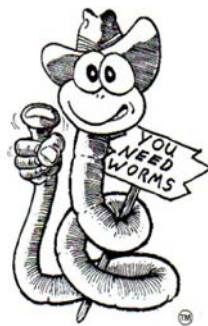


WORM FARM

Instructions

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Now That You have Your Worms

If your worm farm has been setup by us, you will not need to read this page.

Select a cool shaded site. Situate the Unit so that it is easily accessible. You'll need to get to it to feed the worms regularly and to collect both the solid castings and liquid leachate, WormWiz.

Make sure you are happy with the location before assembling your worm farm, as it may be too heavy to move after it is set up.

To set-up your worm farm (using Castings)

1. Assemble the worm farm by attaching the legs & tap to the base tray (liquid collection tray).
2. Place one Working Tray (has perforated base) on the base tray.
3. Empty the Castings into this 1st Working Tray. Fill to just above the fill level (i.e just above the moulded lugs found inside the tray). There may be a litre or two of Castings left over, you can use this around the garden.
4. Pour approx 4 litres of water over the castings. This will settle it in and give you your first lot of WormWiz (although it will be a bit diluted).
5. Place another Working Tray on top of the 1st Working Tray.
6. Place the worms and their bedding (shredded paper, compost) in this 2nd Working Tray.
7. Pour approx. 2 litres of cool water over the worms; this will help to settle them in. Within 24 hours, you will be able to collect the liquid (WormWiz) from the base tray after it has leached through the castings tray.
8. Cut the cardboard display to size, and place on the worms in the 2nd Working Tray. Moisten the cardboard with water.
9. Pop on the lid & you're done!

Notes

1: The 3rd Working Tray is not needed during the initial set-up

2: You will not need the coir (coconut fibre) block

You may find some worms move down into the tray of Castings, they may get a bit unsettled from the set-up. In a day or two they will move back up with the other worms.

To set-up your worm farm (without using Castings)

1. Assemble the worm farm as per Steps 1 & 2 above.
2. Soak the coir block in a bucket of water until it expands. Break up the block and place it in the 1st Working Tray.
3. Empty the contents of the worm bag/s on top of the coir in the 1st Working Tray.
4. Pour approx. 2 litres of cool water over the worms. The liquid that is produced from this will not be WormWiz, it can be poured back over the worms. (It may take a couple of months before a good base of Castings is attained, therefore producing good quality liquid leachate - WormWiz).



A Quick Start Guide

Apart from being an Organic Waste Recycling unit, your worm farm can produce the best fertiliser known to man.

Feeding

We suggest you wait 24 hrs before feeding. This will allow them time to settle in.

Their 1st feed should be approximately 1 cup* of blended / mushed up food scraps or equivalent in alternative organic matter. This amount may not seem much, but it is better to underfeed than overfeed the worms. You will find that you will be able to increase this amount as the worms settle in and as their numbers increase.

** (this amount of food is suitable for 1kg of worms, if you are starting with more or less worms you can adjust the amount of food accordingly).*

Use organic matter only. Only feed the worms enough food scraps that they can consume within two to three days.

Chop food scraps as small as possible. You could use a 20 litre bucket to place the food in and then chop up using a garden spade. Add a small amount of water during the chopping process. Alternatively, you could blend the food using a blender / Bamix.

Any food scraps must be buried in the worm farm. Do not leave it lying on top. When pouring the food in, mix it in with some of the shredded paper that is in the farm. Ensure the food is covered with paper and then water.

Refer to detailed notes on Feeding on Pages 4,5 & 6.

Watering

Water the farm at least every 2nd day with about a litre of water, using a watering can or sprayer attachment on a hose.

This amount is approximate only, you will need to observe your worm farm & judge how much is needed.

Refer to detailed notes on Watering on Page 6.

Collect any liquid that has dripped into the bucket and use it to fertilise any plants. Check to make sure that it doesn't smell and then dilute the liquid 10:1. If there is a smell, pour the liquid back over the worm farm.

Once a Week

Cover the surface of the worm farm to a depth of 30–40 mm (3-4cm) with shredded paper.

Sprinkle 'Dolomite' (garden lime), over the paper. Just a light dusting, as if sprinkling icing sugar on a sponge cake.



How does it work?

Your worm farm consists of a base tray (tap attached) to collect the liquid leachate and either two or three Working Trays (with perforated bases).

Basically, your worm farm works by rotating (re-locating) the Working Trays.

Initially the worms are started in the 1st Working Tray, (this is the one that sits on top of the liquid collection tray). You feed your worms in this 1st Working Tray (small amounts of food daily – see notes on Feeding on pages 4, 5 & 6).

When the level in the tray reaches the fill mark (either a moulded / raised line or lugs on the inside of the Working Tray) then you add an empty tray on top. The base of this new tray must be in contact with the surface of the tray below it.

Place approximately 40 -50 mm of either damp shredded paper or compost or manure in the new tray. This will encourage your worms to move up through the holes into the new tray & it also gives you somewhere to bury your food scraps.

You then continue the feeding routine in this new tray (2nd Working Tray).

If your worm farm has been set up so that it is 2 to 3 months advanced then this is the stage that your worm farm will be at.

When the bedding level in the 2nd Working Tray reaches the fill mark then the 3rd Working Tray can be added along with a layer of shredded paper, compost or manure.

If your worm farm has just two Working Trays, then now is the time to remove the 1st Working Tray & empty out the Castings. The 2nd Working Tray is moved down & will now sit on the liquid collection tray & takes the place of the original 1st Working Tray. When you have emptied out the Castings, that tray is then placed on top with a layer of shredded paper, compost or manure (as before). The rotation of these Working Trays from bottom to top is the simple operation of this two tray worm farm. *You may find there are lots of worms in the Castings tray, see NOTE below.*

If your worm farm has three Working Trays, you continue feeding in the 3rd Working Tray for approximately 10 days to 2 weeks. Then you can remove the 1st Working Tray, & empty out the Castings, which will be relatively free of worms, as they will be living in the top two trays (2nd & 3rd Working Trays).

When you have removed the 1st Working Tray, the other Working Trays are moved down, the original 2nd Working Tray will now sit on the liquid collection tray.

When you have emptied the Castings from the 1st Working Tray, you may need to put the empty tray aside for a week or two until the top Working Tray is full to the fill mark. Then place the empty tray on top & add a 40 -50mm layer of damp shredded paper, compost or manure (as before). & then continue feeding the worms in this top tray. After 10 days to 2 weeks, you can then remove the bottom Working Tray, which will be full of Castings.

This worm farm works by the simple rotation of these three Working Trays from bottom to top.

NOTE: to achieve better separation of worms from the Castings, in our experience the worm farms with 3 Working Trays are more efficient.

If you have the only 2 Working Trays, an extra Working Tray can be obtained from us.



Feeding

Important Do not feed the worms for 24 hrs after initial set-up.
This gives them time to settle in.

Worms can consume their own body weight equivalent in food every 2 to 3 days (depending on the type of food).

How much food should you give your worms?

It is difficult to say exactly how much food to give your worms, as it depends on the number of worms you have, the type of food, & whether the food is chopped up or not.

Worms consume different types of food at different rates, ie soft, mushier foods like tomato & water melon are consumed quicker than say a lettuce leaf or carrot peel.

As worms don't have teeth, they have to ingest /'suck' in their food, so the smaller you can make the food scraps the quicker and easier the worms can consume it ie chop or blend using a kitchen blender / Mix Master. (Food scraps that have been pulverized / blended need to be mixed with shredded paper when feeding to the worms).

You could put the food scraps in the freezer overnight and when it is thawed out it will be quite mushy – just how the worms like it.

Start off by feeding a small quantity of food, and then observe how soon the food is consumed. You can then increase or decrease the quantity.

It is better to underfeed your worms than overfeed them. Overfeeding will cause the bedding to become smelly and attract flies and other vermin.

If the worms seem to be taking too long to get through the food, you may be putting in too much, cut back on the quantity.

As the worm numbers build up, you'll be able to increase their daily intake.
Alternatively, obtaining more worms will combat your waste more effectively.

What's on the menu?

Worms will eat any organic matter (that is, anything that has lived & died)

Teabags / Coffee grounds
Tissues
Vegetable Scraps
Leftovers (raw & cooked)
Envelopes, Office Paper
Natural Fibre Clothing
Vacuum Cleaner Dust

Lawn Clippings
Garden Refuse
All animal manures
Newspapers, Cardboard
Straw
Hair: Human, dog, cat etc
This list is by no means complete.

Although the worms will eat all of the above things, they won't eat it all at once.
Vary their diet and always remember the **Golden Rule**

"Feed small amounts on a regular basis".



What to feed?

If you are not sure whether a particular type of food is suitable or not.....try it & see. Place (bury) a very small amount in one part of the worm farm and then observe the worms.

After a couple of days have a dig around & see if the worms are near it & are consuming it.

The worms are very clever, they will stay away (if they can) from anything that is not to their liking.

Worms will eat **garlic, onion, meat and dairy products** but it is best not to put these types of food into domestic worm farms due to their size.

Citrus peels are a definite no-no.

Larger worm farms with sufficient quantities of worms are more suited to manage these types of waste.

Organic waste such as **lawn clippings and garden refuse**, which are slow to break down, should be composted first and then when it is sufficiently broken down can then be added to the worm farm.

For hygiene reasons we recommend utilizing a separate worm farm to dispose of domestic animal droppings like **dog & cat poo**.

It is advisable to vary the diet of the worms. This is necessary to increase the amount of solid castings containing more varied nutrients (N.P.K), which in turn will contain a broader spectrum of plant stimuli (nutrients).

Vegetable scraps consist mainly of moisture and therefore take longer to attain a good supply of quality solid castings.

To 'bulk up' your worm farm, add materials like **paper, cardboard, straw, manure** (preferably horse) or **compost** weekly. When feeding these materials, you will need to cut back on the amount of food scraps.

The amount of paper, manure etc to feed will depend on the amount of worms you have (see table below).

When feeding cardboard, paper & manures ensure they are pre-soaked (drained water can then be poured over the worm farm).

Newspaper and cardboard should be moistened and shredded.

If feed consists mainly of food scraps, it will be necessary to add a small handful of lime / dolomite every 7 – 10 days.

Regularly feeding crushed eggshells can also help to maintain a neutral pH.

| Qty of worms | Paper, Cardboard, Straw | Manures, Compost |
|--------------|-------------------------|-------------------|
| ½ kg | ¼ bucket per week | ¼ bucket per week |
| 1 kg | ½ bucket per week | ½ bucket per week |
| 2 kgs | 1 bucket per week | 1 bucket per week |



How often should you feed your worms?

When feeding food scraps to the worms, it is important to only give them sufficient that they can consume in 2 to 3 days. After this time any uneaten food will begin to sour. An excess of uneaten food can cause the bedding to become acidic and rancid, forcing the worms to vacate the area.

If there is still a quantity of uneaten food in the worm farm, do not place in anymore until most of it has been consumed.

Always ***bury food scraps completely*** in the bedding material, the worms do not like light and will convert these scraps much quicker.

Your worms will need a security blanket.

Placing a 'blanket' on the surface of the worm farm will help to keep the surface moist, and as the worms are surface workers they will be able work right to the surface.

The 'blanket' also helps to keep it dark, and as worms do not like light, they will be able to work more efficiently.

Hessian, cardboard or carpet can be used to make a 'blanket'. Just cut to size & lay on the surface of the worm farm.

Natural materials like hessian, cardboard & wool carpet will eventually need replacing as the worms will eat it. You can use synthetic carpet if you wish.

Make sure you wash carpets before use, to ensure there are no shampoo or chemical residues.

Watering

Worms are encased in a mucous membrane, and will dehydrate if not kept moist.

The bedding must not be allowed to dry out.

How often and how much to water the worms will be determined by the weather, where your worm farm is situated, and what type of foods are being fed to the worms. Provided there is adequate drainage, **worms can be watered daily**, approx. ½ litre per day.

Increasing the amount of water, will proportionately increase the amount of Leachate (WormWiz) produced.

However be careful not to turn it into a ***sloppy mess !***

Drained water from pre-soaking newspapers, cardboard & manures can be poured over the Worm Farm.

Cooking water drained from cooking pasta, rice and potatoes can be poured over the worm farm – the worms love the starch. Make sure the water is completely cooled before using.

Tip – a good way to test if the bedding is moist enough.....squeeze a handful of the bedding and you should get a couple of drops of liquid drip through your fingers.

IMPORTANT Worms cannot **swim !!** **You must provide adequate drainage.**



Temperature

Where possible your worm farm should be situated in a cool, shady area out of direct sunlight.

The temperature of the bedding should not exceed 25°– 26° C. Note that this refers to bedding temperature not atmospheric temperature.

Even on days of 40 degrees heat, there are measures you can take to keep your worm farm cool.

- ◇ Removing the lid will prevent heat building up inside the farm.
- ◇ Soaking a wad of newspaper in water & placing it on the surface of the farm will give the worms a nice cool retreat.
- ◇ Placing a frozen bottle or two of water on the surface will help keep the temperature down.
- ◇ Refrain from adding too much organic matter, as this can generate heat.

When using feed that is known to heat up eg manure, grass clippings, etc, place no more than 25 – 50mm thick layer only on one half of the surface area of the worm farm. If it does heat up, then the worms will be able to retreat to the other half of the farm.

Neutral pH

The pH level of the bedding must be maintained around 6.5 to 7.

If the bedding becomes acidic, adding a small handful of garden lime / Dolomite will rectify this.

NEVER use builders lime !! We recommend the use of Dolomite, which is available from Garden Centres & Hardware Stores.

Sprinkle a handful on the surface, then water it in. Be careful not to sprinkle the lime onto the worms, lift the lid & give them time to wriggle down into the bedding.

If feed consists mainly of food scraps this may need to be done every 7 – 10 days to maintain a neutral pH. Adding crushed eggshells regularly will also help.

Main Points to Remember

- Feed your worms small amounts, on a regular basis.
- Bury all food scraps
- Chop or blend food scraps
- Worms need a varied diet.
- Keep your worms cool
- Maintain a neutral pH
- Keep your worms moist.
- Separate worm farm for dog poo.



Using the Castings.

Castings (Worm Poo) are a rich, organic, soluble fertilizer.

To use as a fertilizer, place a handful or two around the base of a plant and water it in, ideally cover over the Castings with mulch.

When planting-out, place Castings in the hole before putting in the plant, (handful or two, or a bucketful or two depending on the size of the hole & plant).
Castings reduces transplant shock and encourages strong root development.

When using Castings on the lawn, it needs to be broadcast thinly & watered in well. It is very important to do this late afternoon or in the cool of the evening.

Castings obtained from a properly maintained Worm Farm should have a neutral pH and will therefore be suitable for use on indoor plants, potted plants, seedlings, ferns, vegetables, fruit trees, lawns, flowers, roses, palms, orchids, natives etc.

Castings can be used at anytime during the plant's life i.e. seed raising, planting out seedlings, vegetative stages, flowering and even as a 'pick-me-up' for when they need an extra boost.

Castings contain a multitude of micro-organisms which aid in fungal control and soil benevolent bacteria which helps stimulate micro activity in the soil.

Ensuring that your worms are fed a varied diet, will result in your Castings containing major and minor nutrients and trace elements.

A varied diet should consist of food scraps, paper, cardboard as well as manures / compost.

Castings are very dense and compact and needs to be mixed with other suitable mediums for the following uses:

- Seed Raising Mixture - 50% Castings & 50% Coarse River Sand
- Potting Mix - 15- 20% Castings & 80-85% Potting Mix
- Soil Conditioner - 2-4 litres Castings per square metre

To Store Castings

As the Castings will contain living organisms, microbes and possibly some worms, it must be stored in a dark, cool place. It should not be exposed to the UV rays of the sun. UV rays will kill the beneficial bacteria (microbes).

Whatever container you use to store the Castings must have allowance for air, for example, poke some holes in a plastic bag, or in the lid of a bucket / drum.



Using the Liquid leachate, (WormWiz)

Leachate (WormWiz) is a liquid that has *leached* through a bedding of Castings, it is not Worm wee.

If your Worm Farm is working efficiently the liquid will have NO SMELL.

It is then OK to use on your plants as a fertiliser, foliar spray and even as a 'pick-me-up' when they need an extra boost.

WormWiz obtained from a properly maintained Worm Farm should have a neutral pH and will therefore be suitable for use on indoor plants, potted plants, seedlings, ferns, vegetables, fruit trees, lawns, etc.

WormWiz contains a multitude of micro-organisms which aid in fungal control and soil benevolent bacteria which helps stimulate micro activity in the soil.

Ensuring that your worms are fed a varied diet, will result in your WormWiz containing major and minor nutrients and trace elements.

A varied diet should consist of food scraps, paper, cardboard as well as manures / compost.

The liquid can be used neat or diluted 10:1.

There are no restrictions, use as much as you like, as often as you like.

To Store the Liquid

If you are going to store your Liquid, place it in a dark cool place, as it contains living organisms and microbes.

Shake well before use.



Frequently Asked Questions

“I have lots of tiny white worms, are these baby worms?”

No, baby worms are a very light pink color. The white worms are called Grindle Worms (yeast worms). They will not harm your worms, but they are a sign that the bedding may be acidic. Sprinkle on some garden lime (Dolomite) and cut back on the feeding.

“What are the little red mite type insects, & how do I get rid of them without harming the worms?”

Red mites tend to come and go, appearing when particular types of food are used (bread & protein). They do not cause a problem for your worms.

“I have thousands of little white bugs with legs. Are they a problem?”

These white bugs are called Springtails. The appearance of these bugs are a good indication that the pH of the bedding is low (acidic). Cut back on the amount of feed and sprinkle with garden lime.

You will probably first notice them floating in the liquid container. The liquid will still be OK to use on your plants, the Springtails will not harm the plants.

All these extra creatures that are being attracted to your worm farm, will also be helping to break down the organic matter.

Constant feeding of food scraps tends to turn the bedding acidic and attract other mini beasts, therefore you should sprinkle dolomite or add crushed egg shells to the worm farm every 10 days or so.

“Will worms eat citrus peels?”

Worms will eat anything organic, including garlic, onion, citrus peel, meat and dairy products. However in small worm farms like the Worm Café, Can-O-Worms & the Worm Factory it is best to keep foodstuffs of this nature out of your worm farm.

“Why are the worms going down into the liquid collection tray?”

When there is something wrong with their bedding, the worms will try to vacate the area, most times heading down into the liquid tray. Hot weather can cause the worms to head south to the cool liquid (refer to section on ‘Temperature’). A build up of uneaten food can also heat up the bedding, and it can also turn the bedding sour (refer to notes on ‘Feeding’ on Pages 4,5 & 6).



Frequently Asked Questions (continued)

“I have had my farm operating for a while now, but it seems to be taking a long time for the tray to fill up with Castings”

If you are feeding mainly food scraps, your farm will not produce a lot of solid Castings, as food scraps are 80-90% moisture. Rectify, by feeding bulky types of food to your worms, like shredded paper, manures, compost or straw, (refer to notes on ‘What to Feed’ on page 5).

“When I check my worm farm, there are worms on the inside of the lid and trays, are they trying to escape?”

If there are masses of worms congregated together in the corners or up the sides of the farm, then this will indicate a problem with their bedding. Otherwise, if there is the odd worm here and there, they are probably just having a wander around, especially if the trays & lid are moist with condensation.

“What shall I do with my worm farm when I go away on holidays?”

If you are going away, you can give your worms some extra food before you leave. Place some shredded paper and sprinkle through a small amount of manure (sheep, cow or horse) in the worm farm. Make sure it is moist first.

Do not give them excess food scraps. This will only cause a rotten stinking mess. It is a good idea if you can get someone to water them while you are away.

Alternatively, you can tip a bag of sheep or horse poo in a moist or reticulated part of your garden, remove your worms from their home and place them where the manure is. When you get back from holidays, tip a fresh / new bag of horse or sheep poo in the same spot and within a few days the worms will collect in the new food, you can collect them & return them to their home.

“How do I keep ants out of my worm farm?”

Stand the worm farm legs in containers of water & add a few drops of Metho or kerosene. To prevent attracting ants in the first place, make sure you bury the food scraps & do not overfeed (refer to notes on ‘Feeding’ on Pages 4, 5 & 6).

“I have a problem with Slaters in my worm farm.”

Slaters are also helpful in breaking down the organic matter, but they do tend to prefer drier conditions, so if you water your worms more often this may get rid of them. (refer to notes on ‘Watering’ on Page 6).

