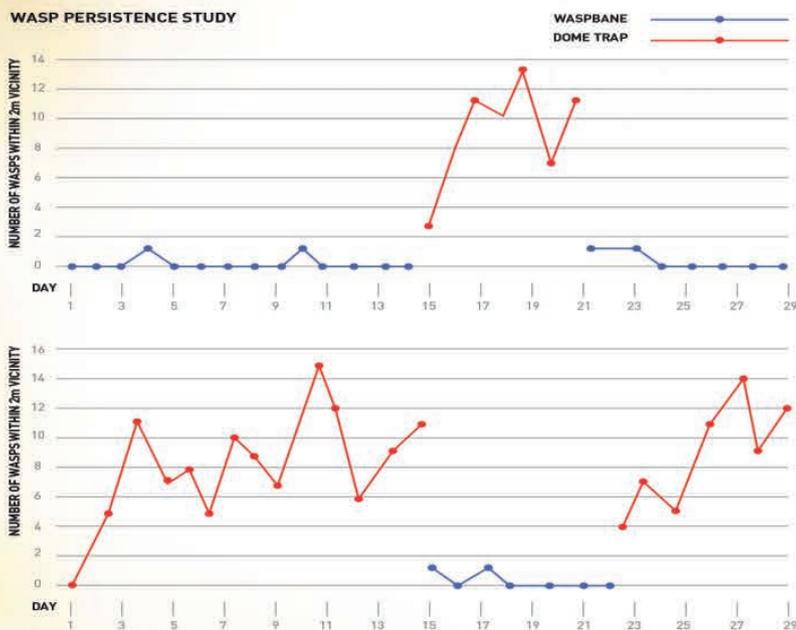




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## Bed bug special 2019

### Local authorities most likely to be involved in bed bug treatments, reveals survey

Across the ten years of the National UK Pest Management Survey, bed bug work has always taken up around 4% of the average pest professional's time but does this average hide important differences? The benefit of **Pest** working with market research specialists, Research Engine, on the survey has meant that this year we have been able to pull out some bed bug specific data.

We were curious to know whether there was any evidence to support the perceived wisdom that bed bugs are becoming a more specialist work area and that only the bigger companies and local authorities are involved.

We already know that, unlike rodents, which are tackled by almost all pest professionals, not everyone does bed bug work. But, it turns out that over 70% of our self-employed pest controllers do get involved in bed bug treatments. That said, it is clear from the data that it is local authorities that are most likely to be called on to do bed bug treatments, closely followed by private companies.

Geographically we were interested to see if bed bug treatments were concentrated around major cities. From the data we collect it's not possible to answer this question in detail, BUT it seems likely that cities, and the concentration of people in them, does correlate directly with bed bug infestations. All pest professionals based in central London carried out bed bug treatments and the percentage of time spent at 11.9% is almost three times the average.

Good news however, if you're planning on taking a holiday down in the South West, as this region has the lowest average time spent treating bed bugs.

Interestingly, the data shows that those NOT involved with bed bugs seem to treat fewer species overall compared to those that do and, what's more, they are generally a little more pessimistic about the future. Maybe this is because they are treating fewer species. This group is also more likely to be self-employed.



Finally those treating bed bugs are more likely to be a member of BASIS PROMPT and/or BPCA registered.

### Bed bugs were mates with Tyrannosaurus rex



Professor Mike Siva-Jothy

Work by an international team of scientists, including researchers from the University of Sheffield, have compared the DNA of dozens of bed bug species in order to understand the evolutionary relationships within the group, as well as their relationship with humans.

The team discovered that bed bugs are older than bats – a mammal that people had previously believed to be their first host 50-60 million years ago. Bed bugs in fact evolved around 50 million years earlier.

The team spent 15 years collecting samples for DNA testing from wild sites and museums around the world and have now discovered that the evolutionary

history of bed bugs is far more complex than previously thought. Bed bugs it turns out actually existed during the time of the dinosaurs. More research is needed to find out what their host was at that time, although current understanding suggests it is unlikely they fed on the blood of dinosaurs.

Professor Mike Siva-Jothy from the University of Sheffield, who was part of the team, said: "To think that the pests that live in our beds today evolved more than 100 million years ago and were walking the earth side-by-side with dinosaurs, was a revelation."

Dr Steffen Roth from the University Museum Bergen in Norway, who led the study, added: "The first big surprise we found was that bed bugs are much older than bats, which everyone assumed to be their first host. It was also unexpected to see that evolutionary older bed bugs were already specialised on a single host type, even though we don't know what the host was at the time when T. rex walked the earth."



Dr Harold Harlan

### The bed bug granddad

If Dr Richard Naylor is making his mark in the UK (see pages 22 & 23), he still has some way to go compared to one of the most recognised bed bug authorities in the industry – Dr Harold Harlan. He has nursed his own colony for nearly 50 years.

Harold fell into pest control's clutches by accident. The fifth of six sons of a tenant farmer from rural Ohio, he initially thought his future lay in agriculture and enrolled at the Ohio State University. It was here he discovered his love of entomology and, when offered the opportunity to work at the University's insect museum, he learned the value of collecting and preserving insects.

The Vietnam War coincided with his time at university, so he was commissioned into the US Army as an entomologist and saw service not only in Vietnam, but also later in Saudi Arabia during the Gulf War. It was here he came face-to-face with all sorts of insects and the diseases they transmit.

But it was a call-out to troops reporting unusual bites at Fort Dix in 1973 that started him down the bed bug route. The mystery bugs were bed bugs, but Harold discovered little was known about them, there were few samples to compare them with and treatment options were sketchy. So began his life-long fascination with this pest.

To this day, ensconced in his own home are descendants of the bugs collected in 1973. Like, Richard, they too are fed on his own blood. This makes them unique and they are the 'go to strain' for researchers looking for totally susceptible bugs for trials. The strain has come to be known as the Harlan strain.

Now a confession from the editor of **Pest**. When bed bug strains are referred to, they are usually named after the location where they were first collected – e.g. the Monheim strain from Germany, the Sydney strain from Australia and what the editor thought was the Harlem strain from New York. It came as quite a shock to find that it was the Harlan strain! So it was a great pleasure, at long last, to meet in person this kind, self-deprecating icon of the industry.

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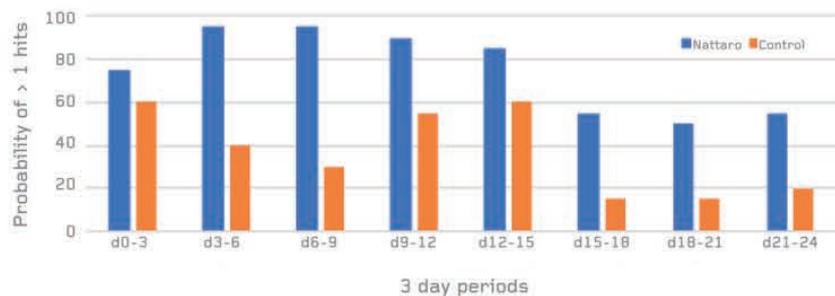


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## Bed bug special 2019

### New product developments...

At this time last year we reported on several new bed bug products 'just around the corner'... so what progress? Are they about to arrive at a distributor near you? In short... once more...not yet!

#### Aprehend – fungal spray

For the last two years we have reported on the progress of Aprehend, discovered initially by Nina Jenkins at Penn State University, USA and now commercialised by spin-off company, ConidioTec. To recap, the active ingredient in Aprehend is a natural fungal disease of insects called *Beauveria bassiana*. It is applied as a spray and remains effective, says the manufacturer, for up to three months.

Sales began in the US in 2017 and the product is now registered in virtually all States. But what about international sales? Don McCandless, ConidioTec CEO replied: "As yet there are no sales outside of the US, but Canada is all go for spring 2020. We have had trials in Singapore and considerable interest in the Middle East. As for Europe, we are still exploring regulatory requirements and potential partnerships. To be honest, we have just been trying to keep up with demand in the US, which is a good problem to have," concludes Don.



Don McCandless

#### Deal on the horizon for pheromone lure

Again last year we reported that a grant of £220,034 had been won by Vectotech, the spin-off company from the London School of Hygiene & Tropical Medicine (LSHTM). The funds are to help the commercialisation of a new bed bug aggregation pheromone the LSHTM had identified.

So what progress? An update was provided by Dr Victor Brugman, Vectotech's head of development & partnerships who said: "A novel, sensitive, long-lasting bed bug lure prototype has been developed designed for use in monitoring devices to detect small numbers of bed bugs, such as during an early stage infestation, or post treatment to ensure efficacy.

"The proprietary lure contains critical components of the natural aggregation pheromone that is produced and used by bed bugs to locate their safe harbourages after feeding on their sleeping human hosts. It is particularly sensitive, as it attracts both sexes and all mobile life stages and has been formulated to last for at least three months.

"Vectotech anticipates closing a deal with a major global pest control company in the near future to conclude development and manufacture of the products," concludes Victor.



Dr Victor Brugman

### Coming to a screen near you... maybe

Last year we recorded the launch of Delta Five elure. Put simply, this three inch high box works as an electronic attractant for bed bugs. Using computer vision it detects the bed bug, traps it and then the WiFi connected device instantly sends a text or email – very like the operation with rodent boxes.

The box itself is dark with a narrow slot, so is designed to appeal to bed bugs. It also has a heated surface to simulate human skin and within the box is a natural attractant.

As is rather the case with ConidioTec, Al Safarikas, in charge of marketing at Delta Five said: "We have focused our efforts exclusively in the US over the last ten months. Our efforts have met with success in that the Delta Five Automated Bed Bug Detection System, has over 15,000 devices installed at over 70 properties. We have protected over seven million guest-nights from beg bug bites."

As for sales outside the US, some have been made. As for Europe, discussions are in progress with potential partners.



#### UK version?

Word on the block is that a somewhat similar product is in the last stages of development by a UK company and that a launch this autumn is forecast.... Fingers crossed!

## Bugs in hotel bedrooms

Specific research concerning a loss of reputation for hotels if bed bugs were located in hotel rooms was undertaken by Dr Michael Potter from the University of Kentucky, USA and reported in **Pest 58**: August & September 2018.

Nearer to home, the London-based End of Tenancy Cleaning Service has just surveyed 1,448 British tourists who have booked a trip this summer to identify the cleanliness issues they would most likely complain about should they encounter any in their hotel room.

The survey found that the majority of Brits feel inclined to complain if they can clearly spot stains on the bed (e.g. linen, mattress etc.) and towels (81%) of their hotel room. (Editor's note: Bed bug faecal deposits maybe?)

Although this was a much more general survey there were some results relating specifically to pests.

81% of Brits who found an infestation of bed bugs, flies, rodents and/or wasps/bees in their room, would immediately ask hotel management/employees to be moved to another room. Having once complained about the infestation of these pests, 73% would expect the hotel to offer them a sufficient partial, or full refund, for the inconvenience caused.

Interestingly, 65% would 'certainly' leave a negative review of the hotel if they were not satisfied/happy with how this infestation of pests in their room was resolved by the hotel's management/employees.