

## 3. Rodents and Deer

Rodents and deer can cause significant injuries to nursery and landscape plants. Controlling these pests can be difficult and often requires long-term strategies. For additional information, see the OMAF Factsheet *Rodent and Deer Control in the Orchard*.

### Vole and Mouse Control

Voles and mice are common pests in agricultural production systems and around buildings. Voles can cause significant economic injury to nursery stock. They are most commonly a problem when there is a lack of food available. Voles are brown or grey rodents with stocky bodies and short legs. Unlike mice, they have a short tail and their ears lie flat against their body. Voles are active day and night, year-round. Females can start reproducing when they are just 3 weeks old. Voles chew on roots and girdle tree and shrub stems and trunks. There are two types of voles: pine voles and meadow voles (also known as “meadow mice” or “field mice”). The meadow vole is more common in Ontario.

Meadow voles make shallow runways along the soil surface. In spring and summer, they feed on grass seeds, herbs and bulbs. In fall and winter, they feed on the bark of woody plants. The feeding injury is more extensive in winters with continuous, prolonged snow cover. Pine voles burrow underground, feeding mainly on rootlets and stripping the bark off larger roots.

### Vole and Mouse Control Options

Voles need shelter, food and protection from predators to survive. Manage vole populations by eliminating one or more of these requirements.

In the landscape, maintain good weed control for a distance of at least 60 cm from tree trunks and shrub stems.

In a nursery with cover crops between tree rows, maintain a herbicide strip at least 1.2 m wide at the base of each tree. Mow the cover crop short in late summer, since dense stands provide shelter for

rodents. Make sure tree guards extend at least 45 cm up the tree trunk. Anchor the guards firmly into the soil, about 8 cm deep. Keep them secure and free from trash.

Where possible, encourage populations of natural predators such as hawks, owls, crows, ravens, weasels, foxes, coyotes, raccoons, skunks, cats and snakes that feed on voles. Predation may not manage high vole populations, but it may help to reduce populations in normal years.

Use mouse baits (rodenticides) where voles have caused damage in the past. Begin baiting the field border in early September to help prevent vole populations from exploding in autumn. Alternate between a zinc phosphide bait and an anticoagulant bait (see Table 3–1, *Rodenticides*, on page 70). Multiple applications of zinc phosphide are not recommended because voles can become bait shy after the first application and continue to avoid bait for 2–4 months.

Use bait stations to extend the life of the bait and create a safe haven for rodents to feed. Bait stations will also keep poisonous bait out of reach of pets and other non-target animals. An inverted T bait station made of 1.5-inch (3.8 cm) ABS pipe is probably the most effective type of bait station available. In this station, place several spoonfuls of bait in the neck, which is capped to protect the bait from the elements. Longer necks can be used in areas where there is substantial snowfall. Set about 25 stations/ha (10/acre). (In field production, bait can be broadcasted over infested areas on sunny fall days when no rain is expected.)

### Precautions for Handling Poison Baits

It is important to handle poison baits safely. Consider the following points when carrying out a vole management program:

- The baits listed in Table 3–1, *Rodenticides* on page 70, are recommended for use with commercial nursery plantings only.
- Mark all poison bait storage containers POISON.

- Store poison baits away from children, pets and livestock.
- Do not inhale zinc phosphide dust or fumes.
- Do not keep bait containing zinc phosphide in a building used by people or animals.
- Do not use bait mixing equipment or bait application equipment for any other purpose.
- Wear rubber gloves or other protective gloves when handling bait, as you would when handling hazardous insecticides.
- Wash your hands after handling poison baits.
- Keep dogs and cats that are enthusiastic mousers away from the nursery for at least 2–3 days to prevent them from catching dying mice.
- Do not handle dead mice or voles with your bare hands.
- Dispose of dead mice and voles away from human and animal contact.

**TABLE 3–1.** Rodenticides

*Many rodent baits are available in mountable mini-blocks and pellets.*

Method of Action	Generic Name	Trade Name	Target Pests
Anticoagulant	brodifacoum	Ratak +	Norway rats, roof rats, house mice
	bromadiolone	Boot Hill, Maki	Norway rats, roof rats, house mice
	cellulose	Rode-trol	mice and rats
	chlorophacinone	Ground Force, Rozol	Norway rats, roof rats, house mice, meadow voles
	difethialone	Generation, Hombre	Norway rats, roof rats, house mice
	diphacinone	Ramik Brown, Ramik Green	mice and voles
Acute poison	zinc phosphide	many products available	meadow voles, deer mice, mice, Norway rats, roof rats

## Rabbit Control

Rabbits feed on the bark, twigs and buds of many woody plants. They seem to prefer thinner-barked plants such as fruit trees, crabapple, flowering dogwood, sweetgum, holly, privet, pine, birch and young maple.

### Rabbit Control Options

Fencing may provide control for smaller areas. Use 25-mm wire mesh fencing, staked every 2 m with sturdy posts. Secure the fence bottom in the ground. Rabbits will not burrow under the fence, but they will squeeze through any opening they can find. Extend the fence at least 60 cm above the maximum snow level. Individual tree guards may also be used. Trap rabbits and remove them from the area. Encourage natural predators. Shooting rabbits can help keep numbers low, but first consult with local authorities regarding firearm bylaws and regulations. Rabbit management needs to be maintained all year round.

Use rabbit repellents to discourage feeding. The rabbit repellent must have long-lasting adhesive qualities to be effective. Repellants must also taste unpleasant to the rabbit or have an undesirable odour. Apply repellent on all plant parts that the rabbit can reach. Take into account the height added by deep snow. Chemical repellents consist of commercial thiram-based mixtures (e.g., Skoot) and ammonia fatty acid soaps (e.g., Hinder). Mix thiram-based repellents with white exterior latex paint for an effective repellent. Combine 400 g Thiram 75WP with 2 L of water. Slowly stir this mixture into 4 L of white exterior latex paint. Do not use oil-based paints because they are toxic to trees.

## Deer Control

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Deer feed on the buds, shoots and leaves of many woody plants. Feeding causes growth setback and poorly shaped plants. For more information on deer control, see OMAF Factsheet *Rodent and Deer Control in the Orchard*.

### Deer Control Options

To help keep deer out of production areas, erect fences around plants that are attractive to deer (e.g., yew, hemlock, rosaceous plants). Use wire mesh fencing at least 2.4 m high, and support it with sturdy posts. Electric fences may provide some control. Where regulated hunting seasons, special hunts and other measures have not satisfactorily reduced deer damage, deer-removal permits may be issued to farmers to cull those deer that are causing significant crop damage. These permits are issued to farmers, or their agents, only after several conditions have been satisfied. Farmers wishing to obtain a deer-removal permit must first request a damage evaluation report from the Ministry of Natural Resources. These permits are a last resort.

Thoroughly applied repellents may prevent deer from browsing if the deer have alternate sources of food. When food is scarce, however, repellents may not work. Chemical repellents consist of commercial thiram-based mixtures (e.g., Skoot) and ammonia fatty acid soaps (e.g., Hinder). Replace these taste repellents every 3–4 weeks during the winter. Apply when no rain is forecast for 24 hr and temperatures range between 4°C–27°C. Apply to all susceptible plant parts. Spray the outer portions of trees and shrubs to a height of 2 m.

Odorous repellents may discourage deer from feeding. Odorous repellents include blood meal, moth flakes, perfumed soaps and human hair. Some research shows that soap bars hanging in the field discourage deer. Use small soap bars (e.g., those available from hotels). Any brand of soap can be

used. Drill a hole in each bar of soap, leaving the wrapper in place. Hang the soap from a branch about 75 cm above the ground using a twist tie or string. Each bar of soap will protect a radius of about 1 m.

Bags of human hair may also deter deer, though this approach has had inconsistent results. Place two handfuls of human hair in some nylon stocking or a fine mesh bag. Hang the bags on outer tree branches or from the perimeter of the area that needs protection. Place the bags up to 90 cm apart and 75 cm above the ground. Keep the bags in place from mid-fall to early spring, replacing them monthly.