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## *Bed bugs*

*Use Integrated Pest Management (IPM) for successful pest management.*

### ***Biology***

Bed bugs are ectoparasites, which means that they feed on the outside of their host. They attack humans, bats, chickens, and occasionally other animals. Adult bed bugs are flat and small (around 1/4 inch long). They are broadly oval in shape, wingless, and typically rusty brown-red in color. Immediately after feeding, adults are more elongated and torpedo-shaped, gradually returning to their flat, oval shape as their meal is digested. Adult females lay tiny eggs that hatch into nymphs in about a week. Immature nymphs resemble adults but are smaller (less than 1/10" to about 1/4" depending on developmental stage) and lighter in color. The pale white or yellowish nymphs turn bright red after a blood meal. While nymphs need blood meals to complete their development into adults, adult bed bugs can go as long as a year without a blood meal. During the day, bed bugs hide in crevices like the cracks of the floor or bed frame, along mattress and couch seams, and behind head boards, picture frames, or wall moldings. At night, they come out of hiding to feed. Bites often occur as a row of several raised, reddened bumps. The bites may resemble those caused by mosquitoes and can be very itchy. Although bed bugs have not been known to transmit disease, the body's reaction at the bed bug feeding site can cause welts, local inflammation and discomfort. Bed bugs move around by hitching rides or laying eggs on clothing, furniture, bedding, and baggage. While bed bugs prefer humans, they will also feed on other animals such as rats, mice, bats, and birds including swallows and chickens.

### ***Management Options***

#### **Non-Chemical Management**

- ~ Bed bugs cannot survive extremely high temperatures. Articles such as bedding and clothing that will tolerate high heat can be placed in a hot clothes dryer (120 degrees F) for at least 20 minutes. For wet/laundered items, dry completely in a hot dryer and then dry an additional 20 minutes. To avoid spreading bed bugs, items can be transported to the laundry facilities in special dissolving laundry bags or cloth bags that are washed and dried with the clothing or bedding. Do not replace cleaned and dried items in potentially infested bags, baskets, or hampers. Carefully vacuum infested areas making sure to use the hard end of the wand to scrape the surface to remove eggs. Do not use a brush-type attachment. Bag-type canister vacuums are most effective for this purpose. After each use, remove the vacuum bag; seal it inside a garbage bag, and dispose of the bag to avoid spreading the bed bugs. Filter-type and bagless vacuums in particular can spread bed bugs from one room to another if they are not cleaned thoroughly after use. Vacuuming alone will not eliminate a bed bug infestation, but can help significantly reduce the population and will remove old bug debris to allow easier monitoring of the infestation.
- ~ Clean, remove or replace the infested furniture. DO NOT donate or sell infested furniture.
- ~ Create a barrier between the bed and floor or wall if the bed bugs are not hiding in the bed. Commercially available pitfall-type traps can be placed under furniture legs to prevent bed bug access, but these will only be effective if no bedding touches the floor or walls. Pitfall traps may also be used as part of a monitoring strategy.
- ~ Reduce clutter. Do not store items under the bed, as these will simply provide more hiding places for the insects. This will also make it easier to monitor and control infestations.
- ~ Use bed bug-proof mattress and box spring encasements that have been proven to be both escape-proof and bite-proof. These prevent infestation of clean mattresses and box springs, isolate and starve bed bug populations in infested items, and provide a surface which allows easier detection of bed bugs.
- ~ Vacating the residence is not recommended, as bed bugs can easily survive several months without a blood meal and will simply wait for you. Also, the infestation can travel with you on your personal belongings (luggage, bedding, clothing, etc.).
- ~ Professional pest management firms may use commercial steamers, rapid-freezing equipment or heat treatment for control of bed bugs. WHEN USED PROPERLY these processes will kill bed bugs and eggs

which are exposed to treatment, but they may not completely eradicate an infestation.

*Select non-chemical management options as your first choice!*

## Chemical Management

**IMPORTANT:** Visit *Home and Garden Fact Sheets* for more information on using pesticides

Unless you are knowledgeable about chemical management of bed bugs, contact a reputable and experienced pest management professional. Chemical controls are only effective when used in conjunction with nonchemical management practices. To reduce risks associated with human exposure to pesticides, **DO NOT APPLY** products listed below to mattresses or bedding. For best results when using diatomaceous earth, use a bulb duster and apply only into cracks and crevices (such as behind moldings, where floors and walls meet, and in joints and crevices of bed frames). Diatomaceous earth alone will not give complete control of a bed bug infestation. Many bed bug populations have developed resistance to pyrethroid, such as permethrin, and neonicotinoid pesticides, such as imidacloprid, so use of those products may not give satisfactory control.

**If you choose to use a pesticide, some examples of products that are legal in Washington are listed below. Some products are labeled for just INDOOR or just OUTDOOR use, or may allow both uses. Be sure to choose a product appropriate for your situation. Always read and follow all label directions.**

- ~ Natural Guard Crawling Insect Control
  - active ingredient: silicon dioxide (diatomaceous earth)
  - EPA reg no: 7401-449
- ~ Garden Safe Brand Crawling Insect Killer
  - active ingredient: silicon dioxide (diatomaceous earth)
  - EPA reg no: 9688-173-39609
- ~ Bed Bug Killer Mata Chinchas De Cama Combatmax
  - active ingredient: PIPERONYL BUTOXIDE, CLOTHIANIDIN, METOFLUTHRIN (ISO)
  - EPA reg no: 1021-2780-64240
- ~ This list may not include all products registered for this use.

*Bed bugs*

*Images*



~ Caption: Bed bug  
~ Photo by: Roger Akre