

MOUSE MANAGEMENT

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The house mouse (*Mus musculus*) is considered one of the most troublesome and economically important rodents in the United States. House mice live and thrive under a variety of conditions. They are found in and around homes and farms as well as in open fields and agricultural lands. House mice consume and contaminate food meant for humans, livestock, or other animals. They cause damage to structures and property, and they may transmit diseases such as salmonellosis (food poisoning).



Recognizing Mouse Infestations

Droppings, fresh gnawing, and tracks indicate areas where mice are active. Mouse nests, made from fine shredded paper or other fibrous material, are often found in sheltered locations. House mice have a characteristic musky odor that identifies their presence. Mice are occasionally seen during daylight hours.

House Mouse Facts

House mice are non-descript, brownish rodents with relatively large ears and small eyes. They weigh about 1/2 ounce and are usually light brownish to light grayish. An adult is about 5 1/2 to 7 1/2 inches long, including the 3- to 4-inch tail.

Although house mice usually feed on cereal grains, they will eat many kinds of food. They are sporadic feeders, nibbling bits of food here and there. Mice have keen senses of taste, hearing, smell, and touch. They are excellent climbers and can run up any rough vertical surface. They will run horizontally along wire cables or ropes and can jump up 13 inches from the floor onto a flat surface. Mice can squeeze through openings slightly larger than 1/4 inch in diameter.

In a single year, a female may have five to ten litters of usually five or six young each. Young are born 19 to 21 days after mating, and they reach reproductive maturity in six to ten weeks. The life span of a mouse is about nine to twelve months.

House Mouse Control

Effective control involves three aspects: sanitation, mouse proof construction and population reduction. The first two are useful as preventive measures. When a mouse infestation already exists, some form of population reduction is almost always necessary. Reduction techniques include trapping and poisoning.

Sanitation: Because mice can survive in very small areas with limited amounts of food and shelter, it is almost impossible to eliminate them, particularly on farms. Most buildings in which food is stored, handled, or used will support house mice if not mouse-proofed, no matter how good the sanitation. Although good sanitation will seldom eliminate mice, poor sanitation is sure to attract them and will permit them to thrive in greater abundance. Good sanitation will also reduce food and shelter for existing mice and in turn make the baits and traps more effective. Pay particular attention to eliminating places where mice can find shelter. If they have few places to rest, hide, or build nests and rear young, they cannot survive in large numbers.

Mouse-Proof Construction: The most successful and permanent form of house mouse control is to "build them out" by eliminating all openings through which they can enter a structure. All places where food is stored, processed, or used should be made mouse-proof. Dried grain and meat products should be stored in glass jars, metal canisters, re-sealable coffee cans, or other air tight containers.

Seal any openings larger than 1/4 inch to exclude mice. Steel wool mixed with caulking compound makes a good plug. Patching material needs to be smooth on the surface to prevent mice from pulling out or chewing through the patching compound. Seal cracks and openings in building foundations and openings for water pipes, vents and utilities tightly with metal or concrete. Doors, windows, and screens should fit tightly. It may be necessary to cover the edges with metal to prevent gnawing. Plastic sheeting or screen, wood, rubber, or other gnawable materials are unsuitable for plugging holes used by mice.

Traps: Trapping is an effective control method. It is the preferred method in homes, garages, and other structures where only a few mice are present. Trapping has several advantages: 1) it does not rely on inherently hazardous poisons; 2) it permits the user to confirm that the mouse has been killed and 3) it allows for disposal of the mouse carcasses, thereby eliminating dead mouse odors which may occur when poisoning is done within buildings.

The simple, inexpensive wood-based snap trap is effective and can be purchased in most hardware and grocery stores. Bait traps with peanut butter, chocolate candy, dried fruit, or a small piece of bacon tied securely to the trigger. Set them so that the trigger is sensitive and will spring easily. Leaving traps baited but unset until the bait has been taken at least once reduces the chance of creating trap-shy mice.

Multiple-capture live traps for mice such as the Victor Tin Cat® and the Ketch-All®, are also available in some hardware and feed stores. Set traps close to walls, behind objects, in dark corners, and in places where evidence of mouse activity is seen. Place them so that mice will pass directly over the triggers as they follow the natural course of travel, usually close to a wall. Traps can be set on ledges or on top of pallets of stored materials if mice are active in such locations. Use enough traps to make the campaign short and decisive. Mice seldom venture far from their shelter and food supply, so space traps no more than about 10 feet apart in areas where mice are active.

An alternative to traps are glue boards, which catch and hold mice attempting to cross them in much the same way flypaper catches flies. Place glue boards along walls where mice travel. Two or three glue boards placed side-by-side will be more effective than individual boards. Do not use them where children, pets, or desirable

wildlife can contact them. Glue boards can be placed inside bait stations in exposed locations. Glue boards lose their effectiveness in dusty areas unless covered, and extremes of temperature also may affect the tackiness of the adhesive.

Using Poison Baits (Rodenticides): Rodenticides are poisons that kill rodents. They are available as either non-anticoagulants or as anticoagulants. They can be purchased in hardware stores, feed stores, discount stores, garden centers, and other places where pesticides are sold.

The non-anticoagulants cause death either via the nervous system or via the release of calcium into the bloodstream. Anticoagulants cause death as a result of internal bleeding, which occurs as the animal's blood loses its clotting ability and capillaries are destroyed. The active ingredients are used at very low levels, so bait shyness does not occur when using properly formulated baits.

Most of these baits cause death only after they are fed on for a number of days. The exceptions are baits containing brodifacoum or bromadiolone. These baits can cause death following a single feeding, although the mouse does not die for several days.

When rodenticides are used, fresh bait must be available continuously until mice stop feeding. Depending on the number of mice, this may require up to three weeks.

Bait Selection and Placement: Baits are available in several forms. Grain baits in a meal or pelleted form are available in small plastic, cellophane, or paper packets. These sealed "place packs" keep bait fresh and make it easy to place the baits in burrows, walls, or other locations. Mice gnaw into the packet to feed on the bait. Block style baits are also very effective for most baiting situations.

Proper placement of baits and the distance between placements is important. Space bait placements no farther than 10 feet apart and preferably closer. For effective control, baits or traps must be located where mice are living.

Use of tamper-resistant bait stations provides a safeguard to people, pets, and other animals. Place bait stations next to walls with the openings close to the wall, or in other places where mice are active. When possible, secure the bait station to a fixed object to prevent it from being moved. Clearly label all bait stations "Caution—Mouse Bait" as a safety precaution.

Sound and Electronic Devices: Although mice are easily frightened by strange or unfamiliar noises, they quickly become accustomed to regularly repeated sounds and are often found living in grain mills and factories. Ultrasonic sounds, those above the range of human hearing have very limited use in rodent control because they are directional and do not penetrate behind objects. Also, they lose their intensity quickly with distance. There is little evidence that sound of any type will drive established mice or rats from buildings.

Predators: Although cats, dogs, and other predators may kill mice, they do not give effective control in most circumstances. It is not uncommon to find rodents living in very close association with dogs and cats. Mice and rats may obtain much of their diet from the pet's dish or from what pets spill. In barns, stables, and other areas where grain based feed is always available to mice, some cats and dog breeds may help reduce mice populations.

Prepared by Entomologists at the Illinois Department of Public Health, University of Illinois, Illinois Natural History Survey, and Purdue University. For additional copies, contact your unit office of the University of Illinois Cooperative Extension Service.

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