



Instruction Manual For **the worm works**[®] Wormery



- Composting Worm Bin System:
- Compact Design
- Easy To Use and Odourless
- Unique Upward Migrating System
- Produces Nutrient Rich Compost & Liquid
- An Environmentally Friendly Way Of Recycling Kitchen Waste

the worm works

Introduction



Here is a composter that works with earthworms to transform the organic waste from your kitchen into fertiliser for your garden. Easy to use! The worms do the Work. It is a good investment for you and for your garden.

The benefits of worm composting are three fold: producing organic fertiliser for your garden, producing nutrient rich compost tea for your plants and helping the environment by reducing the organic waste going to landfill or for incineration.

Worm composting or vermicomposting is much faster than the traditional composting in the garden.

The Worm Works has a unique design which means that food scraps are automatically separated from the finished compost. Start by adding worms, bedding and food scraps to the bottom tray. As the worms finish digesting, they will migrate upward into the food waste in the tray above, leaving rich castings behind. At the same time liquid drains through the trays to the liquid collection tray below and can then be used as a nutrient rich compost tea for your plants.

The worm works composting bin can work Indoors or outdoors in the temperature range of 5-26 celsius. It is recommended to keep it indoors in the winter and outdoors in the summer. Caution should be taken however that the wormery is never exposed to direct sun, which could cook your worms at extreme temperatures. The wormery should also not be exposed to cold wind or rain as the temperature can drop rapidly, slowing the whole composting process down. When exposed to heavy rain some moisture can enter the worm works, leaving it very wet although this is mitigated to some extent by the fact that it has a tight and water-proof lid, held on by two solid clips.

It is also odourless since earthworms eliminate odours in the process of waste digesting or composting. The improved design allows more air to circulate the unit and the worms can compost the waste faster. An average family produces about 250kgs of organic waste per year. The worm works composting bin provides the perfect volume for family waste management.

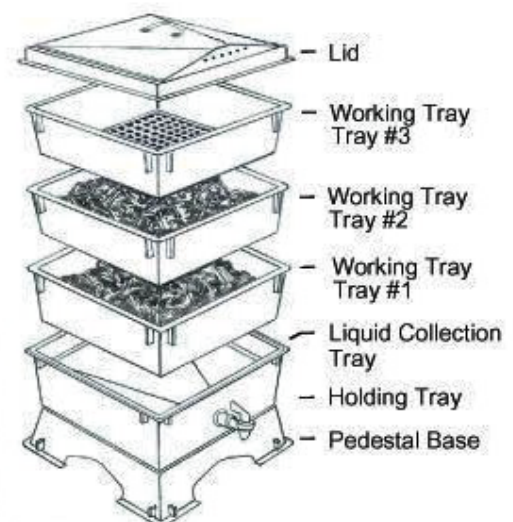
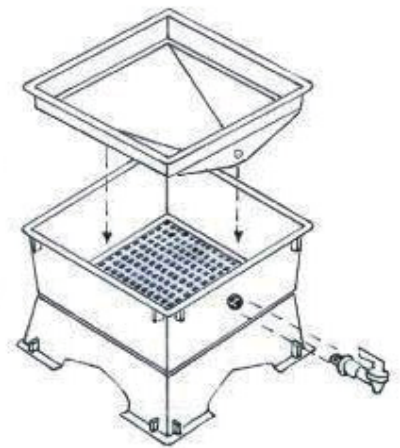
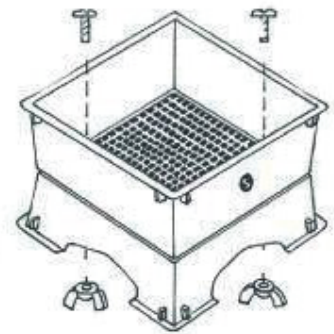
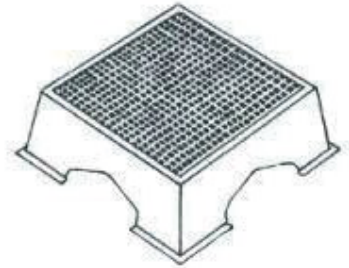
The worm works bin includes:

- * One lid with 2 plastic holding clips
- * Three, four, or five Processing Trays
- * One Liquid Collection Tray
- * One Holding Tray
- * One Pedestal Base
- * One bag of coconut fibre (350g)
- * One spigot and four sets of bolts and nuts
- * Two pieces of drain cloth
- * One colour manual booklet



Assemble

1. Remove all parts from the carton.
2. Put the Pedestal Base down on a flat ground surface. (Solid side toward the back).
3. Align Holding Tray on top of Pedestal Base. The hole for the Spigot facing the front of the worm bin.
4. Match the Pedestal Base and the Holding Base so grid lines match up, then insert screws from the top down through the Holding Tray into the Pedestal Base. The screws should be placed about 2-3 inches diagonally from corner of the trays. (See picture for the alignment of the Holding Tray and Pedestal Base).
5. Attach wing nuts onto bottom of screws under the Pedestal Base and hand tighten. (do not use tools it may damage bin).
6. Place the Liquid Collection Tray (also known as worm tea collection tray) into the Holding Tray, aligning the spigot holes together. (See picture for the alignment of the Holding Tray and the Liquid Collection Tray).
7. Insert a clear washer onto the spigot then insert the spigot into the hole of the Holding Tray.
8. Next, insert the other washer again on the spigot on the inside of the Liquid Collection tray.
9. Screw plastic nut onto back of spigot inside the Liquid Collection tray then insert into the Holding Tray.
10. Before adding the first Processing Tray, place the drain cloth on top of the Liquid Collection tray, then add the first Working Tray on top of the cloth, leaving enough fabric to extend over all of the sides. This will prevent worms from escaping downward or drowning in the worm tea collection tray liquid. The cloth also prevents large particles dropping into the Liquid Collection tray and plugging the spigot.
11. Place the lid on top of the Processing Tray. (see picture).



Start Up

- Soak half of the coconut coir provided in a bucket of water for 5 minutes prior to setup. After soaking, scoop the coconut fibre out of the bucket, squeezing out excess water. The worm bedding should be damp, not wet.
- Mix the damp coconut coir with one handful of soil, and approximately 250 g of damp and shredded paper. This mixture will become your worm bin bedding material. Bury food scraps under the bedding mixture, adding enough to fill 7 cms of the first Processing Tray. Set aside remaining unfilled tray(s) and place the roof on top of the first Processing Tray.
- When your worms arrive, place them onto the surface of the bedding, under the layer of shredded moist paper. They will quickly disappear under the surface of the bedding. Note: Worms may take a week or so to adapt to their new environment. Indeed they can become stressed during shipment and we would advise leaving a light on at night near them so that they are encouraged to burrow into their new home. A common mistake is to overfeed your worms when you start using **the worm works**, You have to be patient and allow a period of time for the worms to become acclimatised to **the worm works** and for the micro-organisms, which are also a vital part of worm composting, to populate the bin. Do not expect to see the food disappear before your eyes. It is advised to place new food waste under a layer of moist newspaper or other composted materials at this stage.



Add The Upper Working Tray

- When you see the worms making progress on the first tray, you can start the second tray. Add the new food with a mix of moistened coconut coir or shredded paper to upper working tray. Make sure that the top of the bedding in the lower tray comes in complete contact with the bottom of the tray you are adding.
- Worms will migrate upward into the next tray to search for food as they compost the food and bedding in the lower tray.
- Please note that the food material in the trays will naturally settle and condense as the worms compost it. Also note that worms will re-eat their bedding and previous food sources several times. When the worms have turned the material in the bottom processing tray into rich black compost, empty the contents of the finished processing tray into your garden and replace it as the top working tray on **the worm works**, ready to begin the cycle all over again.
- If you are feeding a lot of waste fruit we would suggest covering the food in the top processing tray with a layer of dry shredded paper which can stop fruit flies coming out through it and becoming a pest. The top covering is also important to prevent bugs from growing.

When to Harvest?

- Keep feeding foods in the second tray, third or the last tray. Most of the worms will migrate to the upper trays for foods. The bottom tray will contain the worm castings or worm compost. When the material in the bottom tray is nearly black, looks like soil and has only a few small chunks of mostly composted bedding matter, it is time to harvest the bin. If your bottom tray is ready to harvest but there are still some worms in it, which you would like to keep in **the worm works**, it is very easy to separate them. You simply remove the bottom tray which is ready for the garden and place it on top of the system with the lid off. Stir the compost several times in the day. The remaining worms, which do not appreciate light, will move down into the tray below and the tray will then be ready to harvest, free from any worms.



- Empty the tray that is ready to harvest onto a piece of plastic sheeting. The compost is now ready to be used and it is good for plants. Rinse the tray with water, and the rinsed water also contains rich nutrition and it should be used for your plants. The rinsed tray is now a new processing tray. Place the new tray with food on the top of the last tray, and the rotating cycle continues ...

Concerns and Solutions

What will it happen if I don't feed the worms for several weeks, say, going for vacation ?

Don't worry. The worm bin will still be in healthy condition for a whole month without human intervention. Before you leave for your holiday or business trip, what you need to do is to feed the worms a good quantity of kitchen food waste such as fruit and vegetable waste, and also leave the tap open with a bucket underneath to collect the liquid leachate. Alternatively concentrated cereal feed can be supplied by Finnis Organic Worms. Visit www.thewormworks.com and buy online or call +44(0)2897532686. One application of cereal feed will keep the worms going while you are away.

I notice some worms are turning white. Are these baby worms or is it a signal of a problem?

These are not baby worms. The baby worms should have the same colour as their parents. This type of worm is called entrachyadides. They are not dangerous to the other worms. However the presence of this type of worm indicates the system is too acidic or the pH is too low. At this time, you should add some lime or oyster shell powder to adjust the system pH every month until the white worms are gone. The lime should be supplied as standard when you purchase **the worm works**. If it is not you can visit www.thewormworks.com and buy online or call +44(0)2897532686.

I notice some flies around the system. Is this going to be a problem?

Sometimes small flies may appear around your worm bin, but they are harmless. However, this may indicate that the system has too much moisture or there is too much food in the system. To fix this problem, what you need to do is to add some coconut fibre on top of the food, add a handful of lime, oyster shell powder or add some dry materials such as dry shredded paper or cardboard. You also need to reduce the amount of food fed into the system, accordingly.

Food for Worms and Feeding Worms

Acceptable Food

- * Fruit and vegetable waste (including cores and peels),
- * Tea leaves, grains, starches, vegetative matter like spent flowers,
- * Egg shells, coffee grounds, coffee filters, cardboard, non printed paper,
- * Garden leaves, hair, manure of horse and cow, wood sawdust.
- * Soft and smaller bits of food are more easily digested by the worms.

Food to Avoid

- * Orange and lemons, which are acidic
- * Plant seeds
- * Lawn grasses and leaves, which increase the temperature in the system
- * Waste from cats and dogs
- * Cooking oils, meat, and residues of fish
- * Cheese, butter, salad dressing
- * Food containing yeast

It is preferable to feed the worms with small quantities of food once a week. In the event of going on holiday feed the amount of food for 3 weeks just before your departure. The food is more easily digested by the worms when it is cut or shredded into smaller pieces. You can add new food to the uppermost working tray at any time. Worms will eat 3 times their weight every week, so one kilo of worms will consume three kilos of waste in a week. However you can overfeed your worms. If you see a large quantity of food which has not been composted for a while, stop feeding food to the system. Be patient since the worms have their own way of working depending on the season's temperature. (for example, below 0 degree C or above 35 degree C, the worms will stop composting).

Worm Compost Usage

The worm compost or worm casting is organic fertiliser with rich nutrition and is excellent for your garden plants. The compost texture is also helpful for garden soil.

Used as top soil:

The worm compost is a lot more than a normal fertiliser. The micro-organisms that the compost contains maintain the ground soil in a good healthy condition. Used on the roots of plants, it will nourish the plants as well as keep the humidity for the roots. Used for indoor plants, the compost is also a good fertiliser, providing a high level of nutrients for your plants.

Ground soil regeneration:

The worm compost can be used for ground soil regeneration. The ground soil can be improved from the natural fertiliser and organic matters. To enrich your ground soil, mix 5 litres of the worm compost with 50 litres of ground soil. Till the ground to be treated, and mix the above mixture with ground soil at the ratio of 2 litres per square metre.

Used as liquid fertiliser:

The liquid that you harvest from the tap can be used as fertiliser for your plants, too. It is very concentrated. Therefore, it must be diluted in the ratio of 1 to 10 parts of water.

Tips for worm composting



1. Don't go too fast. It normally takes 2 to 3 months before the worms compost the first tray. At the beginning, when you add the food, do not put in too much each time. The best way to do it is to add a little each time and add it regularly.
2. As a rule of thumb, don't stack more than 10cms high with food.
3. If it seems the worms are not eating, stop feeding food for a few days. Remember that worms have no teeth and the food must be soft for them to eat. The smaller and softer the bedding the better the environment for the bacteria, fungi, moulds and protozoa to prepare the food for the worms. You can start to feed them again once you see the food is composted at the top of the tray. Too much food may cause problems including odours if not managed correctly. Stir up the bin to create more air spaces in order to increase oxygen and allow the worms to work more efficiently.
4. As humans, we like a variation of food. The worms are the same. Try to feed them different kinds of food. If you notice the worms do not like some kinds of food, don't add them into the processing tray next time.
5. Dry grass or leaves can be composted by worms. However, the fertiliser from them does not contain high nutrition. Try to feed the worms some fruit peels.
6. When the pH is less than 6, it is harmful to the worms. It is ideal to have pH=7. pH ranging from 6 to 8 is acceptable. Therefore, avoid feeding acidic food such as lemons, oranges and onions. Sprinkle a handful of lime or oyster shell powder every month or carbon-containing wastes, such as cardboard, paper or egg boxes to reduce the degree of acidity in the system.
7. Always keep the mixture of food and compost as wet as a sponge that you just squeeze, releasing a drip of water. Food you feed is normally composed of 80% water, making it naturally wet.
8. If there is too much moisture and the system is too wet, you should drain the liquid from the spigot. Then dry the interior a bit by mixing pieces of dry paper and cardboard (Napkin, toilet paper, paper towels...). If the system generates too much liquid, leave the spigot open and place a container underneath. The liquid or worm tea is produced from the decomposition of food by worms. The worm tea is very concentrated. It is suggested to dilute it with water in a ratio of 10:1 water : worm tea. If there is continually an excess of water the bedding may become compressed and waterlogged and it will restrict the flow of oxygen needed for the compost process to work. To remedy this and avoid an odour, stir up the bin to create more air spaces in order to increase oxygen and allow the worms to work more efficiently as detailed earlier.
9. To reduce moisture in the system add dry fibre including shredded paper, cardboard, peat moss or coir (which we advise as an environmentally friendly alternative to peat moss). Conversely if the system becomes too dry add moisture by recycling the liquid from the collection tray or adding wet fibre like shredded paper or newspaper etc.

The Frequently Asked Questions

Do the worms like fibres?

Yes, they are essential. Worms like a mixture of fibre sources and carbohydrates like ourselves. However, the fibre should be only 20 to 25% dry such as paper cartons, toilet paper, paper towels, egg cartons, hair, cardboard ...

How much can the worms compost?

It depends on the number of worms you have and the worm bin conditions. On average, 1kg of worms can consume 1/2kg waste food per day. The worms will also reproduce themselves very quickly and within 3 months can be expected to double in numbers.

Do the worms compost the food completely?

In the beginning, the worms will just eat the food containing fibre. It may take some time for them to digest the other type of food. Just wait until they have all waste food eaten. As long as the worms are working on the surface, you can add more food.

Do I have too many worms?

No, not at all. The worms can regulate their population according to the space and the availability of food. One 3-tray unit can house about 6000 to 8000 worms. They will naturally regulate their own numbers.

What do we do in extreme temperature?

The worms work best between 10°C and 32°C. In extremely hot weather, we recommend putting the worm bin in a sheltered place. It is not recommended to place the worm bin in direct sunlight. The plastic box may absorb heat and cause the temperature inside to be higher than the environment temperature. In extremely cold weather we would advise moving it inside to a warmer place or wrapping it in insulation like paper, bubble wrap, or an old blanket.

How to keep the ants away?

You can place each foot of worm bin in a bowl of water.



Worm Composting Helps Save The World !