

Poisoning Meadow Mice

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Poisoning meadow mice with 1% zinc phosphide-treated grain is a good method of control. It can be done safely in orchards, fields, croplands, Christmas tree plantations, and around ornamental shrubs and flower beds. *Microtus* spp. is not usually a pest in cities or towns but occasionally moves into lawns or flower beds in suburban homes or in areas bordered by heavy grass or weed cover.

Make Positive Identification

Before applying poisoned bait as a control, be sure it is the meadow mouse you are after. It can be identified by its general appearance, by field "signs," and sometimes by the damage it does.

There are several species of meadow mice in Oregon. Due to differences in age and locality, they may vary a bit in color and size, but all of them eat bark, seeds, and a wide variety of vegetation. Their habit of gnawing or girdling the bark from stems and roots of trees, shrubs, and ornamentals can result in considerable damage to growing plants.

The meadow mouse is larger than the ordinary house mouse, yet generally smaller than the common chipmunk. Colors vary from slate gray to dark brown, with belly and sides usually lighter shades of gray or brown. The ears are short and often partially concealed in the somewhat coarser fur. The tail is short but still about twice as long as the hind foot.

Field "signs" may include a group of small, open holes connected by short but distinct surface trails or runways. Frequently evidence of digging in the earth is present. Small piles of droppings and even bits of plant stems or leaves may be found in the trails or near burrow entrances. Meadow mice sometimes excavate small piles of earth that suggest the workings of the common pocket gopher. To identify the field mouse, look for the small, round, open holes with their connecting network of surface runways and trails. Pocket gophers generally make larger tunnels and burrows, plug all burrow exits with dirt, and leave much larger dirt piles on the surface as the result of their underground tunnel system.

For a more positive identification, meadow mice can sometimes be caught with the common wooden-based snap traps. Bait the traps with a mixture of peanut butter, rolled oats, and raisins or make "blind sets" along well-used runways. To keep birds away from the baited traps, cover the traps with loose piles of hay, a wooden

box, or board. If after catching the mouse you still are not sure it is a meadow mouse, ask your county Extension agent for assistance. Specimens also can be frozen or pickled in alcohol and sent directly to the Extension Wildlife Specialist, Oregon State University, Corvallis, Oregon 97331, for positive identification.

Place Poisoned Bait in Right Spots

The key to safe, economical, and successful mouse control is getting the bait in front of all of the mice in the treated area in one baiting operation. This is not difficult and requires little or no equipment. Four to six kernels of 1% zinc phosphide-treated oats, wheat, or barley is sufficient to kill a meadow mouse. Thus, the average quantity of poisoned bait required in a moderate to heavily populated area is about three to five pounds per acre.

One successful method of applying the bait is to place it in a glass jar or gallon jug with a small hole punched in the lid. The hole needs to be just large enough to permit the passage of a few kernels of grain when the jug is tipped and given a shake. Use the "salt shaker" technique to get the bait into the holes and runways or trails. Apply the bait only in the active or used systems and cover the entire area in one baiting. Using this method you can do a safe, effective job just about as fast as you can walk.

When applied correctly and at the proper rate, 1% zinc phosphide-treated grain is considered safe to wildlife and other non-target animals. At the same time, it must be remembered that zinc phosphide is poisonous to all forms of animal life if taken in sufficient quantities. If mouse holes are exposed where the treated grain might endanger pets, poultry, or game birds, place the bait directly into the holes or cover it. Adequate cover can be provided by sprinkling loose hay or straw over the baited runways. The bait also can be placed in covered bait stations made of empty tin cans, milk cartons, or small boxes turned upside down. One or two teaspoons of poisoned bait per container is usually sufficient and will remain effective for at least three weeks.

The meadow mouse does not roam the fields in search of food but stays close to its hole or established runway system. Thus, indiscriminate scattering of poisoned baits is generally ineffective, more expensive, and may endanger other forms of animal life in the area.



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When to Control

Fall is generally a good time to control meadow mice. One well-planned and thoroughly executed mouse control operation will eliminate the small colonies and family groups that are starting to build up their numbers. This will protect crops, shrubs, and trees throughout the winter months. Thoroughness is important. Treat the whole area at one time and do a careful job of baiting. Otherwise, mice at the edges of the treated area may get a sublethal dose of the bait and survive to start new colonies. Such mice often avoid taking the same kind of bait for several weeks following an inadequate control job.

Landowners and orchardists can prevent damage by meadow mice by applying proper control measures each year. However, no control program can be expected to destroy 100% of the meadow mice. With favorable habitat, there will usually be at least a few mice to contend with. Mice from untreated neighboring areas also will move in. Even after a successful fall control operation, it is advisable to make a mid-winter or spring inspection to see if you have missed some mice or if reinvasion has occurred. Spot baiting usually will quickly dispose of these mice.

Permanent Pastures

Serious meadow mouse damage to permanent pastures can be avoided by locating and destroying the small colonies before they erupt into large populations. The first evidence of meadow mice can easily be seen in fall pastures by walking over the area and looking for the open burrows and their connecting maze of surface trails.

Orchards

It is difficult if not impractical to clean-cultivate to the trunk of every orchard tree. Where sod and grass

is thick, drop a teaspoon of bait near the base of each tree. If the cover is thin, use discarded milk cartons, tin cans, or small boxes to make covered bait stations. Clean tin cans with both ends removed can be converted into permanent runways or bait stations and are effective when placed near the base of orchard trees. The open ends of the can should be crimped so that only a small oblong opening remains. An opening $1\frac{1}{2}$ inches in diameter is large enough for a meadow mouse to enter easily. One or two teaspoons of 1% zinc phosphide-treated grain completes the bait station. Thus protected, such bait will remain effective for at least three weeks. When left unprotected or exposed to rain, snow, or moist soil, baits lose their effectiveness much more quickly.

In areas of sparse vegetation a forkful of hay or straw will make a good temporary bait station. Such mulch material should be distributed a week or 10 days prior to placing the treated grain bait beneath them. Whenever possible, place the hay or straw over mouse runways. Mice already in the area are attracted to such cover and thus are more likely to find the poisoned bait.

Permanent Bait Stations

Permanent bait stations made from cans and other containers, spaced at 10 to 20 foot intervals, have proven effective in keeping meadow mice in check in Christmas tree plantations. In areas with light populations the continued use of such bait stations may require only about 30 stations per acre or one every 40 feet. Experience generally will determine the number of bait stations needed and the regularity of replacing or adding to bait supplies.

Remember, four to six kernels of 1% zinc phosphide-treated grain will kill a full-grown meadow mouse. Remember, too, that properly distributed bait will control meadow mice effectively without endangering wildlife or other non-target species.