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Useful information and professional treatment solutions.

Passive Monitoring Field Trial Results and Field Data

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Overview

Bed Bugs Limited has been working on bed bug monitoring technology since 2005. At the start of 2009 we filed several patents specifically covering devices designed to work as passive bed bug monitors based on field observations of approximately 12,000 cases of bed bugs. These patents have been licensed to Brandenburg for world wide commercialisation under the BB Alert branding.

As part of the continued development of the project we have been developing processes and work flows for the hospitality industry to optimise the integration of the technology for early detection and control of bed bugs.

As UKPCO members we felt it was important to share this data within the group so that members could prepare for the use of this new and novel technology.

The key benefits for a hospitality provider adopting a proactive approach to bed bug control are:

- Rapid detection of the problem before it spreads
- Identification of infestations at a stage where single treatment eradication is not only feasible it can also be done rapidly
- Avoidance of severe guest reactions and adverse publicity

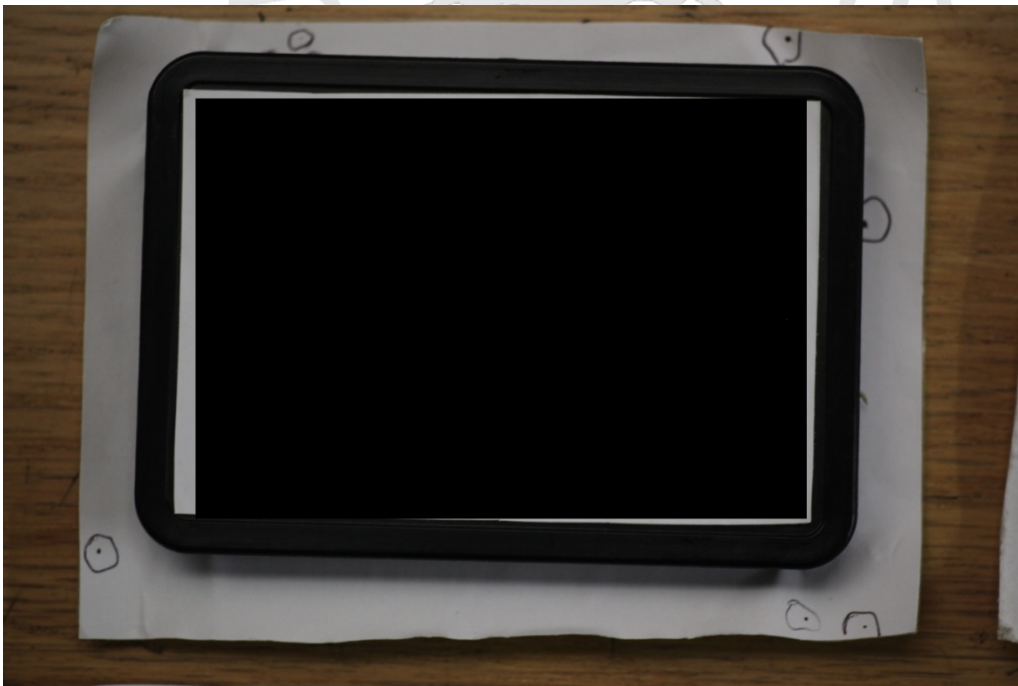
To date we have managed to clear a significant number of new infestations without the use of any chemical products which can only be good for your profits and the environment.

Examples

The following images are of passive monitors installed in actual hotel rooms where infestations have been detected. The labels have been blacked out to protect the IP and processes but suffice to say it is a little more complex than just having the name of the product on the back, a box alone does not make a monitoring system.



Monitor showing a light infestation detected within 2 weeks of installation in a high turnover location.



Monitor showing a light infestation detected 3 weeks after installation by weekly checking.



Monitor showing activity from 2 bed bugs in the environment for 1 week.



Monitoring where checking was not weekly and thus infestation was allowed to develop to a greater extent producing more faecal traces



Monitor that was not checked for 3 months and the first alert was a guest complaint.

Field Trial data

To support our own internal development we asked a well known and respected pest controller and bed bug specialist. His report is included below.

Tank trials

In arena trials BAlert passive monitors were introduced into barren arenas with a population of fed bed bugs. Each trial population consisted of 15 subjects with a random spread of life stages. The purpose of this trial was to assess the behavioural attraction of the monitor.

Trial	12hrs	24hrs	36hrs	48hrs
1	2	12	10	11
2	5	7	7	9
3	3	8	11	13

In later trials BAlert passive monitors were introduced into arenas where the population had already harboured in standard paper concertina support structures. In the table below the first figure is population in the BAlert monitor the second figure is the population in the concertina trap.

Trial	0	12	24	36	48	60	72	84	96	108	120
1	0/15	0/15	0/14	1/14	2/12	3/12	6/8	10/5	13/1	12/2	12/1

2	0/14	0/14	0/14	2/13	2/13	3/12	5/10	9/6	11/3	13/2	13/0
3	0/15	0/15	0/13	3/12	3/11	3/10	6/9	8/6	12/3	12/2	13/2
4	0/15	0/15	0/15	2/11	3/11	5/10	5/9	11/3	11/2	12/2	12/1

To simulate an inhabited room, arenas were subjected to sporadic movement during hours of simulated darkness.

Trial	0	12	24	36	48	60	72	84	96	108	120
1	0/15	0/15	3/11	5/10	5/8	6/8	13/2	14/0	13/1	14/0	15/0
2	0/15	0/14	4/11	7/7	7/8	7/7	12/3	15/0	14/0	14/0	14/0
3	0/15	0/15	2/13	4/11	7/6	7/8	11/3	13/2	14/0	13/1	13/0
4	0/15	0/15	3/12	6/7	9/6	8/6	10/4	11/3	14/0	13/2	13/1

Conclusions

In barren arena trials it is apparent the bed bugs will harbour in the BBAlert passive. The speed at which they colonise the monitor is surprising as is the proportion of the population that choose to harbour in the monitor.

When the population was given a choice between the BBAlert passive and a conventional culture substrate the populations gradually migrated to the BBAlert monitor. When the arenas were subjected to motor stimuli the rate of migration increased as did the retention of bugs within the monitor.

Hotel Trials

A six month field trial was undertaken in a high risk hotel in Sussex. The hotel comprised 22 rooms with an average occupancy of 85% and an average stay of 1.2 days. The Hotel is frequented by air crews and business travellers on lay over or on transit to other countries.

Monitors were installed in all rooms adjacent to naturally favoured harbourages in the environment. The monitors and rooms were inspected weekly for activity. During this field trial two inoculating events occurred with a common client vectoring the problem. The first infestation was detected 12 days after the inoculating event. The second infestation was detected after only 8 days. In both cases the monitors were changed and rooms monitored daily for 14 days. In both cases the monitors contained the inoculating population, and by changing the monitor chemical intervention was avoided. It should be noted that the monitor detected bedbug activity in field conditions at a level that would have escaped all but the most experienced pest control technicians.

Inoculation Trials

A series of 21 day trials were undertaken whereby a population of 6 male bed bugs were introduced into both domestic and commercial room configurations. The rooms and monitors were inspected daily to map the progress of the bugs in the rooms. In these trials

the first evidence was noted on the monitor 5 days after inoculation with a mean average of 12 days. Over the term of the trial not all bugs found their way to the monitors. In most cases once one bug has found the monitor the others moved in within a few days.

In one trial detection was comparably very disappointing. Only one bug found the monitor, the first evidence was not until day 18. We were not happy with the location of the monitor on this bed. The bed design did not give a suitable mounting point.

In most commercial room setups the monitors detected activity very early. The rate of detection in domestic setting is considerably longer. I do not believe that this is due to room setup but the choice of bed. The monitors detect activity fastest on divan bases then metal frame and lastly wooden frame.

