

Bed Bugs in America: A Pest Management Industry Survey

Jody Gangloff-Kaufmann¹, Craig Hollingsworth², Jeffrey Hahn³, Laurel Hansen⁴, Brad Kard⁵, Michael Waldvogel⁶

¹Cornell University, ²University of Massachusetts, ³University of Minnesota, ⁴Spokane Falls Community College, ⁵Oklahoma State University, ⁶North Carolina State University

Background

In the recent past the bed bug, *Cimex lectularius*, seemed almost a creature of myth. It was rarely seen by the structural pest control industry and the public had almost no contact with it. More recently, bed bugs have become a significant economic pest and a potential health threat in the many places where people sleep, including homes, rental units, hotels and college dormitories. The recent increase in bed bug complaints indicates a need for a national survey to quantify and the extent of the current bed bug outbreak and to characterize the use of specific chemical and non-chemical pest management practices.

Purpose of the Survey

The purpose of our survey was to determine:

- Status of the resurgence of bed bugs in the United States
- Most popular techniques of bed bug control used by pest management professionals
- Possible signs of pesticide tolerance
- Educational and research needs in the pest management industry relating to the control of bed bugs

Survey Design

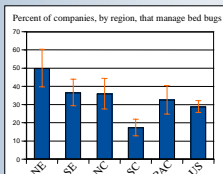
- Telephone survey conducted from April to June, 2005
- 15 multiple part questions
- Over 20,000 pest control companies in the U.S.
- Companies were grouped into five geographic regions of equivalent population size
- Over 2,000 companies randomly selected
- 45 surveys completed in each region
- A total of 225 surveys completed
- Only companies that accept bed bug work were surveyed



Ubiquity of Bed Bugs

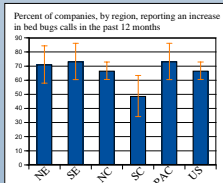
Does your company offer bed bug control?

Overall 28.9% of U.S. pest control companies surveyed handle bed bug calls. Companies in the Northeast are more likely to handle such calls.

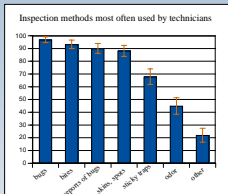
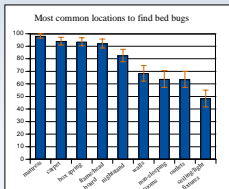
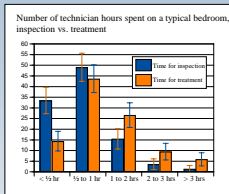


Have you noticed an increase in bed bug calls in the past 12 months?

Two-thirds (66.7%) of companies reported an increase in calls in the past 12 months. There was no difference among regions.



Inspection

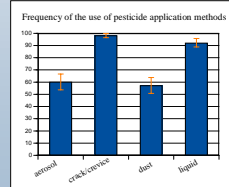
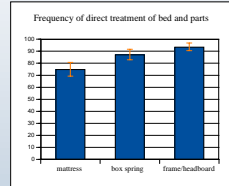


“What is the oddest location where bed bugs have been found?”

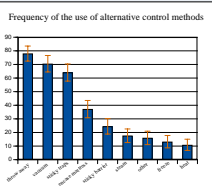
Kitchen, bathroom
Shower head
Luggage
Fireplace
Children's toys
Telephone, Sofa
Microwave oven
Radios/Speakers
Automobile



Treatment



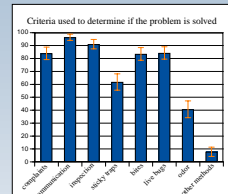
This project was supported by a grant from the Northeast Integrated Pest Management Center



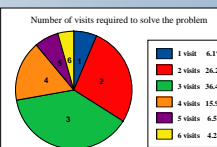
Other techniques used to manage bed bugs

- Heat combined with glue boards
- Fumigation of mattress and belongings
- Steam cleaning
- Freezing items
- Education, raising customer awareness
- Cleaning, laundering

Evaluation



78.5% of companies make 2-4 visits for a bed bug infestation



Pesticides

Which pesticides do you most frequently use for controlling bed bugs?

- Overwhelmingly, pyrethroids are most often used.
- pyrethroid dusts - 58 responses
- deltamethrin (Suspend) - 56
- pyrethroid aerosols - 56
- cyfluthrin (Tempo) - 44
- insect growth regulators - 40
- isopropyl alcohol (Steri-fab) - 17
- boric acid - 11
- chlorfenapyr (Phantom) - 12
- Also: acephate, sulfuryl fluoride, fipronil, diatomaceous earth, limestone dust, soap, silica gel dust, pyrethrum

Which pesticides do not work well for bed bug control?

- Only 44 responses in 225 completed surveys
- Boric acid
- Insect growth regulators
- Occasionally a brand of pyrethroid
- There was no indication that pyrethroids are failing.

Conclusions

- Bed bugs resurgence is nationwide.
- Results document the need for thorough inspections.
- The bed area is the most important inspection point.
- Pyrethroids are the most widely used control tools.
- Results do not suggest that insecticide tolerance is a problem.
- Non-pesticide tools are widely employed.

Extension and Research Needs

- Over 6% of respondents stated that bed bug problems are solved in 1 visit; 26% required only 2 visits. This indicates a gap in education for the pest control industry. The need is reinforced by the use of pesticides not labeled for bed bugs.
- Better monitoring tools are needed.
- Training for hotel employees can increase detection.
- The industry needs low-risk, effective insecticide products that can be used in human sleeping areas.
- Alternative techniques must be investigated for effectiveness, such as temperature, steam and cleaning.