

RATS & MICE

Minnesota Department of Agriculture • Integrated Pest Management Fact Sheet Series

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SUBJECT: Rat and Mouse Management in Schools

Importance

The word rodent means “to gnaw”, and rats and mice have an amazing ability to gnaw through almost anything. Rodents are notorious for damaging buildings, and their preference for chewing electrical wires often causes expensive malfunctions and can even start fires. Rodents are involved in the transmission of diseases such as Salmonellosis, Meningitis, Leptospirosis, Hantavirus illness, and Dermatitis. Rats and mice release steady droplets of urine and may defecate up to 70 times a day. This, coupled with the pest’s gnawing and nest building habits, enables rats and mice to contaminate considerable amounts of food and cause immeasurable damage.

Identification



The two most common rodents that are able to live in close proximity to humans and their differentiating characteristics are summarized in the table below.



Biology

Both species are primarily nocturnal. They are omnivorous, eating both animal and plant material, and can consume up to 10% of their body weight each day! They are able to scale vertical walls, run across electrical wires and can jump well over a foot and fall from a distance of eight feet without injury. Rodents reproduce year round. Rats average three to six litters per year, but can have as many as twelve. They have four to six young per litter, which mature and are ready to reproduce in about three months. Mice have five to six young per litter, averaging six to ten litters per year, and mature at about two months of age. If rodents are in an environment with plenty of food and no predators, they can live two years or longer. In the wild they seldom exceed six months of age. **There are some signs that help to identify if there is a rodent infestation. The signs include:**

- urine stains
- droppings
- gnaw marks
- grease marks
- live or dead rodents
- rodent sounds or odor
- tracks
- burrowing
- runways

SPECIES	HOUSE MOUSE	NORWAY RAT
Norway rat is also known as common, sewer, brown, wharf, water rat		
	Photo from Zeneca Professional Products	Photo from Zeneca Professional Products
Size	small, slender, 0.4-1 oz., 5-8 in.	large, stocky, 7-18 oz., 16 in.
Fur	smooth, light brown or light gray color	course, brown or red gray color above with a whitish gray belly
Tail	nearly hairless, dark color with obvious scale rings, about the same length as body (3-4 in.)	dark color above and pale beneath, scaly, shorter than body (5-8 in.)
Snout	pointed	blunt
Droppings	rod shaped, 0.5 in.	capsule shaped, up to 1 in.
Habitat	ground-dwelling: walls, storage boxes, furniture	ground-dwelling: cellars, crawl spaces, garages

Prevention

How can you keep rats and mice from becoming a problem? The first step involves a building inspection. You can determine the extent of an infestation, location of possible shelter sites and entry points, and sources of food and water by making use of the signs listed above. Your observations should be recorded in detail for future monitoring and proper trap placement.

Proper sanitation is the best way to prevent rats and mice from becoming a problem. Some key steps which can be readily implemented are:

- Allow food in designated areas only.
- Don't leave food in lockers.
- Remove paper clutter.
- Remove trash regularly.
- Store pet food, snacks, or grass seed in tightly sealed containers.
- Routinely clean areas around vending machines, refrigerators, and dumpsters.
- Fix leaky or "sweaty" pipes.
- Keep areas around sinks and toilets dry.
- Consider a waste disposal company that takes charge of cleaning the dumpsters.

Rodent proofing, or exclusion, is another preventive measure.

- Install springs on external doors so that they close immediately. Never prop open doors or windows!
- Cover vent pipes with hardware cloth secured with wire.
- Weather strip doors and windows.
- Move all items off the floor and away from the walls.
- Replace vegetation, with gravel, around at least a one-foot perimeter of the building.
- Fill in small holes with steel wool or caulk and seal larger holes around pipes, utility lines, and vents with 1/4 inch hardware cloth, 19 gauge or greater sheet metal, plaster, or mortar.

Management Strategies

If you have a rodent problem, it's time to take action. The three main kinds of non-chemical traps are snap, glue, and multiple live catch. Often a combination of the three is effective.

- Set the traps where there is evidence of activity, for instance, between the nest and the food source.

- Set many traps in a small area, concentrating on one area at a time. While a rat will travel up to 150 feet from its nest in search of food, a mouse may only venture 20 feet away. Remember that rodents can climb and burrow, so set traps in a three dimensional area, i.e. on the floor and also up on shelves.
- Place two or three traps in a row with triggers facing the wall to prevent the rodent from jumping over them.
- It's best to use sticky baits that a rodent can't steal, such as peanut butter or melted cheese. Nesting materials, such as a cotton ball or dental floss, also work.

Trapping has several advantages: it does not use poisonous chemicals; it allows you to confirm that the rodent has been killed; and, it allows for disposal of the carcass. Traps must be inspected regularly to check for a catch and to see if the bait is still in place and fresh. If non-chemical alternatives don't work, you may want to consider using a rodenticide.

- Before buying and again before using any pesticide product, read the label carefully. Be sure the product you intend to use is labeled for the particular site you wish to apply it. The label is the final authority on how you may legally use any pesticide.
- Place rodent baits in tamper-resistance, clearly labeled bait stations where children and pets cannot enter.
- Place stations 15 to 30 feet apart for rats and 6 to 8 feet apart for mice.
- Be aware that rodenticides often take a few days to work, and that the rodent will often die and start to decompose before it is found.

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