of the inclusion of such active substances in Annex I;
- identification of active substances which are candidates for substitution;
- applications for Union authorisation of biocidal products and for renewal, cancellation and amendments of Union authorisations, except where the applications are for administrative changes;
- scientific and technical matters concerning mutual recognition in accordance with Article 38 of Regulation 528/2012;
- at the request of the Commission or of Member States' competent authorities, any other questions that arise from the operation of this Regulation relating to technical guidance or risks to human health, animal health or the environment.

Biocidal Products Directive (BPD)
Directive 98/8/EC of the European Parliament and of the Council of 16 February 1998 concerning the placing of biocidal products on the market. The BPD set up a European Community product authorisation scheme for biocidal products, such as non-agricultural pesticides, disinfectants and preservatives. The BPD was replaced by the EU BPR (Regulation 528/2012) which applied from 1 September 2013.

Biocidal Products Regulation 528/2012 (EU BPR)
Regulation (EU) No. 528/2012 of the European Parliament and of the Council of 22 May 2012 concerning the making available on the market and use of biocidal products. Applying from 1 September 2013 this directly acting Regulation replaces the Biocidal Products Directive.

Biocidal Product Family
A group of biocidal products having similar uses, the same active substances, similar compositions with specified variations, and similar levels of risk and efficacy.

Control of Pesticides Regulations (COPR)
The Control of Pesticides Regulations 1986 (SI No: 1986 No 1510), as amended, are the basis for the current legal controls over non-agricultural pesticides within Great Britain. Products currently approved via HSE under COPR will be regulated under EU BPR (Regulation 528/2012) once the active ingredients contained in them have been reviewed and included on the Union list of approved active substances.

COSHH
Control of substances hazardous to health. Referring to the Control of substances hazardous to health regulations 2002 [under the Health and Safety at Work Act 1974].

DEFRA
The Department for the Environment, Food and Rural Affairs.

ERA
Environmental Risk Assessment. Required whenever a rodenticide treatment is carried out externally. Reference is now on many product labels as they refer to CRRU (Campaign for Responsible Rodenticide Use and the appropriate code of practice).

Hazard warning symbol
Products carrying classification as determined by CLP (CLP refers to European Regulation (EC) No 1272/2008) criteria may be required to display the appropriate hazard warning symbol/ pictogram on the product label.

HSE
Health and Safety Executive. HSE is a regulator and an enforcer of the health and safety laws in the UK.

HSE number
Pesticides approved under COPR are issued a unique product specific HSE number when they are first approved under COPR. This number must be displayed on product labels.

Non-agricultural pesticides
Non-agricultural pesticides are regulated by the Health and Safety Executive under the Control of Pesticides Regulations current national regulatory scheme. Non-agricultural pesticides include products such as insecticides for public hygiene use, insect repellents for application to animals, rodenticides, wood preservatives, surface biocides and antifouling products

Personal protective equipment (PPE)
Equipment used to decrease or eliminate the exposure to a chemical, biological or other substance (e.g. radiation, noise etc.) Examples of PPE can include gloves, goggles, masks etc.

Pesticide
A pesticide is defined in the Control of Pesticides Regulations as a substance, preparation or organism used to control or destroy any pest.

Reasonably practicable
A phrase often used in health and safety law. It means what you are reasonably able to do to make sure that the health and safety of employees, colleagues and others like volunteers and visitors is as it should be.

Risk Assessment (or RA)
Risk assessment refers to the quantitative and qualitative evaluation of the risk posed to human health and/or the environment by the actual or potential presence of and exposure to biocidal chemicals/active substances or a situation.

*Details of all references, quotations, data and research can be obtained by contacting **technical@pestcontrolnews.com**

Maxforce® Platin

An insecticidal gel bait for the control of American and German cockroaches in domestic premises, public hygiene and food storage premises.

www.bayer.com

AF® Multis Trapping Station

The AF® Multis is a multi-purpose trapping station that can be used with a wide range of traps, including: Goodnature® A24, Goodnature A18®, Fenn MK4, Magnum 110/116, and a range of snap traps. It can also be used with a range of rodenticide formulations including blocks, loose grain, pasta sachets and fresh bait trays. The detachable lid allows for ease of servicing and three operational inspection slots allow the pest controllers to see at a glance if traps have been triggered. The new style AF key and lock allow for quick but secure access. The station can be secured using the bait station anchor, locator key hole in the base or tethered using cable fixings.

www.killgerm.com

Xignal

Trapping rodents in a smart way with the most modern sensor technology by Xignal. Monitoring and recording rodent activities takes place 24/7. Xignal is the solution for now and the future. Intelligent and sustainable pest control. Receive realtime updates in the app and portal!

www.xignal.com

Black Cat Rat Trap

A highly powerful and effective rat break back trap.

www.killgerm.com

AF® Fruit Fly Trap

The AF® Fruit Fly Trap is a poison free device for monitoring fruit flies (Drosophila melanogaster) in commercial, residential and industrial premises such as bakeries, groceries, confectioneries, restaurants, offices, and similar locations. It is excellent at locating the source of fruit fly infestation through monitoring the count in the trap. It lures adult fruit flies, and therefore is a perfect tool for mapping infestation levels.

www.killgerm.com

Raxit Door Seals

The Raxit ready-to-use door strips provide an easy to fit rodent proofing solution which enables you to securely proof door and gate thresholds against rodents and other pests. Made from 3.2mm wide flame retardant Santoprene™, this highly flexible and durable material is reinforced with steel wires to stop rodents from chewing through.

www.raxit.dk

New Products
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BPCA PPC LIVE
Technical excellence in practice
11 MARCH 2020 / YORKSHIRE EVENT CENTRE, HARROGATE

Seminar and demonstration schedule

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Outdoor demonstrations

Back by popular demand! We'll be getting outside (and not only to take in the beautiful countryside). We'll be hosting some practical pest management demonstrations. We are teaming up with experts and have some really exciting plans for this area.

10.00-10.45
I wish I could fly! What it takes to be a drone pilot
Clark Smith-Stanley, Photographer and Aviator, Profile Studios
Depending on the application and location required, we can manoeuvre a UAV into difficult access areas and give live feedback to the ground station with a live feed. We'll also capture the imagery for later analysis. Find out what it takes to be a flying pest professional and revolutionise your surveys.

11.00-11.45
Vans for the pest professionals
Matt Cahill, Owner, Cheshire Fleet Solutions
Matt will talk through his most commonly asked question about van purchasing. What is the best way to purchase a van? What is the best package for me when choosing to finance a van? How is ULEZ or CAZ going to affect my business and when will they be in force? Should I get an electric van?

12.00-12.45
Ballistic pest management
Dave Mills, Founder, Airgun Training and Education Organisation
He's back at PPC Live by popular demand. Dave will talk through pellet choices, calibres, velocities, weights and airgun design. His talk has been tailored for pest professionals and will tackle more advanced subjects like the ballistic properties of pellets, internal and external ballistics considerations and pellet construction.

13.00-13.45
Caught out in the countryside: Practical rural pest management
Dave Archer, Owner, DKA Pest Control
This demonstration will show you how to tackle a wide range of rural pest problems, along with the legal aspects of how to carry out control methods. Dave will demonstrate methods such as fox calling, trapping, and talk about shooting with both rimfire and centrefire rifles.

14.00-15.00
Lasers Live! NEW Avix Autonomic Gen II
Dan England from PestFix and Fergus McArdle and Matthew Sarling from Height for Hire
PestFix will complete a live demonstration, while using Height for Hire's 20m self-drive machine, of the new laser on the block. The Avix Autonomic Gen II is the latest permanent, humane method of bird control, with minimal environmental impact.

Technical seminars

Our silent technical seminar theatre will have seating for 100 people and will use headphones like PestEx, so you won't miss a single word of the presenters.

9.30 -10.30
ANT-icipating the ant season: species, significance and control
Dr Matthew Davies, Head of Technical Department, Killgerm
Matt shares simple tips to help recognise ants expected to cause pest problems in 2020 and beyond. As our industry encounters ever-changing insecticide labels and an evolving portfolio of insecticides, he summarises available control options for 2020.

10.45-11.45
Reducing risks from flying insects in food sites
John Lloyd, Independent Pest Management & Insect Consultancy
With ever-increasing expectations and demands for improvements in food quality and food safety within the food manufacturing sector - are you doing enough to help your clients to manage risks from flying insects?

12.00-12.45
Considering bats during the pest control process
Jo Ferguson and Becky Wilson, Bat Conservation Trust
Jo will outline how bats use buildings, why they are so important in a bats lifecycle and how pest control work may impact bats, including their legal protection. Becky will outline what to do when considering carrying out works where bats are present, including the latest best practice guidance and training course for pest controllers that BCT has developed with the BPCA.

13.15-14.15
The practical impact of resistance
Alex Wade, Technical Manager, PelGar
A look into the mechanisms which cause resistance in rats, how these resistances affect the real-world application of pesticides and most importantly how to identify resistance on sites and how to deal with it quickly and effectively.

14.30-15.30
Integrated rodent control
Sharon Hughes, Global Technical Marketing Manager, BASF
Best practice rodent control utilises both non-chemical and chemical tools for effective control.
For chemical control, the "risk hierarchy" and the effectiveness against both anticoagulant susceptible and anticoagulant resistant rodents must be considered. Sharon will explore a best practice integrated approach to rat and mouse control.

Indoor demonstrations

We want to give you the chance to see new ideas and get some hands-on experience while you're at the show. PPC Live is all about how things work and giving you the tools to help you in the field.

10.00-10.30
Current proofing products: applications and limitations
Gulliver Hill, Managing Director, Pestology
Pest controllers are expected to consider proofing as one of their first responses so it's important to know the ins and outs of each product, and what might work where. Successful proofing can achieve long term eradication fast. Product misuse can also cause serious property damage, so awareness of the pitfalls of each product is key.

11.00-11.30
A better fit: face fit testing respiratory protective equipment
Danny Barr, Business Development Manager, GVS
Do you know how well your respiratory protection fits? Do you know if it offers any protection at all or is it worn to just follow procedure? Face fit testing is a legal requirement: a procedure to ensure your mask offers suitable protection.

We will demonstrate using a portacount machine to show how well a mask fits, and how putting a mask on without this test may not be offering you the necessary protection.

12.00-13.00
Insect identification: the drop-in surgery
Clive Boase, The Pest Management Consultancy
Clive is hosting a drop-in session on insect identification. Visitors can bring their own insect samples, and get help with identification. Microscopes, books, keys and other resources will be available. In addition, there will be an opportunity to examine and gain experience with various new or tricky pests. Forget the big picture – it's all about the detail!

13.30-14.30
Fly control and the importance of catch tray analysis
Sean Parr, John Fish and Debbie Wilson, Pelsis
How can fly catch analysis help with the initial identification of insect infestations? Sean, John and Debbie will cover the importance of adding a fly catch analysis when servicing a fly control contract and how to approach end-users to upsell fly catch analysis as part of the contract. They'll also take a look at sourcing the correct fly killer unit and compare LED and traditional UV tubes.

15.00-15.30
Using tech and the environment lobby: working with your community, beekeepers and traps
Norman Guiver, Founder, U Watch
This practical demonstration will cover two main applications; live trapping alerts with multiple traps and pest notification links between beekeepers, general public and pest controllers for any pest. Don't forget to bring your smartphone and be prepared to participate!

The Changing Face of Pest Control

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Undoubtably we have seen significant change in the public health pest control arena in recent years and this seems only set to gather momentum. Although it is hard to predict, what changes are afoot, we can at least see the drivers for change. As an industry we could arguably be accused of being slow to recognise how society attitudes are changing. We only have to look at the rise in influence of relatively small pressure groups. This coupled with the advent and popularity of social media has enabled people of a similar mindset to group together and push agendas that in the past would have been much slower to gather momentum. The one thing we can be sure of is that we cannot allow ourselves to be lulled into inaction

The big agendas this year

As all involved in the industry will be aware, rodenticides have come under major scrutiny over the last few years and a major review is planned toward the end of the year. We are all hoping for a 'common sense' outcome, but the unfortunate failure to see a reduction in barn owl residues, coupled with a significant rise in residues being found in Red Kites, has put something of a metaphorical 'fly' in the ointment.

Bird Licensing is currently under review, following on from the start of the process in 2019. On a positive note the Department for the Environment and Rural Affairs (DEFRA) do seem to be very keen on engaging with and listening to industry views and we are all hoping for a positive outcome. The consultation is currently in progress and with a final decision due towards the end of February.

Glue Boards are currently under review in Scotland, which has meant a rewrite of the code of practice (currently in draft form). This review is a prime example of how social media can be used to influence industry practices, as this petition was submitted by a relatively small group of people with animal cruelty at the front of their agenda. Whatever point of view the reader may have on this practice, we maintain the argument that there is a greater need to protect public health, particularly given the increased difficulty of controlling rodent populations in many Towns and Cities around the UK. However, we also must recognise that others sometimes see things differently. Naturally the concern here, is that if restrictive legislation is passed in Scotland this may have a knock-on effect on the rest of the country.

Supporting you

Whilst at first glance these potential changes can seem restrictive and counterproductive, they can create great opportunities. As a profession we must step up and acknowledge how we also need to change to keep pace with changing attitudes and societal drivers.

As your professional body we will continue to engage with all major stakeholders, providing a strong voice for our profession and the NPTA will continue to be at the forefront of representing our members views and concerns.

We must recognise that there is undoubtably a growing appetite amongst organisations to work with professionals who are part of a CPD scheme and increasing demand on the industry is driving the importance of professionalism and accreditation. The implementation of professional development schemes in the pest control sector was reinforced to great effect by both the NPTA and the BPCA during the Scottish Parliament glue board hearing. Assuming we want to retain the use of professional products, it is critical that we differentiate ourselves from the amateur user and those who do not see the benefit of professional development and believe that a qualification gained 20 years ago is sufficient.

It is therefore *absolutely crucial* that we invest more in our skills and capabilities and recognise that regular training is a necessary component to stay competent and professional. What we cannot afford to do is bury our heads in the sand and hope it all goes away and therefore need to be at the forefront of change and to be prepared to challenge, to innovate, and to experiment.

We are very proud to represent our members and to work on your behalf in conjunction with other industry bodies and look forward to working with you all to progress these important agendas in 2020 and beyond.

NPTA
tomorrow's association
for today's technician

How to progress in your career as a pest controller

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As a pest controller you have probably taken the RSPH Level 2 Award in Pest Management, or the slightly longer RSPH Level 2 Certificate in Pest Management which includes an additional two practical units. If you haven't attained either of these qualifications you almost certainly would have taken one of the qualifications available which enables you to purchase and use rodenticides, such as the RSPH Level 2 Award in the safe use of rodenticide. You might also have taken the RSPH Level 2 Award in Using Aluminium Phosphide Safely for the Management of Vertebrate Pests so that you can use this chemical in your work for controlling moles, rats and rabbits.

But then what?

All of the qualifications listed above are designed for people entering the profession who are new to pest control (or perhaps have been working in the industry for a number of years but now need to obtain a qualification in order to meet the requirements of a contract or to join an industry body). What can you, as an experienced pest controller, do to prove to your clients that you are an expert in your chosen profession? What can you do to differentiate yourself from the thousands of other professionals with a Level 2 qualification?

The answer, of course, is to take a regulated level 3 qualification in pest management.

The RSPH Level 3 Award in Pest Management is the qualification that I am asked about most frequently at industry events such as PestEx and Pest Tech. This is hardly surprising as the majority of people that I speak to at these events are already qualified to RSPH Level 2. The RSPH Level 3 Award is different in that it requires you to use your experience as a pest controller to complete assignments on the chemical and non-chemical control of vertebrate pests and the chemical control of invertebrate pests, as well as complete an exam which asks more searching questions on the topics of legislation, customer care and health and safety. You can succeed in a lot of qualifications by attending the right classes and reading up on the subject, but unless you have worked effectively as a pest controller and have built up experience by working on a range of jobs in a variety of conditions and varying complexity, you will be unlikely to pass the RSPH Level 3 Award.

Tim Stevens, who works for the London Borough of Tower Hamlets, passed the qualification recently and had this to say about his experience:

The assignment is where the real hard work come in. This is where you have to demonstrate your knowledge of how you look at a job then decide what the best course of action is in dealing with that job, selecting the right application methods, the best pesticide for that particular task to achieve the desired outcome for your client. I learnt quite a lot from this experience it certainly focuses your mind on what you need to do to achieve your outcome.

Tim took his qualification at Killgerm, as did Darren Brady of Leeds City Council, who said:

"I've really enjoyed studying and producing the work for this qualification. Although challenging, the end result is very rewarding"

Mark Butler, Company Biologist at Killgerm commented "We are all delighted for Darren and Tim in their achievements. The RSPH Level 3 Award in Pest Management is the "Gold Standard" industry qualification. It allows the more able Pest Professionals, like Darren and Tim, to demonstrate their knowledge and abilities"

As well as Killgerm, the qualification is also offered by Graham Limer, of Pest Solutions based in Bury St. Edmunds, and John Sage of the Pest Control Education and Training Group, based in Swindon.

If you want to progress within the industry you will need to demonstrate to your employer and customers your advanced knowledge and expertise of pest management. The RSPH Level 3 Award in Pest Management enables you to do just this.

If you would like to know more about this qualification, contact any of the RSPH centres mentioned above, or myself, Richard Burton, the Director of Qualifications at RSPH (rburton@rsph.org.uk)

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

We need to talk about Andrew

Witness preparation

Watching Prince Andrew's car crash of an interview with Emily Maitlis made me cringe and frankly squirm in embarrassment for him. I have rarely seen such a ridiculously dreadful performance which as it latterly unfolded was career ending. Sixty odd minutes of being interviewed by a reasonable enough journalist leading to his mother unceremoniously sacking him from all his royal duties, and him being sent into exile for a good while, as the rest of the Firm scrabbled around to try and shore up the damage done.

There are now several things we know about the interview, which for all the wrong reasons, had Andrew in the tabloid gunsights ranged from not sweating, going to Pizza express, being friends with Epstein and seeing his ex last year - amongst other terrible gaffs. Most of his answers have seen his credibility utterly destroyed but perhaps the real sting is yet to come from the US as the FBI still seem keen to interview him regarding what he did or didn't know about Epstein's sordid past. Needless to say, after his last swan song in public, hopefully he is being advised to keep his head down.

One part of the story that the feeding frenzy didn't really swarm in on, was his hapless advisor, Amanda Thirsk who was removed from her publicly funded role as his trusted private secretary whom had been the driving force behind the interview so Mr Prince could unambiguously give a clear denial to Epstein's paedophilia.

And that brings us nicely onto the need for considered and thorough witness preparation. Having seen in all its unedifying glory how Prince Andrew threw himself off a cliff I don't need to spell out the pitfalls of what happens when it goes wrong.

One part of the jigsaw that Ms Thirsk didn't factor into mix was that her boss had a choice. He wasn't under any court order or summons, hadn't been arrested, or summarily compelled to attend a tribunal (well not yet anyway). Those called to give evidence mostly don't have a choice and this is where preparation is the key to success.

Lawyers can't coach witnesses in the UK which is against our professional conduct but we can go through a witness familiarisation/ preparation programme which will put the witness at ease when giving evidence, familiarise them with the tribunal in advance of the day, explain what the do's and don'ts are of giving evidence and run through mock cross examinations that are distinct and independent to the case in hand often with videotaping to allow positive criticism in the de-briefs.

It is often surprising that having spent considerable sums in legals to prepare a case to trial, the single most important element to the case at that stage is the witnesses and how they are going to come over giving evidence and how overlooked this crucial part of the case often is. One answer probably lies in the fact that an increasingly large percentage of lawyers these days don't ever see a trial through to the end as most cases are settled through ADR. As such even quite skilled lawyers find themselves in new unchartered waters when a trial is listed.

So, if you are going to have to give evidence you should be alive to witness preparation and its benefits as it makes much more easier watching when your main key witness isn't bumbling about not sweating and his pizza in Woking.

Feel free to call Giles ward on **07789 401 411**, e mail on **giles.ward@milnerslaw.com** or LinkedIn **linkedin.com/in/giles-ward-6b318731** to discuss being called as a witness or any other legal issue you are facing or need to discuss.

Your guide to the pest control

2020 TRAINING DATES

Killgerm TRAINING

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**.

2020 TRAINING DATES

March 2020
05/03/2020 - Flying Insect Management - **Ossett**
05/03/2020 - Pest Control Refresher / Update - **Kendal**
10/03/2020 - Killgerm Principles of Rodent Control - **Lingfield**
10/03/2020 - Killgerm Principles of Rodent Control - **Ossett**
10/03/2020 - Pest Control Refresher / Update - **Grangemouth**
11/03 - 12/03/2020 - Killgerm Principles of Insect Control - **Lingfield**
12/03/2020 - Insect Workshop 2 - Ants, Bees & Wasps - **Ossett**
17/03/2020 - Killgerm Principles of Rodent Control - **Newbury**
18/03/2020 - Insect Workshop 1 - Bedbugs & Fleas - **Newbury**
19/03/2020 - Insect Workshop 2 - Ants, Bees & Wasps - **Newbury**
19/03/2020 - Safe use of Air Weapons for Bird Control - **Holmes Chapel**
24/03/2020 - Killgerm Principles of Rodent Control - **Norwich**
24/03/2020 - Pest Control Refresher / Update - **Tamworth**
25/03 - 26/03/2020 - Killgerm Principles of Insect Control - **Norwich**
25/03/2020 - Trapping Techniques - **Killamarsh**
26/03/2020 - Killgerm Principles of Rodent Control - **Grangemouth**
31/03/2020 - Killgerm Principles of Rodent Control - **Tamworth**

April 2020
01/04 - 02/04/2020 - Killgerm Principles of Insect Control - **Tamworth**
02/04/2020 - Drainage Investigations & Rat Control - **Durham**
07/04/2020 - Killgerm Principles of Rodent Control - **Ossett**
08/04 - 09/04/2020 - Killgerm Principles of Insect Control - **Ossett**
16/04/2020 - Flying Insect Management - **Newbury**
21/04/2020 - Drainage Investigations & Rat Control – **Ossett**
21/04/2020 - Pest Control Refresher / Update - **Norwich**
21/04/2020 - Safe Use of Air Weapons for Bird Control - **Bisley**
22/04/2020 - Insect Workshop 2 - Ants, Bees & Wasps - **Tamworth**
23/04/2020 - Killgerm Principles of Rodent Control - **Bristol**
28/04/2020 - Pest Control Refresher / Update - **Belfast**
28/04/2020 - Pest Control Refresher / Update - **Bristol**
29/04/2020 - Safe Use of Air Weapons for Bird Control - **Kibworth**
30/04/2020 - Trapping Techniques - **Southampton**

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April 30, 2020
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May 21, 2020
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June 4, 2020
RSPH Level 2 Award/Certificate in Pest Management
Day 1 – 4th June 2020
Day 2 – 5th June 2020
Day 3 – 11th June 2020
Day 4 – 12th June 2020
Day 5 – 18th June 2020
Day 6 – 19th June 2020

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29th April 2020, SCOTLAND – Perth
14th May 2020, SOUTH WEST – Bristol

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