

# Correct Identification Vital to Mole Damage Control

Correct identification is vital to mole damage control. Both species of Michigan moles have large shovel-like front feet with long claws. The eastern mole has a naked red nose and a short tail; the star-nosed mole has a large red nose with 22 finger-like projections and a long tail. The eastern mole usually makes many shallow tunnels that raise the soil into long winding 2-inch high ridges. The few mounds it makes are low, rounded and often have bits of turf on them. It prefers well-drained soils. The star-nosed mole usually makes deep tunnels not evident on the surface, but it pushes up soil from these funnels into many conical mounds of raw earth. Some mounds may be more than 6 inches high and 12 inches wide. It prefers moist soils. The pattern of tunnels and hills made by both moles varies with soil conditions.

Moles frequently cause damage, but are also beneficial as they are insectivores that feed on insects, worms and other invertebrates. They also irrigate and aerate the soil by burrowing. Occasionally they eat plant seeds, roots and bulbs, but most damage is done while burrowing for insects when they uproot the plants and grass roots. They are most active in spring or fall, on cloudy days and following rainy periods during the summer. During winter and midsummer dry conditions they go deep into the ground. They have a very extensive underground tunnel system, including travel tunnels (which are used daily) and foraging tunnels (rarely re-used). When moles become a problem, the following methods can be used to control the damage.

**1. Direct Killing**—Although eastern moles may burrow at any time, they are usually most active at certain times, depending on the season. Note when most new activity occurs, or when flattened ridges or mounds are repaired. Once you have determined when the eastern moles are most active, look during those times to see the long, winding ridges being pushed up by the eastern mole tunneling just below the surface of the ground. With practice you can quickly and quietly approach the tunneling mole and kill it by smashing the earth down with a shovel or similar instrument just behind where the earth is being lifted up. Repeated application of this method can gradually remove eastern moles from an area. This method rarely works for the star-nosed mole because it usually burrows too deeply.

**2. Trapping**—Eastern moles are easy to trap provided that the trap is placed on a tunnel that is actively being used every day and that problems with function of the trap are noted and resolved. Locate active tunnels of eastern moles by gently mashing a short section of every ridge that you can find with your foot and marking it in some way. Any ridge that has been pushed back up within 12 to 24 hours is over an active tunnel. Traps placed on these ridges should catch the mole every 24 to 48 hours until all using the tunnel beneath are caught. If a trap hasn't caught a mole in 3 days, it is in the wrong location, or it has caught all the moles using that particular tunnel and should be moved to a new location.

Of the three types of traps, the choker type seems to be the easiest for most people to use successfully on the eastern mole. In heavy clay soils, the frame of the harpoon trap will some-

times rise up out of the ground rather than impale the moles. If this happens, use pieces of wood or metal to stake the trap to the ground. With all types of traps, work the harpoons or jaws of the trap back and forth or up and down through the soil to ensure smooth penetration of the soil. If any trap is sprung prematurely so that the mole is not caught, remove a small piece of sod from under the trigger pan so as to delay the action of the trap. If moles burrow around a trap, then either the soil has been flattened too tightly, or part of the trap is projecting into the tunnel and alarming the mole.

To trap star-nosed moles, locate active tunnels of star-nosed moles by scattering the soil of each mound until it is flat. Mounds that are pushed back up in 24-48 hours are over active tunnels. To set the trap, it is necessary to dig a hole beneath one of the mounds of earth. The hole should extend to the bottom of the mole's tunnel, usually 4 to 6 inches below the surface of the ground. Refill the hole with enough earth to cover the top of the mole's tunnel with approximately 2 inches of earth. Set the harpoon type trap in the hole.

**3. Reduction of the Mole's Food Supply**—Moles feed on earthworms, insect larvae and other invertebrates. The use of insecticides to reduce insects and related invertebrates may eliminate enough of the mole's food supply, especially in sandy or light soils, so that they either starve or move elsewhere. In clay and organic soils, earthworms are usually abundant enough to make insecticide application ineffective.

**4. Poison Baiting**—Poison baits for moles that contain 2% zinc phosphide can be used to control moles. Place teaspoon quantities every 10-15 feet along mole travel tunnels. To place the bait in the tunnel, punch a hole in the tunnel roof with a ½-inch wood or metal rod. Pour the bait through the hole into the tunnel and then repair the hole with a piece of sod or wadded newspaper. Repeat treatment weekly until mole activity ceases. **Caution: Zinc Phosphide is TOXIC to birds and mammals. USE WITH CAUTION.**

**5. Calcium Cyanide**—Locate active tunnels and use a duster to blow calcium cyanide into the tunnels in both directions every 5-10 yards. Seal openings. Two to three pumps on the duster are sufficient. Note: Calcium cyanide may kill the roots of plants in the tunnels.

**6. Aluminum Phosphide (Phostoxin)**—Locate active tunnels and place a tablet into all tunnels every 5-15 yards during the afternoon and evening. Use as many tablets as necessary to obtain complete coverage of the entire mole system, not just the tunnels in one area, such as the yard. If the first treatment is not successful, repeat treatments eventually are. **Do not use within 15 feet of any building. Keep lid on container tightly fastened at all times.**

## Experimental Materials

Several products are now being tested. Check with your County Extension Agent for current status.

—*Turf Times, Northern Michigan Turf Managers Association*