

Dust Mites

Dust mites are among the smallest mites known. They are less than $\frac{1}{64}$ inch and require a microscope for identification. A dust mite is oval, cream-colored, and soft-bodied, with striations on its back. There are five stages in the house dust mite life cycle: egg, larva, protonymph, tritonymph, and adult. Mites are not insects, so the life stages are not the same. However, mites and insects are both arthropods.

What we call dust mites are really several species of mites. The most common dust mites are the American house dust mite, *Dermatophagoides farinae*, and the European dust mite, *D. pteronyssinus*. They are not the same as paper mites or cable mites, which are really not mites at all. (For more information, see Extension publication ANR-1122, "Itches, Illusions, and Phobias.")

The Problem with Dust Mites

Dust mites have been identified as an important factor in triggering allergies and asthma. Children with asthma are especially affected. The protein in the mite's exoskeleton causes allergic reactions. Although many people complain that dust mites cause unbearable itching and eczema, the data proving this link are less clear.

If you suspect that you or your family members are suffering from house dust mite allergies that can lead to respiratory distress, consult your doctor. In the meanwhile, the best way to definitively identify whether or not you have a house dust mite problem is to obtain a mite sample.

How to Take a Mite Sample

There are two methods that can be used to collect mite samples—the tape method and the vacuum cleaner bag method.

The Tape Method

Take a piece of clear tape, and place the sticky side on the skin where the itching or "creepy-crawly" sensation is being felt. Two-inch-wide clear tape is best. It is very important that the tape be applied to the area at

the time the sensation occurs, not after the sensation passes. Gently remove the tape from the skin, and stick the tape to a clean piece of white paper or an index card. Submit the sample for identification. The tape method is the easiest way to identify mites if they are walking across the skin.

The Vacuum Cleaner Bag Method

Use a high-efficiency particulate air (HEPA) filter vacuum cleaner and a clean vacuum cleaner bag. Remember that the mites are very small. A HEPA filter will trap particles as small as 0.3 microns in diameter. Vacuum carpeting and cracks and crevices of sofas and bed mattresses, especially around the ribbing. Submit the entire vacuum cleaner bag for identification.

This method is the least effective and probably the most labor-intensive in terms of collecting the sample and then trying to locate any mites among the dust and other debris.

Distribution and Life Cycle

Dust mites are widely distributed throughout the world. Within a house, concentrations of these mites will be the highest where there is the most food and where there are favorable temperature and moisture conditions. Food includes sloughed off human skin, pet dander, spilled food, fungi, and pollen. Areas of high mite concentration include bedding and mattresses, upholstered sofas and couches, carpets, and even stuffed toys.

If the temperature is held at 75°F and the relative humidity is 75 percent, the American house dust mite female can produce between 31 to 100 eggs, averaging 66 eggs in her lifetime. She lives an average of 100 days. Under the same conditions, the European house dust mite female can produce between 19 to 158 eggs, averaging 68 eggs in her lifetime. She lives an average of 31 days.

In general, the higher the temperature and relative humidity, the higher the reproductive and survival rates. The lower the temperature and relative humidity, the lower the reproductive and survival rates.

Control

Experts recommend the use of Integrated Pest Management (IPM) techniques to control house dust mites. IPM incorporates all available techniques into an effective control program. Techniques include physical or mechanical methods, sanitation, and the use of multiple control products.

Physical and Mechanical Methods

- Lower the relative humidity to less than 50 percent, and keep temperatures less than 70°F by running the air conditioner. Keep the air circulating. Remember that temperature and moisture (relative humidity) are the most important factors in dust mite survival, not food.
- Use a HEPA air filter to clean room air. Be sure to clean the filter frequently.
- Use a dehumidifier, especially during the summer. Remember to clean it at least once a week.
- Encase mattresses and pillows in special plastic bags that have zippers or semipermeable dust covers. It is estimated that one used bed can contain as many as 100,000 to 10,000,000 mites over time.
- Turn mattresses frequently.
- Allow mattresses to air out after stripping off bedding.
- Replace all down pillows. Use washable synthetic materials.
- Remove carpet and drapes from the bedroom.
- Avoid heavy drapes and window coverings that can serve as dust catchers. Use window coverings that can be washed frequently, preferably every 2 weeks.
- Avoid using upholstered furniture. Use wood or other less fibrous materials.
- Minimize knickknacks and other clutter where dust can accumulate. Store books in enclosed bookcases and knickknacks in glass-encased curios.
- Keep pets outside. Their dander can contribute to a dust mite problem inside.

Sanitation

- Vacuum mattresses and carpeting frequently, using a HEPA-filter vacuum. Wear a dust mask while vacuuming if you are allergic to dust mites.
- Consider dry cleaning carpets and drapes instead of steam cleaning. Steam cleaning may cause allergens to become airborne, making allergies worse.
- Wash synthetic pillows every month in hot (130°F) water.
- Make sure childrens' toys are washable, and wash them every so often.
- Wipe windowsills and cabinet tops with a damp cloth at least once a week.

Control Products

Insecticides alone will not alleviate the symptoms of those suffering from dust mite allergies because the dead bodies of the mites still contain the protein allergen. Therefore, the use of chemicals in house dust mite control is not recommended. However, there is one product registered for house dust mite control, but it is not labeled for bedding. Its active ingredient is benzyl benzolate, and it can be found under the trade name Acarosan.* As always, follow the label directions. The label is the law.

House dust mites are potent allergens. Controlling these mites is extremely important to people, particularly children who have asthma. Consult your doctor as well as your pest control professional for assistance in controlling these mites.

*Use of trade names does not constitute an endorsement of the product.



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For more information, call your county Extension office. Look in your telephone directory under your county's name to find the number.

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