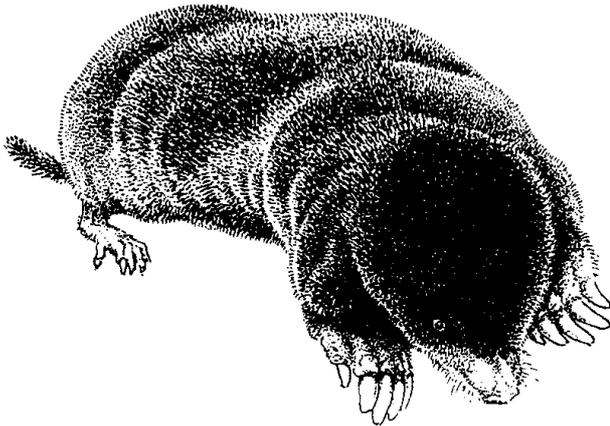


Moles

The mole (*Talpa europaea*) is a common British mammal and, although not often seen, the results of its tunnelling are well known and may cause damage in a range of situations. In gardens and amenity areas, molehills and tunnels can be a significant nuisance. In agriculture, contamination of grass by soil may lead to poor quality silage being produced. There is also a risk of damaging grass-cutting machinery and stock. Mole runs may disturb roots and adversely affect plant growth. This leaflet is intended to give information on the principle methods of control, providing advice on what methods are suitable in different situations, and whether there are restrictions on who can use them.

Biology and behaviour

Moles are highly territorial and generally live alone in an extensive tunnel system covering an area of 0.1 to 1.6 ha (0.25 - 4 acres). Mole hills are created as the animals extend and repair their tunnels, which act as traps to catch their main prey, earthworms.



One mole can produce a considerable number of hills, particularly where food is in short supply. Three or four

young are born in the spring and these disperse, generally over-ground, in mid-summer to try to establish their own territories.

Control

Before embarking on mole control, it is important to consider if this action is warranted or if the molehills and tunnels can be tolerated. Where control measures can be justified, there are two main methods, trapping and poisoning with strychnine (strychnine hydrochloride) or aluminium phosphide.

The use of strychnine is strictly controlled and use of this poison is not permitted in gardens. In these situations, trapping is normally the most appropriate technique.

On agricultural land and in other extensive grassland areas, such as airstrips, horse gallops and golf courses, the use of strychnine is often the most cost-effective method of control.

The timing of control is important and is best carried out between October and April. This is when moles are most noticeable as they are actively digging new

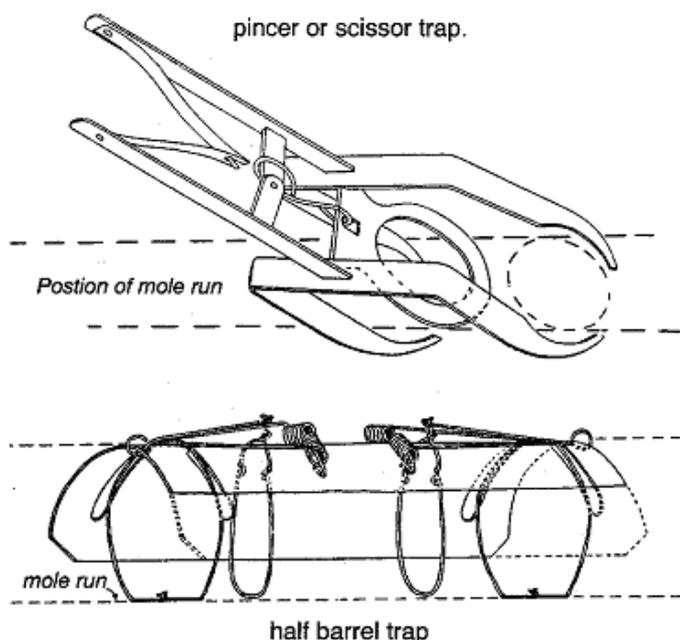
tunnels. Control at this time also has the benefit of reducing the population prior to the onset of the breeding season.

Lethal traps

Traps are spring operated and designed to kill the moles. There are two main types of trap, the scissor (or pincer) and the half-barrel trap (see Figure 1). These can be purchased from garden centres and agricultural merchants.

Finding mole runs

Effective trapping and poisoning relies on locating suitable runs. These are the 'main' tunnels which are usually at least 150mm (6 inches) below ground. They are found by using a suitable probe, such as a metal rod or wooden dowel. This is pushed into the ground between the mole hills and the presence of a tunnel is felt by a sudden 'give' of the probe. Runs near the surface of the soil are not suitable trapping or poisoning sites because they are not as frequently



visited as 'main' runs.

Figure 1

Setting the trap

Once a suitable run has been located, dig a hole the size of the trap using a trowel or knife. Remove loose soil or other material taking care not to disturb the tunnel more than necessary. Align the set trap with the bore of the tunnel and place it into the hole with the lowest part of the mechanism lightly pressed into the tunnel floor.

Exclude light from around the trap using turf, vegetation and soil. Do not let this material fall into the tunnel or prevent the trap from operating. Traps should

be checked at least once a day to reset any that are sprung and to remove dead moles. Continue trapping until all activity in the area ceases. If mole hills are flattened and surface runs pressed down, it will be easier to detect the continuing presence of moles.

Live-capture traps

Live capture traps have appeared on the market in recent years. They involve the alignment of a tube, of similar dimension to a mole, in a mole run, with spring doors at either end that only open inward, enabling a mole to enter but not exit the trap.

Such traps need to be visited at least once per day, although more frequent visits are recommended as moles have a high metabolic rate and may die if left in a trap without food for any length of time.

If a mole is captured, it is not recommended that it is relocated. Moles are highly territorial and release into another moles territory may result in fighting between individuals. In addition, release into an area with no existing run system exerts considerable pressure on the mole to obtain sufficient food to survive.

It is therefore recommended that if a mole is captured it is humanely despatched.

Poison baiting with strychnine

The use of earthworms treated with strychnine (strychnine hydrochloride) is often the most cost-effective method of dealing with large-scale mole infestations, such as on agricultural land. It is illegal to use strychnine on land where no 'authority to use' (often referred to as a 'permit') has been obtained.

Application forms to obtain authorities to purchase and to use strychnine and copies of the legal Conditions of Approval for the control of moles (STRYCH 9) can be obtained from the Defra Wildlife website or the address at the end of this leaflet. Authorities to purchase strychnine will only be issued to persons who are trained and competent in its use.

The recommended method for the use of strychnine with worm baits is provided to all 'permit' holders in a separate leaflet. In brief it involves the placing of worm baits into the deeper main tunnels, with a minimum of 25 baits per hectare (10 per acre) required for a heavy and fairly evenly infested area. It may also be necessary to re-treat areas of heavy infestation.

Gassing compounds

There are two formulations of the fumigant aluminium phosphide currently approved for use against moles. Phostoxin consists of a 3g tablet/pellet, whilst Talunex is in the form of a 0.6g pellet applied with a Topex applicator. The tablets or pellets are placed in deep

mole runs, via a probe hole made into the tunnel, and phosphine gas is given off when the material is exposed to moisture in the soil.

Aluminium phosphide preparations cannot be purchased or applied by householders or other amateur users. Phosphine is an extremely toxic gas, and operators must be instructed or trained in its use and be familiar with the precautionary measures to be taken. Users must comply fully with the label instructions.

Products containing phosphine can be used for mole control in a range of situations, including grassland, arable and horticultural land, sports fields and lawns. They must not be used near occupied buildings, and particular care is needed to keep children and animals away from treated areas until the fumigant has dispersed.

Other control techniques

There are other methods, which are claimed to be of value in resolving problems associated with moles.

Chemical repellents applied to the tunnel are unlikely to be successful; they may just cause moles to move to another area, so increasing the problem or damage caused. Currently, there are no commercially available repellents that are approved for use against moles under the Control of Pesticides Regulations 1986. Renardine, a bone oil formulation that previously could be used, is no longer approved. Materials such as disinfectants, naphthalene (moth balls) or diesel oil do not have approval for use as a pesticide against moles and must not be used for such purposes.

Pesticides approved for the control of earthworms and other soil invertebrates in grassland are occasionally used to reduce the food available for moles, thereby discouraging them from the area. Whilst a number of products are currently available, most are only approved for managed amenity turf. Additionally, the use of persistent pesticides is environmentally undesirable and is unlikely to provide a long-term solution to mole infestation problems. For further information on pesticide use it is recommended that an appropriate professional adviser is consulted (e.g. a BASIS-registered or certified agronomist).

Battery and wind-powered devices, producing vibrations in the soil are claimed to act as mole

deterrents. The available information suggests that these devices are not effective and are unlikely to eliminate moles from problem areas.

There have been other mechanical or physical techniques suggested for repelling moles but none of these have proved to be successful or practical in dealing with typical mole problems.

Legal aspects

Section 8 of the Pests Act 1954, prohibits the use of spring traps that have not been approved. The Small Ground Vermin Traps Order 1958 exempts from this ban the spring traps commonly used for catching moles in their runs.

Strychnine hydrochloride is a chemical subject to the Poisons Act 1972 and Poisons Rules 1982. The use of strychnine hydrochloride is approved under the Control of Pesticides Regulations 1986 (COPR) and the Animal (Cruel Poisons) Regulations 1963 as a "commodity substance" for use as a vertebrate control agent for the destruction of moles underground.

There is a requirement under COPR for all users of strychnine hydrochloride to make a written COSHH assessment (Control of Substances Hazardous to Health Regulations 2002) before it is used. This should take into account the possibility of using methods of control less hazardous to the operator, such as trapping. COSHH regulations also apply to the use of fumigants.

Further information

A range of leaflets on wildlife topics and application forms are available from the Department for Environment, Food and Rural Affairs (Defra) Wildlife Management Team at:

Address: Wildlife Administration Unit, Defra, Burghill Road, Westbury-on-Trym, Bristol, BS10 6NJ

Telephone: 0845 601 4523 (local rate)

E-mail: enquiries.southwest@defra.gsi.gov.uk

A range of leaflets on wildlife topics is available online at: <http://www.defra.gov.uk/wildlife-countryside/vertebrates>

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