

## Voles and Their Control

### Introduction

With winter time quickly approaching, it is very critical to think about how we are going to control the huge numbers of voles or meadow mice that have been invading the Willamette Valley this spring and summer. According to Mark Mellbye, OSU/Linn County Extension agent, “the vole outbreak this spring and summer was one of the worst on record on the Willamette Valley, especially for the annual ryegrass growers of the south Willamette Valley.” OSU biologist said that due to plenty of food, water, and low levels of disease and pest pressure, numbers increased dramatically. Voles have already caused huge losses in the grass seed industry this summer. With the current populations and a mild winter, the voles could cause huge economic loss to agriculture. As the weather turns cold, mice often move into more protected areas such as barns, sheds, storage areas, garages and houses. This is typically not a problem with voles. They will build nests under bails of hay and boards, but typically do not enter houses or climb the walls, etc. like house mice.



### Biology

Voles are small rodents often called meadow or field mice. They are small, 4-6 inches long including the tail, weighing only 1 to 2 ounces. Voles can damage trees, shrubs, bushes, berries, gardens and lawns. They are also very prolific, with breeding peaking in the spring and fall. Meadow mice may have up to 10 litters per year and may live for 15- 19 months. Voles live in the ground, in small holes about 2-2 ½ inches in diameter. They build their nest under ground. Each evening they come above ground, forage for “green” material and take some of it back to the den for use later. The vole is a food source for many predators, namely foxes, weasels, coyotes, owls, hawks, snakes, herons and skunks. Usually in the fall the populations begin to have high mortality due to lack of food.

As long as there is plenty of forage or green material, the vole is considered beneficial since they eat a lot of weeds and weed seed and their activity is located away from value crops. When the population increases and the voles begin to cause economic damage, then control methods are needed.

In the fall and winter when the weather turns cold and forage materials decline, these “critters” begin to look for food. With the number of voles seen this year, the potential damage could be disastrous. In the winter, the vole will girdle (eat the green inner layer) of any living materials; trees, small shrubs, bushes, berry plants, flower bulbs, garden plants, vegetables or most forage crops. The older and thicker the tree or shrub bark, the less inviting it is but not totally resistant. In tree fruits, the vole prefers young apple trees.

## Protection

More damage is done under the snow, since the predatory birds can't get to or see the voles running around. Most voles do NOT like to cross open areas, such as bare dirt. If you have new trees, shrubs or vegetation, remove all vegetation for two feet on each side of the tree and shrubs. With commercial farming operations, flailing the orchard floor helps to reduce the food source and cover. Place a protective fine metal wire, metal sheet, hard plastic or fiberboard bark protector around the base of the newly planted tree or shrub. One grower put 12-inches of aluminum foil around the base and shoved the foil 1 to 2 inches into the ground. All methods may be needed due to the high populations.



Gray-tailed vole

Be aware that voles like the house mouse may move into residences in the fall looking for a “warmer” place to reside. The home owner needs to exclude the vole or mouse by plugging any and all small holes (small voles can make it through ½-inch holes) or cracks in siding, cable entrances, so having tight doors and windows is best. Remove any source of potential food or water in the garage and storage areas. Pet food placed outdoors can be an attractant. If the owner has outside cats or dogs, the number of voles or mice will also be reduced.

An unproven method in the United States that worked very well in Kyrgyzstan was mixing white latex paint with very strong copper sulphate and painting the materials onto the trunks of the small trees and bushes. The mixture needs to look bluish in color. Add 5 lbs. copper sulfate, 1-gallon warm water, and one pound salt to a 1-gallon of paint, and stir every 10 minutes.

Around the perimeter of the farm or garden area, place hawk T- poles and owl boxes to attract these winged predators.

Spring traps or Victor traps baited with peanut butter or peanut and oatmeal mix can be used. The use of livetraps is not recommended because the relocation of voles off site requires a permit from the Oregon Department of Fish and Wildlife.

Toxic “baits” can be used if they are used carefully. Place the bait in an area where pets cannot reach it. Place the bait in “bait” boxes that exclude larger animals. There are two types of baits, the anti-coagulants (d-Con or warfarin) which cause internal bleeding, or the acute poisons like zinc phosphide. Zinc phosphide breaks down with moisture and does not persist very long. If baits are used, be sure to protect wildlife, pets and children from exposure. The baits should be directed to the tunnels and holes.

Leave entrapment areas, the voles will concentrate in small areas that have foliar cover. Baiting in this area concentrates the “critters” and requires less baiting.

Repellents have been used but did only a fair job of protecting the plant material. The repellent must be re-applied frequently.

## **Damage**

There has been a call from a vineyard which had 10% of the trunks of their grape vines girdled. Once the vole has girdled more than 50% of a tree, shrub, bush or vine, the plant has a hard time recovering. Current economic losses for grass seed are around \$4,014,057 which is a loss of 15% of the total grass seed crop for 2005.

## **References**

Further information: Check the OSU/EESC site <http://eesc.oregonstate.edu/> and type in “vole.” Two pubs, “Meadow Mouse (Vole) Control in Tree Fruit Orchards,” PNW 154, (25¢) or “Controlling Vole Damage to Conifer Seedlings,” EC 1256 (\$1.00) has good information. For web search type in “voles,” “meadow mice” or “*Microtus canacaudis*.”

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