

# Meadow Mouse Control

Scott R. Craven and Elden J. Stang

**T**HE MEADOW MOUSE (genus *Microtus*) is a heavysset, grayish-brown mouse (actually a vole), with tiny ears, a short tail and small, dark eyes. Several vole species dwell in Wisconsin, with the species *M. pennsylvanicus* being the most abundant.

Meadow mouse populations sometimes reach densities of several hundred mice per acre or more. Populations tend to peak on roughly 4-year cycles but weather plays a major role in population levels. Large numbers of mice can seriously damage orchard trees, Christmas trees and woody ornamental plants. High populations also result in many surface runways in lawns and turf. Where high meadow mouse populations occur, commercial growers and homeowners need to practice mouse control. The key to successful meadow mouse control lies in taking action before damage occurs.

## Winter damage

Most meadow mouse problems take place during the winter. Mice kill or severely injure trees and shrubs by girdling trunks, stems and sometimes roots when other food is scarce. Meadow mice readily burrow in snow and use it as a protective, insulating blanket. They may damage trees as high as the snow accumulates, and may also harm Christmas trees stacked after cutting.

Signs of damage may appear at the base of the trunk and on the plant's roots and lower branches. Mice prefer young, thin-barked trees. They usually do less damage to older trees, but sometimes severely damage the exposed roots of older fruit trees under snow or grass cover.

Runways in lawns look worse than they actually are. During spring clean up, rake loose grass out of the runways; surrounding

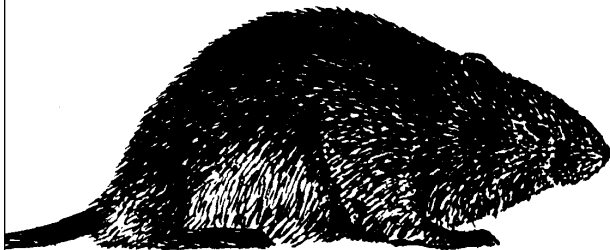
grass will quickly fill in the area. For more rapid repair, spread loose soil in the runways and reseed.

## Detecting mouse activity

Begin watching for signs of troublesome mouse populations in early autumn. Look for nests and runways in grass and other vegetation close to the soil's surface. Fresh grass clippings, chewed fruit, feces and frequent sightings are also indicators of abundant meadow mice.

## Natural controls

Hawks, owls, fox, skunks, weasels, mink and snakes eat great numbers of meadow mice. Orchardists and farmers should recognize that these predators are beneficial—they provide mouse control at no cost. Severe weather and food shortages also reduce mouse populations. While weather conditions cannot be controlled, predators can be encouraged or at least left alone.





## Artificial controls

When natural controls are inadequate, artificial methods must be used to control mouse population growth. Mid-October through mid-November is the time for action. For trapping and baiting, select pleasant days when mice are most active. Control activities are difficult or ineffective after snow has covered the ground.

Use one or more of the procedures described in the following section to protect trees and shrubs.

**Habitat elimination.** Keep grass mowed and maintain grass-free areas around trees and shrubs to destroy runways, nests and hiding places. Gravel or crushed rock under the drip line will reduce habitat areas. Keep mulch around woody plants to a minimum.

**Mouse guards.** Wrap a strip of 1/4-inch wire mesh (hardware cloth) around the base of fruit

and ornamental trees (see figure 1). Adequately overlapped, a 14-inch strip will make a cylinder 2–3 inches in diameter for young trees. Submerge the hardware cloth 2–3 inches into the ground. It should extend 18–20 inches above ground level. Use higher guards where snow will be deep and the height of lower limbs permits.

Wire mesh mouse guards will last 5 years or more, but you should examine them every year to be certain mice cannot gain access to the tree.

Garden centers and nurseries sell several types of tree wraps and metal guards that can be wrapped around tree bases. Plastic wraps cost less than wire mesh, but they don't last as long. In addition, plastic and paper wraps should be removed each growing season. Tight wraps keep bark moist, encouraging the growth of disease organisms and providing protection for insects. Replacing plastic wraps every year may ultimately be more expensive than buying wire mesh in the first place.

**Trapping.** This is one safe way to eliminate mice on small areas. Traps are especially useful in backyards and around ornamental trees and shrubs. Place wooden-base (mouse-size) snap traps in runways, flush with the ground and at right angles to the runways.

Use peanut butter, oatmeal or apple slices for bait.

**Repellents.** Chemical repellents help keep mice away from yards and orchards. Don't rely on repellents alone, though, because when food is scarce mice may even eat repellent-treated bark. We recommend using repellents on a short-term basis, or in combination with other control procedures, such as mouse guards or "spot" baiting (with poison baits).

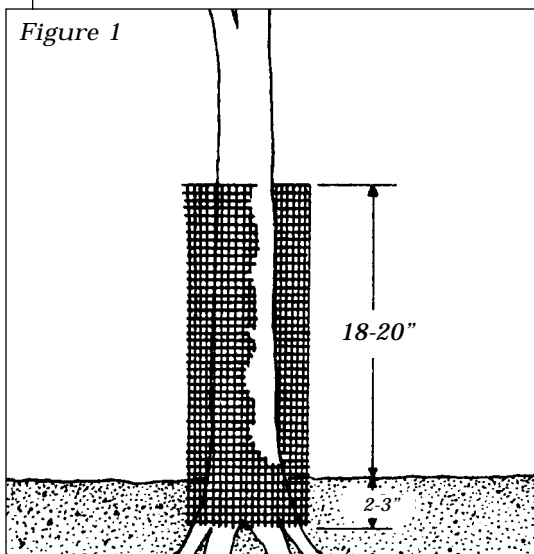
Most commercial repellents contain thiram, which is a fungicide. It repels animals effectively, but you must follow label directions carefully for best results. Other repellents are derived from capsaicin (hot sauce) or other active ingredients. Under most circumstances, repellents should be applied in late fall and again in winter when weather permits.

**Poison baits.** Rodenticides (rodent poisons) can be used to control large mouse populations, although we recommend their use only when other controls prove inadequate.

The most widely used rodenticide for meadow mice is zinc phosphide. It is available in ready-to-use pellets, which can be spot-baited or broadcast.

To spot-bait, place about a teaspoonful of pellets at each of 4–6 locations around each tree to be protected. Place these "baits" 6–18 inches from the tree base and in well-defined mouse runways, preferably inside sheltered "stations" such as a

Figure 1





beverage can with both ends removed, or a 12–18 inch section of 1.5-inch PVC pipe with one end capped. Such stations protect the baits from the weather, while making them more acceptable to mice, but less available to other wildlife. Commercial bait stations are also available.

Pelleted bait may be broadcast at a rate of 6–10 pounds per acre. Application rates and procedures are detailed in the label instructions for any rodenticide. Follow the instructions to the letter for maximum safety and effectiveness.

Bad weather can substantially reduce the success of baiting. Do not spread pelleted bait in wet grass or before heavy rain is anticipated. Paraffin blocks containing poison baits may be used during wet weather. They are weather resistant and easy to place.

Your choice of a rodenticide will depend on its availability, your level of experience, and perhaps the price. Remember that some products are “restricted-use” and require pesticide applicator certification before you can purchase them.

### **Baits are hazardous**

Poison baits can be hazardous to all forms of animal life. Non-target animals can become sick or die from eating bait directly, or from eating bait-killed mice. Do not use the baits where there is a chance of harming humans, domestic animals or desirable wildlife.

### **Keep populations under control**

Use control practices as necessary to keep mouse populations at low levels. To save money and reduce the chances of accidentally poisoning other animals, reduce rodenticide use when populations are down. But watch for signs of a population increase and act promptly when you see them. Mice can rapidly increase their numbers to damaging levels.

### **For more information**

To solve a meadow mouse problem in a large orchard, nursery, or plantation, consult directly with a wildlife specialist from the University of Wisconsin–Madison, or refer to an excellent publication entitled *Vole Management in Fruit Orchards* by M. Tobin and M. Richmond, Biological Report 5, U.S. Fish and Wildlife Service, March 1993. You can obtain a copy from the Publications Unit, U.S. Fish and Wildlife Service, 1849 C St., N.W. Arlington Square Bldg., Mall Stop 130, Washington, D.C., 20240 or from a UW-Madison Extension wildlife specialist.



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