



Effective Control of Moles and Voles (Field Mice)



Meadow Vole (field mouse)

Moles

Moles, native to temperate regions of Europe, Asia and North America, prefer soft soils, such as those of gardens and lawns.

The mole can be considered a beneficial animal since it consumes not only earthworms, but also slugs, grubs, insects and insect larvae. Some moles will even eat small snakes and mice.

Despite these positive characteristics, most gardeners would prefer to be without the mole.



Eastern Mole

The mole's subterranean activities can destroy the appearance of lawns, gardens, nurseries, parks, golf courses and cemeteries. They burrow just under the surface of the soil, and can kill plants by tunnelling under the root systems, removing the soil that once surrounded the plants' roots. The unprotected roots are left dangling in the tunnel to dry out and die. Plant diseases may also be spread by the mole's movements. In addition, more harmful pests like field mice and other rodents conveniently use the mole tunnels, and feed on "exposed" roots.

Signs of Infestation

In their search for food, moles create an extensive network of tunnels, many of which are used only once. Bulbs and roots may be damaged while feeding and tunnelling.

Mole tunnels are of two types:

1. Temporary surface tunnels where the sod is raised and appears as ridges. These feeding tunnels are used a few times, and then abandoned.

2. Deeper tunnels from which the mole must excavate dirt, forming molehills. The deeper tunnels are used mainly as the living quarters.

Description

The adult mole can measure anywhere from 12 to 20 cm in length and have dark grey or brown velvety fur. Its eyes are small and its broad front feet have strong claws for digging.

Biology

It is important to note that moles are insectivores. Despite being quite often mistaken for rodents, their biology and behaviour are not the same. Most moles do not eat plants, but feed mainly on earthworms (their favorite food), insect larvae and arthropods (invertebrate animals that have jointed body and limbs, e.g. insects and crustaceans). Some moles may eat tubers and the roots of garden plants.

Moles do not hibernate but remain active day or night all year long. During the winter, the mole will continue its quest for food deep below the frost line. Surface activity occurs most consistently in the spring and fall. Moles are solitary animals, and it is likely that only one or two moles are responsible for the damage to your lawn or garden.

Moles have only one litter of 3 to 4 young in the spring. These young will stay with the female in her tunnels for about a month, and then will start creating their own tunnels, reaching adult size in about four to eight weeks. The young may stay in the area several months after they have been weaned before finding their own territory. Young females will not breed until the following year.

Physical Control

If you prefer not to kill the mole, the following deterrents can be used:

Removing the food source: It is important to note that earthworms are the mole's preferred food source. However, many gardeners prefer not to rid the soil of earthworms because they help to increase the fertility of the soil.

Family pets: Cats or dogs may discourage a mole from entering a yard.

OTHER PHYSICAL MEANS TO CONTROL MOLES

The following methods of control can be found in published literature. However, we can not ensure the effectiveness of these methods because no hard facts exist to prove that they work.

Chewing gum: Various publications have suggested that moles may be attracted to rolled-up sticks of Juicy Fruit chewing gum. Apparently moles chew the gum and choke on it. The effectiveness of this method has been disputed in other publications.

Noises: Uncomfortable or unusual noises or vibrations such as those produced by a toy windmill or an empty soft drink bottle stuck into the tunnel may create enough vibrations to disturb the mole. Both of these methods depend on the wind. The windmill's rotation will create vibrations. Wind blowing over the bottle's opening will produce whistle-like noises and vibrations that may prove to be

annoying to the mole. Some individuals have tried using radios tuned to a particularly annoying station. However, this may also prove to be annoying to the neighbours.

Repellent Plants: The following plants apparently have some properties that may deter the mole from entering an area:

- Spurge (also known as the "mole plant") may discourage moles from trespassing.
- The Castor bean plant may also work. However, the seeds of the plant are highly poisonous to humans and should not be grown where children happen by. The plant produces large seed pods that may attract attention.

Chemical Control

Baits: At present, no registered baits are domestically available. Baits are rarely taken by moles because they prefer to feed on soil insects. Some baits containing zinc phosphide are available to licensed pest control operators.

Fumigants: Fumigants are best applied under moist conditions because dry, porous soil allows gases to escape. A burrow fumigant may not be effective because moles can detect gases early and quickly wall off the treated tunnels. The mole is also likely to escape unharmed if all the exits have not been blocked. Fumigants may redirect the activity, but not kill the mole.

Trapping

Licensed Pest Control Operators may offer a trapping service or may have traps for sale or rent. Farming Co-ops may also have traps for sale

or rent. Be sure to ask for instructions on the proper use of the mole traps if you decide to set one.

To ensure success, trapping efforts should be concentrated in the spring and fall. The main runways should be identified as follows:

- Look for tunnels that appear to directly connect two or more mounds that run parallel to permanent structures such as fences or concrete paths, or that follow a treeline bordering a grassy area.
- Another method of identifying an actively used run would be to lightly step on a small section of several tunnels so that they are disturbed, but not completely collapsed. Make sure that these disturbed sections are clearly marked. After a few days, the raised sections can be identified as active runs, and therefore good locations for traps. Install traps by carefully following the directions for use.

Voiles (field mice)

Voiles are widely distributed in the northern hemisphere. They forage for green plants and seeds during the day or night, but prefer the daytime. During the winter, most of their activities are unseen because they travel in tunnels beneath the blanket of snow. The insulating properties of the snow allow the animal to stay active throughout the winter. Voiles and other rodents move into mole tunnels and use them to gain access to crop roots. They can also gnaw the ground level bark of fruit trees, sometimes girdling and killing the trees. Occasionally, they may emerge on the snow's surface in search of seeds.



In cultivated areas, populations are probably permanently based in favorable habitats such as roadsides, canal banks, or adjacent uncultivated land. Voles invade cultivated land when the population builds up or when the wild habitat becomes unfavorable, such as when range grasses dry up in summer.

Symptoms of Vole Infestation

- Bark removed completely around the base of a tree.
- 1 to 2-inch wide surface runways (i.e. dead strips) through matted grass leading to shallow underground burrows.
- Small piles of brownish feces and short pieces of grass along the runways.

Description

Voles very much resemble house mice, but are distinguished by a shorter tail and a rounded muzzle and head, and small ears. Like all rodents, voles have a single pair of large chisel-like incisors in the upper jaw that continue to grow from the roots as the tips wear away.

The vole has a dark brown coat with a greyish belly that turns white in the winter. In contrast, the house mouse is uniformly grey.

Biology

Voles have an amazing reproductive capacity because female voles can start producing litters from the age of three weeks. Voles are like lemmings in that local populations can vary from one animal to thousands per hectare on a three to four-year cycle. When the vole population peaks, predators such as the fox, wolf or hawk feed on nothing else.

Physical Control

Good sanitation will help keep voles and other rodents away from your yard. Clean up all possible food sources, such as vegetables left in the garden at season's end. Proper vegetation management (e.g. removing mulch from the base of fruit trees in winter) will help in the prevention of population buildup.

If you intend to put mulch down on strawberries or other perennials, do so only after the soil freezes. If you do so before the soil freezes, you will be providing an ideal location for rodents to gain access to roots in unfrozen soil.

Barriers: Be sure to use metal or glass rodent-proof containers to store seeds and bird feed. Composters should also be inaccessible to rodents. Gravel or cinder barriers around garden plots are an effective and easy means of protection. The barrier should be 20 cm (6 to 8 inches) deep and a foot or more wide. The sharpness of cinder particles deters mice from pushing their noses into the soil. Commercial plastic tree guards, a piece of chicken wire or small mesh wrapped around the base of trees and extending below the soil will help prevent tree-girdling. Consult with your local tree specialist for the proper use of these materials.

Trapping: The traditional mouse trap can be used. Always exercise extreme caution when handling a trap and keep them out of the reach of children. You may wish to post warning signs where a trap is set.

It should be noted that a trap can be triggered by any hungry or curious animal that wanders by. The traps should be placed in areas where the voles are known to be. Barricades may be used that allow only the voles to enter a trap.

The most effective way to reduce a vole population through trapping is to buy a large number of snap-traps and set them all out at once for a one or two night period. A good technique is to bait the traps with a tiny dab of peanut butter or bacon for two or three nights without setting the traps. When the traps are finally set, there is an element of surprise.

Predators: Natural predators including cats, owls and snakes can help keep the vole population down.

Chemical Control

Once populations have built up, the use of treated baits may be necessary. Baits containing the active ingredient chloro-phacinone are available in home garden centres and are registered for the control of voles. Licensed PCOs can use commercial baits containing chlorophacinone or zinc phosphide. These products are toxic and label directions must always be followed.

Denatonium benzoate, sprayed on surfaces to be protected, deters voles from chewing. This animal repellent works because it has an extremely bitter and unpleasant taste. It should not be used on food, edible plants or directly on the fruits or nuts of trees. Do not use it on sugar maple trees if the syrup is to be used, since the taste of the maple syrup may be affected.

Remember



Before Purchasing a Pesticide Product

- Identify the pest correctly.
- Use physical control methods and alternatives to pesticides.
- Read the label directions and safety precautions before buying the product. The label must include the name of the pest to be controlled and the treatment location (e.g., indoor, outdoor, garden uses, pet treatment).
- Purchase only the quantity of product needed for the treatment.
- Alternatively, you may choose to hire a licensed pest control operator.

When Using a Pesticide

- Carefully read all label instructions and precautions before using pesticides.
- Do not drink, eat or smoke while applying pesticides.
- Persons and pets should vacate the area during treatment. Cover or remove aquaria.
- If kitchen area is to be treated, cover or remove food, dishes and utensils.

After Handling a Pesticide

- Always wash your hands thoroughly after handling any pesticide product.
- Do not permit persons or pets to contact treated surfaces until residue has dried completely.
- Provide adequate ventilation of treated areas after use.
- Wipe clean all surfaces that comes in direct contact with food, such as counters, tables and stovetops, including indoor and outdoor surfaces.
- Always store pesticides out of reach of children and pets and away from food and beverages.

In Case of Accidental Poisoning

- Call a poison control centre immediately and seek medical attention.
- Take the pesticide container or label with you to the emergency facility or physician.
- Follow first aid statements on the label.
- In case of accidental poisoning of pets seek veterinary attention immediately.



When Disposing of Pesticides

Do not reuse empty pesticide containers. Wrap and dispose of in household garbage.

Unused or partially used pesticide products should be disposed of at provincially or municipally designated household hazardous waste disposal sites.

Use Common Sense

- These are general recommendations.
- Consult the label for specific instructions.
- When in doubt, contact a professional.

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