



vermiculture



A typical plastic wormery.

what is it?

Worm composting, or vermiculture, is using small red worms to produce compost and liquid fertiliser from kitchen, garden or agricultural waste. The most common compost worm is *Eisenia fetida* (common names tiger worm, red worm, brandling worm). They can be found in gardens living under stones, flowerpots and logs, and in large quantities in compost heaps and manure piles. They live in decaying organic material and feed on the bacteria which grow there, so they naturally migrate into piles of decaying matter. If the conditions suit them (i.e. not too hot, cold, wet, dry or acidic) they breed, and soon the heap is teeming with wriggly red worms. They are different from earthworms in that they are smaller, and live on decaying matter at the surface rather than burrowing deep underground.

A wormery is a closed container where kitchen and garden waste is broken down by worms that you have introduced into the container. Wormeries are useful for making compost and dealing with organic waste in small spaces such as urban gardens and balconies. Small wormeries often consist of several perforated plastic trays which stack on top of each other, with a lid to keep out light and maintain moisture, and a liquid-collecting sump and tap at the bottom. However, any light-proof container with a lid, ventilation, and drain can be used. They can be home-made or bought. Worm compost can also be made on an agricultural scale in long brick-built worm beds, 600mm high and 1200mm wide.

Wormeries first became popular in the USA in the 1990s due to Mary Applehof's best-selling book *Worms Eat My Garbage*. A few years later, in the UK, the popularity and availability of wormeries was boosted by the book *Composting With Worms* by George Pilkington.

what are the benefits?

Wormeries are good for dealing with cooked food waste (including small amounts of meat and fish) which you might not wish to put into a normal compost heap because doing so would encourage rats. Wormeries are usually rat-proof, unlike compost heaps. It's much better to compost all your food waste at home, as any that goes into your black bags will usually end up in landfill, where it will break down anaerobically, producing various types of pollution including large amounts of greenhouse gases which contribute to climate change.

Even if your council has introduced a separate food waste collection scheme, if you have a garden or lots of pot plants, why give away a good source of plant food?

The main output of a wormery is nutrient-rich liquid plant food (often called worm 'tea') that you collect in a container as it drips out of the wormery, then dilute with water and use to feed house and garden plants.

Wormeries also produce a very concentrated, high-quality compost which is useful to add to soil or mix with other compost as a potting mixture.

Worm composting is fast – worms can eat half their bodyweight each day, so organic material will break down much more quickly with worms than by conventional composting.

Worms also destroy pathogens.

It can be educational and fascinating to keep a wormery, and a wormery is a good use for a shady corner of the balcony or garden where not much would grow.



Stripy compost worms showing why they're sometimes called tiger worms.



what can I do?

Make a wormery from old plastic or wooden boxes - you'll find plans and videos showing different methods, but it's just a light-proof box with lid, ventilation holes (preferably with fly-proof mesh), and provision to collect and drain off the worm liquid. Factory-made wormeries are usually a set of stacking trays each 75-100mm deep: this is space-efficient and makes removing compost easier, as the worms move into the top layer of fresh material leaving compost below. A home-made wormery is usually a box c. 600mm deep, but shallower with a bigger surface will work too. You can find red worms in compost bins or piles of manure or decomposing leaves, or you can buy worms online, or from fishing shops where they're sold as fishing bait.

Using the wormery: worms prefer a mixed diet, so don't just add cooked food - add veg peelings, leaves and damp cardboard and newspaper too. Bury cooked food under the surface to discourage flies. Break up food waste - a big chunk of bread or half a cabbage will take ages for worms to break down. Some food waste is not so good, e.g. citrus skins or anything in the onion family (very small amounts are OK). Put your citrus and onion waste in the compost bin instead. Also, don't add large amounts of fatty food such as cheese. Keep your wormery in a shady place and keep it frost-free in winter by moving it into a shed or making it an insulating jacket.

The boundary between wormery and compost bin is often blurred. A typical plastic cone-shaped compost bin, if kept in a shady place on soil, may turn into a wormery if local composting worms find their way in and like the conditions there!

Overcoming problems: the commonest problem is that wormeries get too wet. If the outlet tap blocks, the wormery can fill with worm-output liquid and the worms will drown. If the tap stops dripping, check for a blockage (often worms, food or compost particles, or a slug or snail). Unblock the tap by poking stiff wire up it. Better still, remove the tap and fit a larger outlet pipe. Worms sometimes try to crawl out of the wormery when it's too wet, too dry or the ventilation holes are blocked. Unblock the tap or holes if necessary, and add crunched up newspaper to make it drier, or sprinkle with water to make wetter, as appropriate. The contents should be moist but not



Worm tea.

dripping: squeeze some in a gloved hand, and just a few drops of liquid should come out.

When emptying compost, if there are still worms in the finished compost, leave it in the sun for a few minutes, then scrape off the top few cm which will now be worm-free. Repeat until you're left with a pile of worms to put back into the wormery. Another method is to spread the compost on a polythene sheet, with wet newspaper on the compost in the centre. As the compost dries, the worms will seek shelter under the wet newspaper. Wormeries can go a maximum of a month between adding material, so if you're away, ask someone to look after them.

It's illegal to transport food waste without a licence, even between home and allotment, though most people ignore this as a silly technicality. You need a licence for a food waste collection service to supply several wormeries. Composting food waste on a commercial scale can't legally be done with wormeries - regulations require you to hot-compost.

resources

- lowimpact.org/vermiculture for more info, products, courses and books, including:
- Mike Woolnough, *Worms & Wormeries*
- Wendy Vincent, *the Complete Guide to Working with Worms*
- working-worms.com/ - a mine of information
- oacc.info/docs/vermiculture_farmersmanual_gm.pdf - manual of on-farm vermicomposting
- modernfarmer.com/2013/05/how-to-build-a-worm-farm/ - how to build a worm farm

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