

CONTROLLING RODENT AND RABBIT PESTS IN ALFALFA

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Abstract: Alfalfa growers are troubled by a number of vertebrate pests, depending on the region of the state. Our ability to control these pests is becoming more limited through increased regulation and the loss of important rodenticides. The major control method used for pocket gophers and ground squirrels is poison baits with trapping a labor-intensive alternative. Burrow fumigation is often an option for ground squirrel control but less so for gophers because of its cost. Control of jackrabbits with poison baits has frequently been inadequate; fencing, if justified costwise, is the only highly effective solution. Safeguarding nontarget species must always be of concern.

Keywords: vertebrate pests, rodent control, rabbit control, rodenticides, rodent trapping, pest management

INTRODUCTION

Alfalfa growers may have a wide variety of vertebrate pests to contend with, depending on a number of factors, but most important is the geographic location of the area and the kind and extent of habitat surrounding the field. For example, in some areas jackrabbits or deer may be the significant pests, while pocket gophers or ground squirrels cause much greater losses for other growers. During years of high populations, meadow voles can also cause extensive economic losses. Vertebrate pests of lesser importance are porcupines, hares (cottontails), and sometimes waterfowl. The three major and most difficult to control vertebrate pests are discussed in this paper.

POCKET GOPHERS

Pocket gophers live below ground and are seldom seen. They are active day and night year-round, hence damage occurs all the time. Their presence in fields is determined by soil mounds they push up from below. Soil mounding may be more extensive during periods in the fall and spring, but this doesn't mean they are not present at other times. Damage may be occurring when few new (fresh) mounds are being formed. One to three litters may be produced in irrigated alfalfa with an average litter of five to six young.

Control

Poison baits are the most used control method because they are the most economical approach to gopher control in alfalfa. Trapping (with Macabee or box-type kill traps) is the next best option but is more labor intensive. Burrow fumigation with aluminum phosphide is a relatively new control option but is rarely used in alfalfa production.

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Strychnine baits are considered the most effective of the gopher baits available. The anticoagulant baits diphacinone and chlorophacinone are registered and available but are generally less efficacious and more expensive because more bait is required per gopher killed. Zinc phosphide baits, while highly effective for certain other pest rodents such as meadow voles and Norway rats, are not very effective for pocket gophers. With all gopher baits, follow label instructions carefully.

Gopher bait can be applied by 1) probing and hand-spooning, 2) dispensing with a reservoir-type mechanical probe, or 3) using a tractor-drawn burrow builder. The latter method is the most practical for moderate-to-large gopher problems and where substantial acreages are involved.

Control efforts are always more effective if started before the problem becomes widespread. Control can be conducted any time of year whenever sign (fresh mounding) is evident. Periodic visual monitoring of the fields is essential to keep on top of the problem.

Rotating alfalfa with sudan grass or other cereal crops will greatly reduce the gopher problem when alfalfa is replanted. Varieties of alfalfa that have a single tap root are more prone to damage than multiple root varieties.

GROUND SQUIRRELS

Ground squirrels are highly visible and active during daylight hours and well known to most growers. Their life cycle is more complicated than that of gophers and must be understood for good control results. Ground squirrels hibernate the same as bears; therefore, it is necessary to know when they emerge in the late winter so that control with burrow fumigation or traps can be instigated before they breed and have their single annual litter of six to eight.

When ground squirrels emerge from hibernation, they feed nearly exclusively on green vegetation, not seeds. For this reason, until the young squirrels are above ground and foraging, grain-based baits are not accepted and little or no control with baits can be expected. About the time the young are foraging above ground, the entire population switches to eating seeds. This is true for the California ground squirrel found in most of the state, but not for the Belding ground squirrel found in Northeastern California (Modoc, Siskiyou Counties, etc.). The Belding squirrel is out of hibernation for only about 6 months and may never use seed as an exclusive food resource, and under these circumstances may never readily consume grain baits. Because of this, cabbage and other green baits have been used in the past. Unfortunately, these are no longer registered.

Because of the greater limitations and high cost of registering pesticides, two of the most commonly used rodenticides, 1080 (sodium fluoroacetate) and strychnine, are no longer legal for squirrel control.

We presently have the anticoagulant rodenticides (diphacinone and chlorophacinone) and zinc phosphide available. However, few if any of these labels will permit use in a crop situation. Check with your County Agricultural Commissioner as to what bait can be used within the alfalfa field. The anticoagulant baits can be highly effective for the California ground squirrel if used in bait stations, but this is an added cost of control.

Burrow fumigation with gas cartridges or aluminum phosphide is an effective alternative to baiting but is labor intensive. Fumigation is the most cost

effective if used soon after emergence from hibernation and before the young are born and above ground. When the squirrels are hibernating, they plug themselves off, thus fumigation is ineffective at this time.

Trapping with modified box-type kill traps or conibear traps can be highly effective. While trapping requires considerable labor, the results are immediate and can be readily measured. If conducted on a large scale in an organized manner, trapping may not be as costly as imagined.

JACKRABBITS

Jackrabbits are a serious problem in some regions, especially the more arid areas such as the Imperial Valley. Jackrabbits rarely stay in the alfalfa during the daytime but rather live (breed, have their young and loaf) in the surrounding uncultivated land, moving into the fields to feed only at night. Evidence of their clipping can be seen along margins of the fields. Droppings and trails are also easily recognized. Visual sightings at dawn or dusk will indicate the magnitude of the problem. Jackrabbit populations are somewhat cyclical, hence a rabbit problem may only occur in some areas in years of peak densities. Although the jackrabbit is classified as a game animal, provisions in the Fish and Game Code permit them to be taken if causing crop damage.

Control

With the exception of fencing, control of jackrabbits has always been less than satisfactory. With the loss of strychnine as a toxic agent for rabbits, management options are even more severely handicapped.

Diphacinone and chlorophacinone baits are available for jackrabbit control from some County Agricultural Commissioners. Ample bait for repeated feeding by the rabbits is generally put in open trays or hoppers strategically placed in rabbit trails. Because anticoagulants are slow-acting, chronic-type poisons, several feedings over a period of a week or more may be needed before mortality occurs. The methods used to expose poison bait to jackrabbits may also attract nontarget domestic or wildlife species; hence, extreme care must be used to avoid potential hazards. This often includes removal or covering of baits during daylight hours. Rabbit carcasses should be picked up and buried deeply to prevent predators or scavengers from feeding on them over a period of time and subjecting themselves to potential secondary toxicity. Follow bait labeling directions precisely.

Shooting is another method of control but is labor intensive. It can be effective if done on a regular basis and until the population is substantially reduced.

Fencing, without a doubt, gives the best and most lasting control. However, it is generally only cost effective for alfalfa if damage is very severe and occurs annually. Several types of plastic fencing materials can be used, which substantially reduces costs over wire-mesh fences. As these newer plastic mesh types of fencing become available and more competitive in price, they hopefully will improve the cost-benefit ratios.

IMPORTANT GUIDELINES

Control for any species, regardless of control methods used, should be started before the population reaches high levels. Control should be directed at preventing population buildup as opposed to reducing the population after it has reached severe damage levels.

All pesticides should be used in accordance with label directions. Consult your County Agricultural Commissioner if you have any concerns regarding legal practices and safeguards to protected or endangered wildlife.

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SOURCES OF GOPHER BAIT APPLICATORS (MECHANICAL HAND APPLICATORS)

(Applicators have bait reservoirs and are used
for probing and bait delivery)

| <u>Name of applicator</u> | <u>Manufacturer and/or distributor</u> |
|-------------------------------|--|
| Gopher Getter Jr. | Manufacturer: Rue R. Elston Co., Inc. 815 East 79th Street Minneapolis, Minnesota 55420 Distributor: Wilco Distributors, Inc. P.O. Box 291 Lompoc, California 93436 Phone (805) 735-2476 |
| Quinn Gopher Probe | Manufacturer: Quinn Mfg. Co. Star Rt. 1, Box 293 Anza, California 92306 (714) 763-4590 |
| Topo Pocket Gopher Bait | Manufacturer: Topo Mfg. and Welding Co. 719 No. C Street Imperial, California 92251 Phone (619) 355-1556 |
| Eckroat's Gopher Stopper | Distributor: Eckroat Seed Co. 1106 N. Eastern Avenue Oklahoma City, Oklahoma 73117 |
| Pocket Gopher Bait Applicator | Manufacturer: Leppert Machine and Welding 5635 South 6th Street Klamath Falls, Oregon 97601 Phone (503) 884-9131 |

*To simplify information, equipment trade names are given. No endorsement of named equipment is intended, nor criticism implied of similar equipment which may be omitted or unknown to author.

Additional information on possible local distributors for your area may be obtained by contacting the manufacturers directly.

SOURCES OF TRACTOR DRAWN GOPHER BAITING MACHINES*

| <u>Name of machine</u> | <u>Manufacturer and/or Distributor</u> |
|--|---|
| Elston Gopher Getter Three point hitch model, GA-400 (Approx. price \$1,329) Wheel mounted model, GA-500 (Approx. price \$1,655) | Manufacturer: Rue R. Elston Co., Inc. 815 East 79th Street Minneapolis, MN 55420 Phone (612) 854-3775 Distributor: Wilco Distributors, Inc. P.O. Box 291 Lompoc, California 93436 Phone (805) 735-2476 |
| ORCO Interceptor (Approx. price \$3,600) | Manufacturer: ORCO 640 Highway 99 East Harrisburg, Oregon 97466 Phone (503) 995-8044 Distributor: Wilbur-Ellis P.O. Box 1286 2903 S. Cedar Avenue Fresno, California 93715 Phone (209) 442-1220 |
| Perryco Gopher Killer (Approx. price \$950) | Manufacturer: The Perry Company P.O. Box 7181 Waco, Texas 76710 Phone (817) 756-2137 Distributor: Solex Corp. 220 South Jefferson Dixon, California 95620 Phone (916) 678-5533 |

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