

Worm farming

Composting with worms avoids the needless disposal of organic materials while enjoying the benefits of high quality compost. When cared for properly, worm's process food quickly, transforming food wastes into nutrient-rich 'castings'. Worm castings are an excellent fertilizer additive for gardens or potted plants.

3

Environmental impact of organic waste

When you throw vegetable scraps and gardening waste into your garbage bin it costs you and the environment.



Greenhouse gases

As organic waste decomposes in landfill it produces the greenhouse gases, methane and carbon dioxide. These greenhouse gases contribute to worldwide climate change. Scientists predict that climate change will impact on all our lives, especially in the areas of agriculture and human health.

Most landfill gas is made up of 54% methane and 40% carbon dioxide.

Methane is 24 times more damaging as a greenhouse gas than carbon dioxide.

Landfill space and contamination

In many areas the land allocated to waste disposal is rapidly filling up. Much of the land used for waste disposal cannot be reused in the future because of contamination.

Landfills produce a toxic liquid, called leachate. Leachate is a mixture of organic acids, battery acids, dissolved chemicals and rainwater. It can contaminate surrounding land and waterways. [2]

By worm farming, not only can you help to reduce the amount of waste that goes into landfill but you can also help to reduce contamination and greenhouse gases.

Benefits of worm farming

Approximately half of all household waste is organic. Most of this waste can be recycled through composting – turning waste materials into a rich soil supplement for use in your garden.

Using worm compost

Worm composting is a method for recycling food waste into a rich, dark, earth-smelling soil conditioner. The great advantage of worm composting is that this can be done indoors and outdoors, allowing year round composting. It also provides apartment dwellers, schools and offices with a means of composting.

Worm compost will provide nutrients for your plants and will help the soil hold moisture. It can be:

- Mixed with potting soil and used for houseplants and patio containers.
- Used as mulch (spread in a layer on top of the soil) for potted plants.
- Finely sprinkled on lawns as a conditioner.
- Used directly in the garden around existing plants or dug into the soil.
- Made into liquid fertiliser by being mixed with water until it is the colour of weak tea.
- Moisture drained from the worm farm's bottom crate is also a good liquid fertiliser, once diluted.



Did you know?

- Worms will eat most of your kitchen waste and turn it into a high-quality fertiliser. [5]
- Earthworms breathe through their skin and although an earthworm looks as simple as it is, it is a complex creature astounding yet fully functional circulatory system, calciferous glands for neutralizing and digesting food [6]
- It has the organs of both a male and a female which allows it to reproduce on its own, a crop and gizzard with coarse sand matter to aid in grinding food. [6]
- Worms can eat equal to it's weight in food and may even be made to eat more given the desired conditions. [6]
- Worm population in a well-maintained worm farm will double every 2-3 months and given the right conditions, adult worms can produce up to 12 offspring per week.
- If there are more than 1 million worms living in a hectare of soil, they could make 100 tonnes of castings. These same 1 million worms burrowing into a hectare of soil can create a drainage system equal to 1.2km of 15cm pipe.



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Start your own worm farm

You can buy worm farms from your local council or you can make your own by following these easy steps.

Step 1. Choose a container to house your worms

You can buy a ready-made plastic worm farm or reuse old materials. Some ideas are foam boxes, a trunk or discarded barrel. You box should be approx 30cm deep, 60cm wide and 90cm long.

- Make holes in the bottom of one box to let liquid drain and allow air to flow.
- Place the box containing holes over another box without holes and make a tap in the bottom box to let the liquid out.
- Put an upturned ice-cream container or a brick in the bottom box. This will help any worms that fall through the holes to climb up into the upper box. It will also form an island for the worms so they don't drown.

Step 2. Make the bedding

The best bedding materials are torn newspaper and cardboard, leaves, chopped up straw and other dead plants. Be sure to wet the bedding - it must be moist like a wrung out sponge, then fill a layer about 10-15cm deep in the upper box.

Step 3. Add the worms



The best kind of earthworm to use is the redworm. These worms are incredible garbage eaters! They eat and expel their own weight every day, so even a small bin of redworms will yield large quantities of rich sweet-smelling compost.

When you add the worms they will quickly crawl down into the bedding as they don't like light.

Step 4. Add the food waste

- Don't add too much at once. Feed slowly and gradually build up the quantity. Place the scraps in a different spot each time to evenly distribute the food for the worms.
- Eggshells (crushed) will maintain the bedding at a safe pH level. Without them the bedding may become too acidic. A sprinkle of Lime every couple of weeks can also work.

Step 5. Cover the worm bed

- Cover the worm farm with newspaper or a piece of hessian. This will help keep a constant temperature in the worm farm.
- Add water to the box whenever it begins to get dry. It should be the consistency of a lightly squeezed sponge - if it is too wet the worms will die.
- Be sure to keep your worm farm out of hot sun and heavy rain.

Step 6. Harvest the worm castings

After a few months, your worm farm will be ready to harvest. There should be little or no original bedding visible in the bin and the contents will be brown and earthy looking worm castings. To harvest your bin:

1. Move the contents of the bin to one side. Add fresh bedding and food to the vacant side. The worms will move from the finished compost in search of food. After a few days you should be able to remove the older, worm free compost.
2. Or dump the contents of the bin onto a large plastic sheet, and separate into small piles. Place a bright light above the sheet. The worms will move down away from the light allowing you to collect the compost.
3. Always mix in some good compost or worm compost in a new bin, if you have it — the bin starts decomposing food waste faster that way.

References

1. Urban Programs Resource Network www.urbanext.uiuc.edu/worms/live
2. Australian Bureau of Statistics www.abs.gov.au
3. The Compost Resource Page www.oldgrowth.org/compost/compost.html
4. Recycling Council of Ontario www.rco.on.ca/factsheet/fs_e02.html
5. NSW Department of Environment and Conservation "Down to Earth" Publication www.epa.nsw.gov.au
6. City of Ryde <http://www.ryde.nsw.gov.au>

Do feed your worms

- Fruit (except citrus)
- Vegetables (except onions)
- Coffee grounds and filter
- Tea bags
- Crushed egg shells
- Leaves
- Shredded paper

Don't feed your worms

- Citrus fruits
- Oily foods
- Meat, poultry, fish
- Dairy foods
- Vinegar or salad dressings
- Plants from the onion family (garlic, shallots, leek)