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This Worm's for You . . . Vermicomposting with Nature's Best Recyclers

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Would you like to get the best of all organic fertilizers at no cost with just a few minutes of work? Then consider using worms to compost kitchen scraps.

Worm's Role in Nature

Despite the bad rap given worms by children who "eek" and groan when they see one, worms are increasingly being used around the house to convert garbage into worm castings. Worms are magnificent organisms with a multitude of important roles in nature: mixing and aerating soil, improving soil structure for water infiltration, moderating soil pH, bringing up minerals in the soil, increasing the microbial action within the soil structure, and breaking down plants and minerals into compost. Quite honestly, the worm should be honored for the amount of work it does on a day-to-day basis.

Vermicomposting

Composting with worms – or vermicomposting – is a great way to see recycling happen before your eyes. This controlled method of composting can be practiced by anyone: apartment dwellers who don't have a yard for backyard composting or homeowners who choose not to backyard compost. Compost worms (not to be confused with earthworms) can be raised quite successfully in a home-controlled climate and they require very little maintenance.

Best Worms to Use

The best kind of worm to use is a redworm or red wiggler, also known as a red hybrid, tiger worm, manure worm, or brandling worm, to name a few of the many nicknames given to these worms. In scientific terms, they are categorized by their genus name, Eisenia, and species name, fetida. These worms process large amounts of organic materials in their natural habitats of manure, compost piles, or decaying leaves. There are many sources for acquiring these worms.

Worm-to-Garbage Ratio

Worms can be kept in a box or plastic container purchased through your local five and dime store. A colored, 10-gallon bin with a tight-fitting lid is best, but you can be creative with homemade bins. Redworms are surface dwellers, so you want the bin to have a large surface area, and not more than 12-18" in depth. Just make sure the bin is not clear-colored or you will torture your worms—they are extremely sensitive to light.

Where to Locate the Bin

The indoor bin can be kept under the bed, under the sink, in a closet, bathroom cabinet, or wherever you desire. They are relatively maintenance free and require very little attention. The worms do their job whether you watch them or not. Temperature and aeration are important. Red-worms like temperatures between 40 and 90oF. Above 90oF they will start to die, and once they start to die, it is nearly impossible to keep it from spreading to the entire colony. If you set the bin out-doors, pay close attention to the heat conditions. Keep the bin in a shady location and cut some ventilation holes, covered with nylon.

Bedding Materials

The bedding material inside your bin is a functional part of the whole system. It serves as a primary food source, helps keep moisture levels correct, provides a medium for worms to work, as well as a place to bury and hide garbage. If left for six months, all the bedding will be consumed, as well as the garbage.

Many materials make satisfactory bedding. A personal favorite is shredded newspaper. Other bedding materials may include shredded office paper, shredded junk mail, animal manures (in small quantities for inside bins), leaves/leaf mold, or peat moss.

The Worm Bin

Setting up the worm bin is easy. Shred the newspaper (or other medium of choice) into strips ¼-inch to 1-inch wide. Place the shredded paper in the bin and fill until approximately 1/3 full. For every pound of paper in the bin, pour in 3 pounds of water (this isn't an exact science since different sources of bedding require less water). Mix until all the paper is wet. The bedding material should be damp, not dripping wet. Pour off any excess water. Repeat this process if you need more bedding material in your bin. Pour the worms on top of the bedding. You are now ready to start feeding your worms.

What Worms Eat

You will find that some worms can be picky eaters, but for the most part they will devour most anything you give them. All vegetable scraps from the kitchen work well. Fruit rinds are OK, too. One Urban Harvest gardener feeds his worms oatmeal every three days, along with rock phosphate (good grit for the worm's gizzard). Egg shells, coffee grounds, molasses, bran cereal, grits and leftover pulp from juices are also good sources of food. Be adventurous and sample a variety of foods and see what your worms like the best. Let us know what special concoction makes your worms slurp the loudest.

There are some foods you should never add to the indoor worm bin. They are: meats, bones, dairy products, oils, pet feces, and, of course, any non-biodegradable materials.

Worm Bin Problems

Worms, like humans, must have comfortable conditions in which to live. The first indicator that something isn't right in the worm bin is a mass exodus of worms trying to escape. Not just a few worms, but all of them, at once. Bells and whistles should go off at this time. Some trouble shooting tips follow.

Troubleshooting

If your bin begins to smell bad, it could be that you are overfeeding your worms and the food is rotting, or the bin may be too wet, or not enough air is getting in the bin. Make the necessary changes.
If flies find their way into your bin it may be because the food is exposed and the food is rotting. To prevent flies, simply bury the food every time you feed your worms.

If your worms are dying (you'll know by the putrid smell), then move quickly to make the necessary changes. Make sure the bin isn't too wet or too dry, too hot or cold, and the bedding is not too clumped together. Add new bedding if necessary. You can leave the lid off and cover with dry bedding to remedy some of the conditions.

Worm Castings

As soon as your worms hit their new bedding, they will be begin their usual process of eating and pooping their castings. Worm castings are said to be 5-11 times higher in nitrogen, phosphorous and potassium than if the garbage decomposed on the ground. The worm's gizzard serves as the first source of breaking down organic matter into fine particles, followed by continued breakdown in the intestines. The worm takes out the nutrients its body needs to survive, and adds micronutrients, magnesium and calcium carbonate to the organic matter that passes through its gizzard and intestines. It's quite remarkable process. Castings look like tiny tubes of dirt left on the bedding and sides of the bin. After about three months, you will notice that there are more dark casting than bedding in the bin. This is the time to begin thinking about harvesting the castings.

Harvesting

The easiest way to harvest castings is by hand. The largest amount of castings will be found on the bottom of the bin, mixed in with old bedding. Shake off castings that are left on large clumps of bedding and scoop up with a spoon the castings from the bottom. Place castings in a plastic bag and use with potting soil for houseplants or in the garden. Don't use "straight" worm castings in starter beds, as they are too rich and can cause problems for your plants.

Worm Reproduction

Redworms reproduce quickly under controlled environments. Within the first three months you may see very small, lemon shaped orbs occasionally mixed in with the dark castings in your bin. These worm cocoons will contain two or more immature worms, requiring at least three weeks before the baby worms hatch. Put the cocoon under a magnifying glass and you can see the baby worms and the pumping of their bright red blood vessels. When the worms emerge from the cocoon they appear whitish and about one-half inch long and will grow very quickly.

Outdoor Vermicomposting

In Texas, composting in the out-of-doors requires more precautions. Finding a quiet, dark, cool, secretive location in your yard will be necessary if you want your worms to survive the harsh Texas heat. Remember that compost worms can't tolerate temperature in excess of 90oF. One vermicomposter cut the bottom off a curbside garbage can, covered the bottom with hardware cloth and planted it 18 inches into the ground. Using newspaper as a primary bedding material proved to be satisfactory for outdoor vermicomposting. During the hotter months no kitchen waste was added as a secondary food source. The success rate for outdoor vermicomposting on the Gulf Coast is

questionable. Please share your outdoor vermi-composting experiences and tips with Urban Harvest.

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