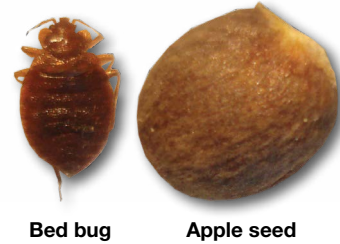




Bed bug growth stages

## Confirm the Presence of Bed Bugs

Before any insecticide application, inspect sleeping and resting areas within the home and confirm the presence of bed bugs. When looking for a suspected infestation, it is important to be vigilant with frequent surveillance, identification and monitoring efforts. They can be difficult to detect because they congregate in tight, secluded hiding spots. Adults are wingless, brownish, oval and about the size of an apple seed. Immature bed bugs are smaller and lighter in color. Bed bugs are active mainly at night but also during the day if the infestation is severe. Other indications of infestations are black blood stains (droppings), and shed skins.



Bed bug

Apple seed

## Pest Management Professionals Can Best Evaluate Control Options

Bed bugs are difficult to control without the assistance of a professional. Residents attempting bed bug control on their own are likely to fail. Professionals are trained to detect and isolate infestations, allowing for more effective control and a better chance for success.

**The University of Minnesota Extension *Let's Beat the Bug!* Campaign has helpful guides for effective prevention and non-chemical management options: [www.bedbugs.umn.edu](http://www.bedbugs.umn.edu)**

### Insecticide Safety

**ANYONE USING AN INSECTICIDE MUST ALWAYS READ THE LABEL FIRST & FOLLOW ALL DIRECTIONS.**



**CHECK TO MAKE SURE THAT APPLICATORS**

#### NEVER:

- use a pesticide inside intended for garden, outdoor or agricultural use. It is illegal and very dangerous.
- use a product that appears to be homemade or custom formulated.
- use repellents on skin, clothing or other surfaces in an attempt to keep bed bugs away. Repellents don't work!
- use more insecticide than the label directions state; it is illegal and could make the problem worse, or cause injury or illness.
- use any insecticide on a mattress unless the product label specifically mentions such use.
- spray bed linens or other materials that come in contact with skin.
- dispose of an empty insecticide container in a way not specified on the product label.
- dispose of unused products down drains.

**ALWAYS** use products that include complete instructions in English.

## Additional Resources

The online version of this brochure at [www.mda.state.mn.us/bedbugguide.aspx](http://www.mda.state.mn.us/bedbugguide.aspx) has active links to the resources listed below.

### The University of Minnesota

- *Let's Beat the Bug!* [www.bedbugs.umn.edu](http://www.bedbugs.umn.edu)
- Bed Bug Information line: 612-624-2200 or 1-855-644-2200
- Email: [bedbugs@umn.edu](mailto:bedbugs@umn.edu)

### In case of emergency

Call local **Poison Control: 1-800-222-1222**. If possible, have the pesticide label on hand when calling.

**Best practices for pest control professionals to use (full version, 20 pages) or for consumers (Printable Summary) when managing bed bugs:**

[www.bedbugbmps.org](http://www.bedbugbmps.org)

## Pesticide Disposal

Information on disposing of pesticide containers is available online at the MDA at: or call the MDA at 651-201-6562.

## Reporting and Investigating Pesticide Spills and Misuse

Complaints on pesticide spills or misuse can be reported to the MDA online at: [www.mda.state.mn.us/chemicals/pesticides/complaints/pestfertmisuse.aspx](http://www.mda.state.mn.us/chemicals/pesticides/complaints/pestfertmisuse.aspx) or call 1-800-422-0798.

MDA staff will evaluate the information provided and if a pesticide misuse is suspected, an MDA inspector will be assigned.

## Acknowledgments

The MDA would like to thank members of University of Minnesota Extension and the Minnesota Pest Management Association for providing photos and critical assistance in development of this brochure.



In accordance with the Americans with Disabilities Act, this information is available in alternative forms of communication upon request by calling 651/201-6000. TTY users can call the Minnesota Relay Service at 711 or 1-800-627-3529. The MDA is an equal opportunity employer and provider.

# Bed Bugs & Insecticides: What You Should Know



**This brochure is intended for those evaluating insecticide use to control bed bugs in housing or other locations.**

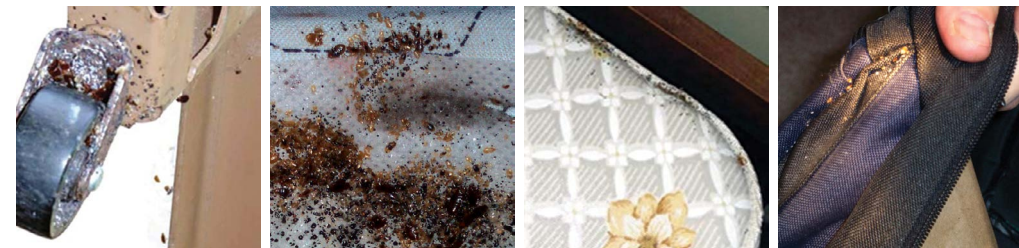
### INSECTICIDE SAFETY

Professionals are best able to select and properly apply bed bug insecticides. The incorrect use of insecticide products by non-professionals may be illegal and can lead to injury and illness. Work with Pest Management Professionals to control bed bugs. **ANYONE USING AN INSECTICIDE MUST ALWAYS READ AND FOLLOW LABEL DIRECTIONS.**

University of Minnesota Extension discourages non-professionals—homeowners, apartment dwellers and others—from attempting to treat bed bugs with insecticides.

**Professional treatments offer the safest and best control. Professional insecticide applications are only successful when accompanied by other efforts! For more information, see *Let's Beat the Bug!* at:**

**[www.bedbugs.umn.edu](http://www.bedbugs.umn.edu)**



Metal bed frame

Underside of box spring

Mattress seams and headboards

Backpacks – zippers





## What to Know Before Applying Insecticides

Insecticides are a valuable tool in bed bug management, but only when properly used in combination with non-insecticide control methods. Total control without the help of a professional is difficult and it is recommended that residents not attempt it on their own. Insecticides are most effective when used by a pest management professional.

Some things to know before beginning to treat for bedbugs:

- Try to remain calm if bed bugs are confirmed. Bed bugs do not spread diseases.
- Read and completely understand the label.
- According to Extension, bug bombs (foggers) are not effective for controlling bed bugs.
- Be Patient! Treatments take time to work.
- DO NOT use or allow the use of boric acid insecticidal dust treatments or roach powders. They don't work!
- Not all insecticides labeled for indoor use will control bed bugs.
- Work with a pest management professional and Extension to understand insecticide effectiveness.
- Before and after an insecticide treatment, follow all pest management professional and/or label instructions.
- Multiple insecticide applications are usually necessary for complete control. Reapplication timings differ depending on the insecticide applied.
- Some bed bug populations are resistant to certain insecticides. Ensure or implement a rotation of different insecticide ingredients to protect against resistant bed bugs.

## Common Reasons for Insecticide Failure

- Too much clutter.
- Improper preparation of the treatment area.
- New bed bugs brought in from other locations.
- Not allowing enough time for a pesticide to work.
- Failing to treat adjacent areas (apartment units, rooms, etc.) to protect against migration.
- Disregarding recommended label rates.
- Not following up on a treatment in an appropriate time-frame.
- Having bed bug populations that are resistant to a specific insecticide.

Hire a licensed, experienced and reputable pest management professional. See "Hiring a Pest Management Professional" found at the *Let's Beat the Bug!* webpage listed under "Additional Resources."



Clutter provides hiding places for bed bugs and is a barrier to successful treatments.

## Insecticide Treatment Options

**Always read and follow all current label directions for the specific insecticide product being used. This brochure does not endorse specific treatment methods.**

The table below is a summary of insecticide application target areas, key ingredients and formulations.

Application Target Area	Key Insecticide Groups or Active Ingredients*	Insecticide Formulation	Hazards & Applicator Safety**
<b>Mattress, Upholstered Surfaces</b> Folds and seams only	Various Pyrethroids; Chlorfenapyr	Liquid or Aerosol	DO NOT spray around open flame or heat sources or in electrical sockets Allow product to dry, read label for reentry times
	Diatomaceous Earth (silicon dioxide)	Insecticidal Dusts	Inhalation hazards
	Cold Pressed Neem Oil	Liquid Botanical	Allow to dry; leaves strong odor
<b>Soft Furniture</b> Where skin contact is less likely to occur	Pyrethrins	Liquid or Aerosol	Lung, eye, skin contact hazards
<b>Wall/Floor</b> Cracks and crevices only	Various Pyrethroids; Chlorfenapyr; Imidacloprid	Liquid	DO NOT spray around open flame or heat sources or in electrical sockets
	Dinotefuran	Aerosol	Allow product to dry, read label for reentry times into treated area
	Diatomaceous Earth (silicon dioxide)	Insecticidal Dusts	Avoid applying diatomaceous earth to large floor surfaces
	Cold Pressed Neem Oil	Liquid Botanical	Allow to dry; leaves strong odor
<b>Carpet Edges</b> Baseboard-carpet edges	Pyrethroids, Pyrethrins, or Dinotefuran often formulated with Diatomaceous Earth (silicon dioxide)	Liquid	DO NOT spray around open flame or heat sources or in electrical socket
	Diatomaceous Earth (silicon dioxide)	Insecticidal Dusts	Inhalation hazards
	Cold Pressed Neem Oil	Liquid Botanical	Allow to dry; leaves strong odor
<b>Hard Furniture</b> Bed frames, Bookcases, Dressers (underside surfaces – non-skin contact areas)	Various Pyrethroids and Pyrethrins	Liquid	DO NOT apply to surfaces where skin contact occurs; avoid eye contact
	Diatomaceous Earth (silicon dioxide), Pyrethrins	Insecticidal Dusts	Inhalation hazards
	Cold Pressed Neem Oil	Liquid Botanical	Allow to dry; leaves strong odor
<b>Wall Voids</b> Behind electrical outlets/wall switches	Diatomaceous Earth (silicon dioxide)	Insecticidal Dusts	Inhalation hazards
<b>Electronics</b> Clock-radio, computers, toys, cellphones	Dichlorvos	Chemical Fumigation	For professional use only

\* **DISCLAIMER:** Mention of any insecticide active ingredient in this brochure is for educational purposes only does not imply an endorsement by the Minnesota Department of Agriculture.

\*\***HEALTH CAUTION:** Individuals with asthma, respiratory and dermal health conditions may be particularly sensitive to the use of some products with odors and/or particulates that can result from treatments.

EPA's Bed Bug Product Search tool can be used to learn more— <http://cfpub.epa.gov/oppref/bedbug/>

Note that many products listed in the EPA database are intended for professional use only and not sold over the counter.

