

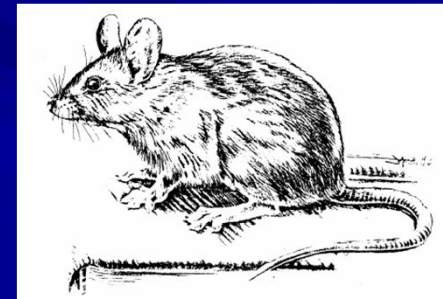
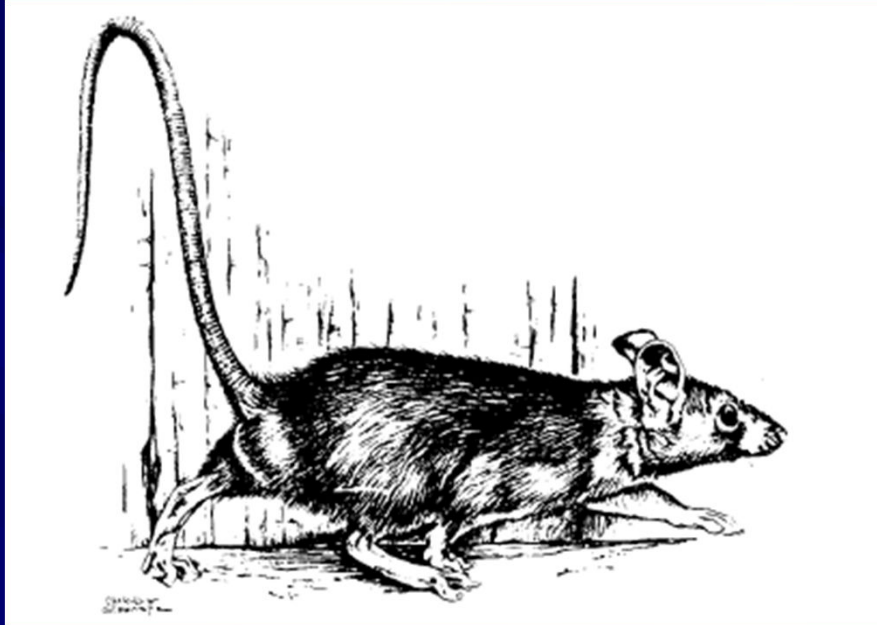
Commensal Rodents

Norway rat

Roof rat

House mouse

Rats & Mice



Norway rat

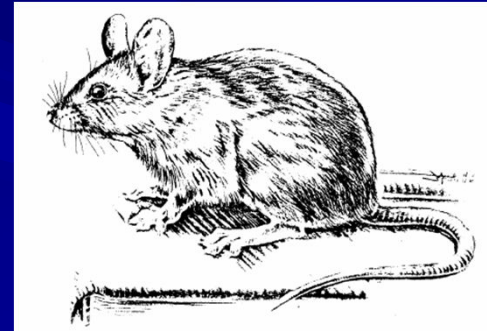


Roof rat



UC Statewide IPM Project
© 2000 Regents, University of California

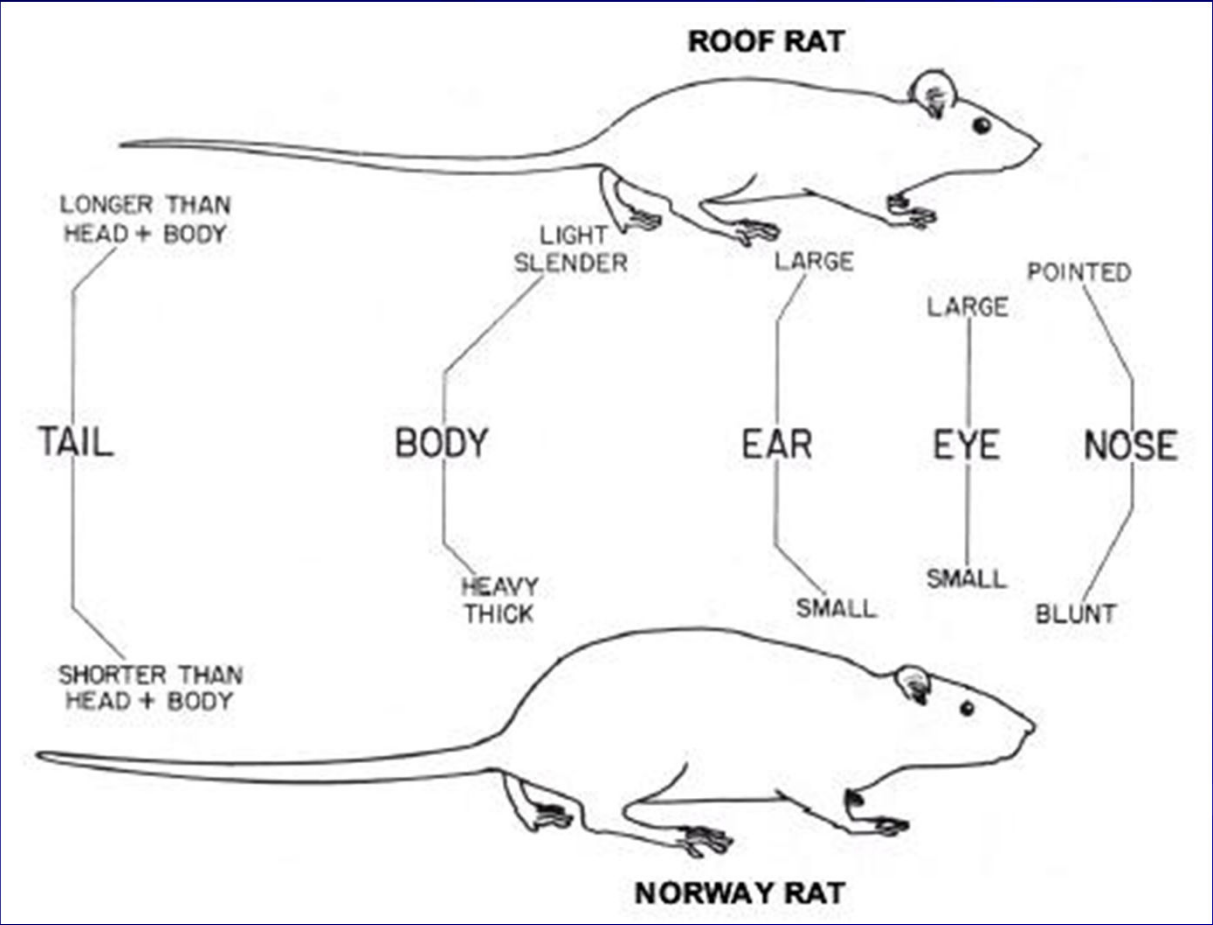
House mouse

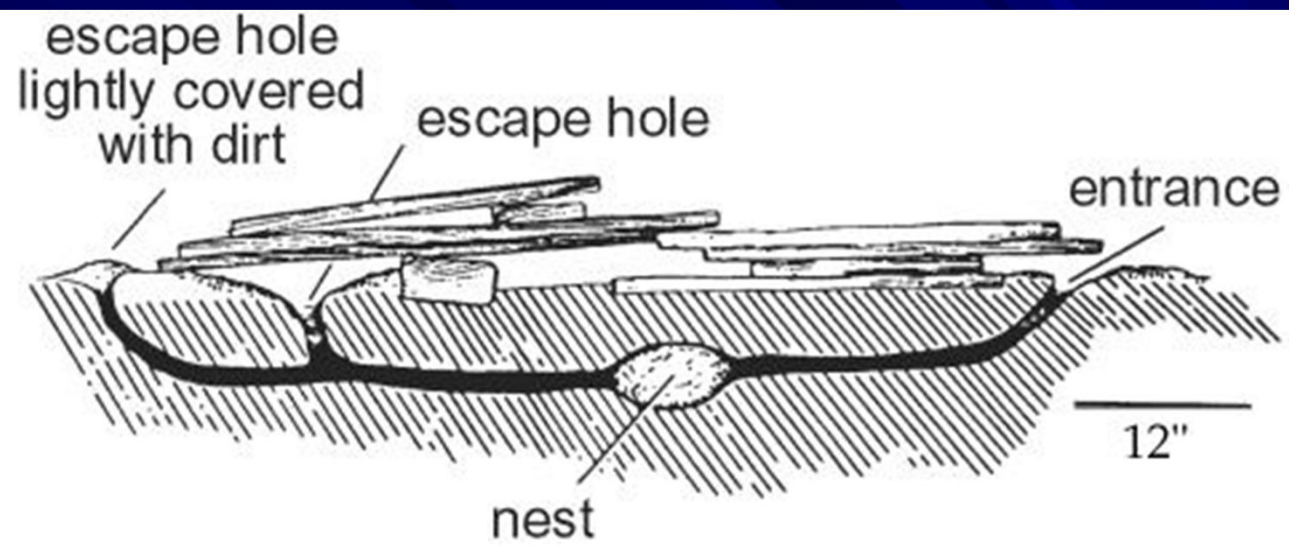




Deer mouse,
Peromyscus maniculatus





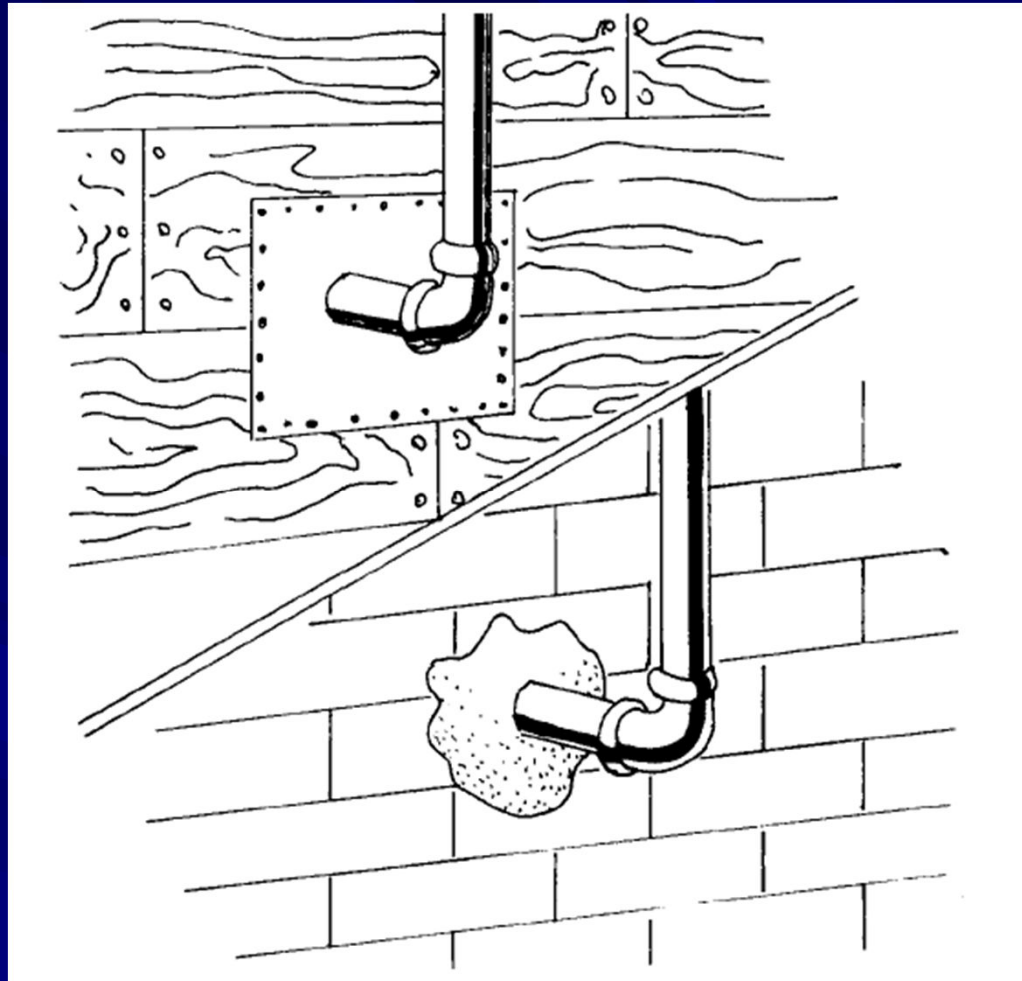


Integrated Wildlife Damage Control

- ✱ Exclusion
- ✱ Habitat Management
- ✱ Frightening / behavioral change
- ✱ Repellents
- ✱ Population reduction



$\frac{3}{4}$ -inch gap between wall covering and framing at roof joint, allowing rodents easy access



Find and seal gaps around locations where utilities enter structures.

Rex O. Baker
Professor and Research Project Leader
Horticulture/Plant & Soil Science
California State Polytechnic University
Pomona, California 91768

Gerald R. Bodman
Extension Agricultural Engineer —
Livestock Systems
Department of Biological
Systems Engineering
University of Nebraska
Lincoln, Nebraska 68583

Robert M. Timm
Superintendent and Extension
Wildlife Specialist
Hoplend Research and
Extension Center
University of California
Hoplend, California 95449

RODENT-PROOF CONSTRUCTION AND EXCLUSION METHODS

Importance of Rodent- Proof Construction

Rats and mice cause serious damage to all kinds of structures if they are allowed access to them. Damage by rodents has been documented in homes, apartments, hotels, office complexes, retail businesses, manufacturing facilities, food processing and warehouse facilities, public utility operations (especially power and electronic media operations), farm and feed storage buildings, and other structures.

In urban settings, rodents most often cause damage to older, inner-city buildings and utilities in poor repair. New housing developments may experience commensal rodent problems, but problems are more noticeable in neighborhoods 10 to 12 years of age or older. Ornamental plantings, accumulation of refuse, woodpiles, and other such sources of harborage and food are more quickly invaded and occupied by rodents when adjacent to an established rodent habitat.

Many types of land, air, and water transportation systems and their infrastructure also face serious rodent infestation problems. Infestations are of particular concern in the transportation of foodstuffs, feed, and other agricultural products. Commercial rodents consume and contaminate human and

livestock feed. One rat can eat about 1/2 pound (227 g) of feed per week, and will contaminate and waste perhaps 10 times that amount.

Rodents destroy insulation, electrical wiring, plumbing, and other structural components of buildings (Fig. 1). Insu-



Fig. 1. (a) Electrical cord of a freezer in a meat market, severely damaged by house mice; (b) fiberglass heat insulation withdrawn from a long finishing house near Lincoln, Nebraska, now destroyed by house mice in less than 2 years.



PREVENTION AND CONTROL OF WILDLIFE DAMAGE — 1994

Cooperative Extension Division
Institute of Agriculture and Natural Resources
University of Nebraska - Lincoln
United States Department of Agriculture
Animal and Plant Health Inspection Service
Animal Damage Control
Great Plains Agricultural Council
Wildlife Committee

B-137

chapter in
Prevention and Control of Wildlife Damage

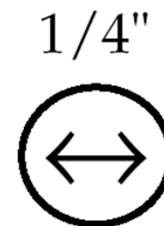
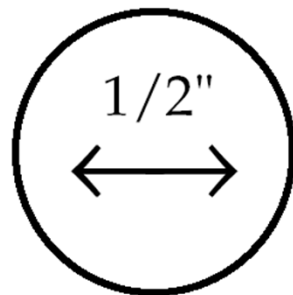
Habitat Management: Sanitation

- Reduce cover (shelter)
 - Landscape plants, debris
- Reduce or eliminate food sources
 - Rubbish, pet food, bird feeders, compost piles, fruits and vegetables, etc.
- Reduce or eliminate free water
 - (for rats)

Rodent-Proof Construction Techniques

Close all holes and gaps...

- > $\frac{1}{2}$ inch to exclude rats
- > $\frac{1}{4}$ inch to exclude mice



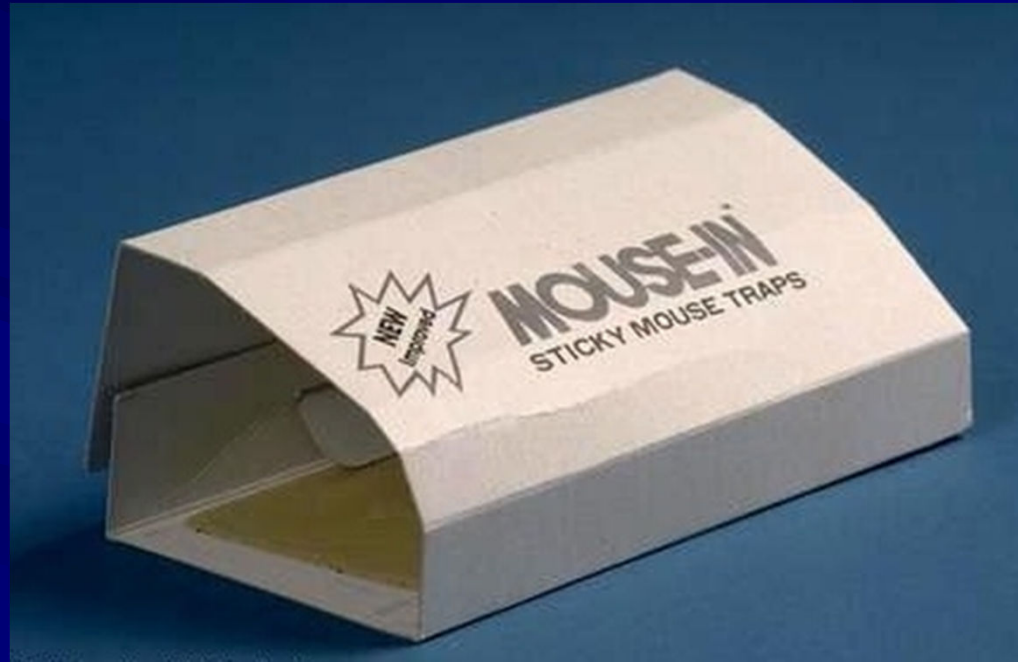


UC Statewide IPM Project
© 2000 Regents, University of California

snap traps



live-capture traps

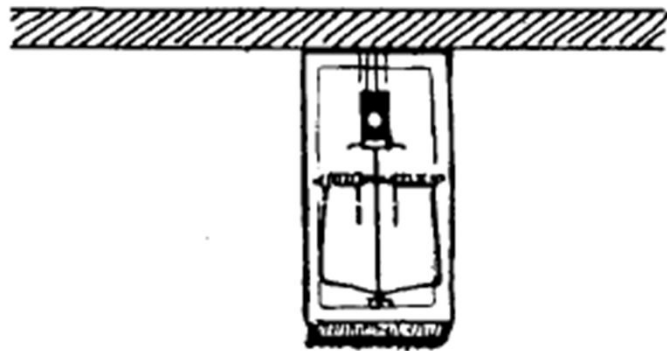


glue traps

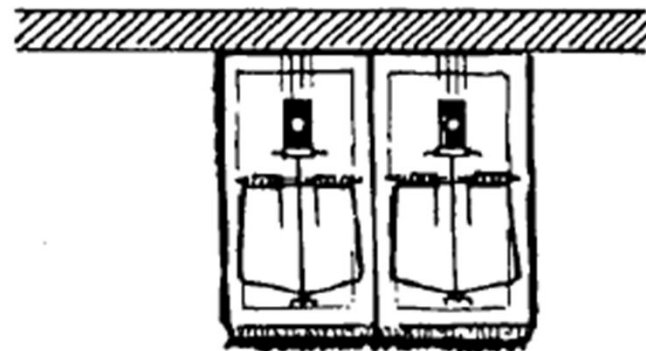
Baits for Rat & Mouse Traps

- **peanut butter**
- **peanut butter / rolled oats mixture**
- **nutmeat**
- **kibbled dog food**
- **cotton ball**
- **no bait at all**

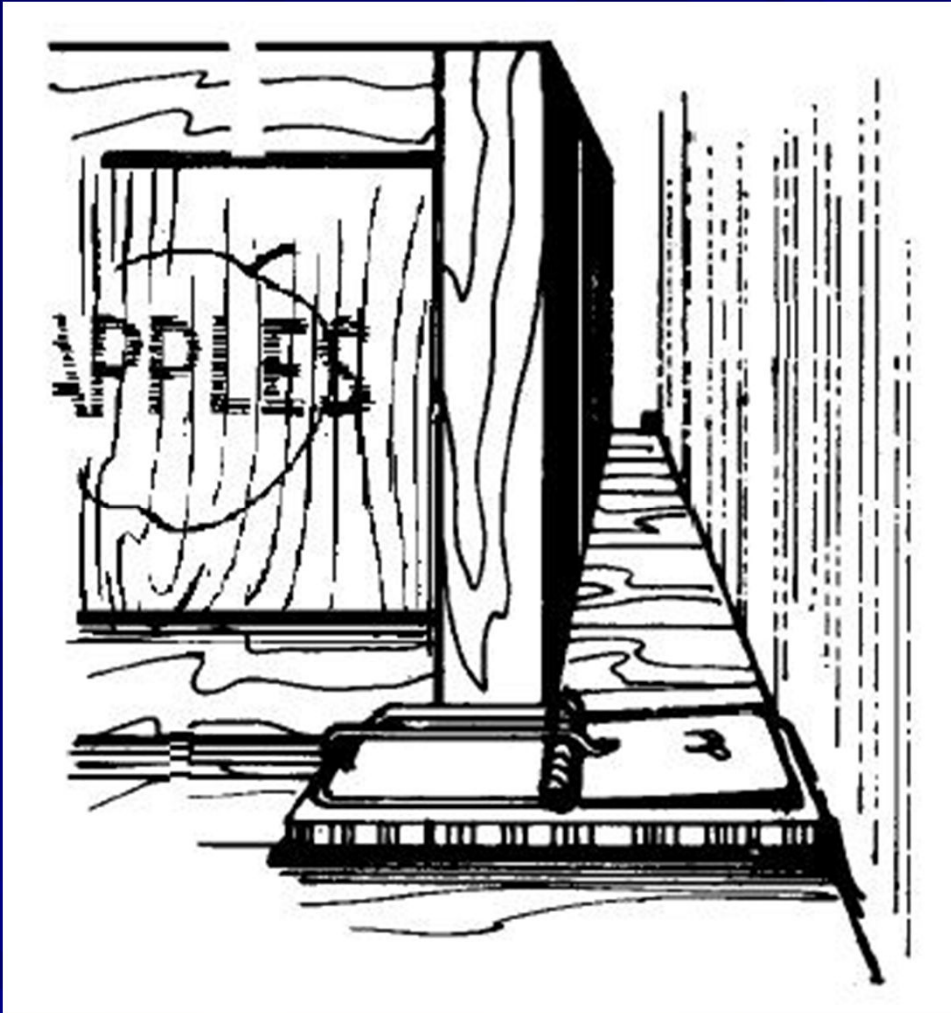
trap placement



Single trap set with trigger next to wall.

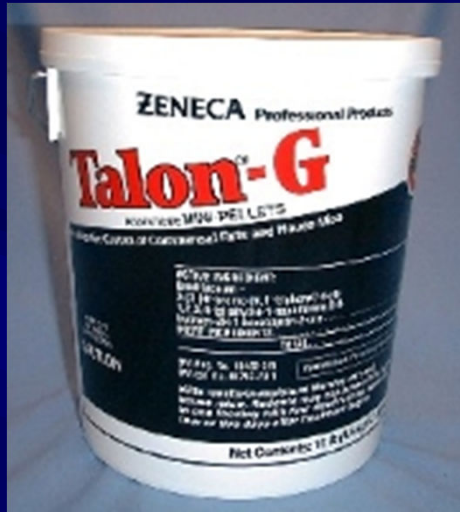


The double set increases your success.





Rodenticides - ready-to-use toxic baits



Registered Rat & Mouse Toxicants: (anticoagulants)

- Warfarin
- Chlorophacinone
- Diphacinone
- Brodifacoum*
- Bromadiolone*
- Difethialone*

* "second generation"

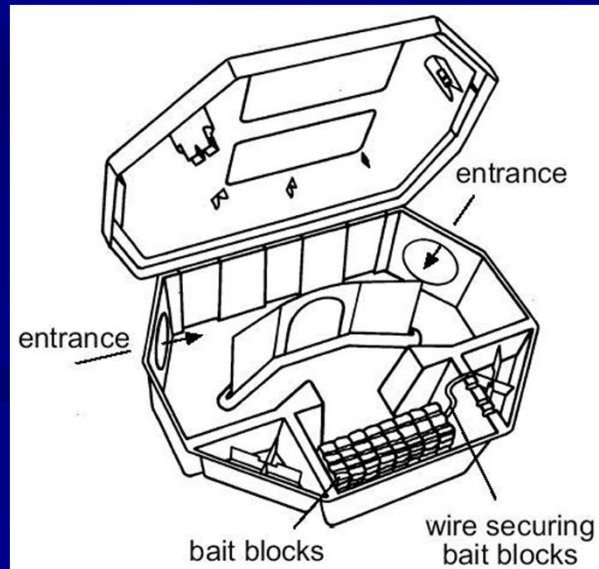
Registered Rat & Mouse Toxicants: (non-anticoagulants)

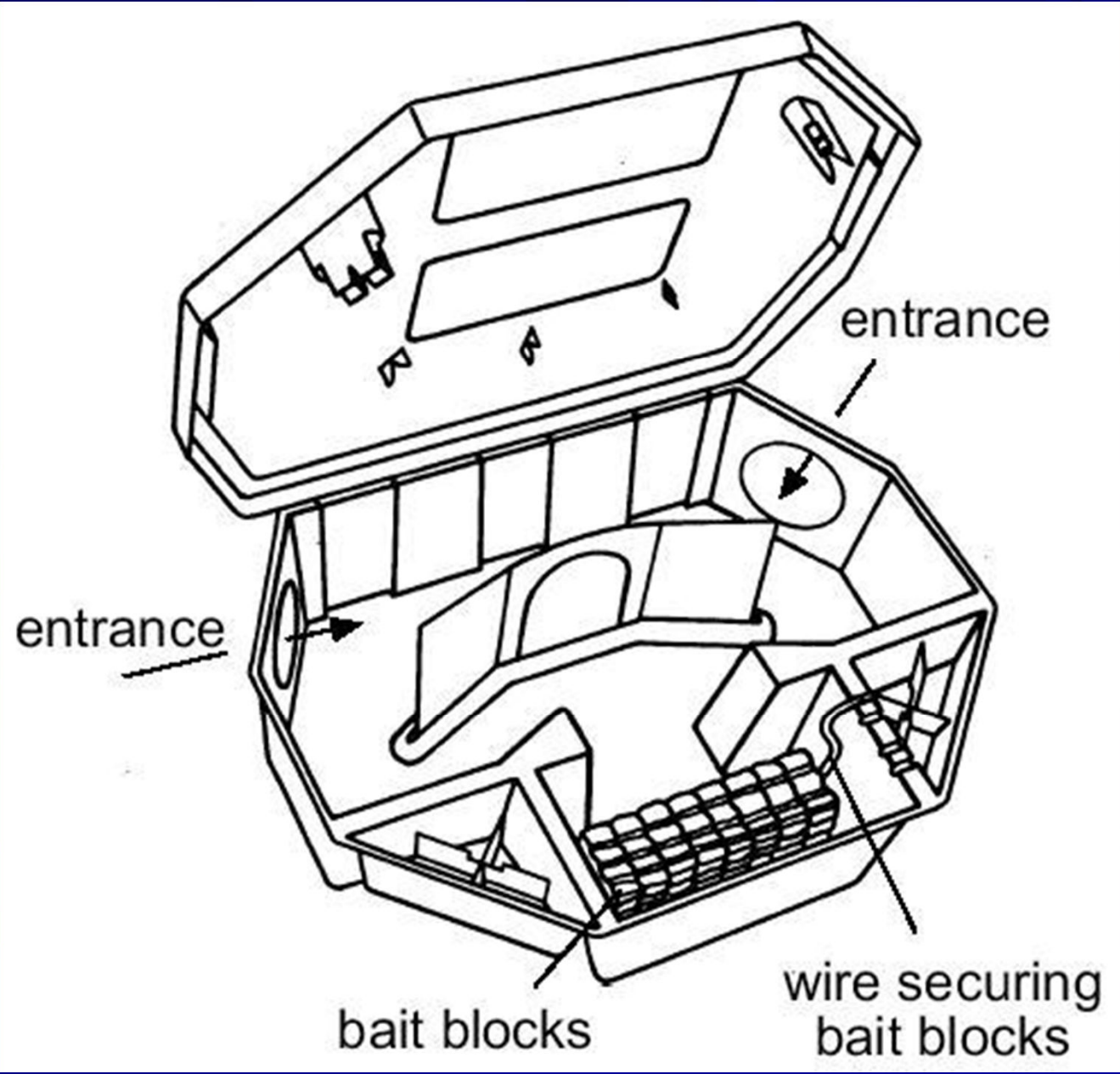
- Zinc phosphide
- Bromethalin
- Cholecalciferol

Agricultural Commissioners' Offices

are selling
a rodent bait
specifically labeled for rats & mice

Rodent Bait Stations





EPA Rodenticide Re-registration Process, 1998 – 2007

Concerns:

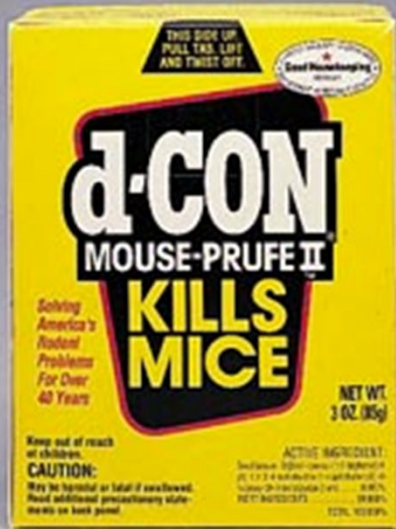
- Non-target hazards
- Accidental human poisoning (primarily children)

"Secondary Hazard"





Rat poisoned with anticoagulant



(Current) Use Restrictions:

For control of Norway rats, roof rats, and house mice.

Urban Areas:

This product may be used in and around the periphery of homes, industrial, commercial, and public buildings. May also be used in alleys.

Non-Urban Areas:

This product may be used in and around homes and agricultural buildings.

Source of the Problem:

- Use, as specified on label ?
- Unintentional misuse ?
- Intentional misuse?

Proposed Mitigation

- Rat & mouse baits for retail sale will be sold only in tamper-resistant bait stations with solid bait blocks contained within, with more restrictive uses.
- Second-generation anticoagulants will be limited to agricultural & professional users.
- All anticoagulants for field (non-structural) use will be Restricted Use Pesticides.

To be implemented in June 2011

