

# Taking Control of Bed Bug Treatments



## Program information

Brought to you by the Northeastern IPM Center at Cornell University with funding from the U.S. Dept. of Housing and Urban Development and the U.S. Dept. of Agriculture

Presenters



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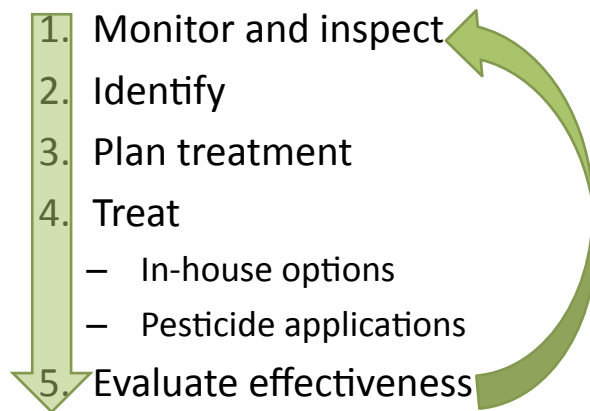
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Recorded version will be available at [www.stoppests.org/ipm-training/training-opportunities/stoppests-webinars/taking-control-of-bed-bug-treatments/](http://www.stoppests.org/ipm-training/training-opportunities/stoppests-webinars/taking-control-of-bed-bug-treatments/)

## What will be covered today

### Bed bug integrated pest management (IPM)

Mentioned in HUD's notices on bed bugs (PIH 2012-17 and H 2012-5)



## What will not be covered today

- Bed bug basics, including
  - Biology and behavior
  - Detailed inspection and identification
- A few treatment technologies
  - Fogging
  - Freezing
  - Sealing cracks/crevices
- Resident education



**STOP Pests in housing**  
www.StopPests.org

For more information

**Pest Solutions** Search

**News You Can Use**

**Free Online Bed Bug Training for Health Care and Social Service Providers**  
Free online training opportunity: The Problem of Bed Bugs for Health Care and Social Service Providers  
[More blog entries here.](#)

**7th International IPM Symposium** March 27-29th, 2012  
[More training opportunities here.](#)

**Pest Management Foundation**  
The Foundation is pleased to announce the availability of \$35,000 for pest management industry related research.  
The deadline for submitting a proposal is Friday, February 17, 2012.  
[More funding opportunities here.](#)

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The materials contained herein present a research-based, balanced, and objective approach to pest management in affordable housing and are intended to be used in their entirety. Any nonobjective or partial use of the materials is not recommended. Products, vendors, or commercial services mentioned or pictured in the trainings or presentations are for illustrative purposes only and are not meant to be endorsements. Last update: January 18, 2012.

[www.stoppests.org/pest-solutions/bed-bugs](http://www.stoppests.org/pest-solutions/bed-bugs)

## Principles of treatment

- Find infestations before they grow and spread —monitor and inspect every unit
- Once bed bugs are present, don't disrupt the area until time of treatment
- Use the biology and behavior of the bug when planning treatment
- Assess treatment progress using inspection, monitoring, and interviews

## Well-trained staff members

- Get an expert to train staff members before taking a program component in house
  - Ask your pest management firm
  - Call your cooperative extension office  
[www.nifa.usda.gov/Extension](http://www.nifa.usda.gov/Extension)
  - Search the BedBug Free network  
[www.bedbugcentral.com/bedbugfree](http://www.bedbugcentral.com/bedbugfree)
- Have a professional inspection annually for quality control

## Monitor

- Scope: passive in all units
- Frequency: passive inspected by expert at least quarterly
- Monitoring devices:



Passive: no attractant

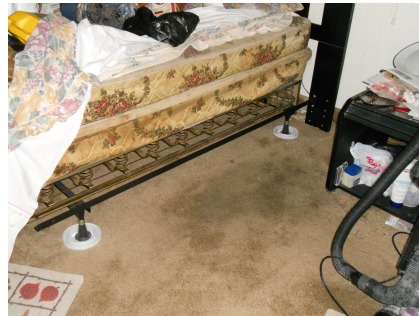


Active: heat, CO<sub>2</sub> or chemical lure



## Monitoring

- May find low level infestations
- Helps confirm an eliminated infestation
- Any/all steps can be taken in-house
  - Installation
  - Inspection of device
  - Maintenance



Interceptors under bed frame legs

## Inspect

- Scope: all units
- Frequency: in house at least quarterly; professional once a year
- Inspection options:



Visual with a flashlight



Canine with visual confirmation



## Visual inspection

- Should find high-level infestations
- Materials: flashlight, screwdriver, putty knife/spatula tool, gloves
- Inspect
  - at unit turnover
  - during maintenance work
  - housekeeping/annual inspections
  - inspect adjacent units when infestations are found



## Scent detecting canines

- Only trained handler-dog teams are qualified
- Accuracy varies widely—research being done
- Review NESDCA and "Bed Bug BMPs" for guidelines
- Establish a response plan before contracting a canine: what will you do when the dog alerts, but visual inspection does not find a bed bug?

## Encasements

- Scope: ideally on every mattress and box spring
- Frequency: always on—if infested, vacuum and cover with another
- Recommendations
  - Cover sharp edges with felt
  - Purchase rip-resistant, fabric
  - Must be a snug fit



**Bed bugs and spotting on an encasement**

## Picture yourself: you found bugs!



1. Monitor and inspect
2. Identify
3. Plan treatment
4. Treat
  - In-house options
  - Pesticide applications
5. Evaluate effectiveness

## Identification

- Staff member can confirm a report of bed bugs before involving a PMP
- Anyone responsible for bed bug work should have seen live bed bugs (nymphs and adults), spotting, and eggs
- Never confirm bed bugs by bites alone



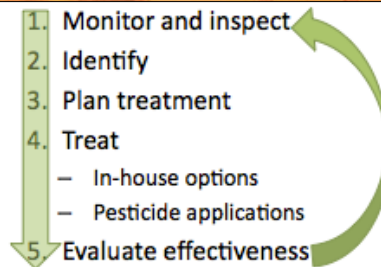
Fed and unfed bed bugs

## Plan treatment

	Good	Fair	Poor	Assistance needed	High-risk of infestation
None					<ul style="list-style-type: none"> <li>• Encasement</li> <li>• Monitors</li> <li>• Frequent inspection</li> <li>• Preventative pesticide application</li> </ul>
Low					
Medium					
High					

## Take action

- Non-chemical control
  - Vacuum
  - Heat
- Pesticides
- Behavior change
  - Protocols for entering/leaving homes
  - Travel precautions
  - Used furniture precautions



## Scenario

1. Resident reports bed bugs
2. In-house bed bug expert visits
  1. Places monitors and confirms bed bugs with inspection/identification
  2. Pulls furniture away from walls, vacuums bed bugs, puts on encasements, places interceptors, steams where applicable, and takes thorough notes
  3. Notifies PMP



## Scenario

3. PMP comes, applies pesticides, and empties monitors
4. Bed bug expert follows up in two weeks to inspect, check monitors, and interview the resident

Good recordkeeping is essential to a team approach

## Vacuuming

- When to use:
  - Prepare treatment area
  - Pest removal
  - Mattresses
- Details: HEPA filter
- Warning: prevent escapes



**Vacuuming bed bugs off a mattress**



## Heat

- Target temperature: Above 122°F
- Fails when bed bugs escape the hot temperature
- Bed bugs become active just before thermal death point
- Types
  - Whole space
  - Container
  - Steam
  - Dryer

## Whole-space

- When to use: In high-level infestations and when the unit is occupied by elderly, pregnant women, children, or a person with chemical sensitivities
- Details:
  - Preparation includes removing perishables and minimizing heat syncs
  - Method of heat delivery varies
- Warning: Bed bugs near walls and windows may escape

## Do-it-yourself Heat Chamber University of Florida

- When to use:
  - As people are moving into a new home, to ensure that their “stuff” is not bringing in bed bugs
  - As people bring new furniture into their home
  - In the case of a spot infestation (couch, mattress)
- Details: Construction instructions and video available at  
[http://entnemdept.ifas.ufl.edu/sepmc/bedbug\\_heat\\_treatment/Bed\\_Bug\\_Heat\\_treatment.html](http://entnemdept.ifas.ufl.edu/sepmc/bedbug_heat_treatment/Bed_Bug_Heat_treatment.html)
- Warning:
  - Every situation will be different
  - Approximately \$500 initial investment, may cost more with any equipment failure



## Steam

- When to use:
  - To treat upholstered furniture and mobility aids
  - For quick kill without pesticides
- Details:
  - Steam must contact the bed bug or egg
  - Low moisture "dry" steam is best
- Warning:
  - Pressure may spread bed bugs (use a towel over the nozzle)
  - Moisture may damage materials

## Clothes dryer

- When to use: After traveling or after pesticide treatment
- Details:
  - Transport infested items to the laundry in one bag, throw that away, and bring laundry home in a different bag
  - Dry fabric: high heat for 30 minutes
  - Dirty fabric: wash on hot then dry on high heat
- Warning: transporting laundry may spread bugs

## Pesticides

- When to use: low and medium level infestations depending on resident, cost, and PMP
- Details:
  - Don't use total release foggers
  - Address residents' potential pesticide misuse
  - Rely on an experienced professional to apply pesticides to eliminate an active infestation
  - Preventative application of diatomaceous earth may prove effective (research pending)
- Warning: bed bugs may be resistant and there is risk of exposure and toxicity

## Pesticide applications

- Know your state laws:  
[npic.orst.edu/mlr.html](http://npic.orst.edu/mlr.html)
- An applicator's license may be needed for ANY pesticide application:  
[stoppests.org/what-is-ipm/using-ipm/pesticide-applications](http://stoppests.org/what-is-ipm/using-ipm/pesticide-applications)



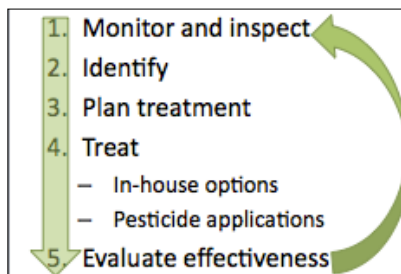
## Research in progress

### Preventative Protocol for Bed Bug Management

- Vacuuming
- Diatomaceous earth applications
  - Behind electrical outlet and light switch plates
  - Behind baseboards in the space between the wall and floor
- Mattress encasements
- Passive monitors
- Build and offer heat box treatment to residents
- Hands on bed bug training for all staff members
  - Bed bug identification
  - Bed bug inspection methods

## Evaluate effectiveness

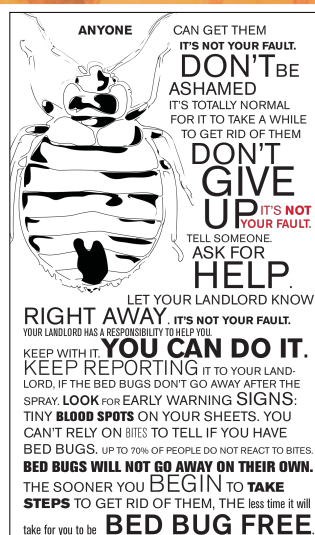
- Maintain service records for each unit
- Follow-up in 2 weeks
  - Inspect
  - Check monitors
  - Interview resident(s)
  - Treat if necessary



The IPM process

## Summary of in-house options

- Community education
- Monitoring
- Visual inspection
- Encasements
- Identification
- Vacuuming
- Heat
- Evaluating effectiveness



## Links from the webinar

- IPM in Multifamily Housing: [www.stoppests.org](http://www.stoppests.org)
- Find your cooperative extension office: [www.nifa.usda.gov/Extension](http://www.nifa.usda.gov/Extension)
- BedBug FREE Network: [www.bedbugcentral.com/bedbugfree](http://www.bedbugcentral.com/bedbugfree)
- National Entomology Scent Detection Canine Association (NESDCA): [www.nesdca.com](http://www.nesdca.com)
- Bed Bug BMPs: [www.bedbugbmps.org](http://www.bedbugbmps.org)
- FL Heat Chamber: [entnemdept.ifas.ufl.edu/sepmc/bedbug\\_heat\\_treatment/Bed\\_Bug\\_Heat\\_treatment.html](http://entnemdept.ifas.ufl.edu/sepmc/bedbug_heat_treatment/Bed_Bug_Heat_treatment.html)
- State pesticide laws: [npic.orst.edu/mlr.html](http://npic.orst.edu/mlr.html)
- Pesticide application information: [stoppests.org/what-is-ipm/using-ipm/pesticide-applications](http://stoppests.org/what-is-ipm/using-ipm/pesticide-applications)

## Acknowledgements

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- Pictures/videos:
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  - General Pest Control Co.
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**Thank you for listening.  
Good Luck!**