Guide to worm farming

Presented by Charmaine Davis
**Why have a worm farm?**

- **Minimize food waste**
  - A worm farm is a fantastic way to minimise food waste by turning your organic kitchen waste into nutrient-rich fertiliser for your plants and soils.

- **Create fertiliser for your garden**
  - Worms eat organic waste and turn it into liquid fertiliser and worm castings or vermicast (the organic material that has been digested by the worms). Both of these products can be used on your garden and on your pot plants to keep them thriving.
  - You can use worm liquid to replace fertiliser. The liquid needs to be diluted until it is the colour of weak tea – 1/10 ratio. This mixture won't burn your plants. You could bottle your excess liquid and give it as a gift with instructions on how to use it.
choosing your worm farm

✓ Get started by doing some research to work out what type of worm farm suits your needs and circumstances. A quick browse on the internet will turn up lots of useful resources including videos on how to build a worm farm. Talk to your local garden centre too.

✓ Also check your local council's website for worm farming guides, workshops, equipment and links to local suppliers.

✓ Watch YouTube and gardening shows for ideas
Work out where you will locate your farm. Worms don't like the heat or direct sun so choose a cool shady spot inside or outside. Under the house, in the shed.

- Easy to get to daily
- Safe from animals
- Protection from wind, driving rain
- Shade
Choose the type and size of your worm farm?

- Pre made farms

They can be as big or as small as you need, depending on how much organic waste you generate or how much space you have.
✓ You can look at the many types of ready-made farms—or it's easy to make your own farm out of recycled plastic, polystyrene vegetable boxes, bathtubs or wood (don't use treated wood as it can leach chemicals).
OLD ENVIRO SACK OR SHADE CLOTH BETWEEN LAYERS TO ENABLE TYRES TO BE LIFTED LATER

CLOSE FITTING LID

PLACE KITCHEN SCRAPS INTO THE CENTRE OF THE TYRES

PLenty OF ANIMAL MANURE OR ROTTING PEA STRAW TO CREATE WINTER WARMTH (1.5 TO 2 TYRES HIGH)

TYRES STUFFED WITH NEWSPAPER

LAYER OF THICK, WET NEWSPAPER OR CARPET TO INSULATE

CORRUGATED IRON (WRAPPED IN PLASTIC)

PHONE BOOKS

POT TO COLLECT WORM RUM
How to set the worm farm up

✓ Your worms will need a bed inside their box. The bed should be made out of good-quality soil, leaves and shredded paper. The worm bed should be around 15 centimeters deep. In the pre-made farms this bedding is provided.

✓ Add a little water to the worm bed—it needs to be kept moist but not wet.

✓ Source your worms from commercial worm growers or your local nursery. The common types are: Tiger, Indian Blue and Red Wriggler. Worms are usually available by the thousand and you’ll need between 1,000 and 2,000 worms to start with. They will multiply over time.

✓ Settle your worms in by gently spreading them over the surface and watch them burrow into their new bed. When the bed is exposed to light the worms will travel deep to stay out of the light.

✓ Remember to make sure your worms have enough bedding and that you keep your worm farm damp, covered and cool. You can buy a mat to put on top of the bedding for extra protection.

✓ If you notice pests like slugs and vinegar flies once your farm is up and running, dust the top with lime and check you haven’t added too much food.
Food waste with newspaper strips is fed to the worms.

The worms move up as food is converted to compost.

Compost is removed when the top tray is full and the empty is placed on top.

Liquid fertilizer collects in the base for use as needed.
Feeding the worms

Worms are happy on a simple diet. They like food scraps including vegetable and fruit peelings, tea leaves, crushed eggshells and bread. They also like small amounts of moistened paper and cardboard such as shredded egg cartons.

Chop or blend up their food as small as possible so the worms will get through it faster.

Add your kitchen waste regularly in small amounts and in one place at a time.

Cover new food with a light cover of their bedding material or a handful of soil or compost.

Only feed your worms when they have almost finished their last meal or it will start to rot and stink.

Don’t feed worms on. They also don’t like citrus peel, onion or garlic. Or pet droppings. (more info below)

- Do not overfeed
- If the food is there after a week, stop feeding
- Add lime regularly

Prevent an acidic environment
### Identify materials you can put in your farm

<table>
<thead>
<tr>
<th>Put these in</th>
<th>Keep these out</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pet droppings</td>
<td>Food scraps</td>
</tr>
<tr>
<td>Manure (it contains vermicide)</td>
<td>Soil (handful with each feed – helps them digest)</td>
</tr>
<tr>
<td>Heavily spiced food</td>
<td>Carbon – shredded egg cartons, paper, cardboard</td>
</tr>
<tr>
<td>Chilies</td>
<td>Crushed egg shells</td>
</tr>
<tr>
<td>Onions, garlic, leeks</td>
<td>Bread</td>
</tr>
<tr>
<td>Citrus</td>
<td>Unprocessed bran</td>
</tr>
<tr>
<td>Hair</td>
<td>Tea leaves</td>
</tr>
<tr>
<td>Dairy (butter and cheese)</td>
<td>Coffee grounds and filters (remove the stable)</td>
</tr>
<tr>
<td>Meat, fish, fat or bones</td>
<td>Watermelon and banana and spinach are favorites</td>
</tr>
<tr>
<td>No shiny paper – magazines</td>
<td>Hay / straw</td>
</tr>
</tbody>
</table>

- If you blend or chop your food into small pieces the worms will digest this faster and they will breed and multiply sooner.
Deal with problems such as unpleasant odours and pests.

- **Too hot**: Move to a well shaded area. Cover worm farm with wads of wet newspaper or some wet hessian or carpet. They like to be cool.

- **Too wet or too dry**: Worms breathe through their skin and need their world to be moist. Make sure their bedding material is damp but not dripping wet. If too wet add dry leaves, straw or newspaper. If too wet add wet leaves, straw or newspaper.

- **Too much to eat**: Feed worms enough food for them to get through in a week. If they are not eating it quickly it starts to ferment, turn acidic and attract little black vinegar flies. Worms don't like acidic conditions and don't eat this food. Remove the slimy stuff and refeed them with a small amount of fresh scraps. You can also add eggshells or garden lime to get the pH balance right.

- **Wrong food**: Don't feed worm's onions, garlic, citrus, acidic foods (pineapples, salads with vinegar dressing etc) meat or dairy. They will eat almost anything else.
What is Worm juice and vermicast?

- A complete plant food on its own or as a supplement to other fertilisers.
- Worm juice is rich in good nitrogen fixing bacteria, and the key is the 100,000CFU/ml bacteria plus ready available liquid minerals and trace elements for immediate plant uptake.

How to use the Worm juice and vermicast

- remove the tap and have any liquid permanently drain into a bucket to prevent worms from drowning.
- To harvest the worm castings, move the worms’ bedding to one side of the farm, add fresh bedding to the empty side; then wait a few days. Most of the worms will migrate over to the fresh bedding. Then you can take out the old bedding and use it on your garden.
- Use your castings to improve soil quality and for fertilising around plants. You can also add a sprinkle of worm castings onto pot plants. No more than the size of a ten cent piece per plant
- Dilute your liquid fertiliser. One litre per 10 litre bucket of water stirred really well can then be watered onto your plants.
- If you have a backyard, build a compost heap or bin to make use of the remainder of your food scraps as well as your garden waste—another simple way to make fertiliser and reduce the amount of waste going to landfill.
- The Worm juice and castings will attract other worms to your garden, your compost and soil will improve and breakdown quickly with regular applications.
What makes Worm juice work?

- Worm juice provides a wealth of nutrients and minerals (over 60 different elements providing many of the requirements of your plants). It is the enzyme in the worm’s digestive systems that allows all the nutrients and trace elements to become water soluble, therefore readily available for plant life.

What Worm juice is not?

- Worm juice is not a NPK fertiliser. Whilst it contains some Nitrogen, Phosphorous and Potassium it’s major strength lays in it biological activity and complex range of other nutrients and minerals. Plants need more than NPK to grow well and we suggest you maintain your normal fertiliser program initially.

- However, once you have been applying Worm juice for a while you will be able to reduce your fertiliser application as the soils natural processes will have re-established and the plants will be sourcing the Nitrogen, Phosphorous and Potassium that was previously locked up in your soil.

- Remember, the value of Worm juice is in the millions of beneficial bacteria that starts work in your soil and on your plants as soon as it is applied.

How is Worm juice applied?

- Worm juice can be applied at any time in wet or dry conditions, is safe and easy to use. If possible, avoid application during the midday heat. It is applied through any spray equipment.

- Worm juice can be used in trickle and spray irrigation systems.

- Also very effective as a seed dress for all types of seeds, Worm juice promotes germination.

Why does pre sowing application of Worm juice help?

- Worm juice stimulates the microbial activity in the soil, giving a healthy environment for the crop to be sown.

- Bacteria and microbes help in the uptake of nutrients from the soil and atmosphere, free of charge.

- The increased microbial activity in the soil aids the release of "locked up" nitrogen and other nutrients, thus helping the development of a vigorous root system in your crop.

Why does seed dressing help?

- Worm juice coats the seed with nitrogen and bacteria, giving the seed a kick-start when germinating.

Why does foliar spraying help?

- When applying worm juice as a foliar spray the loss of valuable "N" from the foliar application to the atmosphere & leaching is virtually non-existent.

- Natural growth factors are taken up by plant tissue within a short time after application. These compounds have a significant impact on plant health. They encourage cell division and strengthen the
natural defence mechanism against fungal disease. It stimulates flowering and fruit set and improves the uptake of high NPK fertilisers.

How is Worm juice mixed and at what rate?

- **PLANT FOOD:** Stir 100mls of Worm juice into a container holding 1ltrs of water and apply around base of plant. Repeat in about 6 weeks and again in about 3 months for maximum effect.

- **SOIL & FOLIAGE ACTIVATOR:** Stir 100mls of WORM JUICE into a container holding 5ltrs. Of water and apply to plant foliage or around base of plant. Repeat in about 6 weeks and again in about 3 months for maximum effect.

- As a seed dress worm juice can be mixed at 15 parts water to 1 part Worm juice and applied at 1 litre of mixture to 20kg of seed.

Typical worm juice sample analysed?

- Healthy bacteria 100,000 CFU/ml
- Nitrogen(N) 64 mg/L
- Phosphorus(P) 21 mg/L
- Potassium(K) 940 mg/L
- Sulphate 82 mg/L
- Calcium 62 mg/L
- Magnesium 150 mg/L
- Sodium 120 mg/L
- Copper 276 ug/L
- Zinc 105 ug/L
- Manganese .26 mg/L
- Iron 1.5 mg/L
- Boron .41 mg/L

Safety information?

- Do not inhale, wear face mask at required rating.
- Wear rubber gloves.
- Do not use any container for storage of food or drink for human consumption if worm juice has been in that container.
- Wash hands after using worm juice.
- Spiders may also live in worm farms.
- Do not use if you have a compromised immune system.

Happy worm farming