

REPORT ON EFFICACY TESTS OF  
A NEW TOXIC MOLE BAIT

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Field studies were begun in 1986 to test the effectiveness of a new toxic bait on controlling damage caused by the eastern mole (Scalopus aquaticus) and the star-nosed mole (Condylura cristata) in Michigan. This report will describe the methods and results of that study. Because of the preliminary nature of this research, no information regarding the manufacturer, ingredients, or application method can be released at this time.

To achieve maximum control with the bait, it is necessary to correctly identify which species of mole is causing the damage. Star-nosed moles burrow 5-20 inches below the surface of the ground, pushing the excavated earth up to the surface through vertical shafts. As a result, large conical mounds 4 inches to a foot high are formed on the surface, usually 2-4 feet apart. Eastern moles tunnel 2-4 inches below the surface of the ground, raising the soil directly above the tunnel and leaving long winding ridges 1-2 inches high. Eastern moles sometimes make mounds, but they are usually infrequent, less than 4 inches high, rounded, and often have bits of sod on their tops and sides.

Our research has shown that once a tunnel system is constructed either species of mole may use it, and several small mammal species other than moles may also utilize the burrows. The following species have been found in either eastern or star-nosed mole systems: chipmunk (Tamias striatus), thirteen lined ground squirrel (Citellus tridecimlineatus), meadow vole (Microtus pennsylvanicus), short-tailed shrew (Blarina brevicauda), least weasel (Mustela rixosa), and several species of Peromyscus.

Twenty active sites were observed throughout the study. These sites were randomly divided into two groups: control sites and treatment sites. The two groups were treated identically except that the bait was applied to treatment sites and not to control sites. The rate of activity of each site was determined by either depressing short lengths of tunnels or poking 1 inch holes in the tops of tunnels. If this damage was repaired on subsequent visits, that point was considered "active".

In 50 percent of the treatments, total control (zero activity) was obtained within 45 days. Effectiveness of the bait in reaching total control was decreased or eliminated by several factors. One factor was soil type; control was consistently reached in less time on sandy soils than on loam/clay loam soils. Moles from untreated areas reinvading tunnels in which damage had been controlled was another factor that decreased the effectiveness of the bait. Weather affected the total length of time to total control, with retreatment necessary in very damp or rainy conditions. The last factor identified as having impact on the effectiveness of the bait was the presence of other small mammals in the mole tunnels being treated. Further research is needed to determine which, if any, of these confounding factors plays a greater role in decreasing the effectiveness of the bait.