

## How will you recycle your food and green waste?

### Compost, Bokashi and Worm bins

As any edible gardener knows, the quality of produce comes directly from the quality of the soil used to grow it. And as each crop takes valuable nutrients from the soil, the soil needs to be continually replenished between crops to ensure it doesn't become deficient in those key minerals and nutrients. Crop rotation and green compost or cover crops can certainly help with soil help see the Garden to Table website for advice on these techniques). However, the main way to maintain soil health is the regular use of fertilizer and compost. And the cheapest way to do this is to make it yourself.

Each school will need to decide how they will recycle their food and green waste. You may choose to use just compost or just worm bins, but most schools use a combination of both and some schools also use bokashi. You will need to make sure that your system is built to handle the amount of waste you produce, which will be much larger in scale than at home.

In this fact sheet we summarise how the compost, worm bins and bokashi work, and explain the differences between each of these systems.

#### Compost

Compost can be made in black plastic bins that you purchase from your local garden centre, in large wooden slat bins that you build, or even just by creating a compost heap in the garden. Black compost bins are great for home gardens

and many have secure lids that are used to keep out rodents. However many schools choose to build their own wooden slat compost bins as they can be made large enough to take the larger quantities of waste that will come from a school. These tend not to have lids so are easier for students to access.

*(For information on building compost bins, please visit the comprehensive curriculum resources on the Garden to Table website).*

As compost needs time to rest and break down, you will need at least 2 and ideally 3 or 4 compost bins so each bin has the time it needs to create healthy compost. Your compost bins can take most vegetable food waste from the kitchen as well as green waste from the garden, although some experts say that compost works best for green waste and worm bins for food waste.

*Avoid putting meat or dairy into your compost as this can attract rats!*

The green waste in the compost needs to be balanced with brown layers, which can be brown leaves, paper towel and cardboard.



For aesthetic reasons compost is usually placed in an unused corner at the back of the garden. When selecting a site for your compost you will need to make sure that there is easy access for wheelbarrows. Try to put your compost bins in a sunny position if possible, as heat will assist the breaking down process. As the compost will need to be aerated and turned, make sure there is space to do that also.

### Worm Bins

A variety of different worm bins can be purchased from the garden centre or built out of old bathtubs or other containers. Most worm bin systems require food waste to be put in the top, and a way for the worm tea to drain out of the container and be captured at the bottom. This worm tea can be diluted and is an excellent fertilizer for the vegetable garden. A continuous flow worm bin allows you to access the worm castings (which look like soil/compost and are full of nutrients and minerals from the broken down food waste) without disturbing the worms or food waste in the upper layers, which makes using the castings in the garden much easier.

Worm bins prefer a shaded position in summer, and a warm position in winter. Worms like most vegetables except for those that are spicy or sour. Spicy foods include chilli, onions and garlic, and sour foods include citrus.

Worm bins should not smell and if there is an unpleasant odour this is a sign that your worm bin is not functioning well. Worms need an aerobic (oxygen-filled) environment to survive. The most common problem is overloading the worms with too much food before the worms can consume it. So make sure you build up the amount of waste in the bin gradually, so the worm population can increase sufficiently.

A pumpkin cut in half can keep the worms going over holiday breaks, when they are not getting food waste regularly.

See the Garden to Table curriculum resources on the website for more information on worm farms and how to use them.

### Bokashi

Bokashi uses fermentation to breakdown food.

You will need two stacked buckets with firmly closed lids to start your bokashi system, and some bokashi “zing” to sprinkle on it each time you add food to it. Holes in the base of the top bucket allow liquid to drain into the bottom bucket. Food is added just to the top bucket.

Bokashi systems can take most foods including meat, dairy, small bones and all vegetable and fruit waste. However, bokashi does not like liquids or paper products, and the bottom bucket will need to be drained of liquid regularly. This bokashi liquid, when diluted, makes an excellent fertilizer for the vegetable garden and can even be used to clear drains!

As bokashi works by fermentation it does have a smell (often likened to the smell of pickles) and it is normal for white fungal threads to appear on the food waste. Bokashi works best in an anaerobic (no oxygen) environment so make sure you push the waste down firmly in the bucket and click the lid firmly shut each time after you use it.

Bokashi should be kept inside, perhaps in a corner of the kitchen or laundry which makes it easy to access. Once full, the bokashi buckets need to sit for 3-4 weeks to break down before the food waste inside can be buried in a garden bed (trench composting) or added to your compost bins to give them an added boost. You will need a second set of buckets to use while the first set is full and resting to break down. For more information visit the zero waste site below:

<https://www.zerowaste.co.nz/assets/sm/upload/6u/qa/so/qp/WasteFactsheet%20Bokashi%20v7.pdf>



## Collection systems for food waste

Now you have your compost, worm bins and bokashi set up to recycle your food and green waste, you will want to make sure you are capturing this food waste in your school to “feed” your food recycling systems. Encourage the whole school to take up good food recycling practices. Having clearly marked containers for each type of waste in the areas where food is eaten and waste discarded will

help. For example, you could have green bins in the kitchen and staff room for food waste for the worm bins, and a red bin for other food waste (such as chillis, onions or citrus) that will go into your compost or bokashi. Students and teachers may need to be shown the appropriate bin for their food scraps; posters can make it clear what can and can't go in your worm bins.

## Comparison Table

Feature	Compost	Worm Bin	Bokashi
What waste it takes	Green waste – lawn clippings and prunings, chicken rakings, some food waste	Vegetable and fruit waste, egg shells, coffee grounds, tea bags, paper towel	Vegetable and fruit waste, including meat, fish, bread and dairy
What waste it doesn't take	Plastic, meat or dairy (will attract rats)	Plastic, Sour (citrus) and Spicy (onions, garlic, chilli); plastic, meat, dairy, processed wheat products (bread), oils; green waste	Rotten food, green waste, liquids, paper or plastic wrap
Accessibility	Requires a walk to the garden	Can be kept near kitchen but will need to be outside	Kept inside in kitchen or laundry – can be used easily even in wet weather
Ease of use	Aerate or turn regularly (easy with a compost turner); take what you need from opening at the bottom	Easy to add food waste; if not continuous flow need to lift off top layers to access worm castings / compost	Empty into a trench or compost bin. Empty liquid regularly.
Benefits	Will still work if neglected	Continually produces liquid fertilizer	Continually produces liquid fertilizer
Ongoing Cost	None	None	Bokashi zing or mix
How it works on holidays	Nature takes over and it will continue to break down with no attention required	Need extra food to tide them over. Worm population will drop as food waste drops. If shaded and damp worm eggs may survive and you might get new worms when you start feeding it again	Just sits and waits until you return