

Organic Waste - Worm Farms and Bokashi

Richard Croad

Sustainable Hawke's Bay Trust

Sustaining Hawke's Bay Trust

EnvironmentCentre
Hawke's Bay



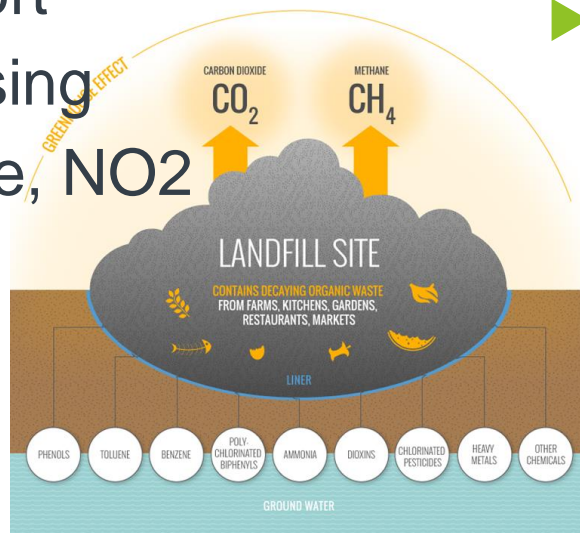
Sustainable Hawke's Bay Trust

- Recycle/dismantle e-waste (guestimate 20% of E-waste for region)
- Run workshops and promote education related to sustainability (compost, gardening, etc.)
- Promote and support Zero-waste events (Farmers Market, Black Barn)
- Support recycling of “odd’s and ends” (Guestimate 3-4% of population engages in this)
- Upcycled electronics
- Specialist Recycling
- Tracking at over 8,000 volunteer hours this year.

Not my Problem!!

Throw out Food/Organic Waste

- Production
- Transport
- Processing
- Preparation/Packaging
- Transport
- Processing
- Methane, NO2



“Ownership”

- ▶ Less Production ↻
- ▶ Less Transport ↻
- ▶ Less Processing ↻
- ▶ Less Packaging ↻
- ▶ Compost/Bokashi/Worm Farm
- ▶ Garden (grow your own)
- ▶ Fresh fruit and vegetables & flowers

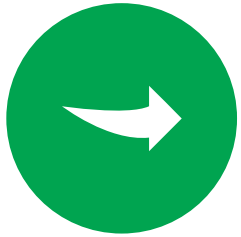


A Virtuous Cycle





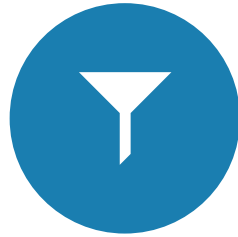
Today's objectives



GUIDE YOU ON THE MAIN
POINTERS TO RUNNING A
SUCCESSFUL WORM
FARM OR BOKASHI
SYSTEM



CLEARLY IDENTIFY THE
ADVANTAGES OF EACH
SYSTEM



IDENTIFY WAYS TO
"UTILISE" THE OUTPUT.



DIRECT YOU TOWARDS
SOLUTIONS THAT FIT
YOUR OWN SITUATION



ENCOURAGE YOU TO
ENCOURAGE OTHERS

Before we start...

Dispensing with the Myths

- **Not enough space** (2m x 3m space sufficient)
- **Smelly** (only if not run properly)
- **Rodents** (is a rodent problem not because of your organic waste)
- **Too much work** (systems take a few minutes each week and 10 minutes every 5-6 weeks)
- **Green Fingers** (just good organisation and systems)

Worm Farms

- Most kitchen scraps
- Not garden waste (just because of volume)
- Aerobic process
- Worm tea and castings
- No citrus or meat/fish
- Not good at dealing with surges in material
- Both an Art and a science – needs attention
- Do it if you:
- Don't mind living things and a few “flies”
- Have reasonable control over what goes in
- Are OK with a bit of mess
- Have a good option for surges in food waste



Managing the worm farm



Think Layers Main
Bedding/Worms/Food/
Bedding (to cover)



Bedding can be straw, coir,
peat (not just peat
though), old animal manure
(horse or rabbit, not
chicken), shredded
cardboard or paper – a
blend of all of these.



Worms – get from
someone else, scuff
around in your garden –
the top feeders under
leaves are compost
worms, from Environment
Centre or online. 1000
should be plenty to start.



Similar to compost you
need a good (though
different) nitrogen carbon
ratio



You can buy a bin from us
or repurpose almost any
container...

Worm farms



Hungry Bin



Enclosed Bath



Kawerau – 40mt per day!

Re-‘housing’ your worms

- Horizontal method
 - When a reasonable amount of worm compost (or castings) has been formed move the bedding to one side and put in new bedding and food on the cleared side (the worms will migrate as food runs short in older castings and your population will increase).
 - Leave for a few days for the worms to migrate to the new bedding and food. Remove the old bedding which is now ready to use as conditioner/fertiliser.
- Vertical method
 - When your bottom layer is full put in some new bedding in the upper layer, add food and cover with more bedding.
 - Feed only from the top layer – after a week or two most of your worms should have moved up
 - Remove the bottom castings tray and in bright light progressively take away castings.



Main Issues

- Overfeeding (creates)
 - Rotten food
 - High acidity – bad for the worms and attracts/supports other insects
 - Smell
- Too wet or too dry (moist like a wrung-out sponge)
- Too hot or too cold (keep in shade and out of frost)
- Loss of population (worms self-regulate, you can bring back even a few worms to a healthy population with good management)



Top tips

- Check the conditions of the worm farm when you put the food in, don't just keep feeding in the same place or layer, and don't think they will suddenly catch up.
- Feeding every 4-7 days is fine as they like the food when it is starting to decompose but not rotten.
- Check moisture levels (not wet, not dry) and temperature (mild not cold, warm not hot)
- Regularly add "brown" material to the top of your feeding layer
- A small handful of lime each month or two won't go astray
- Chop up bigger stuff but no need to go crazy
- When adding food, bury it slightly in the bedding
- Don't be shy about handing surplus worms over to someone else



Bokashi

- All your kitchen scraps/food scraps
- Not a system for garden waste
- Doesn't limit you to the amount of waste you generate each day
- Citrus, spices, meat and fish are no issue
- Run well it is virtually odourless and in fact quite pleasant smelling
- The microbes mean that although the process is aerobic it doesn't generate the same undesirable gases as landfilled organic waste.

Do if:

- You cook a lot of your own meals
- You entertain (surges in food waste)
- You are happy to dig end product into your garden (6 -10 times per annum)
- Whether you have a compost system running or not



What goes in?

- Pretty much any raw food
- Spices, citrus etc are o.k.
- Not for Garden waste (no real benefit)
- Food scraps less than 3 or 4 days old (not rotten fruit etc.)
- Cooked, processed or raw
- Doesn't matter if left for a few days – not a feeding system
- Need a minimal amount of bran/microbes (recommend more with high protein products like meat and fish)



Types of bin

- Any airtight container will work – you do need drainage into another container however.
 - You can use a temporary container while your full Bokashi matures.
 - The system is scaleable - a bin that hold 3-6 weeks of scraps is about right size.
 - Some people go straight to a compost system but this really supports a larger scale
-



What to do with your full bin?



Empty



Blend



Cover

You can also combine into existing compost systems but keep the Carbon nitrogen ratio in check

Planting can start after 2 weeks – or if buried sufficiently straight away for seeds or small seedlings

Bokashi - Keep it clean!



A common mistake is not to clean the bucket back to a reasonable standard, the above photo's show what the buckets will look like after emptying and before rinsing/washing

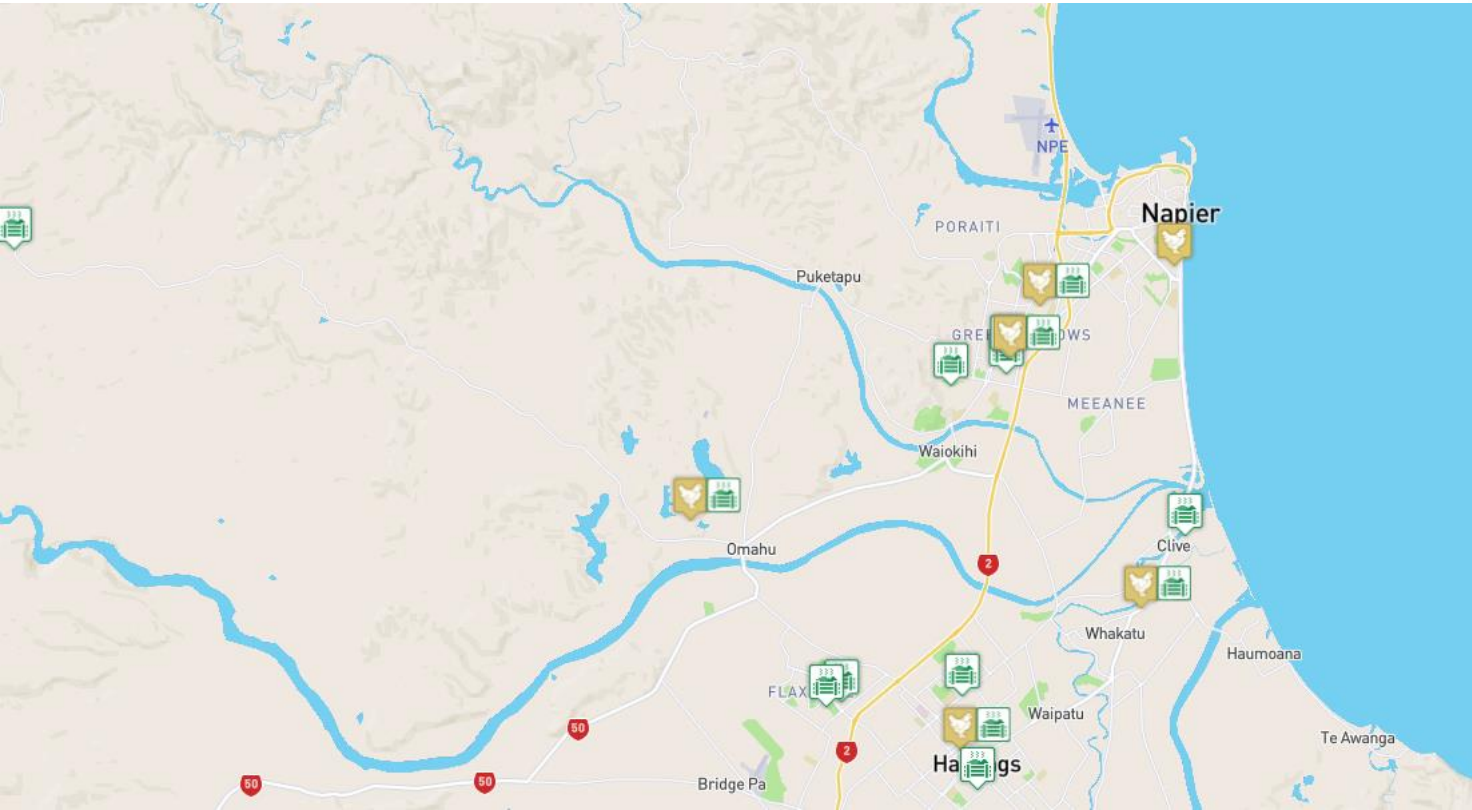
Top Tips

- If you are typically 3-4 days between top ups then the last waste in only needs to be held a few more days (3-4), unless it's a large portion of the bucket
- Wash bucket thoroughly between rotations
- Drain liquid each week and dilute (50:1) if returning to the garden
- Use liquid “neat” if adding to drain, toilet, septic tank etc.
- If you Bokashi “rots” , empty immediately (still bury) and start again
- Use a plastic lid or disc to compress your scraps in the bin
- Filling every few days is better than every time you generate scraps.

Other options – Compost Collective/ Share Waste

- Community driven “open” program
- Give or receive other peoples organic waste to compost/bokashi/worm farm/feed (animals)
- Small number operating in Hawke’s Bay already
- Great option if you have no garden and or are physically not able
- Next to doing it yourself this is the best available option
- Many local “processors” are easier to manage than one large processor.
- <https://www.sharewaste.org.nz/share-waste>

Share Waste in Hawke's Bay



Compost, worm farms, chickens....

Why using your organic waste is a great thing to do....

- Healthier garden – Veggies, Flowers or shrubs and trees
- Reduce transport – product into the Bay, and your trips to the supermarket etc.
- Hawke's Bay has a great climate for growing greens all year round
- The benefit of harvesting just what you need
- Good for birds and beneficial insects
- You can never grow too much – sharing “surplus” with neighbours is what we should all be doing!
- Live more lightly and use it as a pivot to support even more change



Other tips

- Use online resources like compost collective and share ideas with friends
- Raised beds are a great way to ease back strain and help you control pests like snails and slugs
- Routine will solve most problems with all of these systems and is also the key to a good garden – flowers, veggies, or shrubs and trees.

Going further

- Grow more and win all around
- Share surplus with friends and neighbours
- Buy less
- Reject packaging at the retailer
- Choose eco friendly
- Use your car less
- Plant your lawn (with shrubs and trees)
- Be proud and share the message

All of this is achievable

- Not all solutions will fit with all people – think carefully about where to start
- There will be mis-steps but progress will happen and success is awesome!
- Be proud – even before you succeed encourage friends, neighbours and family – everybody wins
- Relax, enjoy the journey



Living more lightly on this planet

