

US EPA ARCHIVE DOCUMENT

Bed Bug Control: Maximizing the Advantages of Your Treatment Strategies



Dini M. Miller, Ph.D.
Associate Professor
Department of Entomology
Virginia Tech
Blacksburg, VA 24061

Current Challenges

- Pyrethroid resistance
- We still lack an effective residual product
- IGRs do not function as expected
- IPM methods still rely on the hunting down and treating every individual
 - Time is money
- Heat treatments and fumigation take time
 - Time is money
- Cost of control is considerable
- One size does not fit all!



We have Treatments that Work

(Pest Management Company)

- Find an expert pest management company (ask for references and experience)
- Have them train your people how to identify bed bugs and their evidence
- Go and look at some infestations
- Company should provide you with written protocols, products that they will use, timeline, and estimated cost.

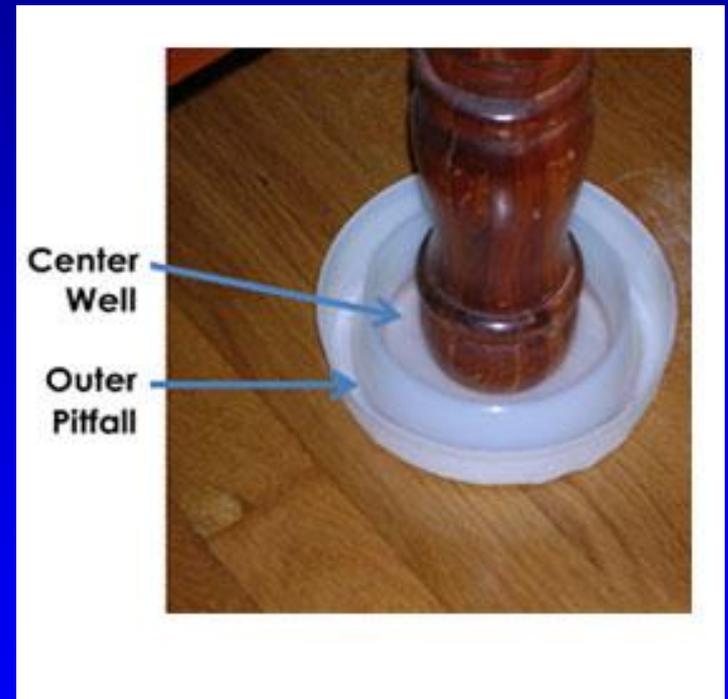


Spanish bed bug training
for apartment residents

We do have treatments that work

(Non-Chemical)

- **Monitors:** passive and active
- **Clutter removal:** eliminating hiding places
- **Desiccant dusts:** Diatomaceous Earth applied to mattresses, baseboards, crack and crevices, furniture
- **Vacuum:** to remove debris in harborages to see what is still alive
- **Mattress encasements:** does not kill bed bugs but saves the bed and you do not have to retreat box springs



Treatments that Work

(Chemical)

- **Liquid formulations:** applied to ceiling wall junctions, baseboards, crack and crevices
- **Aerosol formulations:** (many different labels) for furniture, mattresses, box springs, crack and crevices
- **Insecticidal dusts:** applied in wall outlets and wall voids
 - Direct application will result in the death of resistant bugs
- **Fumigation**



Treatments that Work

(Extreme Temperatures)

- **Clothes Dryer:** first line of defense for infested clothes bedding and other items
- **Steam:** Upholstered furniture, carpets and baseboards
- **Heat chambers:** Put infested furniture and belongings inside the chamber
- **Whole room heating systems:** Propane or electric heat pumped into the room and circulated with fans
- **Cryonite (CO₂ Snow):** Instant freezing of bed bugs on surfaces. No penetration.



Temp-Air whole room heat

Control in Apartments and Homes

- **Clutter removal:** does not mean bagging or throwing everything away
- **Clothes dryer**
- **Vacuum:** depending on size of infestation
- **Steam:** for mattress or more depending on the infestation
- **Cryonite:** for surfaces
- **Non-chemical and chemical methods**
- **Whole home heat treatment**
- **Fumigation**



Living out of bags will not work!



Whole Home Heat Treatment

Bed Bug Control in Shelters

- **Clothes Dryer**- first line of defense
- Do not throw all furniture away
- **Steam**
- **Cryonite**
- **Heat chambers**
- **Non-chemical and chemical methods**
 - **Mattress encasements**
 - **Diatomaceous earth**



Cryonite®



Do-it-yourself heat chamber

Bed Bug Control in Schools

- Clothes dryer
- Clutter removal
- Steam
- Cryonite
- Heat chamber
- Diatomaceous earth
- Localized chemical applications



Clutter Reduction

Bed Bug Control in Hotels

- **Monitors:** active or passive
- **Mattress encasements**
- **Heat chamber:** for furniture
- **Desiccant or insecticidal dusts** in box springs and voids
- **Liquid and aerosol formulations** around room perimeter and back side of headboard



My Insecticide SOP

Products that stick to the bug and reduce costs!

- Clutter removal
- Phantom Aerosol (quick contact and egg killer)
 - Alternate with Bedlam
- Diatomaceous Earth (bed, box springs)
- Liquid microcap formulation (Demand CS)
 - Alternate with Phantom liquid or another pyrethroid
- Pyrethroid dusts or DE (voids)
- Mattress encasements
- IGR (optional)

- Heat Treatments with some residual dust
- Fumigation

Costs of Treatment

- **Current costs of any type of bed bug treatment is not sustainable year after year for apartment, hotel or shelter managers.**
- **Comprehensive plans based on prevention and early detection are the future.**
- **Each individual will have to protect their own home, to slow the spread.**
- **Where are your purses, jackets and computer bags right now?**

