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THE BIOLOGY AND CONTROL OF THE
RICHARDSON GROUND SQUIRREL

By

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BIOLOGY:

The Richardson ground squirrel (Spermophilus richardsoni) is a medium-sized ground squirrel of rather uniform coloration. It is buffy yellow to grayish in color. The tail is about one-fourth of the total body length and is blackish to buff with whitish hairs on the outer edges and end. Adults are 7-9 inches long and weigh 11-18 ounces.

The Richardson ground squirrel is found in Montana east of the Continental Divide, except in the southwestern areas. It is found throughout most agricultural areas, but is not common in high mountains or heavily forested ranges.

These ground squirrels emerge from hibernation in February to April, depending on altitude, weather, and food supply. Males emerge first and establish breeding territories; females become active about two weeks later. The breeding season lasts for several weeks. The young are usually born in April and May after a 28-day gestation period. The young grow very rapidly and become active about two weeks after birth. The ground squirrels feed heavily to accumulate body fat for winter hibernation. Their primary diet consists of seeds, roots, green and succulent vegetation, grains, and some insect and animal matter. Activity decreases sharply during July-August. In September and October the squirrels hibernate for the winter months.

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DAMAGE:

The wide distribution and dense numbers of Richardson ground squirrels in Montana accounted for an estimated \$4,708,710 damage in one year, according to a Rodent Damage Survey conducted in 1973 by the Extension Service and the Montana Department of Livestock. Damage occurs in grain-producing areas where Richardson ground squirrels consume and trample large amounts of grain along the edges of cultivated fields. In pasture and rangeland areas, ground squirrels reduce the amount of green forage available for livestock, which may become even more severe in times of drought.

CONTROL:

When cost vs. benefit justifies a control program for Richardson ground squirrels, several control methods may be considered. The control method you select should be safe and the most effective for your problem. Due to the reproductive capability of ground squirrels, it is necessary to reduce their numbers by 90% for adequate control. If reduction is much less than 90% a ground squirrel population may return to or exceed its original level within one or two reproductive seasons.

Shooting may provide some relief in isolated areas where small ground squirrel infestations are under constant shooting pressure, but this is an expensive and time-consuming practice. It may also be dangerous if conducted near occupied dwellings.

Box traps may be used around schools, cemeteries or home yards, where ground squirrels may be easily caught using grain, peanut butter, or fresh greens for bait. Traps should be placed in areas where squirrels are active and anchored to the ground so that squirrels

cannot push them about. Trapping is only practical when a few squirrels are causing the damage.

Gas cartridges are practical for use on small infestations of ground squirrels, or as a clean-up method after baiting with toxic grain. They are ignited by a fuse and should be placed well down into the burrow. Quickly seal the burrow opening with soil and tamp tightly with a shovel. Caution should be exercised when using gas cartridges, as they may be a fire hazard.

Toxic grain bait is most commonly used to control Richardson ground squirrel infestations over large acreages. The proper grain bait must be applied at the right time and in the right amount. Bait should be applied only when the entire squirrel population is active. Applying bait when the squirrels first emerge from hibernation is not advised since only males are present. The breeding season (three or four weeks after emergence) is an ideal time for control operations, provided that bait is readily accepted. Control at this time eliminates adult and potential young and insures minimal crop damage by the rodents. However, this period is relatively short in duration. Once the females begin bearing and rearing young, their activity is reduced and baiting is not effective. If bait is not applied during the breeding season, control should be postponed until the young become active.

To help determine correct timing for bait application, a sample of at least 12 ground squirrels should be collected by shooting. The specimens should be sexed and internally inspected. An approximate sex ratio of 50 percent males: 50 percent females indicates good activity by both sexes. A sex ratio heavily favoring the males indicates that female activity is minimal and baiting would be

ineffective. Baiting should be postponed if the sampled females are nursing young.

After timing of bait application has been determined, the correct bait must be applied. Currently, either 0.35% or 0.44% strychnine oats are being used for ground squirrel control. These baits are prepared by commercial bait mixing plants and the federal government. Contact your County Extension Agent to obtain information concerning availability of bait in your area. Only fresh bait should be used. Buy only enough bait to use in one season. Stored bait loses its effectiveness for rodent control.

Before applying grain bait, read the label instructions carefully. The amount of bait specified on the label should be scattered near every burrow entrance. Do not drop the bait down the burrows or in thick grass. Do not place bait in piles. Scattering the grain over a 2-3 square foot area will increase acceptance by the squirrels and decrease the hazard of livestock and other non-target species. Most commercially prepared baits are dyed yellow or green to help man identify the grain as being toxic and to deter consumption by birds. Before applying bait to large acreages, treat a small area. Return to this same area the following day to see if the bait was consumed and if the ground squirrel activity has decreased. If the results were favorable, proceed with baiting larger acreages. If the results were poor, wait until bait acceptance improves. Bait should be applied only once per year. Continued baiting may cause "bait shyness" and control will become difficult and costly. Prebaiting, applying non-toxic grain several days prior to toxic bait application, may improve bait acceptance by conditioning the ground squirrels to a new food source. If bait materials are stored, they should be kept under lock

and key in a dry location away from children, livestock, and pets. Always keep toxic bait in original containers that are marked POISON.

As with most programs, rodent control will be most effective where a coordinated effort is established by all landowners. Department of Livestock personnel, upon request, will work with County Commissioners, Extension Agents, and landowners to establish a program suited to local and county needs. Field demonstrations are provided to inform landowners how, when, and where to control Richardson ground squirrels and other field rodent pests. Interested individuals should contact their County Commissioners, County Extension Agents, or the Montana Department of Livestock in Helena at 449-2044.