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PEST CONTROL NEWS®

THE MAGAZINE FOR THE PEST CONTROL INDUSTRY

June 2021



issue **126**

Insect pheromones

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Unsung heroes

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Pest Control News takes a look at insect pheromones – what they are and what they do.

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Blair gets a head start on pest control qualifications

Blair Hood, of Hood Environmental Services, has successfully completed the Killgerm Principles of Rodent Control certification and has demonstrated compliance with UK rodenticide stewardship regime requirements. After completing the Rodent Control course, Blair also went on to undertake the Killgerm Principles of Insect Control and subsequent exam and is delighted that he has also passed this course as well!

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Static rodenticide residues in barn owl surveillance

Two-thirds of barn owls analysed have been found with detectable liver residues of two or more second generation anticoagulant rodenticides (SGARs). Another 21% were positive for one SGAR in this Campaign for Responsible Rodenticide Use (CRRU) surveillance. The highest frequency detections were of bromadiolone, difenacoum and brodifacoum.

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Basis announces head of business development and marketing manager promotions

In a move to support business growth and performance, BASIS has promoted two key members of staff into new roles.

Following a career as an arable agronomist, Greg Hopkinson has excelled in his current role at BASIS, and has been promoted to head of business development.

BASIS' second promotion has been given to Jess Deunert, a longstanding member of the team, who has progressed through the company during the last 10 years.

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Irish acquisition announced by Killgerm Group Ltd

Killgerm Group Ltd is pleased to announce the completion of its acquisition of Sprayclear Environmental Ltd. Based near Dublin, Sprayclear is the leading supplier to the professional pest control service market in the Republic of Ireland.

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Rodenticide Resistance Action Group appoints a new chairperson

Dr Alan Buckle steps down, after more than ten years in the role, as chair of the Rodenticide Resistance Action Group (RRAG). Alan remains as a member of the group and will assist the new chair, Dr Matthew Davies, while responsibilities are handed over.

Members of the group would like to thank Alan for his excellent leadership, and technical expertise, the culmination of which has been the timely publication of updated resistance guidance documents for house mice and Norway rats.

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Insect pheromones: what they are and what they do

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Scientists have known about pheromones for over 100 years and with many insect species being on the earth for millennia...we can guarantee that insects have been producing pheromone for over 300 million years.

'noun, ZOOLOGY, a chemical substance produced and released into the environment by an animal, especially a mammal or an insect, affecting the behaviour or physiology of others of its species. Pheromones are produced by the exocrine system.'

An understanding of pheromones is the first step in the integrated pest management process for dealing with many insects. This is because pheromones (IPM) are often utilised in monitoring to provide a clear determination of presence, or absence, of a specific species. Sticky or pitfall monitors are typically used with a pheromone dispenser or tablet. The sticky glue on many monitors is impregnated with the pheromone itself. Helping to identify pest species is essential to enable the tailoring of a treatment and action; therefore, correct identification is the first step towards finding the solution. Pheromones have a key role in the IPM process, monitoring-prevention-control. It may be possible to gain partial control over an infestation by just using pheromones. We see this in mating disruption treatments. However, without a full IPM scheme the results will not usually be as efficacious. Pheromones are often complex chemical compounds and there are challenges in synthesizing them on a commercial scale.

How do insects (and arachnids) use pheromones?

Communication: leaving chemical messages for each other within the same species, for example, to raise the alarm or set a trail to food. Ants are a prime example of this.

Aphrodisiac: heightening the desire to mate and behaviours leading to mating. Some male insects will even coat the female in an anti-aphrodisiac that wards off other males.

Sex: attraction of the opposite sex, in insects, can be under the influence of sex pheromones. This is all-important for the proliferation of the species. Sex pheromones, relevant to pest management are well-known in stored product moths and the common housefly.

Aggregation: insects use aggregation for survival, feeding, safety and of course mating. Typical examples include cockroaches and bedbugs. Cockroach nymphs of first and second instars require certain products excreted in vomit or defecated by the adults to enable moulting. Next time you see cockroaches clustered together, or a number of bedbugs close together in a harbourage, remember they are doing this under the influence of their own aggregation pheromones.

Alarm: honeybees and ants are notable for using alarm pheromones to signal to other members of their social colony, that they are under attack and to recruit further individuals for defense. Alarm pheromones are why bedbugs scatter when disturbed.

Control: Insects may use pheromones to control each other, for example honeybees. The Queen honeybee (*Apis mellifera*) produces a Queen pheromone which keeps the female workers from producing their own eggs.

How are pheromones used in public health pest management?

Pheromones most frequently used in control and monitoring capacities are either sex pheromones or aggregation pheromones. One of the most common uses is for moth species. Typical moth lures are a synthesised version of the female sex pheromone which attracts the males of the population.



Bedbugs

Bedbug monitoring has come a long way in a few short years.

Attractants utilised vary from aggregation pheromone based (such as a newly launched bedbug lure) to advanced kairomones (a little more on these later) employed by bedbug pitfall traps, mimicking the draw of a sweaty human! Bedbugs will produce aggregation pheromones anyway (to attract other bedbugs to the area), so catching them may intensify the level of pheromone.



Cockroaches

German cockroaches (*Blattella germanica*) produce pheromones in their mid-gut and dose their own faecal pellets. This leaves behind attractive faecal spots, luring other cockroaches to aggregate. They also use short range kairomones, mixed with their saliva when eating, to let others know that there is food nearby – another aggregation cue. Cockroach monitors with pheromone lures have been shown, during trials and studies, to significantly increase the monitor efficiency and catch rate. Once the cockroaches have been caught, they will produce aggregation pheromones anyway as is their typical behaviour. Surviving for significant time even when on the glue pad, the cockroaches will still be attracting others to their location.



Moths

Highly specialised antennae mean that some moth species can detect pheromones from literally miles away. However, stored product moth such as Indian meal moth typically detect sex pheromone from 8 – 15 metres away. Pheromones used for monitoring and to a lesser extent control are widely known within pest control. Males are attracted to the female sex pheromone used in many moth traps, which is why we tend to see just the males on moth monitors. Pheromone monitors for moths, pests of food products and textiles, are commonly used and widely known to be the best way to monitor moth activity. They include funnel monitors, open-fronted ‘diamond’ monitors and of course prism-shaped monitors. Mating disruption systems can also be used. However, these must be applied carefully and alongside hygiene, house-keeping and existing monitoring. Mating disruption works by flooding treatment areas with female moth sex pheromone. The males are ‘convinced’ there is a female present and use all their energy trying to find her and mate. This can lead to very high numbers of male moths accumulating around the pheromone dispenser sachets. Over time, systems such as this can work very effectively. They significantly reduce the number of males, weakening the population and rapidly slowing the reproductive capacity. The longer the female moth (particularly in the case of food moths) is without a male to mate with, the more her fertility decreases. This leads to further detrimental impact on the population as fewer viable eggs are produced. Again, this must work in line with good standards of hygiene.

Beetles

There are various monitors, which do contain pheromones, for textile and stored product beetles. For example, there is a lure made specifically for biscuit beetles (*Stegobium paniceum*) containing a synthesised sex pheromone. A fabric insect monitor and multi species monitor are designed for both textile and food environments respectively.

Flies

There are a small number of fly products that contain attractive pheromones, used to lure flies to the treated surface, therefore enhancing efficacy in particular environments such as waste sites for the typically associated flies. Such areas can be a challenge due to the highly attractive waste products being processed or being produced. Tricosene is the sex pheromone for the common housefly *Musca domestica*.

Mosquitoes

Usually used to attract Asian tiger mosquitoes (*Aedes albopictus*) and dengue or yellow fever mosquitoes (*Aedes aegypti*), monitors can employ artificial or synthesised chemical scents to mimic a human host. Examples are octenol, lactic acid and carbon dioxide. These are classed as kairomones rather than pheromones.

Kairomones are used for host tracking/locating/luring and are featured in some bedbug monitors as well as those for mosquitoes. Kairomones can be normal products of metabolism of one species that are now used by

another to locate its host. They benefit the receiver (mosquito!) rather than the emitter (human!). Note the difference with pheromones which function between individuals of the same species. An overall term for pheromone, kairomone and others is ‘semiochemical’.

Semiochemical, noun, BIOCHEMISTRY, a pheromone or other chemical that conveys a signal from one organism to another so as to modify the behaviour of the recipient organism.

HSE stance on pheromones

A little while ago, pheromones came under scrutiny and concern spread that they may be re-classified as biocides which would mean they would fall under different legislation. They would have to be re-registered as such, meaning they would require huge resources to keep them on the market. Luckily, this didn’t happen.

In short, the HSE position is:

Traps purely for monitoring purposes to assess the necessity for, or success of, pest management measures, clearly labelled, sold and used as such, are not within scope of the EU Biocidal Products Regulation 528/2012, and so do not require authorisation in order to be placed on the UK market.

Such traps should be labelled and marketed to make it clear to the user that the trap is purely for monitoring purposes and should not make any claims or inferences that it could be used as a biocidal product, e.g. claims to reduce/control/kill the pest insect, or images such as dead insects. To help avoid potential confusion, we would advise that such traps should clearly indicate they are for monitoring purposes in the product name, e.g. Insect Monitoring Trap, Fruit Fly Monitoring Trap, or similar indications.

Traps intended for use beyond purely monitoring, such as those intended to help to reduce the insect population/to control the pests/for mass trapping, may be considered to be being marketed primarily for biocidal purposes and may therefore be regulated as biocidal products.

Summary

Modern science really is on the side of the pest management professional. Relatively recent innovations in the capacity and technology to identify and synthesise pheromones has led to an increased number of products available. Most recent additions are some of the highly specialised bed bug lures – powered by the increasing demand of an accelerating pest issue and innovative individuals. Research is progressing as is technology and manufacturing techniques for these complex chemicals. It has always been a challenge to replicate nature and overcome evolution, especially for some insects that have been surviving on this planet for millions of years. Humans and our activities are a haven for stored product insects, textile pests, filth loving cockroaches and of course bloodsucking bedbugs and mosquitoes. With technological chemical advancements alongside tried and tested techniques we can push the pest battlefield in our favour.

DO YOU WANT MORE SALES?

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In this article we give you an insight into the basic principles of sales techniques. We take a look at the sales process and the key sales elements using conversion and consultation. We are not exploring high pressure selling, but we will look at how to deal with objections when people say no. Gaining confidence in your sales skills will allow you to increase your turnover and drive improved profits.

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It is important to gain an understanding of what motivates people to buy something, whether that is a product or a service. There are a number of situations where you are selling to a customer including the first interaction with a customer or potential customer, on the telephone, face to face, via email and social media.

Selling falls into two different areas – creating a good impression of your business and getting someone to agree to use your service.

Finding opportunities to engage with the customer and give them a good impression, or to gather information about the situation and give them information about your service are vital.

People buy the benefits, not the features. These include saving money, making money, saving time, enhancing their reputation, image or service and survival in the marketplace. Keep reading to learn more about how to identify the benefit.

Identifying the benefit

It is important to listen to the client and pay attention to what they are saying, and their body language in order to identify the benefit that your services can provide them. This can be done through holding a conversation with the client while keeping a number of aims in mind. Show an interest in your client – them, their job, their business. This not only makes them more likely to respond to you, but you are also gaining valuable information about the client and their business that you can use later in the process.

Use open ended and probing questions to identify the benefit through a fact-finding conversation. Probing is the skill of gathering information, achieved through asking questions of a certain type.

Using open ended questions – who, what, where, when, why, how, ensures that people provide information within their answers. Try to avoid using closed questions, where someone can answer yes or no, unless you are using them to confirm information.

Identifying opportunities to sell

The main opportunities to sell will come over the telephone or face to face. Telephone sales can be a little impersonal and it can be difficult to gauge the reaction of the person on the other end of the line, but they are much quicker than face to face sales. Face to face selling is much more personal and allow you to gauge the customers reaction by reading their body language, but they do take more time out of your day.

Creating an interest

Sometimes you have to create the need, rather than identify the need, for example if you are cold calling potential customers.

Asking questions such as “Can I talk to you about pest control?” or “Can I provide you with a quote for your pest control?”, will usually evoke a negative response. Instead, use questions that get the client talking, listen to the answers and then ask probing questions to get more information, e.g. “Can I ask what provisions you have in place to control pest activity?”

Remember to keep the focus on their needs, overcome negative responses and use questions that get the client talking.

The aim of cold calling is to create a good impression, to create interest, to gather information and to gain an opportunity to provide a quote.

Features and benefits - what is the difference?

- Features – the components of the service or product
- Benefit – the beneficial outcome or the advantage

A great line to remember is that ‘features tell, benefits sell!’. The features tell your customer what the components of the product or service are, but the benefit of your service is what they are really buying.

Although your customer is not buying the features of your product or service (they are buying the benefit), it is important to use the features to explain to a customer what they are getting for their money. Ensure that you keep it relevant to the customer situation and don’t overload them with information as this can lead to objections.

You can link the features and benefits together in a statement using link phrases, e.g. “We will carry out an initial intensive treatment programme, quickly reducing the size of the infestation, which means that the risk of your clients seeing mice is reduced thus protecting you against costly refunds.”

Added value sales

Added value sales are a legitimate part of all sales environments and they are not about sharp practice of bullying sales tactics. Added value sales come about as a result of using technical knowledge to provide either the complete solutions to a pest issue or identifying opportunities presented by pests other than the initial reason to be at a premises. Being a professional – explaining to the client everything you have found and providing a solution but being professional and factually accurate. Considering the seasonal pests that may occur. Looking at linked sales opportunities e.g., insect pests from bird work or fly killers.

There are some considerations to take into account when selling added value services including the type of premises, the risks associated with a particular pest, the seasonal nature of pests and links that can be made between different groups of pests.

Presenting the solution to the customer should be done professionally, for example, “The fly killer will kill off the flies. Most of the flies are coming from outside so I would also recommend taking additional action to stop flies getting in.”

Closing the sale

Anytime is closing time, it could be halfway through your survey that the customer asks “when can you start?” or you may go through the whole sales process. Look for buying signals from the customer. These are signs that the client is interested in what you are saying and what you are offering. You can read the buying signals by looking at their body language and listening to what they say. They may also be looking at any visual aids or reading your contract. These are indications that the customer is interested and you may have an opportunity to close the sale.

Closing the sale can be done in a number of ways, depending on what you want to achieve. It could be you asking for the order, agreeing the terms, agreeing the price or following up after a quote.

Assumptive – this makes the assumption that the client is going ahead, and you just need to ask for the order, for example, “If you can authorise the work, I can get started today.”

Alternative – this offers the client two choices and avoids the chance to say no, e.g., “Would you prefer to go for the white or stainless-steel model?”

Concession – this is where you offer something in return for the order, e.g., “If we can spread the cost over 3 payments we can go ahead?”

Summary – this provides what you will do and then asks the client to authorise the work, e.g., “So you would prefer us to call on a Friday afternoon. We will park up the road and come down the rear alley so that your customers cannot see us entering. On that basis if you can authorise the work, we will be back on Friday.”

Handling objections

Objections occur when the client is not clear on something. They will either say that they are not clear, or they will say no. Objections can also occur when you are selling the wrong benefit. However, all is not lost!

Use a confirmation statement to repeat the objection back to the client, e.g. “The cost of the service is preventing you from authorising the work?”

Use an isolating question to ensure that you know all of the objections are out, this will help to avoid other objections coming out later, e.g. “Is the cost of the service the only thing preventing work going ahead?” If the client says there are other things that are preventing them from going ahead, you need to ask what they are and write them down if needed.

Overcome the objections using a reselling process. You would usually start with a question and then retrace the steps of the whole sales process ensuring you are selling the correct benefit, e.g. “So cost is the only concern that you have? If I can demonstrate this represents good value for money, can we go ahead?” You can then re-cap the conversation and refer the customer back to the benefit.

This is a brief overview of the sales process and there is a lot more than we could fit in this article! Hopefully you can build on the information that we have here and gain confidence in your sales skills leading to increased turnover and improved profits.

If you would like to develop your sales skills further, Killgerm offer a Sales Skills training course, held over 2 days. Please contact Tim Bloomer, Killgerm Area Sales Manager for full information.



Melvin Knapp achieves 'Associate Certified Entomologist International' certification

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Pest Control News speaks to Melvin Knapp, Killgerm's Technical Manager (South), about achieving his Associate Certified Entomologist International certification.

I first heard about the ACE-I programme, in Birmingham UK, back in 2017 when attending the International Conference on Urban Pests. It was whilst attending a lecture on "Indoor arthropod communities and distributions in U.S. homes" delivered by Matt Bertone at ICUP 2017. Matt ended what was an interesting presentation by mentioning the Associate Certified Entomologist International qualification. The ACE-I is an international version of the Associate Certified Entomologist certification which has been available to Pest controllers (or Pest Management Professionals as they are known in the U.S.) since 2004. While it does not make you an entomologist (a degree from a University and relevant experience helps towards that) it is designed for pest controllers who do not have a higher degree in entomology. It is for those who wish to demonstrate a high level of achievement in education, training and learning within the pest control industry. The International version of the qualification became available to pest controllers around the world in 2014. After listening to Matt and always being up for a challenge I had it on my "bucket list".

Fast forward to 2020 and a global pandemic. It is easy to become frustrated in a national lockdown when you cannot do all the things that you usually enjoy such as running face-to-face pest control training courses (plenty of online training of course!). However, the extra time at home gave me the opportunity I needed to tick that certificate off my bucket list. I contacted the Entomological Society of America who run the ACE-I programme and registered.

There are several pre-requisites that are required before becoming an ACE-I including: a minimum of 5 years' experience of working in the pest control industry, agree and abide to the ACE code of ethics, provide 2 letters of recommendation and reference and of course, pass the examinations.

There are 2 examinations which you must pass. The first exam is on pesticide safety (the ACE-International version omits any U.S. specific legislation and is generalised to suit pest controllers from around the world). The second tests four core knowledge domains which are: inspection and identification, selection and implementation of control methods, evaluation and monitoring. The list of pests covered in the exam is vast and although most of these are found around the world many are not typically found in the UK. However, I found learning about termites, (Order Isoptera) and spiders, (Order Araneae) most interesting. It also covers insects such as the brown marmorated stink bug, (*Halyomorpha halys*) which has been a pest in the U.S. for several years but is now starting to make appearances in the UK.

The ACE-I programme is well suited to anybody who is keen to expand their knowledge or has a senior or technical position within their company such as supervisors, field biologists and technical managers.

Further information on the ACE-I certification programme can be found on the ESA website: https://www.entocert.org/ACEI_overview

Dr Matthew Davies, Killgerm's head of technical department, commented "It was a no-brainer for Killgerm to support someone of Melvin's calibre through this highly relevant certification. His knowledge and enthusiasm led to a well-deserved success and this is further evidence of the high quality of our technical department. Congratulations Melvin!"



Delegates Reunited in First ICUP Webinar

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Unable to meet face-to-face, nearly 500 members representing over 50 countries of the International Conference on Urban Pests (ICUP) community met up on-line for the first ICUP webinar held on 9 March 2021.

Ruben Bueno chaired the webinar and explained that he had hoped to have greeted delegates to the 10th ICUP conference, due to have been held in Barcelona, which had had to be cancelled due to the coronavirus pandemic. However, he said that all the ICUP organisers felt it was important that the group should maintain contact via this webinar until the next conference is held, which he hopes will still be held in Barcelona at some future date.

From over 130 papers offered for presentation at the postponed Barcelona conference, five were selected for presentation at this webinar, with the possibility of additional papers to be presented at a further webinar.

Speakers selected came from across Europe and the US. Research results presented covered topics ranging from rats in sewers in Barcelona, controlling yellow jackets in California, insect pests in Europe to mosquito control with the development of CRISPR gene-drive systems. After each presentation there was a lively exchange of questions and answers.

Climate change and the establishment of non-native arthropod species in domestic situations featured in the first two presentations. In the first, Federica Bolocchi, who recently joined the University of Milan, Italy, after completing her PhD research with Killgerm Ltd and Aston University, detailed her findings on work identifying the range of arthropod species in parts of the UK along with any associated microbial communities. Much more specific, Klaus Zimmermann from Inatura GmbH, Austria detailed his findings regarding how rising summer temperatures are favouring the spread of the ferocious and very quick moving house centipede, *Scutigera coleoptrata*, in Central Europe. What is notable in both presentations is the use of Citizen Science in the collection of specimens. Or as Zimmermann describes it, 'creative mapping' where scientific data is combined with Citizen Science.

Looking to future control technologies, Victor Lopez Del Amo from the University of California, San Diego, USA outlined how CRISPR gene-drive technologies could be harnessed for mosquito control in urban areas. This technique would provide a valuable alternative to the

currently employed insecticide treatments, for example impregnated bed nets or residual spraying, where resistance can become a problem. However, CRISPR research involves work on the genome sequencing of DNA, so may meet with resistance and a labelling of genetic meddling by the general public.

Moving away from insects, Jordi Pascual from the Public Health Agency in Barcelona reviewed his work evaluating the reproductive seasonality and fertility of Norway rats in the Barcelona sewers. As sewers maintain a relatively constant environment, it would be expected that there would be few variations in the rodents' reproductive cycle. To his surprise, this proved not to be the case, with outside influences, such as temperature, exerting considerable effects.

Rounding the webinar off was a presentation covering palatability and attractiveness of yellowjacket baits in outdoor areas by Michael Rust from the University of California, Riverside USA. This was highly appropriate as he belongs to a very unique band of ICUP community members who have been to each and every ICUP conference since the first was held in Cambridge, UK in 1993.

Asked by Ruben Bueno why ICUP was special to him, Rust said: "These events allow us to exchange information and share the problems of pests in an urban environment. Coming from the US, it's an ideal opportunity to discover what is happening in Europe. These events expand my horizon, plus they are always enjoyable!"

For those unable to attend the webinar live, or to simply listen to the presentations again, they will be available shortly on the ICUP website until 6 April 2021. Visit www.icup.org.uk.

Drawing the webinar to a close, Bueno said nothing had yet been finalised, but it was hoping to hold the rearranged 10th ICUP in Barcelona at some future date.

As to be expected, Bill Robinson and Clive Boase, of the ICUP Executive Committee, have both been closely involved with organising this first webinar. After which they commented: "We are really pleased with the content and attendance of this debut webinar. We're seriously considering further virtual events, to maintain the spirit of the ICUP community until we can meet again face-to-face."

Watch out for announcements, or follow events on the new ICUP Twitter account [@ICUP_Conference](https://twitter.com/ICUP_Conference).

Killgerm Celebrate the Unsung Heroes

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The beginning of the year saw Killgerm launch a competition to find the Unsung Heroes within the pest control industry. People were asked to nominate those unsung heroes who had gone above and beyond to help customers, communities & businesses climb the mountain during an unprecedented year. The nominations came flooding in and the winners were announced at the end of March.



Winner: Liam Stott of DREAM Environmental Services Ltd

Nominated by Joe Pickles

Liam was nominated by after he carried out numerous free pest control call outs and preventative measures for the elderly and provided discounted pest control services for all NHS staff during the pandemic. Liam still offered discounted services despite struggling with collecting payments himself and entering the premises of contracted clients.



Runner Up: Josh Trevaskis Cox of Area Pest Control UK Ltd

Nominated by Daniel Golding

Josh was nominated for setting up a COVID-19 Disinfectant service, offering the service 7 days a week and making it top priority above all other jobs when a request was made, attending sites within 24 hours or less from being instructed. Josh has been on hand throughout the lockdown to help clients to be safe and COVID secure with his perseverance and compassion to help keep customers safe. During lock down, when visiting vulnerable clients for routine visits, Josh would call ahead and ask if they needed any necessities and offer to bring them along with him, this often led him to staying behind after work hours to complete the task and make sure customers had everything they needed.



Runner Up: Ian Furlong of Independent Pest Control & Hygiene

Nominated by Louise Sergent

Ian was nominated because he has continued to work throughout the pandemic whilst also becoming an NHS Volunteer helping vulnerable people in between his calls in various areas. At the time of nomination, he had clocked up 5,858 on call hours picking up prescriptions for people and doing their shopping for them, out of his own pocket.

Ian has also been sensitive towards the concerns of his staff throughout the pandemic, which has put extra pressure on him to provide the normal excellent service customers have come to expect. All of Ian's staff are very proud of him!



Runner Up: The Unbugged Pest Control Team of Lancaster City Council

Nominated by Sue Clowes

Mike Tyrrell, Andy Henworth, Lee Illingworth, James Bland and Gary Chalmers of Lancaster City Council Pest Control were nominated because they have all continued to carry out pest control throughout the pandemic, willingly and without complaining. Mike, Andy, Lee, James & Gary wanted to continue providing an essential service to Lancaster's residents. They took on board a new risk assessment process to determine which treatments were essential, how they could be carried out safely, and the PPE needed. One of the team has respiratory issues and the other four team members agreed amongst themselves, without being asked, that their colleague carry out outside treatments only, sharing his indoor jobs amongst them.

Whenever workloads dropped, all the team volunteered to carry out welfare phone calls and visits for the council to vulnerable residents, to check on their wellbeing and whether they needed food parcels etc. The team also identified these needs during pest control visits and reported back to the Council Wellbeing team. Even when members of the team had to self-isolate due to their families contracting Covid, they were on the phone asking what they could do from home, turning their hands to reviewing work procedures etc., and updating their training. They took on offering Covid disinfection as a new service. They even volunteered to make themselves available without a standby fee should any pest problems arise in the council's food banks out-of-hours.

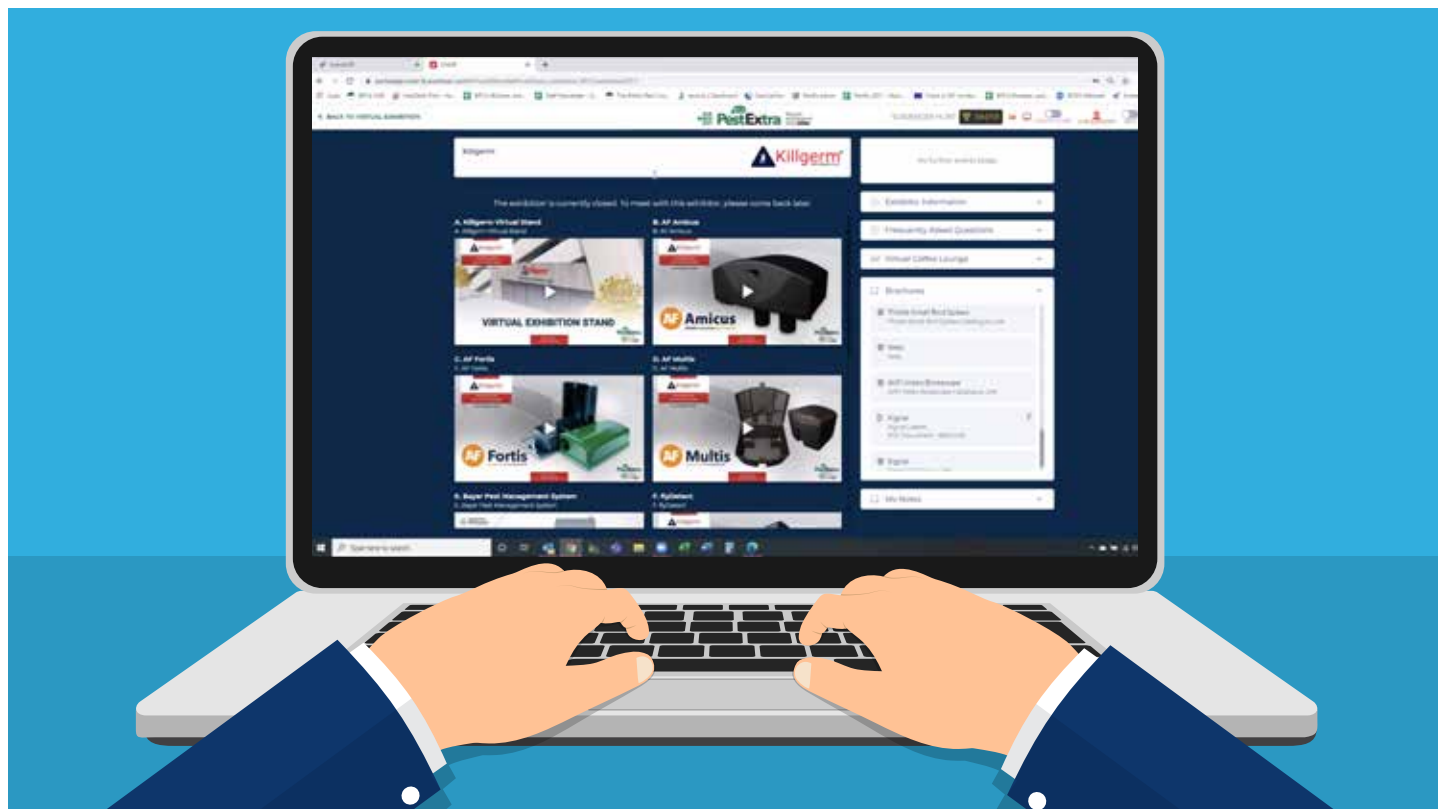
Runner Up: Robert Chesters of 3C Pest Solutions

Nominated by Ed Clegg

Rob was nominated by a customer as he was quick to respond to their house mouse problem. His knowledge and environmentally responsible approach was second to none. He was able to deal with the problem very quickly and in a manner that the customer was very happy with. Rob also sorted out a wasps nest and it wasn't too much trouble to come in the evening as Rob was aware that the customer had young children.

Congratulations to everyone involved!





PestEx Goes Digital

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With Covid-19 continuing to disrupt plans all over the world, including seeing the postponement of Pestex until 2022, British Pest Control Association refused to be beaten and 16th-18th March saw the launch of the first virtual PestExtra exhibition.

The lack of a physical location didn't stop over 1,700 visitors descending on the online platform, which featured 46 exhibitors, 5 seminar theatres and a scavenger hunt attracting visitors from all around the globe.

Seminar Theatres

With a huge 73 different seminars on offer across the 5 theatres and roundtables, there was something for everyone. Highlights from the technical theatre included Dr Alan Buckle presenting Sixty Years of Anticoagulant Resistance in the UK and Digital Pest Management on the Aisles by Tony O'Donovan, Head of Group Pest Control at Tesco.

Each live seminar was attended by an average of 165 people, with a further 3,422 views from the On Demand section. Selected seminars are still available to watch on the BPCA website for anyone wishing to catch up.

In the BASF seminar theatre, Sharon Hughes and Helen Ainsworth introduced BASF's latest innovative product, Selontra® - a Cholecalciferol rodent bait.



While in the Killgerm seminar theatre Dr Matthew Davies & Dr Federica Boiocchi presented the results of Dr Federica Boiocchi's PhD research at Aston University in association with Killgerm, in a seminar titled Household arthropods and their associated bacterial communities.

This was followed on day two by Dr Victor Brugman presenting BugScents: The development of a novel aggregation pheromone bed bug lure and Pest management in the Ministry of Defence by Lieutenant Colonel Jim Fawcett, which was shown on day three.

Killgerm's most popular seminar was Textile Pests: A proactive approach to control, presented by Avril Turner.



Exhibitor Stands

When visiting exhibitor stands visitors were able to live chat or video chat to available staff members, with many new connections, as well as catch-ups happening throughout the show.

The rise of 3D virtual stands was evident with Bayer, Killgerm and others taking up the opportunity to welcome visitors to a customised version of their exhibition stand, choosing to stand out from the crowd.

The Killgerm virtual stand featured an Easter themed competition, where entrants had to guess how many eggs it taken to fill the new AF Amicus. After many guesses came in, ranging from 46 up to 501, the correct answer was revealed as 292 with Malcolm Jones receiving the huge Easter hamper with his guess of 279 coming in closest.



Killgerm sponsor new Flow hive at Manchester City Council

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Killgerm Chemicals have supported Manchester City Council with their honeybee swarm collection service by sponsoring a new Flow Hive.

Bees play a vital role in the pollination of crops and the UK's bee population is in serious decline. This prompted Manchester City Council to get involved and offer their services collecting honey bee swarms and relocating them under certain circumstances.

For viable collection, the honey bee swarm should be at least the size of a rugby or football. The swarm will have thousands of honey bees clustered closely together around their queen. Once honey bees are outside the hive, they can only survive for a few days. If the swarm has been in place for less than 3 days, Manchester City Council's pest control department may be able to collect them.

Once collected, the honey bee swarms are rehomed into new bee Flow hives and at the end of the season, any honey that they produce will be harvested and sold with the profits benefitting local charities.

The Killgerm sponsored Flow hive is located on Hooper Street in Manchester. Members of the pest control team also have hives in their gardens at home, which allows them to keep a close eye on the collected swarms.

The team have been trained by British Beekeepers Association (BBKA) and now have 10 members of staff that are able to collect swarms.

The team wanted to use Flow hives rather than the traditional beehive as they are less invasive. The Flow hives patented split cell technology uses partially formed comb that the bees complete. Once filled and capped, the key can be turned and inside the hive the honeycomb cells split, creating channels for the honey to flow down while the bees remain undisturbed on the surface of the comb. This allows honey to be tapped straight from the hive without opening it.

Could mystery insect ‘bites’ or ‘stings’ be caused by *Sclerodermus* parasitic wasps?

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Determining the cause of bite-like or sting-like reactions in people is a real challenge. Are these reactions caused by a real insect, mite, or other arthropod?

Common examples could be bedbugs *Cimex lectularius*, cat fleas *Ctenocephalides felis*, mosquitoes Culicidae, biting midges Ceratopogonidae, bird mites *Dermanyssus gallinae* and even the urticating hairs of carpet beetle larvae *Anthrenus verbasci*. Of course, illusory parasitosis (static, fibres and other physical irritants) could be at play especially in an office situation. The unshakeable conviction that insects are present, the true ‘delusions of parasitosis’, can be very difficult to deal with. In these cases of unknown activity (whether illusory or delusory), we must inspect, monitor and identify the cause before undertaking an insecticide treatment. In fact, the same applies when dealing with an unknown pest problem.

We include, to the list of species considered, the parasitic wasps *Sclerodermus* in our considerations of reported ‘stinging’ insects. These insects have been documented, in the scientific literature, as a cause of sting-like pains that lead to lesion development in humans. Such cases have been reported in Italy, Spain, France, United States of America, Central America, South America, Africa and Asia.

A report from France was as recent as 2020 and images of the case feature here (Marty *et al*, 2020):



FIGURE 1. (A) *Scleroderma domesticum*, ventral view. (B) *S. domesticum* with ovipositor stinger. (C–E) Evolution of the papular lesions on the patient's back (day 0, day 3, and day 7). This figure appears in color at www.ajtmh.org. Citation: The American Journal of Tropical Medicine and Hygiene 103, 4; 10.4269/ajtmh.20-0188

Significance of *Sclerodermus* – human reaction to stings

Reports of humans being stung by *Sclerodermus* refer to:

- A 66-year-old male woke, in the morning,

feeling a severe stinging pain. This was initially in the neck and followed in the back. A pruritic (itchy) rash with multiple inflamed papular (rounded bumps) lesions (skin injury), arranged in a line, was apparent. Inflammation disappeared in the next 2 hours. Three days later, the lesions were not painful anymore. On day 7, healing lesions were still visible on the patient's back.

- Stings on the dorsum, abdomen, arms, and thighs of a 40-year-old man and his wife. The sting sites developed a raised red itchy rash.
- A 50-year-old woman presented with intense pruritic (itching) edematous (swollen) lesions (skin injury).

What are the sources of *Sclerodermus* activity?

Sclerodermus species (*Sclerodermus domesticus* is commonly reported but there are others) are parasitoids of woodboring beetle larvae such as woodworm Anobiidae, longhorn beetles Cerambycidae and bark beetles Scolytinae. So, get rid of the woodworm to get rid of the *Sclerodermus* sting complaints. Curiously, antiquarians and restorers are at risk of *Sclerodermus* stings due to the time they spend around wooden items. Old wooden items can be a seat of woodboring beetle activity and therefore represent a potential source of *Sclerodermus*. A case-study of an antiquarian suffering from *Sclerodermus*-related pain and lesions is detailed by Veraldi *et al* 2010. In fact, the common name of *Sclerodermus domesticus* is ‘friend of the antiquarian’.

Some sources of activity, listed in the literature, are:

- The source was identified as a ‘worm-eaten’ (woodboring beetle larvae – *tech ed*) sofa bought from a second-hand furniture dealer and positioned in the living room approximately a month and half prior to complaints.
- During a bout of night-time itching, the patient inspected her bed and discovered eight of the insects. She then found the same insects in the ceiling lamp positioned over her bed.
- Another finding in a patient's bed with stings reported in the morning.

Biology of *Sclerodermus*

Sclerodermus are small wasps, ranging from 1.5 to 6mm in length. Their appearance is flattened and ant-like. Indeed, upon first encountering these insects, the immediate instinct of this author was that they were a small ant species. This was however dispelled quickly upon examination.

Female *Sclerodermus* are classed as ‘quasi-social’. This means they work together (cooperate) when dealing with prey and when caring for their own young. They assist in raising the young of each other. When working together, a group of females can attack larger insect larvae. When females are alone they can only successfully attack the smaller beetle larvae. The number of eggs laid by each female can range from 5 up to 120 for each host. This is in relation to the size of the host and how many wasps are available to attack it. The lifespan of male *Sclerodermus* is a few days up to week. Females are much longer lived and can survive for up to seven months. Interestingly, there are differences in how males and females are produced. Fertilised eggs are required for females whereas males develop from unfertilised eggs. This means an unmated female can still produce young. She produces male-only young and can mate with a ‘son’. This leads to the production of a batch of female offspring.

Control of *Sclerodermus*

There is little knowledge regarding the control of *Sclerodermus* and similar. As with all insect problems, an accurate identification is an important step. Do consult with an entomologist to obtain an accurate identification. While there are no specific insect monitors for this pest, it is expected that these insects will be captured by crawling insect monitors. Another important pest management strategy is inspection. Inspection of a property could reveal used furniture, other wooden items, evidence of wood-boring beetle activity, linked to *Sclerodermus* activity. Disposal of simple wooden items, where feasible, is likely to assist. Where larger and more expensive wooden items are a source of woodboring beetle activity, the prey of *Sclerodermus*, seek advice regarding timber treatment to eradicate timber pests <https://www.property-care.org/> In terms of treating *Sclerodermus* with insecticides, it is expected that individuals will succumb to residual synthetic pyrethroids, diatomaceous earth, physical immobilisation products and freezing sprays. A fogging treatment with natural pyrethrins or synthetic pyrethroids is expected to knock-down individuals as part of a treatment plan.

The main control measure is of course awareness, which is something we now have thanks to this article on such an intriguing pest...

References

References include Veraldi *et al* 2010, Marty *et al* 2020, Skvarla 2018, Kruger 2018, Almeida Jr *et al* 2018, Papini 2014 and are available on request from technical@pestcontrolnews.com

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ID Corner



Technical

In this edition of the ID corner we take a look at the tick.

As coronavirus restrictions ease, and the weather improves, it is natural for us to be spending more time outdoors. Tick activity will begin, typically from May onwards, so it pays to be aware of these biting arthropods and protect ourselves from Lyme disease.

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Ixodes ricinus Family: Ixodidae

This species is a common and hard-bodied tick prevalent in Europe. An ectoparasite that takes a blood meal from humans, mammals (sheep, deer, small rodents), birds and even reptiles.

Males measure 2.5mm and females between 3 and 4mm, although after feeding they can reach 11mm.

They feed by attaching to the host and piercing the skin to suck blood. Saliva with anticoagulants and anti-inflammatories is produced to facilitate the feeding process. Once the blood meal is taken, they drop off the host after a few days.

Ticks are vectors of human diseases such as Lyme disease
Borrelia burgdorferi

The life cycle has 4 stages: egg, larva, nymph and adult.

Three hosts are required for the life cycle. The duration of the complete cycle is 2 to 3 years.

The larvae have 3 pairs of legs. Nymphs and adults have 4 pairs of legs. Ticks have no eyes so they wait passively, on vegetation, for a passing host. The host is then 'ambushed' while brushing past the vegetation. This tick behaviour is called 'questing'.



Visit the Public Health England website for further information and to be 'tick aware' <https://www.gov.uk/guidance/tick-surveillance-scheme>

Also visit the NPAP CIEH website to download the pest control procedures manual for ticks www.urbanpestsbook.com

Top photo: *Ixodes ricinus* engorged (swollen) after a blood meal. Richard Bartz  Wikipedia.

Middle and bottom photo: Adult of *Ixodes ricinus*.



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HIDDEN DANGERS: RODENT PESTS AND DISEASES

Author: Alex Wade, of Wade Environmental

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Sometimes the risks that pests present are obvious and clearly recognisable, but what happens when those risks aren't so clear, and the mechanisms of transmission are near invisible to the casual observer.

We all know how rats and mice can be pests. Their ability to cause distress can be heard in every call we receive asking for assistance, and the damage they cause can be seen at a glance. But what about their potential for disease?

Rodents and disease have a long and sordid history, from plagues to pestilence their relationship with disease is as intractable as their relationship with man. But why worry about the diseases that rodents carry? We after all, are not rodents, so how can their diseases affect us? Well, certain pathogens are not only able to move between hosts of the same species, but they can also move between hosts of different species and when this happens, it is called zoonosis.

Why are zoonoses a problem?

Zoonotic pathogens can be unpredictable in their movements, and brutal in their impact. When the incidental or secondary host is human then the pressure on public health can be severe, but what happens when the host organism is an animal we are responsible for? The animals in our care are reliant on us to keep them happy, healthy and safe. This is always a challenge especially when we consider diseases from apparently unknown sources such as a hidden population of rodents, as this can reduce the suspicion of illness when an animal's behaviour changes, increasing the time to detection and subsequent cure.

Avian flu - not just carried by birds

There are many pathogens carried by rodents which can harm the animals we care for, with an example of this being the relation between rodents, poultry, and avian flu. Over the last year, several outbreaks of avian flu have been observed in the UK, triggering multiple calls by the Government and Animal and Plant Health Association for poultry (both commercial and domestic) to be quarantined and 'locked down'. These preventative measures may be all well and good when it comes to decreasing the interaction of our poultry from assumed reservoirs within wild birds, but what happens when the mode of transmission isn't so clear cut.

Diseases can be transmitted in several ways by intermediaries called vectors.

The simplest example would be direct physical contact between the two host animals, in this case, poultry and wild birds. Such simplicity affords in of itself a modicum of control, but the management of the spread of disease becomes increasingly more difficult as the interactions between hosts become less obvious.

Vectors fall into two major categories: biological and mechanical. The distinction between the two can sometimes seem a little confusing. Biological vectors are host organisms which will harbour a pathogen usually within their own bodies. During this time that pathogen finds itself in an environment where conditions are sufficiently favourable that it will multiply and grow. Examples of this in rodents would be the growth of leptospirosis within the kidneys and its subsequent shedding in the urine.

Mechanical vectors on the other hand are host organisms which will transport a pathogen from location to location, with the key distinction that in this time the pathogen does not grow, it is simply moved. You might think therefore that the latter is the lesser of two evils, but such mechanical transportation of pathogens can be significant as it requires no incubations nor favourable climates. Simply an animal to move over a contaminated surface and onto a subsequently 'clean' surface within a sufficiently small window of time.

Rodents then are capable of being both biological and mechanical vectors of pathogens of high concern to both humans and their associated animals. Rodent infestations, even those not situated inside the fabric of the building can therefore present a real danger to biosecurity. Their cryptic natures mean that populations can move through security perimeters without detection. This relationship between rodents, avian flu and poultry has long been suspected, but was highlighted in a paper by Francisca C. Velkers *et al* stating that "It is likely that the fur or paws of rodents can become contaminated during swimming or walking through an Avian Influenza contaminated environment".

Within this paper it is noted that as avian flu is likely able to survive on the fur and paws of rodents, it is possible that rodents which have come into direct contact with infected wild birds or indirectly through contact with shared water sources or faecal contamination, are therefore likely to become vectors of Avian Influenza.



Such mechanical transportation makes mockery of standard lockdown procedures of poultry, which are focused heavily on the isolation of birds and decontamination of workers moving around and between sites. In fact, one cross sectional study in Maryland USA found that flocks of poultry without pest management were on average 2.5 times more likely to contract avian flu than flocks with an active pest management program in place (Madison *et al*. 2013).

Management of rodents equals management of disease

Therein lies the real danger of rats, mice and disease. It is not simply a case of their ability to be vectors of many pathogens, but in their ability to create this perfect storm of disease transmission. A critical factor which makes rodents such virulent transporters of disease is their propensity to move. Brown rats will travel considerable distances from their natal burrows in search for new locations to infest. Not only taking pathogens with them from pre-existing infected sites into potentially quarantined sites, but also theoretically coming into contact with a multitude of pathogens on the journey in between. House mice are equally capable agents of transmission but coupled with their propensity to move within stored goods and bedding, means they can easily move onto sites and through even the most stringent biosecurity.

These seemingly invisible mechanisms of transmission can therefore undermine even the most well-intentioned biosecurity if they are not carefully considered. Therefore, reactive strategies may well prove to be too little too late, and so a proactive integrated pest management strategy is imperative to maintaining the integrity of a site.



Health and Safety: Personal protective equipment (PPE)- Gloves

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This is part of the PPE mini-series of articles and in the latest installment we consider gloves. It turns out there is quite a lot to consider depending on the situation and what we are protecting our hands from.

What do you need to know about gloves...gloves are gloves right? In short, no, not all gloves are created equal. The focus for protecting our hands is usually for gloves to function as a barrier and protection against various biocides. Although the labels advise us to wear gloves and the details of these gloves and the minimum standard needed is buried in the material safety data sheet. How do our normal disposable gloves stand up against coronavirus, hantavirus (even though it is breathed in, the dust could settle on clothes), and of course not forgetting *Leptospira* (our well-known Weil's disease source). We may need to review our PPE to ensure it is at standard and provides sufficient protection.

The biggest issue with wearing gloves is the transfer, from the gloves to the skin, and consequential contact with the face and eyes or mouth afterwards. Therefore, there are ways to remove the gloves to avoid contamination and more importantly washing hands at the correct time.

Which materials are better?

Nitrile is the favored material for most of the medical profession and pest controllers too. This is due to the increased chemical protection provided by nitrile (a synthetic rubber). Nitrile has better oil resistance properties than many of the other materials used for disposable gloves such as vinyl and latex. The gloves simply provide a barrier to prevent skin contamination. So, when considering gloves the materials need to be as flexible as possible to maintain dexterity. Single use disposable gloves only need to be resistant for a certain time - hence the disposability factor.

Product standards and quality benchmarking

Not surprisingly, along with coveralls, the outer pack will be CE marked. Commonly used disposable nitrile gloves conform to [BS] EC standards, resulting in an [BS] EN number reference. The minimum protection for gloves used as PPE is category III (for chemical and micro-organisms). The EN standard applied is EN374-1 and -2.

Another consideration is quality and therefore quality testing. Adopted in the 1970's was a system of quality testing used by the US Army, which soon became adopted by the UK. It has been something that has stuck ever since for mass produced items. A set sample is thoroughly tested per batch produced. Put simply, tolerance numbers are given and quoted as Acceptable Quality Level (AQL). The lower the number the higher the level of quality therefore protection. For example, regarding microorganisms and specifically viruses, a low AQL is required. Level 2 or 3 is needed, which translates to AQL's of 1.5 and 0.65.

Remember that chemicals are different, and permeability becomes more important as a protective reference. Viruses are particularly small, ranging from 500 right down to 10 nanometers.

For ultimate protection and working very closely with viruses, for example in a lab, the minimum requirements for gloves would be an AQL of 0.65, EN 374-2:2003 level 3. Also required is a 30cm cuff length with double gloves (yes, two pairs!). Consider using a thicker glove too. However, we are not working in a lab with viruses and are less likely to handle infected items or touch contaminated surfaces. Risk assessment would come down to the situation for use. If we were disinfecting an area of known virus contamination, we would probably need a minimum of Level 2 protection, possibly double gloving with a cuff length of 25cm.

How thick?

The final issue we cannot forget is that the chemicals in use may also require us to wear hand protection. This might be different to the biohazard protection, with a thicker glove most likely to be added. In this instance, we may have a thicker glove on top of the biohazard protection glove to provide enough protection from multiple hazards. The thicker gloves are usually good for several uses so can be washed. Once again it is important that they are removed in the correct way.

Removing gloves

<https://www.cdc.gov/vhf/ebola/pdf/poster-how-to-remove-gloves.pdf>

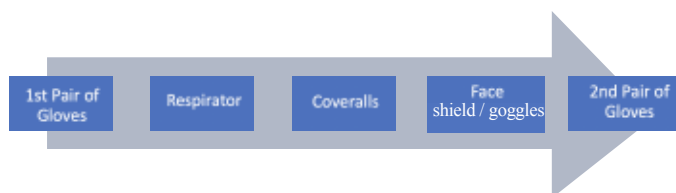
Double gloving has been found to reduce the contamination risk when removing PPE. The outer glove is removed first, then the remaining PPE. Finally, the under glove is removed and then hands are thoroughly washed.

Hand washing

No PPE can replace hand hygiene. It is the most essential part of the entire protocol when dealing with chemicals and pathogens. Hand to mouth, hand to face, hand to eyes, are some of the most likely ways we can become contaminated. <https://www.cdc.gov/handwashing/posters.html>

Removal of PPE

In general, we can follow this simple order to put on our PPE and remove it by reversing the order. It would make things easier if you did decide to double glove. You would remove the outer glove first then carry out the reverse order for the below procedure.



Summary

- Check the COSHH, label and MSDS of any biocides you are using, as it may go beyond the PPE needed for viral protection.
- Check PPE packaging and product information.
- Get your PPE from a reputable source.

Iain Urquhart - Pest Controller & Inventor!

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2021 saw Killgerm® launch the new wildlife conscious rat bait station, the AF® Amicus. The innovative new bait station reduces the chance of entry from non-target species and bait damage from slugs and snails. The idea for the product came from pest controller Iain Urquhart. Pest Control News caught up with Iain to learn more about him and how he invented one of the latest innovations in pest control today.

Iain experienced five years of the dreaded Monday morning feelings while working for a bank, before he decided that the culture and confinement of working indoors was not for him. A change of career was in order. Iain followed his father's advice and applied for a job as a Rodent Operative working for Stafford Borough Council's Environmental Health Department. At his interview, Iain was asked the big question – "What do you know about pest control?", his response was "You know where I have been for the last five years. Nothing!" He got the job.

The development of Iain's pest control career took him to Saudi Arabia, where he worked from 1978 to 1985, a grand total of 7 years and 10 days. Iain laughs as he recalls that someone once told him that when working in Riyadh the first two years are necessity, the next five are greed, and the remainder is insanity! Iain had 2 years of necessity, 5 years of greed and 10 days of insanity before he returned to the UK!

While working in Saudi Arabia, Iain experienced similar pests to the ones that he had treated in the UK, but he also added scorpions, sand vipers, camel spiders, and the cute kangaroo rat to name but a few! In most cases, Iain and his colleagues attempted to remove the prey of these dangerous animals, to drive them out.

On one occasion, Iain was asked to fly from Riyadh to Arar, on the Jordanian border to a compound that was experiencing a glut of vipers around the portacabins. The portacabins were too close to the ground, providing the perfect harbourage for snakes getting out of the sun. Iain advised the workers that they needed to hoist the cabins further up from the desert floor to discourage the snakes from hiding there, as they were then left exposed to their predators. At the time Iain laughed to himself as he wondered if his training had prepared him for this!

Iain recalls being told that when working in Saudi Arabia, he would either become a desert goer or an alcoholic – he chose the former and was lucky enough to enjoy many safari experiences that people now pay thousands of pounds for!

Iain credits his staff who have worked with him over the years for helping him to achieve success. He also praised the technical team of Killgerm including the Field Biologists and Area Sales Managers past and present, plus the British Pest Control Association Technical Team.

Iain had nothing but good words to say about a number of servicing members of the BPCA who act as sub-contractors for his company, including Martin Hynes of Front Row Environmental Services and Nigel Binns of Pestex, who help to cover sites that are out of Iain's operational range.



Nigel Binns doubles up and also carries out "Technical Audits" for some of Iain's audited accounts and emergency work when he has pest control officers on annual leave.

In 2012 Iain's love of nature started him thinking about a way to solve the problem of non-target species entering bait stations. He started doodling and coming up with different ideas. Iain credits the expression 'rat up a drain pipe' for getting him thinking about if there was a way to bring a conventional bait station up off the ground and preclude non-target species from entering. From this the AF® Amicus was invented!

The finished AF® Amicus stays true to Iain's original idea and has the added bonus that in subsequent trials slugs and snails did not enter the bait stations when they were left in situ for months.

Iain is currently working on three new product ideas which will hopefully be brought to market. He follows his own advice and keeps the development details to himself.

If Iain wasn't working in pest control, he would love to become a driver and tour guide for Lochs and Glen Holidays coach holidays, entertaining tourists all over his beloved Scotland. Iain said that he once dreamed of being a postman in Glen Clova, located in Cairngorms National Park, but he likes people too much and felt that the opportunities to meet people would be too limited.

I had a great time chatting with Iain, who has lots of interesting stories from his adventures over the years. When I asked if there was anything that Iain would like to add, he had this to say, "Look after yourselves and families as we are not out of the "pandemic" woods as yet."

Thank you Iain!



Biting back: exploiting bed bug behaviour to improve monitoring

Dr Victor Brugman/Vecotech Ltd.

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Bedbugs (*Cimex lectularius*) are well adapted to human habitation. Infestations continue to pose a widespread problem in both domestic and commercial settings. Bedbug biology has facilitated their continued and sometimes rapid spread – they are highly mobile, able to survive long periods between blood feeds, and their ability to hide, and often stowaway (in your dirty laundry, for example¹), mean infestations can rapidly spread over a range of distances and cause reinfestations soon after treatment. Control is made even more difficult by increasing rates of insecticide resistance within wild populations. Effective monitoring is therefore essential for detecting infestations before they take hold, when they become tricky and costly to eradicate, and to check whether treatment has worked and monitor for reinfestation.

Although the biology of bedbugs often seems to be tipped in their favour, our increased understanding of how bugs sense and interact with their environment offers new avenues for monitoring. One such area is in the science of olfaction (smell), an area exploited by Vecotech Ltd. in the design of its novel BugScents™ lure.

To understand how we can use biology to our advantage we need to view the world from the eyes, or here, the antennae, of the bedbug. In common with many other insects, bedbugs possess a complex set of sensors which enables them to detect minute quantities of different odours (comprised of semiochemicals, or “behaviour modifying chemicals”) present in the air. Some odours, the pheromones, help insects communicate with members of their own species. Others, the allelochemicals, are produced by one species and affect the behaviour of another species, either to its benefit or detriment². An example of these (specifically, a subgroup called kairomones) are human skin odours used by bedbugs to find their human hosts. These very much benefit the bugs but definitely not the humans producing them!

Aside from seeking out host odours, another key familiar behaviour of bedbugs is aggregation, where bugs group together in favourable hiding places, or harbourages. This behaviour is mediated in large part by the aggregation pheromone. As all bugs aggregate, whether nymphs or adults, male or female or fed or unfed, this makes the exploitation of the aggregation response an excellent target for a lure.

This is where Vecotech’s BugScents™ technology comes in. Its patented formulation mimics the smell of a bedbug aggregation and causes bedbugs to be attracted to the lure and the trap in which it is deployed. This facilitates enhanced detection of even low-level infestations.

At the start of the BugScents™ innovation journey, however, relatively little was known about the semiochemical components of the aggregation pheromone. A collaborative project between experts at the London School of Hygiene & Tropical Medicine (LSHTM) and Rothamsted Research set out to address this challenge using an arsenal of specialist chemical ecology and insect behavioural techniques.

Starting with filter paper exposed to aggregating bugs, initial experiments (where bugs in an arena were given two odours to choose from) confirmed that this exposed paper was more attractive to bedbugs than clean, unexposed filter paper. This indicated that the semiochemicals making up the aggregation pheromone were deposited along with the bedbug faeces and cuticle matter characteristic of infestations.

The next step was to identify the specific semiochemical components of the aggregation pheromone, and which were the most important in causing the bugs to aggregate. In nature, pheromones may comprise a number of different semiochemicals, with each produced in a slightly different amount. The relative ratio of compounds can be as important as the presence of the compounds themselves in producing a particular odour ‘signature’.

For example, people infected with malaria produce a unique and detectable odour signature comprising a specific blend of semiochemicals, compared with those who are uninfected³. Secondly, certain semiochemicals will play a more important role in causing the behaviour in question. This is an important commercial consideration as manufacturing complexity and cost often increases with the number of chemicals involved.

With this in mind the first step was to collect the semiochemicals. This was done by passing clean air (charcoal-filtered to remove other odours) over the sample of bed bug exposed paper in a sealed chamber. Volatile semiochemicals drawn into the airstream were captured onto a matrix and then washed off to form a liquid sample. The chemicals in this sample were then identified based on their relative chemical properties using gas chromatography and coupled gas chromatography-mass spectrometry.

This work identified over 20 different semiochemicals⁴. To determine which were most important, the physiological response of bugs to each of the identified semiochemicals was investigated using a technique called electroantennography. By inserting electrodes into the antennae and head of the bug we can create a complete electrical circuit. When a semiochemical is passed over the antenna, we can record the resulting electrical signal that is produced if the bug is responding. As this can only tell us if the semiochemical causes a response, and not whether it is attractive or repellent, this is followed up with behavioural bioassays where the bugs are allowed to move towards or away from a trap containing the target compound.

Using this suite of techniques, the key compounds involved in the aggregation response were narrowed down to the unique, patented blend of key compounds that now sit at the core of BugScents™. At this point Vecotech Ltd took over to accelerate commercial development. Supported by an Innovate UK grant and working with its commercial partners, Vecotech combined entomology, chemical ecology and materials chemistry to refine and test the formulation. Efficacy and stability were trialed using chemical methods and through a series of scaled behavioural bioassays of increasing complexity. These culminated in “baited bedroom assays” which mimic a natural setting, including the presence of a host.

The result is BugScents™, a long-lasting lure impregnated into a biodegradable matrix, effective at attracting bed bugs even in low-level infestations and compatible with a variety of trap types. This technology enables pest control professionals to enhance their bed bug monitoring devices and help to detect early-stage infestations. The protective foil sachet keeps the product stable in storage for at least 2 years, and the product continues to release the active compounds for up to 3 months after opening.

The BugScents™ lure can be used with a monitoring trap as part regular pest control activities to:

- confirm the presence of a bed bug infestation,
- verify the success of treatment,
- monitor for re-infestation following treatment and
- monitor high-risk properties over extended periods.

For more information, please see www.bugscents.com

References:

1. Hentley, W.T., Webster, B., Evison, S.E.F. et al. Bed bug aggregation on dirty laundry: a mechanism for passive dispersal. *Sci Rep* 7, 11668 (2017). <https://doi.org/10.1038/s41598-017-11850-5>
2. Nordlund DA and Lewis WJ (1976) Terminology of chemical releasing stimuli in intraspecific and interspecific interactions. *J Chem Ecol* 2: 211-220.
3. Robinson, Ailie, et al. "Plasmodium-associated changes in human odor attract mosquitoes." *Proceedings of the national academy of sciences* 115.18 (2018): E4209-E4218. <https://doi.org/10.1073/pnas.1721610115>
4. Weeks EN, Logan JG, Birkett MA. et al (2020). Electrophysiologically and behaviourally active semiochemicals identified from bed bug refuge substrate. *Sci Rep*: 10, 4590. <https://doi.org/10.1038/s41598-020-61368-6>



BugScents Bed Bug Lure is available exclusively from Killgerm.

Sewer baiting guidance updated

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The Chartered Institute of Environmental Health (CIEH) National Pests Advisory Panel (NPAP) has issued updated guidance regarding sewer baiting. The updated CIEH NPAP document, the January 2021 version of the ‘National Sewer Baiting Protocol Best Practice & Guidance Document’, can be found here <https://www.urbanpestsbook.com/download/national-sewer-baiting-protocol-best-practice-guidance-document/>

Here we examine some key extracts.

Why is the update required?

New product labels were required for sewer baits as a result of recent changes in the permitted use of rodenticides in sewers implemented by the European Commission and the Member State regulatory bodies. In particular, a new label phrase is to be found on all products that are authorised for use in sewers as follows: “In sewers, baits must be applied in a way that they do not come into contact with water and are not washed away”. This phrase will bring about substantial changes in the practice of sewer baiting and this revised guidance is intended to reflect this.

Sewer baiting and anticoagulants in water

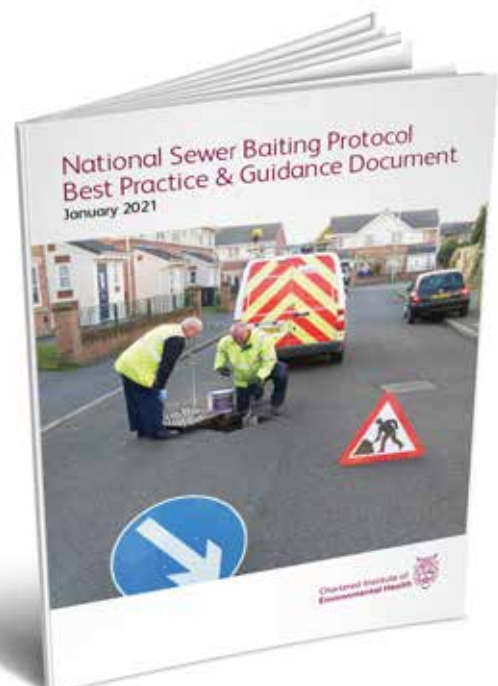
The active substances that are to be found in most rodenticide baits are considered to be PBTs. That is they are persistent, bioaccumulative and toxic. Consequently, they are generally considered to carry significant risks when they are discharged into the environment. Recent research studies conducted in Germany have detected significant residues of second generation anticoagulants in surface waters and in certain aqueous wildlife, including some species of fish. It is not known whether such residues are present in the UK. However, it is necessary to conduct sewer baiting in such a way that rodenticide emission to the aqueous environment is minimised.

For that reason the labels of all rodenticides authorised for application in sewers require that baits are not deployed in way that may result either in their exposure to water or in bait being washed into the sewerage flow.

How to work with the new label phrase

The new label phrase which requires that baits do not come into contact with water or enter the sewerage flow, will preclude some of the ‘traditional’ sewer baiting methods, for example the application of loose baits directly onto benching. Thus baits may only be applied to benching, either as loose baits or tethered block baits, in places that will remain above all anticipated water levels.

Visit <https://www.urbanpestsbook.com/> for other guidance documents, including Asian hornets, rats and mice, mosquitoes and ticks.



Advanced Integrated Pest Management Via a 3D Microencapsulation Technology

Authors: Miguel Gimeno and Borjana Lubura, Jesmond Bioscience GmbH, Vienna, Austria

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Pest Control News invites specialists in insecticide microencapsulation technology to discuss how these advanced formulations benefit pest management. Our technical editor asks some interesting questions regarding their technology.

What is the main benefit of the latest microencapsulation technology?

It is the controlled release concept of the applied formulation. This further development of pest management strategies coupled with specific active ingredients increases the success rate of insect pest eradication.

How does the controlled release work?

The applied microencapsulation technology in the formulation containing 1R-trans Phenothrin (Figure 1) as the main active ingredient (A.I.) uses one of the latest processes to incorporate a 3D structure providing a fast action and residual effect within one single microcapsule. The process uses three main components in a specific way to release the A.I. The third component acting as a cross linking agent belongs to the Glycoluryl urea family with two butylated groups and a carbonyl group (C=O) that imparts a strong link to the monomer and pre-polymer making the final 3D structure which appears in a sponge form that gives a full control of the release of the A.I. and the mobility modifier.

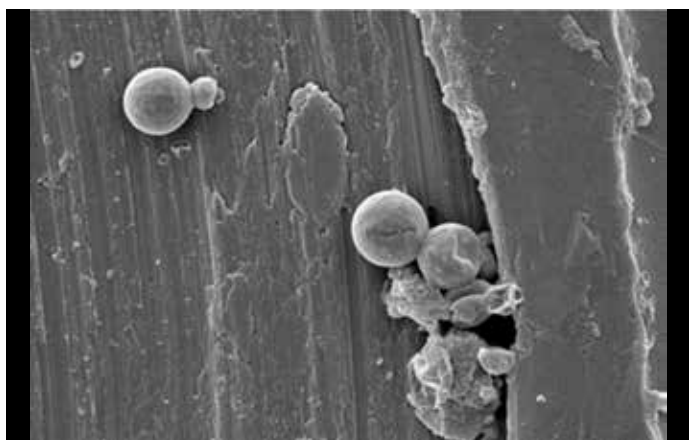


Figure 1: Microcapsules of 1R-trans Phenothrin

How do you achieve the fast acting and long residual effects? (The 'best of both worlds')

The curve of the release rate of the microcapsules is fundamental for the specific mode of action of A.I. that provides a unique fast and long residual activity. It is achieved based on the following features:

- the quantity of the mobility modifier providing the molecular movement from inside the core through the capsule wall;
- the porosity and cross linking of the 3D components;
- the wall thickness that is a function of the percent and rate of the 3D components and the final particle size which is achieved during the emulsion polymerization;
- the protection of the 4th component - acting as the protective colloid which is deposited on the lipophilic surface of the microcapsule covering its pores and avoiding undesirable release before application to the target insect pests creating the so called 4D protection;
- the diffusion through the pores which occurs in a controlled manner in order to achieve the lethal dose specific for the A.I.

What happens as the active ingredients are released?

When the A.I. starts to release through the pores out of the semi-permeable capsules, their tiny droplets cover the pores of the microcapsule wall and since it is not soluble in the water media, the tiny droplets remain covering the pores of the microcapsule wall, thus avoiding the release of further droplets. Only when water starts to evaporate, is when the microcapsules begin to dry out, and small amounts of the A.I. slowly diffuse onto the surface of the capsule.

Once the evaporation stops, the capsules still remain stable for several days covered with the protective colloids used in the final formulation governing the diffusion of the A.I.

How are insects affected by this?

When sprayed, the intact capsules can easily adhere to the lipophilic legs or body of insects when they get in contact with it during walking or resting, which is referred to the so-called "trampling effect". It takes only a few capsules to kill the insect contributing to the improvement in the efficacy. Chewing insects may ingest the microcapsules, receiving a lethal dose.

Just how ‘tough’ are the microcapsules in the harsh environments of pest management?

Microcapsules can lose their control release prematurely if the pH of the media changes, or the temperature during the shelf life increases and upon application, if exposed to the UV and, last but not least, by the pressure created by the equipment used for the application.

For the microencapsulation process a temperature up to 80°C is required during the curing process before the final stabilization takes place. The components deposited on the microcapsule wall and the two catalysts used during the polymerization provide the required UV protection before the A.I. is released outside the microcapsules.

The integrity of the microcapsules was tested under a high homogenizer pressure supporting no disruption below 160 bars. The microcapsule wall, which is pressure resistant makes the formulation ideal for high pressure spraying, cold and hot fogging (*Tech ed. – remember to follow product labels as not all application methods may be permitted*).

We’re aware that droplet / particle sizes are crucial regarding insecticides. Tell us more about this.

The particle sizes of the microcapsules of 1R-trans Phenothrin are in the range of 1.8 µm (50%) and 10 µm (90%) as the maximum value versus the traditional microcapsules of 12 µm (50%) and 40 µm (90%) as the maximum value.

The microcapsules of the particle size between 1.8 to 10 µm provide a fast controlled release and a long residual activity enabling a full coverage of the surface with a controlled delivery of the A.I. (Figure 2).

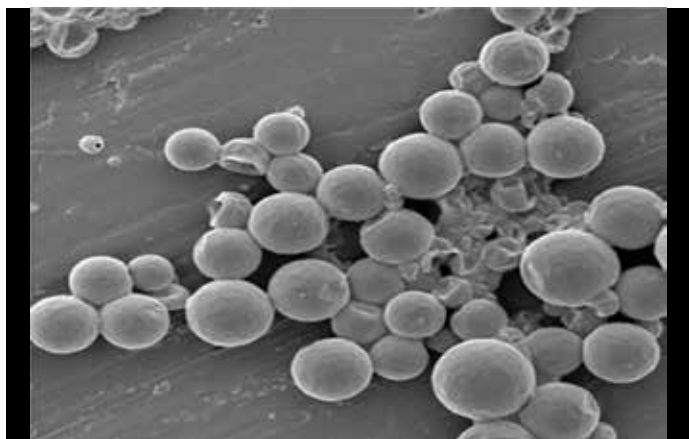


Figure 2: Surface view of the microcapsules 1R-trans Phenothrin

How does your technology compare to other microencapsulation?

The traditional microcapsules available on the market are made of two main components (2D): one monomer and one pre-polymer or one pre-polymer and a cross linking agent, making the structure of the wall of the microcapsules to provide a two-dimensional (2D) control of the release. The release is obtained by a combination of diffusion and osmotic pressure leading to the collapse of the microcapsules. The 2D system cannot achieve a tailor-made controlled release with a molecular diffusion using a specific mobility modifier.

Microcapsules on the market are variable in terms of good quality and performance. Some of them are more resistant to collapse, or to heat, pH and pressure using 2D technologies.

Our 3D technology with the 4D - which is the ideal representation of the components deposited on the surface with an external vision - is the breakthrough of the current microencapsulation technology available on the market.

Can we see some data regarding release rates?

Several studies were conducted to determine and compare the release rate and behavior of the microencapsulated A.I. versus a free, non-encapsulated form (Figure 3).

The results have revealed a clear difference in the release behavior between the two forms.

The non-encapsulated A.I. has shown a fast or immediate and exponential release until exhaustion.

The microencapsulated A.I. has shown an exponential, but slow-release rate over several hours which justifies an increased residual activity applying less quantity, but in a controlled and timely tailored release manner in order to achieve an effective and high killing level in target insect pests.

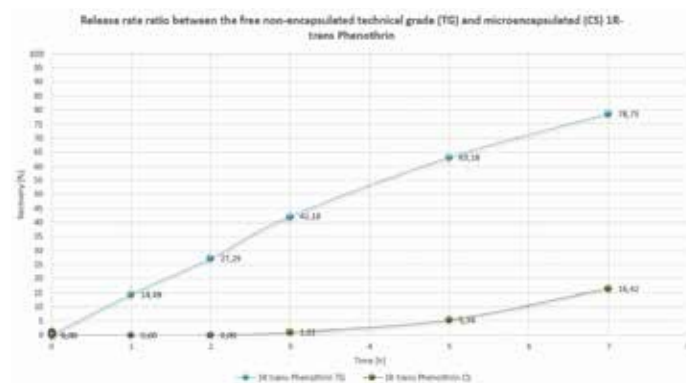


Figure 3: Release rate of 1R-trans Phenothrin

In practice, Jesmond’s technology - including the controlled release rate of active ingredients - has a great potential to overcome the likelihood that an eradication program is downgraded to a long-term pest management as this factor can invoke higher economic and environmental costs.

Thank you to the authors for such an informative article – not all microencapsulated formulations are created equal then! Advancements in formulation technology are the way to go in terms of new developments in insecticides.

Use biocides safely. Always read the label and product information before use.



Coronavirus carried by houseflies and potentially by rats... *but what are the real risks?*

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Housefly transmission of coronavirus

Houseflies *Musca domestica* have been shown to acquire and harbour infectious SARS-CoV-2 (the coronavirus that causes COVID-19) in a 2021 study by Balaraman *et al.* The same study showed that houseflies were also able to mechanically transmit SARS-CoV-2 genomic RNA to the environment. It is noted that transmission of genomic RNA is not the same as being able to transmit the live virus to the environment. Furthermore, the transmission to the environment was only up to 24 hours after houseflies had been exposed to the coronavirus. Still, there is enough to warrant further studies regarding house fly transmission of coronavirus, whether it occurs naturally and what the potential public health implications could be. For those interested in insects, read on for a little more detail. For those who prefer rats, skip forwards to learn about rats and coronavirus.

Why did the researchers consider houseflies in the first place?

There are a few reasons. Coronavirus can be caught, by humans, through contact with contaminated 'fomites' (items, surfaces, – things we touch). There is a body of evidence showing that houseflies mechanically transfer pathogens (bacteria and viruses) to surfaces. Also, prior research determined the ability of houseflies to mechanically transfer a type of turkey coronavirus. The potential is there, and it was time to examine the role of houseflies in the mechanical transfer of SARS-CoV-2. The authors had some important questions to answer – can houseflies acquire coronavirus, does the virus survive and is it then transferred to substrates and surfaces?

What methods did the scientists employ?

Houseflies were exposed to virus-spiked medium, or milk then tested for infectivity. The second part was to test environmental samples for infectivity after they had been exposed to virus-exposed flies.

Were the results important?

Yes - infectious coronavirus was isolated from houseflies exposed to virus-spiked milk and this was harboured for up to 24 hours after exposure. While the environment was contaminated only with viral RNA (not live virus), the results are still interesting and important. A main conclusion is that while '... flies most likely do not play a significant role in transmitting SARS-CoV-2 to humans... ability to harbour SARS-CoV-2 viral RNA for extended periods might offer a potential for its use as a xenosurveillance vector for monitoring SARS-CoV-2 in communities.' A fascinating thought, that the microbial signature of insects could be a useful indicator of the environment they inhabit...a point raised earlier this year in a 'household arthropods and their associated bacterial communities' presentation by Dr Federica Boiocchi and Dr Matthew Davies at PestExtra.

Rat transmission of coronavirus

Newspapers have reported that Norway rats *Rattus norvegicus* could spread the coronavirus (SARS-CoV-2) that causes COVID-19. There is a certain amount of interest in this, especially as the headlines stem from a DEFRA (Department for Environment and Rural Affairs) and Joint Biosecurity Centre (JBC) report to SAGE (Scientific Advisory Group for Emergencies). It is also good timing to address this concern as we have a piece, in this issue, regarding rodents and diseases.

What did the study consider?

Scientists looked at whether rats could pick up coronavirus from the environment and then expose humans. Levels of virus in wastewater or the environment were considered, as was the known role of rodents as reservoirs of viruses.

The chances of rats acquiring coronavirus from waste

Persistence of coronavirus in human waste e.g., sewage, rubbish, and food waste, is thought to be unlikely. Having said that, with a high number of infected humans, the large population size of susceptible rats frequently contacting sewage or rubbish means a high likelihood of an individual rat becoming infected. This likelihood is uncertain and would lower as human infection levels reduce.

Could rats spread coronavirus to other rats?

There is a high potential for this as rats have high population densities and close contact. This could mean persistent transmission within rodent populations over time – a 'reservoir' in effect.

The big question – what about rats spreading coronavirus to humans?

The risk of this is very low for the general population. However, the report noted that the risks are higher where the level of contact between rats and humans is potentially greater i.e., 'occupational exposure'. This could mean a greater risk to those whose occupation puts them in closer proximity to rats. Considering this is Pest Control News, the obvious occupation is that of many of our readers – pest control.

Would coronavirus mutate in rats and become a threat to humans?

It is expected that the virus would adapt to the rat host and the good news is that most mutations in wild animals are unlikely to lead to greater replication in humans. Furthermore, a 'variant of concern' to humans is unlikely to emerge via adaptation in a rat host. In fact, the risks of this scenario from rats are, at the moment, considered lower than in the human population.

Who are those at risk of occupational exposure and can we learn from hantavirus?

Noted in the report are at-risk groups such as those controlling pests, clearing rubbish, and working in wastewater systems. Some comparisons can be made using human infection with leptospirosis (Weil's disease), caused by bacteria from rodent urine, and hantavirus (from aerosolised rat urine and faeces). The likelihood of people becoming exposed to an infected rodent is very low to medium. This is known from a hantavirus risk assessment, where members of the public are at much lower risk compared to those working with rats e.g., pest control.

Is there anything we need to do differently?

Of course, there is a level of uncertainty concerning the findings of the report. There is uncertainty over the persistence of coronavirus in sewage and waste, transmissibility, and level of virus in rodents. We should take the report seriously and reaffirm our procedures that also protect against leptospirosis and hantavirus – such as hand hygiene, personal protective equipment, safe disposal of rodents. As always, 'stay safe'.

Grey squirrel control research – a vaccine?

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At a time when vaccines are a major topic for humanity and species-selective bait stations are available, for rodent control, a recent webinar on grey squirrel control felt very relevant indeed.

Here we report on the UK Squirrel Accord (UKSA) fertility control webinar, held on 19th March 2021. Hosted by Kay Haw, of the UKSA, delegates enjoyed informative presentations from Animal and Plant Health Agency researchers; Dr Giovanna Massei, Rebecca Pinkham, Sarah Beatham and Simon Croft. The main topics were the oral contraceptive being developed, the species-specific delivery hopper being designed, and the modelling work being carried out to better understand the potential impact of fertility control on grey squirrel populations.

Reasons for control

Grey squirrels damage our forests by stripping the protective bark from trees. The cost of this damage is estimated to be at least £1.1 billion over the next 40 years. Grey squirrels are one of the main reasons for local extinctions of red squirrels in large areas of the UK. This is due to competition for food and habitat, and the spread of squirrel pox virus, which is almost always deadly to red squirrels but not greys.

Current control measures

Grey squirrel management is currently carried out by various methods of culling such as trapping and shooting. The use of warfarin for grey squirrel control has not been permitted since July 2016. Despite extensive culling, the number of grey squirrels continues to grow.

Why use fertility control when alternatives are available?

Shooting and trapping can be expensive. Costs are variable, but culling work by Red Squirrels Northern England cost an estimated £60 per squirrel. Culling alone has so far failed to bring the problem under control because the reproductive rate of grey squirrels far exceeds the numbers culled. Oral contraceptives represent an alternative and complementary means of grey squirrel management when used either as a standalone method or in addition to culling.

The research centre behind this work

The National Wildlife Management Centre (NWMC), which is part of the Animal & Plant Health Agency (an executive agency of Defra), is behind this exciting research. As a wildlife management tool, the NWMC has been studying fertility control in different species for around 20 years. The NWMC includes the GB Non-Native Species Secretariat and expertise in all areas of wildlife management.

Which contraceptive methods are being researched?

Two oral contraceptive routes are under research. The first is a vaccine, which is currently being tested for its contraceptive effectiveness on grey squirrels and was originally developed by the National Wildlife Research Center (NWRC), part of the U.S. Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS), in collaboration with NWMC and other European partners. The second contraceptive being tested is DiazaCon, which is based on a cholesterol-inhibitor drug.



How do these methods work?

The contraceptive vaccine stimulates the production of antibodies that bind to the Gonadotrophin Releasing Hormone (GnRH), a hormone that is responsible for the production of sex hormones. By binding to GnRH, the antibodies reduce the GnRH's ability to stimulate the release of these sex hormones. Animals remain in a non-reproductive state as long as a sufficient concentration of antibodies is present.

The cholesterol-inhibitor DiazaCon decreases the concentration of cholesterol within an animal's body. As cholesterol is needed for the synthesis of sex hormones, inhibition of cholesterol synthesis by DiazaCon indirectly inhibits reproduction.

Has this worked in other animals?

A similar contraceptive vaccine (GonaCon), developed by the NWRC, is registered in the US as an injectable single-dose contraceptive and has been successful in managing populations of white-tailed deer, horses and donkeys. In addition to these species, GonaCon is also effective on other wildlife, including California ground squirrels, Eastern fox squirrels, Norway rats, feral cats, badgers and wild boar.

The NWMC carried out several studies on GonaCon and showed that a single dose caused infertility in 92% of female wild boar for at least 6 to 8 years. Pilot studies of a novel oral contraceptive vaccine, conducted by the NWMC and collaborators, also showed that 60% of laboratory rats were rendered infertile when the agent was delivered directly in the animals' mouth. It is hoped that encapsulating this vaccine may increase the efficacy and duration of the contraceptive effect.

Interesting so far...but getting pest rodents to eat a bait is so important. Will the bait be palatable to squirrels and delivered with minimal risk?

The contraceptive will be added to a food bait that is delivered in a grey squirrel-specific feeding hopper. The palatability of bait to grey squirrels is being tested in captivity and field trials.

What about negative effects on squirrels, non-target species, the environment and humans?

No side effects were observed in the first studies on either of the oral contraceptives being tested.

The vaccine is mammal-specific, so birds are not at risk. DiazaCon may affect birds and mammals. In order to reduce the possibility of non-target wildlife being exposed, a species-specific delivery system (grey squirrel feeding hopper) is being tested. The risks to the environment and to non-target species, including predators and scavengers, will be evaluated as part of the data required for the registration dossier. The bait formulation will ensure that bait uptake by non-target species is minimised. Hoppers will be clearly labelled with hazard signs and placed on trees so that the risk to non-users would be negligible. In addition, the quantities of the appropriate active ingredient needed for squirrels are very unlikely to have an effect on humans either from direct ingestion or from eating squirrels. The final formulation may include adding human taste repellents (such as Bitrex, which is used for rodenticides).

Can enough squirrels be treated to make a difference?

Modelling results suggest that, when applied to low density populations following short-term culling, fertility control could achieve the same effect within the same timescales as continuous culling alone but with substantially lower costs. The research is also assessing hopper density and bait uptake.

When will a squirrel contraceptive be available for use in the field?

The aims of the five-year study are to develop an oral contraceptive for grey squirrels and to assess how the contraceptive could be delivered in field applications via a species-specific feeding hopper. In years four and five of the project, the NWMC will work with relevant UK authorities to assemble a registration dossier.

Where is the funding coming from?

The UK Squirrel Accord (UKSA) partnership and supporters are funding the research. Fundraising is ongoing to secure the final target. More information and updates on the research can be found on the UKSA website: www.squirrelaccord.uk

This article is reproduced from the UKSA FAQ available here https://squirrelaccord.uk/resources/resources_library/

Maxforce® Pushbox

Contains 0.03% Imidacloprid

Maxforce® Pushbox is a ready to use insecticidal bait station for the rapid control of a variety of ant species indoors and outdoors. Maxforce® Pushbox is a colourless, highly viscous gel bait, which contains a food-based formula which is particularly palatable to ants. Maxforce® Pushbox also contains the bittering agent Bitrex.

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AF® Wasp & Fly Trap

The AF® Wasp and Fly trap is a reusable trap made from hardwearing polypropylene. Ideal for use in all areas where wasps and flies need to be controlled, such as food storage and processing areas, patios, beer gardens, bin storage and leisure areas.

The trap is supplied with an easy to fit hanging cord which can be attached through eyelets in the trap lid. The trap base has raised feet which also allow the trap to be used on flat surfaces if required. The trap should be serviced regularly, removing dead insects and re-filling with fresh liquid bait. Liquid Wasp & Fly Bait sold separately.

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Protecta Evo Edge

Protecta Evo Edge is a versatile rodent bait station that is easy to use and service. The station opens and locks quickly with Bell's EVO key. The built-in service record card holder, side-opening design and rounded interior walls make servicing fast, maximizing technician productivity. The station holds bait securely inside the station and comes with vertical securing rods.

Designed for more than just bait, Protecta Evo Edge also accommodates two Trapper Mini T-Rex mouse snap traps, or a Trapper T-Rex rat snap trap, which can be set forward in the runway. Technicians can swiftly adjust baiting or trapping tactics at their accounts, without having to switch out their equipment.

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Digital Pest Management: Rodents

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The Digital Pest Management System is a wireless network of high-tech trap sensors that provide 24/7 monitoring, real-time capture alerts and up-to-the minute rodent activity verification. Both mouse and rat traps are available to purchase. These are linked to the system via a gateway, which is provided as part of a yearly subscription.

IoT technology provides 24/7 monitoring and real-time capture alerts so you can respond proactively instead of relying on manual trap checking.

- Instant response to the presence of rodents in your client's facility with real-time automated alerts sent to your smartphone or tablet.
- Ensure the correct personnel receive alerts with role-based notifications.
- Monitor rodent activity in real-time across multiple facilities so you can take fast action.
- Ensure network performance with automated system status reports.
- Daily data capture enables detailed analytics and heat mapping capability.

Robust reporting features help ensure your client has the evidence they need to prove compliance with ever-tightening regulations.

- Be prepared for audits with up-to-the minute rodent program verification data-
- Perform fast root-cause analysis with time-stamped data.
- Achieve transparency related to your pest control efforts across facilities with collaborative tools.

- Improve pest control process for protecting your brand, reputation, clients, employees, and facility by analysing system data.
- Develop clear trend analysis data to efficiently deliver pest management systems.

Work smarter and spend your time on proactive measures utilising expertise to prevent infestations.

- Help you and your client protect public health and prevent risk of product recall with intelligent, optimise food safety and cleaning practices.
- Help you and your client dedicate labour resource to preventative, proactive measures to ensure conditions are not hospitable to rodents.
- Place monitors strategically thanks to graphic floor plan visualisations and pest activity heat maps.

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Free CPD resources for pest professionals

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Pest professionals love learning and sharing knowledge. Yet some of us still end up cramming in our CPD hours towards the end of the year leading to the value of professional development being somewhat diminished due to this lack of planning.

Natalie Bungay, BPCA's Technical and Compliance Manager, gives an overview of the wide variety of CPD resources available via the Association's website.

At BPCA we're big on continuing professional development (CPD). Thousands of technicians are on BPCA Registered, our very own CPD scheme. But did you know that many of our resources are open to everyone - even if you're not a member?

Professional development is an integral part of professional pest management. It demonstrates to your clients that you're keeping your knowledge and skills up to date.

To support you in this, BPCA has an array of CPD activities, including:

- Monthly live webinars
- Digital Forums with guest speakers (local Forums will be back, post-Covid restrictions)
- Videos from past events, including PestExtra
- Articles and news via PPC Online
- CPD quizzes
- Pest management Codes of Best Practice.

On-demand videos

The number of free, online events held has increased during the pandemic and the best part about holding these digitally is that we can record them, so you can watch them on-demand at bpca.org.uk/cpd-videos.

Once a month we hold a one-hour pest management webinar on Zoom, usually hosted by yours truly. These are great to attend live, because you can ask me questions during the talk - see our list of upcoming webinars at bpca.org.uk/webinars.

We also hold additional webinars with guest speakers on topics outside of our expertise, like trade marks, contracts and online advertising.

"It's great that the webinars are free; a fantastic way to stay informed and up-to-date with CPD."

Since March last year, we've been holding Digital Forums to (temporarily) replace our local events.

"Thoroughly enjoyed it. Learned something and looking forward to watching others."

And did you miss out on any PestExtra seminars? Good news! We were kindly given permission by almost all the speakers to upload these to our website.

With all the webinars, Digital Forums and PestExtra seminars, we estimate there's a whopping 56+ hours of CPD videos now available to watch at bpca.org.uk/cpd-videos.

We take requests for topics too, so if you have any subjects you'd like to see covered in 2022, let us know: events@bpca.org.uk.

Print is (not) dead

Our magazine, Professional Pest Controller (PPC), continues to be popular - so we gave it its own website!

PPC Online has all the latest sector news, plus a catalogue bursting with technical and business features.

You'll also find downloadable .pdf copies of PPC Magazine and the option to subscribe to physical copies if you prefer. All for free!

On BPCA Registered, you can register what you've learnt as unstructured CPD to get points. This isn't available on other schemes. ppconline.org

Test your knowledge

For additional CPD points, you can test yourself using our CPD quizzes. These are based on PPC articles, so you can read the content and see how much you remembered.

bpca.org.uk/cpd-quizzes

Another way to improve your understanding of pest management subjects is by taking our CPD assignments.

These are more involved than the quizzes and put your research skills to the test. They're worth one CPD point per assignment and are specially developed for BPCA Registered members. - unfortunately, this activity isn't available on other schemes).

bpca.org.uk/cpd-assignments

It doesn't end there...

Been a while since you've brushed up on our Codes of Best Practice? We've just updated them, so why not refresh your knowledge and earn some CPD at the same time?

Although these Codes are a BPCA membership requirement, they're available to everyone and we would encourage all pest professionals to read and follow them, whether in membership or not.

Again, on BPCA Registered, you can register what you've learnt as unstructured CPD.

bpca.org.uk/codes

It's important to champion professionalism in a sector under increasing scrutiny to be more ethical and environmentally aware, while still providing an effective and quality service.

CPD is one of the best ways to do that - the more we learn, the better we do.

If you want to talk to us about CPD opportunities, we're here to help! If you'd like to know more about BPCA Registered, contact our CPD Administrator, Katrina.

Bait for rodents, not humans!

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As Technical Manager of the NPTA, I have often in the past been called in to try and provide a solution to an ongoing or seemingly unresolvable rodent problem. Whilst some issues are more difficult to bring to a conclusion than others, more often than not it boils down to one thing:

Not being thorough enough

Firstly, I would like to clarify that I have made enough of my own mistakes in the past. However, in my previous incarnation as a commercial company technical manager and also in my current role, I get called to rodent problems. These have often been allowed to propagate when they would have been far easier to resolve had some simple steps and a more thorough investigation been undertaken during the initial call.

It also seems that in many cases we forget that commensal rodents are highly adaptable, secretive, and have been around for thousands of years, so why would we try and apply a 'one size fits all' solution to every rodent issue? For example, relying on one particular bait, active ingredient or formulation type – do you like every food that is placed in front of you? Add to this, the extremely common practice of placing control stations out in the open.

I have lost count of the number of times I have been asked to look at a job with the phrase ringing in my ears 'they won't take the bait' only to find that the bait boxes are situated adjacent to doors or under a fire extinguisher for example. If this is you, ask yourself why you do this? We seem, as an industry, to have a habit of baiting for humans rather than rodents. Let me explain; rodents, as previously mentioned, are secretive and elusive and therefore tend to live in areas away from, but close to people. Examples of these are wall voids, under floors, above ceilings etc. I've even seen numerous examples of mice living wholly within the feeding source. If this is where rodents live, surely this is where they will be happier and feel safer to feed. Therefore, placing bait in the open where the rodent feels exposed is more likely to end in treatment failure than taking the bait or control options to the rodent?

Undoubtably, rodents, in particular house mice are becoming increasingly difficult to control. Some have become intolerant of cereal products, some exhibit behavioural resistance etc., so surely the best way to combat this is to take the control measures to them. Don't forget that rodents are adaptable and failure to take this into account will end in seemingly unresolvable and unending problems.

That brings me nicely to the quality (or sometimes lack of) the inspection. Let me give you one example. I was called to look at a mouse issue in a supermarket that had been going on for months. The store manager was obviously unhappy with the situation, particularly as she had started to get customer complaints, who were starting to see them on the shop floor.

Conversations with the technician went along the lines of 'they must be coming in on stock'. Yep, that old chestnut. Yes, rodents can be brought in on stock and logistics is often a key point in the chain that is missed. However, not in this case. The rodents had been seen at ground level; therefore, this is where all of the control measures had been placed – sound familiar? But he had (and he is unfortunately not alone in this) forgotten that mice can climb and will move around. So, why were they seen on the shop floor? Remember back to your training. They will explore and will be looking for food, but this is not where they were living.

I decided to ignore the technician's remonstrations and take a look at high level (the fact that I had seen smear marks coming down the wall, which had been completely missed by the technician, may have helped in this decision!). In his defence, it is extremely common to become 'snow blind' when dealing with rodent issues. However, I found clear evidence of mouse activity on the top of the breeze block ledge on the wall separating the shop floor from the warehouse. I also realised that this wall ran from front to back of store. It's not rocket science is it, so I decided to look outside.

When we got outside, I said let's take a look around the back of the building. The technician stated you can't get around there the gate is locked. Well two things here. 1. The gate it turned out wasn't locked, 2. Even if it was, how hard would have been to get a key! See where I am going with lack of thoroughness? I guess as readers you've guessed where this is heading, yes, hole in external wall, about 3 inches from the ground that was directly in line with the shop floor/warehouse dividing wall! The hole was also full of *Apodemus* droppings...

This is just one of a hundred similar stories and is a true account, which although told somewhat tongue in cheek, demonstrates that things can be easily missed if you become too focused on one scenario.

Remember, rodents are adaptable, elusive and secretive and failure to apply control measures with that in mind can and will end in treatment failure. Add to this the cost of treatment failure, both in terms of financial and your company's reputation and you begin to see why getting it right first time is so important.

If you recognise yourself in any of this, try and remember that every time you receive a call out, even if it's somewhere you have serviced for years, something has changed and therefore approaching the site in the same manner as you have always done, can result in, at the very least, a protracted problem.

We have all been guilty of this type of blinkered practice in the past and there is often the temptation to get in and out quickly on your initial call. There are numerous reasons for this, but often pressure of work piling up is a major contributory factor, but this can lead to more and expensive work in the long run.

We will shortly be releasing a series of new training sessions surrounding rodent problem solving, so if you feel you would benefit from this session, please book your place as soon as dates are announced.





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Back to reality?

Well, a cursory look at the papers seems to show all is normal in the world. Boris is still in trouble for his flat renovation cost, the French have fallen out with the UK about fish again, Meghan has/hasn't upset the Firm, and we are all drinking far too much.

But business life seems very much different these days and what was the old normal, is surely nothing like what is coming to be, the new normal. Packed commuter trains, battling through the traffic, racing to the office all seem oddly yesteryear. As to the odd pint after work, meeting for coffee with clients or indeed actually seeing your work colleagues may well be for a lot of us now going forwards, a seldom experience. I see that the likes of Aviva, KPMG and JP Morgan and other bigwigs are all adopting a hybrid model of working from home/office 2 or 3 days per week which is going to impact on the workplace. There will not be the need for as many taxis, pubs, restaurants, coffee, or sandwich shops, not to mention support staff in say cleaning or maintenance, since quite simply – the offices won't be being used by nearly 50% of the staff.

So, what does mean to us business owners? Well, there is going to be a pre-covid and post-covid phase for sure and perhaps we are just in the transition stage between the 2 phases. A transition that has necessitated urgent change, adaption, and a lot of innovation to deal with social distancing, lock downs, staff infections and sadly, worse.

The positives emerging are easy to see – no or indeed less of a weekly commute and commensurate saving, greater flexibility on the work/home life balance and an increased productivity.

The negatives are though just as easy to spot – isolation which is linked to less interaction with colleagues, team working, building, burnt out, cant switch off, security risk increases and staff development.

And so what do we do to embrace what is coming at a rate of knots, like it or not? I have read articles on re-visiting supply chains, developing new skill sets, be those digital or social, get smarter/quicker and cheaper (easily done of course), have corporate flexibility, educate your staff and so on. A lot of my reading captures the usual business bite sizes conjured up, I'm sure to recreate more copy from old business principles but something that stood out was a quote from Forbes (<https://www.forbes.com/sites/williamarruda/2020/05/07/6-ways-covid-19-will-change-the-workplace-forever/?sh=46ddb612323e>) in that “this new corporate world has made us value our organic, non-robotic humanity more than ever before.”

I read that to mean our single greatest resource is of course – our staff and our clients/customers relationships. We can have all the systems, innovations and technology in the world but if we fail in developing and nurturing our relationships they will surely dwindle, fall by the wayside and be taken up by someone new. So perhaps the new world needs a little less new, and a bit more of the old.

For all and any legal assistance, help, and inquiries feel free to get in touch on giles.ward@milnerslaw.com or **07789 401 411**.

Your guide to the pest control 2021 TRAINING DATES



We're looking forward to welcoming you back!

We have put everything in place to ensure our training facilities are COVID-19 secure, allowing you to focus and enjoy all our educational experiences.

We hope to see you soon ~ The Killgerm® Training Team

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 235-237. For further information or to book your place on a course call: **01924 268445** or email training@killgerm.com.

June 2021

15/06/2021 Killgerm Principles of Rodent Control – Newbury
15/06/2021 - 22/06/2021 RSPH/BPCA - Level 2 Award in Pest Management - Units 1 – 3 – Ossett
23/06/2021 RSPH/BPCA - Level 2 Award in Pest Management - Examination – Ossett
15/06/2021 Safe use of Air Weapons for Bird Control - Holmes Chapel
17/06/2021 Safe use of Air Weapons for Bird Control – Doncaster
23/06/2021 Practical Bird Netting – Kibworth
24/06/2021 Insect Workshop 2 - Ants, Bees & Wasps – Ossett
24/06/2021 Safe use of Air Weapons for Bird Control – Reading
29/06/2021 Drainage Investigations & Rat Control – Newbury

July 2021

13/07/2021 Safe use of Air Weapons for Bird Control – Kibworth
20/07/2021 Killgerm Principles of Rodent Control – Lingfield
20/07/2021 Killgerm Principles of Rodent Control – Ossett
21/07/2021 - 22/07/2021 Killgerm Principles of Insect Control – Lingfield
27/07/2021 Safe use of Air Weapons for Bird Control - Reading

August 2021

10/08/2021 Bird Control - Theory – Kibworth
11/08/2021 Bird Control - Practical – Kibworth
17/08/2021 Killgerm Principles of Rodent Control - Newbury

September 2021

01/09/2021 Bird Control - Theory - Clun Clays
01/09/2021 - 02/09/2021 RSPH/BPCA - Level 2 Award in Pest Management - Unit 3 – Scotland
02/09/2021 Bird Control - Theory - Clun Clays
03/09/2021 Safe use of Air Weapons for Bird Control - Clun Clays
07/09/2021 Killgerm Principles of Rodent Control – Ossett
07/09/2021 - 08/09/2021 RSPH/BPCA - Level 2 Award in Pest Management - Unit 1 – Scotland
14/09/2021 - 15/09/2021 RSPH/BPCA - Level 2 Award in Pest Management - Unit 2 – Scotland
16/09/2021 RSPH/BPCA - Level 2 Award in Pest Management - Examination – Scotland
08/09/2021 - 09/09/2021 Killgerm Principles of Insect Control – Ossett
08/09/2021 Safe use of Air Weapons for Bird Control – Kibworth
09/09/2021 Trapping Techniques – Southampton
13/09/2021 Bird Control - Theory - Holmes Chapel
14/09/2021 Bird Control - Practical - Holmes Chapel
16/09/2021 Safe use of Air Weapons for Bird Control – Reading
21/09/2021 Killgerm Principles of Rodent Control – Lingfield
21/09/2021 Pest Control Refresher/Update – Tamworth
22/09/2021 - 23/09/2021 Killgerm Principles of Insect Control – Lingfield
22/09/2021 Safe use of Air Weapons for Bird Control - Portishead, Bristol
28/09/2021 Insect Workshop 1 - Bedbugs & Fleas – Tamworth
28/09/2021 Killgerm Principles of Rodent Control – Norwich
29/09/2021 - 30/09/2021 Killgerm Principles of Insect Control – Norwich
30/09/2021 Pest Control Refresher/Update - Huntingtower Hotel, Perth

These dates are to be reviewed in accordance with government guidelines

Some courses remain available online. <https://training.killgerm.com/>



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