

# Integrated Pest Management for Richardson's Ground Squirrels

## CROPS

# AGRICULTURE

## Introduction

Integrated Pest Management (IPM) is a strategy to attain sustainable, long-term pest control. IPM uses all viable options (chemical and non-chemical) to keep pest damage below economic levels while reducing negative impacts on the environment. Naturally, some factors that affect Richardson's ground squirrel (RGS) populations, such as climatic conditions, are not under the control of the producer. Not all options will work in all areas or are necessarily compatible with all farming operations. However, it is important to consider other options aside from strychnine and other rodenticides as part of long-term management of RGS to prevent outbreak situations.

## Non-Chemical Options:

- **Trapping (e.g. guillotine-type traps):** Trapping can be an effective tool, but may be best suited for smaller areas with high populations of RGS due to the labour requirements and capital expense.
- **Vegetation/pasture height:** Whenever possible, maintain vegetation on pastures or forage at a height greater than 15 cm. RGS tend to inhabit areas with shorter vegetation as there is better visibility for predator avoidance. Research studies noted that taller vegetation negatively impacts RGS colonization. In addition, headlands and fenceline vegetation around cropland and hay land should be left tall and not fall grazed.
- **Raptor platforms or nesting boxes for predatory birds:** To entice raptors (e.g. hawks), raptor platforms can be set up. This tool has only initial set-up costs and may be more beneficial in areas with fewer trees. There have, however, been reports of successful use of raptor platforms in the parkland region.
- **RoCon:** RoCon is a foam product that is injected in RGS burrows to suffocate the rodents. This product requires carrying a supply of soft water.



**Raptor Platform.**

Photo: Courtesy Saskatchewan Association of Rural Municipalities



- **Shooting:** Hunting of RGS can be an effective tool for some areas. It is important to abide by safety precautions and regulations whenever firearms are used.

### Rodenticides

- Although targeted at RGS, rodenticides will cause mortality in other animals.
- It is important to preserve natural predators in management of RGS. For example: fox, badger, weasels and coyotes all feed on RGS and will be negatively affected by rodenticides.
- The best timing for RGS control should be implemented:
  - > Optimum results from baiting will be achieved before green up of vegetation in the spring. Variable climatic conditions will affect the emergence of RGS and the performance of rodenticides.
  - > The first baiting with a toxicant should be done prior to emergence of young.
  - > Crop land - baiting or controlling RGS in the headlands and fence lines should be done prior to crop emergence.
- Strychnine baiting should not be used twice in sequence in the same baiting location. An alternate control product or method must be used for the second application of control.
- After the young RGS have emerged, strychnine or chlorophacinone should not be applied more than once in the same location. This will help reduce the negative impact on predators.



- Phostoxin (aluminum phosphide) is a fumigant that can be very effective in RGS control, but can also be very hazardous. This is a restricted product and requires a Provincial Pesticide Applicator's License to purchase and apply the product. New restrictions include submitting a treatment plan to the Pest Management Regulatory Agency (PMRA) prior to use.
- Anticoagulants: active ingredient chlorophacinone (e.g. Rozol, Ground Force®)
  - > Research has shown that chlorophacinone is not effective if the surrounding crop stand includes greater than 40 per cent alfalfa, except when there is little green growth visible. (Alfalfa contains Vitamin K, which is an antidote to chlorophacinone).
  - > Oats are not a good bait carrier. There is an enzyme in oats that will reduce the effectiveness of chlorophacinone over time.
  - > Wheat is a better bait carrier. The ready-to-use (RTU) product Ground Force® is chlorophacinone on winter wheat.

### For more information:

- Contact the Agriculture Knowledge Centre at 1-866-457-2377; or
- Visit the Saskatchewan Ministry of Agriculture website at [www.agriculture.gov.sk.ca](http://www.agriculture.gov.sk.ca) and link to Livestock/Pest Control/Control of Richardson's Ground Squirrels; or
- Contact Scott Hartley, Provincial Specialist, Insect and Vertebrate Pests, Saskatchewan Ministry of Agriculture at (306) 787-4669.