

Earthworms

Solid Waste Management Fact Sheet No. 9

Earthworm ancestors survived the Ice Age. More than 3,000 species now exist, and they live almost everywhere. One acre of cultivated land may be home to as many as 500,000 earthworms, each making your soil a better place for plants. Earthworms are among a gardener's best allies, so whenever you work the soil, consider how your actions affect the worms below its surface.

The 4 inch long, pale red garden worm is often called "nature's plow." The earthworm pushes through soft earth with the point of its head. If the soil is hard, the worm eats its way through, forming interconnected burrows, some several feet deep. Burrows loosen the soil, admitting air and water, and helping roots grow.

As an earthworm feeds, organic matter passes through its body and is excreted as granular dark castings. You may see these small casting piles in your garden. An earthworm produces its weight in casts daily. Wormcasts are rich in nutrients otherwise unavailable to plants. When you add nitrogen-rich compost to your soil, you help worms. An earthworm's body is 72 percent protein, so it requires lots of nitrogen (the building block of proteins) to maintain itself. However, adding synthetic nitrogen fertilizers may repel earthworms. Worms are very sensitive to physical and chemical changes and will flee the salty conditions that result from the application of chemical fertilizer.

Life Cycle

In cold weather, a soil search will turn up mature and young earthworms as well as eggs. By late spring, most worms are mature. As temperatures rise, activity slows; many lay eggs and then die. By midsummer, most worms are very young or protected by egg capsules. As the weather cools, young worms emerge. With wet weather, they grow active, making new burrows and eating extra food, resulting in more wormcasts. Egg laying again occurs. Activity continues as long as soil stays damp.

After a heavy rain, earthworms often appear aboveground. They haven't drowned. Fresh water doesn't disturb earthworms—they need ongoing skin moisture to breathe—but stagnant or contaminated water forces them from the burrows.

You may have seen a bird tugging on an earthworm. Sometimes, the worm escapes. A worm crawls by digging tiny bristles into the soil and pulling or stretching forward. When a bird tries to pull it from the ground, the worm swells up, pushing its bristles into the soil so firmly that the bird may get only half a worm. The remaining worm grows a new head if no more than the first 7 to 8 body rings are missing.

Earthworms can survive in soil that freezes gradually, but sudden freezing can kill them. Protect earthworms against sudden freezes with mulch or a cover crop, both of which also provide worms with food.

Earthworm Bins

You can raise earthworms indoors in a modified garbage can, washtub, or wooden box. Kept in a cool, dark place, a worm bin provides a composting system for kitchen scraps, as well as a source of worms, for the garden. To keep conditions moist but well-drained, make a drainage area in the bottom of the bin; use a rigid divider to separate it from the worms' living quarters. A loose cover keeps flies and light out and moisture in.

Fill the bin with 2 parts commercial steer manure, 2 parts sawdust, and 1 part shredded leaves. Garden soil may also be added. Mix this well in advance and dampen thoroughly; if the mixture heats up, wait a few days before adding worms or the heat may kill them. Introduce earthworms, purchased or from your garden, to their new home. If you buy worms, use them for composting only—most commercially available worms are species that live only in manure or very rich soil and will not survive in average garden soil.

Feed your worms well-chopped vegetable matter mixed with a bit of water. Soft foods are best for the first few days; if food doesn't disappear in 24 hours, reduce the amount. Good earthworm foods include oatmeal, peanut hulls, toast, fruit and vegetable trimmings, and coffee grounds. Run the food through a blender; worms don't have teeth to tear off large chunks. The population should double in about a month; after 60 days, your bin should be full of rich compost.

Save some earthworms for another session. Place compost outdoors on a sheet of heavy plastic or fabric, and let it sit for about an hour; the worms will cluster together to stay cool and moist. Dig in and find the cluster. Return some worms to the bin; put the rest in your garden or start a second bin.

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