Wormcomposting

October 2014
Ashhurst Composting Workshop

What is Wormcomposting?

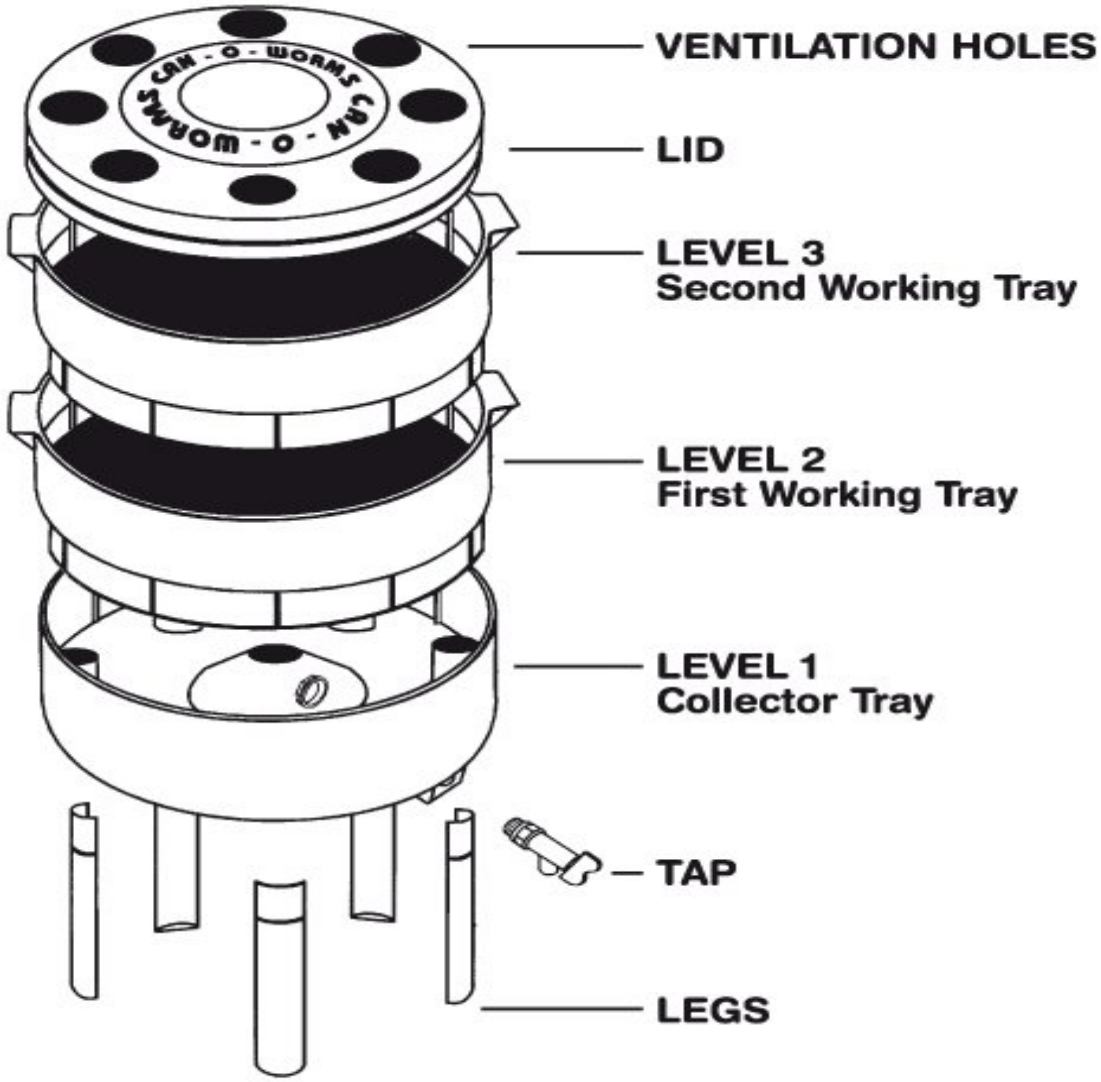
- Worm Composting, also known as Vermicomposting or Vermiculture, is the process by which earthworms, microorganisms and other decomposers convert organic materials into a rich compost and soil conditioner that is composed of worm castings.
- A liquid is also produced in the process that can be diluted and applied to plants to promote growth.

Why Worm Composting?

- Particularly good for small sections for converting mainly food scraps to a valuable material
- Children enjoy them
- Worm castings are a balanced source of Nitrogen, Phospohorus and Potassium for the soil.
- Contain beneficial microbes
- Castings and liquid promote
  - Leaf growth
  - Root & stem strength
  - Flower & fruit set

Worm Facts

- Trials have shown worm compost to outperform cow manure compost by 25%
- E. Coli bacteria are killed when they come into contact with a worm’s skin
- They contain haemoglobin, like us
- They will double their numbers in 3 months
- Tiger Worms (Eisenia fetida) – the best composters
- Red Worms (Lumbricus rubellus)


VENTILATION HOLES
LID
LEVEL 3
Second Working Tray
LEVEL 2
First Working Tray
LEVEL 1
Collector Tray
TAP
LEGS

Location/Environment

- Temperate environment: 10-30 degrees
- Site sheltered from:
  - Strong sun
  - Cold winds
  - Frost
  - Heavy, direct rain

Carports or sheltered porches

Build your own

Building a Worm Bath

- Remove plug hole
- Optional: drill ten 5mm holes on each side, halfway up
- Best to elevate bath on bricks or posts to at least 100-150mm to allow for liquid collection container under plug outlet
- Bath base needs a minimum 5 degree fall towards plug for drainage
- 5mm gauze or chicken mesh over the plug
- 50mm pumice or scoria as drainage layer
- Corrugated iron or plywood for the roof
- http://www.wormsrus.co.nz/recycled.html

Composting in the Worm Bath

- Add bedding to the plug end of the bath initially
- Free draining fibrous matured compost with dampened shredded corrugated cardboard and newspaper
- Fibrous material, such as dead leaves, sawdust
- Soaked Coconut fibre – garden centres/bunnings
- Make sure it’s damp
- Add worms: 500g (2000 worms) will process about same weight of food waste and their numbers will increase
- Spread food scraps in one area, then rotate feeding sites
- Loosen bedding with a garden fork once a month to increase air circulation and reduce bedding compaction
- Gradually increase bedding material to cover remaining base

Removing the Castings

- Once the worm farm is full (9-18 months) place top layer of farm in a container or on a plastic sheet next to the bath, i.e. undigested food
- Remove the castings at the bottom
- Rinse drainage layer thoroughly and catch all the liquid
- Replace all the material that was put aside and resume feeding
- Cover the feeding site with carpet, or sacking or wet newspaper to keep it damp

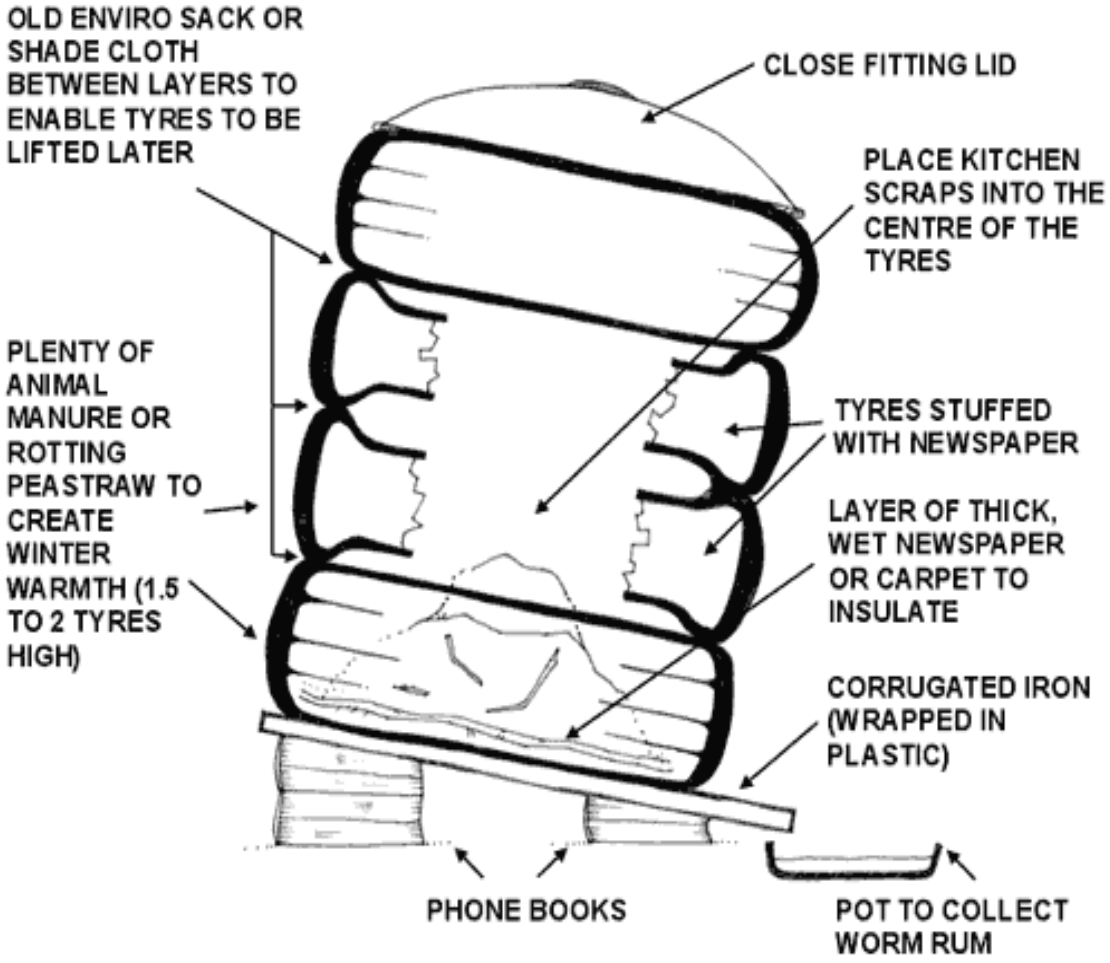
Worm Bins

DIY Worm Bins

- 3 - 4 plastic storage bins or polystyrene boxes
- Tapered or able to fit into each other
- Lid
- Bricks or boards
- Collection tray (bottom box) can have a tap inserted or some sort of outlet for the worm liquid
- 2 or 3 feeder boxes need 6mm holes drilled across the base for drainage and upward movement of worms
- Also aeration holes in a continuous band around the bins, 100mm from the top
- Note: Tap needs to be turned on at least once a week for liquid

Tyre Worm Farm

http://www.hastingsdc.govt.nz/how-make-worm-farm



Getting Started and Worm Care

- Get worms from website, i.e. www.wormsrus.co.nz
- Collect your own
  - Under animal manure, i.e. horse manure
  - Put manure in a bucket and check underneath
  - Place food scraps in a thin layer on the ground once a week and cover with a sack

- Gizzards not teeth
  - Sand
  - Crushed egg shells
  - Chop scraps up smaller
- 70% food scraps – 30% carbon
- Eat their own weight each day
- Fruit and veggie scraps, a little cooked food
- Tea leaves and bags, coffee grounds
- Shredded, dampened newspaper and cardboard
- Vacum cleaner dust (no sharp objects)
- Untreated sawdust and wood ash
- Small quantities of lawn clippings, weeds, prunings

- Favourites: Banana skins and comfrey leaves due to potassium content
- **What not to feed**
  - Citrus peel, other acidic foods
  - Onion and garlic skins, spicy food, chilli
  - Meat and dairy products, fats and oils
  - Processed wheat
  - Shiny/glossy paper, plastic
  - Seeds, i.e. pumpkin seeds (they’ll sprout!)

Problems and How To Fix Them

- Acidic environment
  - Ants
  - Fruit Flies
  - Nematodes (white worms)
  - Odours

Add lime/dolomite (two handfuls or ½ cup) then place damp newspaper over the top - fortnightly

- Rodents – don’t put meat in
- Food rotting and not eaten – too much food
- Anaerobic, too wet, pale worms climbing up sides – gently fork holes in and add fibrous materials

Worm Care When on Holiday

- 1 - 2 weeks – empty out fridge of fruit and veggies
- 3 - 4 weeks – leading up to your departure begin to add shredded paper, dead leaves and other fibrous carbon type material as well as food scraps on departure
- Month or so – alternate layers of carbon bedding materials with food scraps to a total of 30cm
- Soaked coconut fibre block is another option
- Moisture loss is more of a concern than lack of food
- Get a friend or neighbour to feed them
- Resilient

Using the Castings and Liquid

- Castings straight onto the garden
- Can grow plants out of straight castings, i.e. coffee sack
- Super potting mix or growing medium – 1:3 ratio
- Worm liquid – 1:10 worm liquid to water, use within 15hrs of mixing
- Worm compost tea
  - ¼ cup vermicasts in bag
  - Soak in 4L water for 12hrs – also use fresh to get the benefits of the microbes
- Liquid fertiliser or foliar spray

Worms R Us

- Bunnings
- www.wormsrus.co.nz
- $100 (extra bin $30)
- Made in Auckland
- Good value when compared with

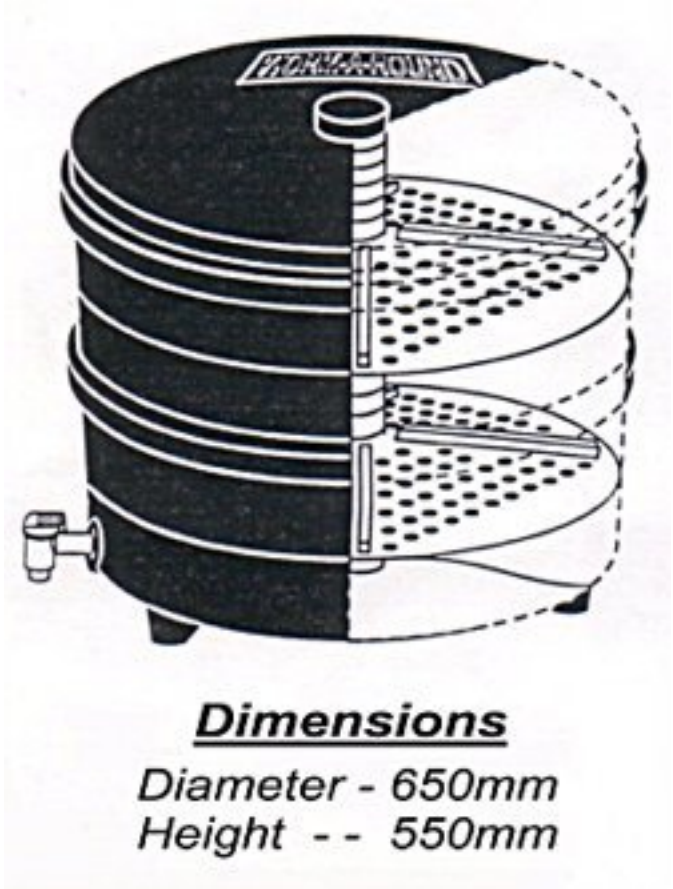
Worm Factory – smaller and also made in Australia

Still need to be careful when lifting

Worm A Round

- Designed and constructed in NZ
- Made out of recycled plastic
- R&D supported by PNCC
- www.wormsrus.co.nz & Mitre10
- $200
- 2 Tray System

- Warning: need 2 people to lift once food and worms are in there



Can-O-Worms

- www.compostshop.co.nz
- Bunnings & Mitre 10: $140
- Made in Australia

Also Worm Factory by Tumbleweed, good starter bin

Hungry Bin

www.hungrybin.co.nz

- RD1 Feilding
- The Green Hub P.N.
- $300
- Designed & made in NZ
- Secure lid
- Wheels for easy move
- No lifting involved

- Cons: $$

Resources

Information and purchasing worms and bins:
www.wormsrus.co.nz
www.compostshop.co.nz
www.mynoke.co.nz

Purchasing bins, worms and coconut fibre for bedding:

- Mitre 10
- Bunnings
- RD1 Feilding
- ~~The Green Hub Palmerston North~~(currently unavailable)