



OH, RATS!

HOW TO AVOID RODENTS AT COMMUNITY COMPOSTING SITES

A major barrier to community composting is the myth that composting will attract rodents. While these furry scavengers have a propensity for chewing through wood, plastic, soft metals and even concrete to find a snack, the average neighborhood dumpster or trash can filled with food waste is a far more attractive feeding ground than a well-maintained compost site. In fact, by composting food scraps instead of dumping them in the trash, community composters have the power to clean up their neighborhoods and reduce rodent activity. Learning about rodent behavior and habitat can help avoid rat problems at your community composting operation as well as in the larger neighborhood, creating safer and healthier communities!

Purpose of Guide

This guide is designed to help community composters plan and manage their composting site to avoid rodents by creating an environment that is inhospitable to them.

If you are dealing with an active rodent infestation, seek help from a licensed professional.

Why Community Composting Matters

Composting at the neighborhood or community level creates a local circular economy, diverting food scraps from the waste stream and returning it to the soil. In community composting, compost is produced and used within the same community where the material is generated and the community can participate. Compost is used to enhance local soils, support local food production, and conserve natural ecology by improving soil structure and maintaining nutrients, carbon, and soil microorganisms. Community composting engages, empowers, and educates the community, boosting social capital and wealth.

How would you prefer food scraps be handled in your community?



Rat facts: Did you know?

While many creatures are attracted to food waste, rats are the most common pest, with mice coming in a close second. Infamous for their tendency to inhabit urban dumpsters and alleyways, rats are seldom recognized for their intelligence and complex social order.

Humans and rats have a long and intertwined history as rats tend to feed on the food that humans discard. Rats have traveled the world with humans as stowaways on boats, sometimes spreading diseases in human populations such as the bubonic plague, leptospirosis, and hantavirus. Understanding rodent physiology and behavior can provide insight on how to prevent infestations.

The word rodent is derived from the latin word **rodere** meaning "to gnaw."

They are primarily active at night.

Rats cannot thrive solely on vegetable and food scraps; they produce more babies on a balanced diet that includes protein.

One healthy female can produce 84 babies in one year!

Reproduction can occur year-round.

Rats run along familiar paths and communicate by leaving pheromone scent trails in their urine and droppings.

Rat incisor teeth grow at a rate of **5 inches** per year. To keep them short and sharp, they gnaw on hard surfaces. Their teeth can chew through anything softer than steel, including concrete, wood, and wires.

Their urine glows under UV light.

Rat burrows are usually 18 in. deep; they can be 3 ft. deep. Rats need at least 6 in. of soil to burrow.

They like to have a "hard" roof.

Rats prefer fresh, fertile soil because it's easy to dig in. They live within 100 ft of a reliable food source and are creatures of habit.

Other Rodents

- Mice
- Squirrels
- Woodchucks

Not Rodents

- Rabbits
- Moles

Rats can fit through holes the size of a quarter.

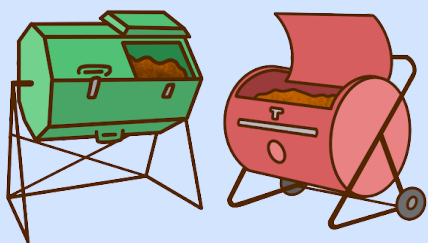
Mice can fit through holes the size of a dime.

#1 Norway rats are the most common US rat, found in all 50 states.

Rodent Detering Considerations for Common Composting Systems

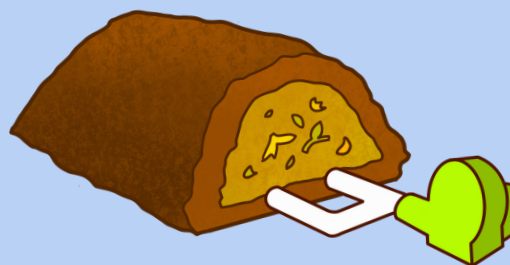
Choose a system that works best for your site and your community by considering space, capacity, and labor inputs. No matter which system or composting method you choose, maintain the system and follow best management practices (BMPs) to avoid odor and rodent problems. Check out [ILSR's Community Composting Done Right: A Guide to Best Management Practices](#) to take a deeper dive into BMPs.

Tumblers



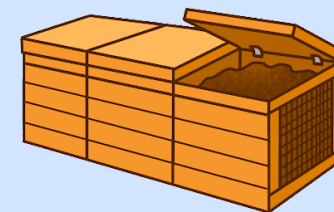
- Ensure tumblers have tight fitting doors and secure latches.
- Consider tumbler volume - some tumblers have chambers that are too small to reach hot composting temperatures.
- Tumblers raised off the ground will be more effective at keeping food scraps out of rodents' reach.
- Make sure there are no gaps larger than ¼ inches.
- Prevent liquid leaking from tumblers and when it does, soak it up with wood chips or sawdust and clean outside of tumblers (leaking liquid is rich in nutrients and can be a source of odors).

Windrows and Aerated Static Piles



- Build windrows (elongated piles) and aerated static piles on a prepared pad or impervious surface to prevent rodents from accessing the pile from below (see pg. 4 for more details).
- Ensure compost piles are "sealed" with a thick biofilter (see pg. 6 for more details).
- Cap any aeration pipe openings with ¼-inch steel mesh
- Manage compost piles to reach high temperatures (131° F or higher) in order to create an inhospitable environment for rodents.
- Ensure all food scraps are integrated into the pile and no bits are left on the ground or elsewhere on site (see pg. 8 for link to video on how to seal a compost pile and avoid rodents at community compost sites).
- Be active! Move or turn pile to deny rodents a secure habitat.

Bin Systems



- Select a fully enclosed design that uses ¼-inch galvanized steel, 23-gauge (or lower) hardware cloth
- Place bins on a prepared pad or impervious surface to keep the system level and prevent rodents from accessing the pile from below (see pg. 4 for more details).
- Regularly inspect your system and keep up with repairs: replace any warped slats or rotting wood, patch any gaps larger than ¼ inch.
- Ensure lids are tight and latches function properly.

Site Layout

Avoiding rodents takes a dynamic approach. To deter them, all elements of the site, including processing and storage areas, need a surrounding 3-foot buffer of clutter-free space. Storing carbon sources in containers and creating a secure storage area for tools and accessories will deny opportunities for rodent habitat. For example, an open pile of leaves or straw can create an unintentional rodent burrowing area. If you plan on expanding operations in the future, plan for that growth in the initial site layout.

One of the most important features of any compost site is the surface on which active composting piles sit. If you have the budget, installing a concrete or asphalt pad is ideal.

To prepare your compost pad:

- Determine the square footprint of your system and add at least 3 ft of additional length and width to the dimensions of your pad.
- Choose a spot with good drainage and remove shrubs, grass and 4 to 6 inches of topsoil. If unable to dig out at least 4 inches, a frame or retaining walls may be necessary.
- Tamp the area and level it if selecting a bin system (windrows are better placed on a pad with a 2 to 4 percent slope to avoid standing pools of water and to allow stormwater to drain).
- Cover leveled area with ¼-inch galvanized steel, 23-gauge (or lower) hardware cloth 3 to 6 inches below the planned surface.
- Finish the surface with concrete or asphalt. (For a bin system, alternatively, finish with a 4- to 6-inch layer of ¾-inch crushed stone. Talk to a local supplier about your project to find the best material for your budget.)*

* Utilizing other materials in a framed pad such as landscaping pebbles, gravel, sand, or wood chips (least preferred) can work for a bin system but placing it directly on the bare ground is not advised.



Make sure your site has adequate space and is not cramped or cluttered.



Level ground prevents systems from warping.



Concrete pads are easily cleaned, making them ideal for processing food scraps.

Audubon Naturalist Society, Maryland (Top, Bottom left), Baltimore Compost Collective (Bottom right)



✓ Do



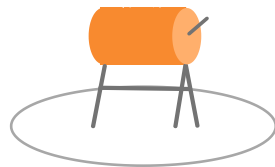
Post signs on materials acceptable and not acceptable for composting.



Keep dry amendments and carbon sources on hand at all times (to promptly mix with food scraps, help manage wet materials, and to control odors).



Incorporate food scraps into composting piles immediately and cover with a biofilter.



Maintain at least 3 ft open space around each composting component (e.g., pile, carbon storage, tool shed).



Make sure active composting piles are on a surface or have a barrier that prevents rodent burrows underneath.



Fix compost systems as needed and seal all cracks and holes.



Be active! Turn, move, poke piles regularly.



Trim plants to 1 ft off ground to eliminate hiding spaces.



Ensure any lids fit tightly and latches function properly.

✗ Don't



Don't provide rats with protein by feeding birds or cats, or leaving pet waste on site. Dog poop can be a protein source for rats.



Don't compost with eggs, dairy, meat, fish, bones, fat, oil, grease, or cooked food.



Don't store food scraps on-site or leave food scraps exposed in your piles.



Don't give rats hiding places: remove clutter, weeds and dense vegetation.

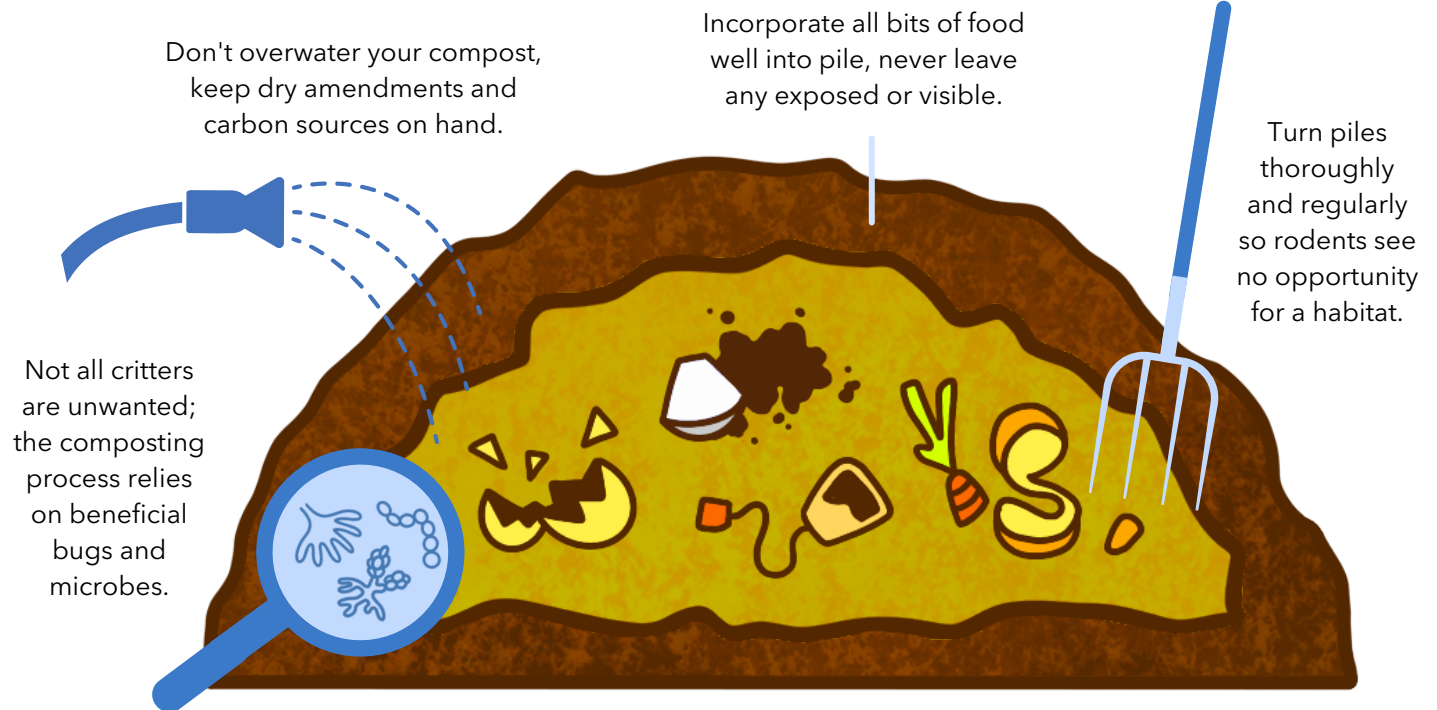


Don't leave drains and aeration pipes unsealed. Cover with steel hardware cloth.

Rodent Prevention in the Composting Process

To avoid potential problems, the composting process has to drive site layout and management, not the other way around. Rodents are attracted by odors, which can occur when composting best management practices are not implemented.

A pile built with a good recipe that provides optimal conditions will compost quickly and efficiently. Management needs may vary by system type, but all require attention to carbon to nitrogen ratio, moisture levels, adequate oxygen, and bulk density. Once you have a successful recipe, make sure your compost pile is thoroughly mixed, well-shaped, and big enough to reach PFRP (process to further reduce pathogens) temperatures.



Monitor odors, temperatures, and moisture content. Keep records to help with trouble-shooting. If your pile reaches 131° F or higher, it will be uninhabitable for rodents.



Do not compost meats, seafood, cooked food, fats, and grease, which attract rodents and may lead to odor problems.

Cover piles with a biofilter layer of:

Unscreened compost	4 in
Screened compost	4 to 6 in
Wood chips	6 to 12 in
Screened-out woody materials	12 in

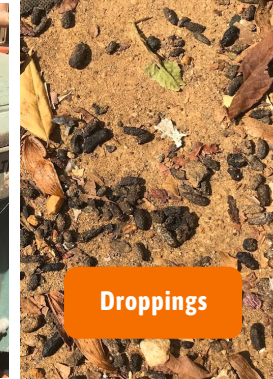
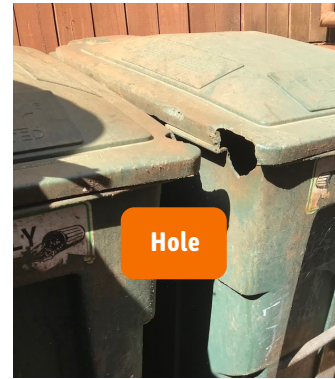
For more details on the composting process, check out [ILSR's Community Composting 101 Online Certificate Course](#).

USCC Operator Training Course, 6-8-21.

When should you be concerned?

Signs you have an active rodent problem:

- Presence of live or dead rats
- Freshly disturbed soil or holes & nesting materials
- Rodent feces & urine
- Gnaw marks
- Burrows (usually in soft dirt & near low-lying bushes)
- 12 or more burrows indicates a severe infestation
- Runways (worn paths in grass/dirt, often along walls)
- Rub marks left by oily fur



You have a rodent problem. Now what?



If rats have burrowed in any of your composting piles or materials, it should be considered contaminated and be disposed in the trash. If you suspect only minimal activity, this material can either be solarized or added to a new composting pile and exposed to Process for Further Pathogen Reduction (PFRP) temperatures.

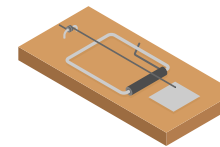


Cleaning

Wash away droppings & rub marks (10-1 water to bleach or ammonia solution).

Daily burrow harassment

Collapse burrows with a shovel or stomping. Back fill collapsed hole with landscaping pebbles or small rocks.



Trapping

Set traps in path of rats' travel.



Predators

Consider employing trained "ratting" dogs to manage rat populations.*

Baiting & Dry Ice

If you decide you need to use bait or dry ice, work with a licensed professional. Request non-toxic bait.



Bright overhead lighting

Rats avoid well lit areas.

* There is no predator that can completely control rats.

Acknowledgements

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A special shout out as well to the [New York City Health Department's Rat Academy](#), which offers regular free training on effective methods for rat prevention, including at community gardens. Much of the information shared in this guide is based on the City's community training courses.

For updates on this guide and a listing of supplemental resources, visit:
ilsr.org/composting-ohrats

Supplemental Videos

- [Successful Rat Prevention for Community-Scaled Composting \(ILSR\)](#)



Webinar Resources: Successful Rat Prevention for Community-Scaled Composting

by [Virginia Streeter](#) | Date: 12 Jun 2017 | [f](#) [t](#) [e](#) [m](#)

This webinar covered rat biology and behavior, and explored compost best management practices (BMPs) that help projects avoid rats.... [Read More](#)

- [Urban Community Composting: How to Control Rats \(Red Hook Community Farm Compost Operation\)](#)

This 7-minute Youtube video by David Buckel of Red Hook Community Farm in Brooklyn, New York, covers how to control rats at urban community compost sites.

