



# VARMANT GUARD®

ENVIRONMENTAL SERVICES INC.



Residential Services ✧ Commercial Services ✧ Bird Solutions

Common Name: **House dust mites**  
Scientific Name: **Dermatophagoides species**

---

## HOUSE DUST MITES

---



**Introduction.** The common name comes from the association of these mites, their skeletal parts, feces and body fluids with house dust. Although these mites do not bite, they are estimated to be responsible for the allergic reactions of some 500 million people worldwide and may be a factor in 50 to 80% of asthmatics. Although there are several species of house dust mites, this section will be restricted to the two most common species found worldwide. These are the American house dust mite, *Dermatophagoides farinae* and the European house dust mite, *Dermatophagoides pteronyssinus*.

**Recognition.** Adult house dust mites are 1/64 inch long, oval, soft, somewhat flattened, (top to bottom) and off-white to cream colored. As is typical among mites, the larva stage (hatchling) has 3 pairs of legs and the nymphs and adults have 4 pairs of legs.

**Similar Mites.** The identification of mites is difficult due to their small size and similar features. This is best accomplished by an acarologist equipped with a microscope.

**Biology.** Developmental stages of house dust mites include egg, larva, 2 nymphal stages (protonymphs and tritonymphs) and adult. Larvae have only 3 pairs of legs; whereas nymphs and adults have 4 pairs. The

[www.varmentguard.com](http://www.varmentguard.com) (800) 793-8169



Residential Services ✧ Commercial Services ✧ Bird Solutions

development time (egg to adult) for these 2 species can be summarized as the average number of days required for the egg, larvae and nymph stages, respectively, at 75% RH, and is as follows:

1. The American house dust mite can complete development in 35 to 36 days at 75° F. and in 17 to 18 days at 86°F.
2. The European house dust mite is able to complete development in 34 days at 75°F and in 19 to 20 days at 86°F.

The average egg production and longevity of both species at 75°F and 75% RH can be summarized as follows:

1. American house dust mite females produce an average of 66 eggs (range 31 to 100) each. Mated females live an average of 31 days, including an average of 2 days after egg laying stops.
2. European house dust mite females produce an average of 68 eggs (range 19 to 158) each. Mated females live an average of 31 days, including an average of 2 days after egg laying stops.

Under optimal conditions, the nymphs of the European house dust mite can undergo a prolonged quiescent period of several months during which they are highly desiccation-resistant. The American house dust mite nymphs probably do not exhibit the same quiescent behavior under optimal conditions. House dust mites are responsible for the allergic reactions of millions of people and may be a factor in 50 to 80% of asthmatics. People react to particular proteins found in their excrement and exoskeleton fragments.

**Habits.** House dust mite development, egg production and longevity are very dependent on temperature, moisture, and an adequate food supply. Therefore, they select certain locations (microclimates) within a structure, which provide these needs. These mites feed on sloughed human skin, spilled foodstuffs, fungi, and pollen. The average adult human sheds about 70 to 140 milligrams of skin scales each day, and about 180 milligrams of this material is sufficient to produce and maintain mass cultures of the European house dust mite for several months. The highest concentrations of sloughed skin scales occur in bedding, mattresses, upholstered furniture, carpets, and in stuffed toys. Humans supply the necessary increase in moisture and temperature over ambient room levels when they frequent these areas. Bedding and stuffed furniture provide the best conditions because humans spend more time here, with carpeting being the least favorable because of lower moisture (except in situations involving flooding and plumbing leaks). A gram of dust vacuumed from carpeting may contain 100-400 mites whereas; a gram of dust from stuffed furniture may contain 3,500 or more mites. It has been estimated that a typical used mattress contains from 100,000 to 10 million house dust mites within it. Mite development in carpeting on slab floors and floors over cool crawl spaces and basements is probably additionally slowed because of the cooler temperature.



# VARMANT GUARD®

ENVIRONMENTAL SERVICES INC.



Residential Services ✧ Commercial Services ✧ Bird Solutions

The resting nymph stage is thought to be the stage which survives the dry conditions of the winter heating season and is the source of mites for population growth during the favorable (humid) periods that follow. House dust mites can be easily dispersed within a house and even outside. For instance, marked mites were traced from a couch via clothing to the rest of the house and the family vehicle within a two week period.

**Cultural Control & Preventative Measures.** The best control method presently available is habitat modification coupled with sanitation and moisture control: > Habitat modification consists of encasing the mattress and pillows in special plastic covers with zippers to separate the sleeper from the mites. > Sanitation involves the following: (1) Dry-clean or launder drapes in hot water and then dry thoroughly. (2) Vacuum clean upholstered furniture, rugs, carpets and floors thoroughly using a vacuum cleaner equipped with a HEPA (high efficiency particulate allergen) filter to prevent re-introducing mite allergens into the air. (3) Dry shampoo or spray-treat upholstered furniture, rugs and carpeting using a product that contains an acaricide and mold-inhibiting ingredients. (4) Replace the furnace filter with a new micro filtration filter at least every three months. > Moisture control involves lowering the indoor relative humidity to 60% by operating one or more strategically placed dehumidifiers and improving ventilation in crawl spaces and attics as well as living spaces.

**Note:** A HEPA-filter equipped vacuum cleaner removes particles down to 0.3 microns in diameter. Vacuuming alone is not the solution because for instance; it removes only about 7% of the mites from carpeting. Window coverings should be cleaned every 2 weeks. Hot water and steam cleaning carpets, with or without various solutions, is not advisable due to the additional moisture that is introduced. Area rugs should be sent out to be dry cleaned when soiled. Having a dog as a pet is like adding another person to the household. This is apparently not true for cats.



[www.varmentguard.com](http://www.varmentguard.com) (800) 793-8169