



# Rodents and Rodenticides

RESPONSIBLE USE OF A VALUABLE TOOL

# Identification



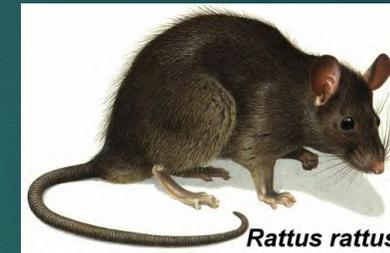
House Mouse

Large ears and eyes  
Head & Feet proportional  
Mono-color tail, long, semi-naked  
Smaller and more slender than voles



Norway Rat

Tail shorter than head + body  
Ears & Eyes small  
Body heavy  
Nose blunt  
Larger, stronger, and more aggressive



Roof Rat

Tail longer than head + body  
Ears & Eyes large  
Body slender  
Nose pointed  
Faster, more agile

# Physical Abilities

## House Mouse

 Fits through a  $\frac{1}{4}$  inch diameter hole

1. **Climb vertical rough surfaces**
2. **Jump 2 ft. long and 1 ft. high**
3. **Can survive cold storage facilities 14°F**
4. **Fall 8 ft. without injury**
5. **Doesn't need to drink, can metabolize water from the foods it consumes.**
6. **Rarely has a territory larger than 20 sq. ft.**

## Norway Rat/Roof Rat

 Fits Trough a  $\frac{1}{2}$  inch diameter hole

1. **Travel horizontal and vertical wires (roof rat)**
2. **Climb inside and outside vertical pipes**
3. **Jump 3 ft. above a flat surface and a distance of 4 ft.**
4. **Dive and swim underwater for 30 seconds**
5. **Swim  $\frac{1}{2}$  mile in open water**
6. **Can survive falls of 50 ft.**
7. **Gnaw on many materials including wood, lead pipes, cinder block, sheet metal, etc.**

# Rodenticides are an important part of an effective Rodent Control Program



# Today Concerns About Rodenticide Use Abound

- ▶ Danger to children and pets from direct consumption.
- ▶ Secondary Poisoning concerns for:
  - Pets
  - Wildlife
  - Raptors
- ▶ Even concerns about whether or not rodenticides cause unnecessary suffering to the rodent and questions about whether or not killing rodents with poisons is ethical.

# Some Concerns Have No Specific Answers

It isn't possible or even desirable for PMPs to try to answer some of the questions that are posed by some people and groups.

Leave the questions on suffering and ethics to philosophers and people who, for the most part, don't seem to have dealt with rodent problems in their homes, at their workplace, or as their livelihood.

Instead let's look at those things we can control and that probably are a moral and legal obligation for us, as pest professionals, to deal with directly.

# Concerns about direct consumption by children and pets!

- ▶ Forty years ago we commonly placed out rodenticide baits in homes, businesses, and institutions in open plastic trays. We tried to keep them out of sight, but the fact was that it really was a risk to children and pets. The reasoning wasn't very sound and usually went, "That's the way we've always done it."
- ▶ Enter the regulators, who promptly said, "That's not the way you will do it now!"
- ▶ We went from cardboard boxes (we had a lot of trays left so we put them inside the boxes), to light weight plastic stations with lids that clicked in place and then fell off later, and finally to stations that were lockable, secured to surface, and tamper resistant.

# Along Comes IPM!

- ▶ Today, in most cases, bait stations are relegated to the exterior of structures.
- ▶ Exclusion and trapping have moved to change procedures away from harvesting rodents as they enter with toxic bait and all of the wonderful smells and maggot problems, to keeping rodents out of structures and trapping and removing the ones that are already inside.
- ▶ Rodent stations play an important part in keeping rodent populations down. Exterior trapping can be done for places with only an occasional rodent scouting the outside of a structure, but not for large populations, especially in urban settings. There is no arguing the fact that rodenticides will kill more rodents, more quickly, and maintain a home or business in a rodent free state. Possibly more important, use of rodenticides will help prevent rodent borne disease problems more effectively than trapping.

# Where Do We Go From Here?

Do we need to continually maintain rodenticide baits in exterior stations?

The answer is a definite “Maybe Not.”

Not all sites have continuous rodent activity. At many locations activity may be very light and sporadic. The use of exterior stations as monitoring stations is beginning to gain ground. In the situation where there is only light activity, or for customers who state that they don't want active rodenticides permanently at their home or business, non-toxic monitoring blocks are a strong option. Actual field use seems to be showing that as long as there is food in the station, rodents will stay outside. When activity is present, you switch to active rodenticides. Once the activity ceases, it's back to monitoring.

# “Why would I want to do that”, you ask?

Remember the plastic bait trays and the statement, “That’s how it’s always been done!”

Then remember the regulatory, “That’s not how you will be doing it now!”

We can wait for public outcry and regulatory action, or we can address reducing rodenticide usage ourselves. If we don’t, someone else, maybe without the practical knowledge we have, will require that we change, by passing regulations or making usage changes to labels.

In the end, we want to control pest rodents, and protect people’s children and pets. The choice is ours as to whether new procedures come from inside or outside of our industry.

# Secondary Poisoning

Secondary Poisoning is something that is coming up more and more. Customers are asking about the potential for secondary poisoning, be it for pets, for wild animals or for birds especially raptors.

How do we answer questions regarding secondary poisoning. The customer wants to hear that the rodenticide does not cause secondary poisoning, but can we say that? Review the label (Environmental Hazards)

The problem is that we want to give a simple answer to a complex question.

# Looking at Rodenticides

Rodenticide	Type	Days of Feeding	Secondary Risk Birds	Secondary Risk Mammals
Diphacinone	anticoagulant	multiple	moderate	high
Bromadiolone	anticoagulant	single	moderate	moderate
Difethialone	anticoagulant	single	high	moderate
Bromethalin	ADP to ATP disruption	single	low	low
Cholecalciferol	hypercalcemia	multiple	low	low

# All Over The Board

We have been taught that for toxicity to occur the animal must ingest a lethal dose. Toxicity is determined by LD50 mg/kg.

Unfortunately, it isn't that simple.

Bromethalin is often fatal in cats at doses below the LD50.

Multi-feeding baits may leave more undigested bait in the stomach of the rodent with higher potential for poisoning.

Some rodenticides may be stored in the liver and have an extended half life compared to the half life of the rodenticide in the blood.

In dogs, veterinarians find different toxicity levels in different breeds.

# Answering THE QUESTION?

The simplest way to answer the question about secondary poisoning is the truth.

Secondary poisoning potential with (the product being used) is low or moderate (depending on the material used) but that there are a number of factors that must line up before secondary poisoning can occur.

# Reducing Risk

Look at ways to limit the use of rodenticides.

- ▶ Evaluate the site and activity levels to determine if a monitoring program would be acceptable.
- ▶ Only place the number of stations required to do the job. In many cases we can control this, although there can be issues in commercial accounts with third party auditing requirements.
- ▶ Bid work on time for inspection not just on the time it takes to service a set number of stations. Good inspection procedures go a long way to keep rodents out of a structure.
- ▶ Avoid the one bait fits all situations mindset. Choose the rodenticide to fit the situation, and set good expectations with the customer based on time needed to achieve control. Pay attention to secondary poisoning potential.
- ▶ Use good quality, strong stations that lock securely, keep bait contained, and secure them to the surface on which they are placed.



# Questions?

THANK YOU!

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