



# *Food 'waste'*

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# *Food 'waste'*

Globally we waste **one third of the food** produced for human consumption.

The UK creates **15 million tonnes** of food waste every year.

**7 million tonnes** of that food comes from households

**50%** of this is edible

When we waste food we are wasting **soil & water**

## **Soil**

We rely on a very thin skin of soil on the surface of the earth to produce our food and sustain life. A third of the planet's land is severely degraded and fertile soil is being lost at the rate of 24bn tonnes a year. Our survival depends on looking after the soil.

Wasting food wastes precious soil.

## **Water**

Research estimates 24% of all the water used for agriculture is lost through food waste every year. That's 45 trillion gallons. Water scarcity is one of the largest global risks in the coming decade. By 2025 half of the world's population will be living in water stressed areas. \*

Wasting food wastes precious water.

\* 2016 *World Resource Institute statistics*

## *Food 'waste'*

A massive amount of resources, mostly oil & water, goes into processing, packaging, and transporting food so when we waste food we are also squandering these embedded resources.

In addition, when we send food to the landfill, its anaerobic rotting creates methane, the second most common greenhouse gas, so our food-filled landfills are steadily aiding climate change. Landfills are the number two source of human-related methane emissions.

From an ethical standpoint, throwing away food is quite callous when you consider the number of people in the world who are under nourished or starving.

It makes no economic sense to waste food. Statistics show that the average UK household wastes nearly £500 worth of food yearly which could have been eaten.

Wasting food is a big problem, each and every one of us can contribute to its reduction, by being mindful about what we buy, how much we eat and what we do with our leftovers.

**We should not think in terms of 'waste' when we think about food, every scrap can be used or recycled – nothing ever thrown away as a waste.**

## *Tips to avoid food 'waste'*

- ♠ It helps if you are organised and meal plan. You don't have to be obsessive about this but it does help minimise leftovers.
- ♠ Check what you need before you go shopping & write a shopping list
- ♠ Don't fall into the trap of saving money by bulk buying if it is unrealistic that you are going to be able to use it.
- ♠ Don't avoid misshapen fruits & veg.
- ♠ Store your food properly, use glass containers so you can see what is in them.
- ♠ Keep your fridge organised, rotate your food so that last in is at the back, first in at the front.
- ♠ Get creative with your scraps & trimmings, turn them into, soup, chutney, muffins, dips & smoothies.
- ♠ Learn traditional methods of preservation– fermenting, drying & pickling.
- ♠ Learn to be flexible about recipe ingredients, substitute with what you have at hand rather than buying more ingredients.
- ♠ Go gleaning!  
Help avoid farm waste and join the gleaning network to rescue surplus fruit and veg.

## *Tips to avoid food 'waste'*

- ♠ Turn your scraps into stock.
- ♠ Turn slightly stale bread into breadcrumbs and freeze, or alternatively dry in the oven and store in an airtight container.
- ♠ Use up ripe fruit in smoothies & sorbets.
- ♠ Use up veg past their best in a soup.
- ♠ Use your senses, does it look good? Does it smell ok? – Is a food really past its 'use by' date & is food only good by the 'best before' date?
- ♠ Turn lemon peel into a seasoning. Cut into thick strips, remove any flesh, trim off excess pith & dry in a dehydrator or oven, grind and store in an airtight jar.
- ♠ Peel, chunk & freeze bananas that are on their way to becoming over ripe. Use in smoothies.
- ♠ Start composting - there's a method & size to suit every household.

## *Waste not veg tips*

**broccoli** – grate the stalks and make a coleslaw or cut into chunks & roast.

**butternut squash** – cook without peeling – skin tastes great.

**cabbage** – turn into sauerkraut, add other green leaves like kale, spinach & chard

**cauliflower** – use the green leaves in whatever you're making with the cauliflower.

**celery** – keep fresh & crisp by storing in the fridge in a jug of water.

**corn on the cob** – dry the silk to use as a cornsilk tea for bladder infections.

**courgette** – turn into chutney along with any other veg waiting to be used up. Recipe on card 12

**herbs** – make an infused oil or ACV with leftover herbs to use in salad dressings.

**mushrooms** – thread mushrooms with strong cotton and hang up to dry in a well ventilated warm spot, alternatively use a dehydrator or low oven.

**root veg** – turn left over root veg into a kimchi see recipe on card 10 in fermenting.

**tomatoes** – turn into tomato sauce and bottle. Recipe on card 11

## *Ways to use leftover food*

Being careful about what you buy & how much you serve at meal times should minimise leftovers. However if you do have various bits & pieces, there are plenty of ways of putting them to good use.

There is no need ever to bin food.

The leftover mantra

**humans – animals – worms - micro-organisms**

There are many simple ways to convert one meal into another. Hot dinner leftovers can be turned into cold salad lunches, leftover cooked veg and end pieces of cheese can make a stunning frittata and end of week raw veg can be fermented or turned into chutney.

Pet food is often full of the by-products of industrial farming. Try and source organic pet food which is a lot more expensive but supplementing with leftover scraps will help your purse! There's a recipe on card 13 for dog biscuit treats using leftover sweet potato & carrots.\*

Final leftovers can now be given to worms via the compost heap or wormery or micro-organisms via a bokashi bucket. The resulting compost will help keep soil fertile so that it can grow nutritious food.

*\*do not feed garlic, onions, chives & raisins to dogs  
further info see resources*



## *Vegetable stock*

This is a good way to make use of all your vegetable scraps and trimmings.

Keep a carton or ziplock bag in the freezer and add all your raw veg trimmings that are left after food preparation. Best veg are celery, carrot, leek, celeriac & tomatoes along with parsley stalks. Use sparingly potato skins, spinach, thyme, rosemary, avoid cruciferous vegetables and peppers. When your container is full you can make your stock.

You will need

500g veg scraps from the freezer

1 onion roughly chopped

1 bay leaf

6 peppercorns

1 piece of kombu (seaweed)

Place the scraps in a medium-size saucepan and cover with water. Add the onion, bay leaf, peppercorns & kombu. Slowly bring to the boil. Lower the heat and gently simmer for 1 hour. Strain the stock through a fine sieve. Remove the kombu which you can cut into slices and add to a grain dish and compost the vegetables.

Store the stock in the fridge for up to 5 days. Alternatively you can freeze the stock and the most convenient way to do this is in ice trays. Fill the trays then place in the freezer, when completely frozen crack the ice cubes into a large bowl, transfer to a zip-lock bags and pop in the freezer.

## *Leftovers vegetable soup*

1 large onion peeled and chopped  
3 cloves garlic finely chopped  
2 tablespoons olive oil  
750g raw or cooked veg made up how you wish  
(for example 400g of any raw root veg – carrot, sweet potato, leeks, celeriac, parsnip, chopped.  
350g any cooked veg – potato, cauliflower, broccoli, cabbage.)  
1 tsp teaspoon chili flakes, 1 tsp ground cumin  
1 litre vegetable stock  
salt & black pepper  
your favourite pesto  
*serves 4*

In a large pan gently cook the onion & garlic in the olive oil until they begin to soften.

Tip in all the raw veg and cook for a further 5 mins. Add the chili flakes and cumin, mix well then tip in the stock.

Bring to the boil, lower the heat and simmer for 15 minutes. Add the cooked veg, bring back to the boil and cook for a further 5 minutes.

Blitz the soup until smooth, season and warm through.

Divide between 4 bowls and top each one with a dollop of pesto.

*Not serving 4? – freeze the remainder in individual portions for another time*

## *Potato & spinach frittata*

1 large cooked potato diced  
250g spinach roughly chopped  
2 cloves garlic crushed  
25g hard cheese scraps  
1 teaspoon chopped rosemary  
salt and pepper  
6 eggs  
1 tablespoon olive oil  
25g butter.  
*serves 4*

Wilt the spinach in the olive oil, stir in the crushed garlic, rosemary and season well. Put into a bowl with the potato and cheese.

Beat the eggs and stir into the spinach and potato mixture.

Melt the butter in a sauté pan and when foaming pour in the egg mixture.

Cook over a low heat for a couple of minutes or until the sides begin to set.

Transfer to the oven and cook for 10 – 12 minutes or until set and golden.

## *Lentil flatbread*

250g leftover lentil dahl

250g spelt flour

½ tsp chili flakes

handful of chopped herbs -coriander, parsley or chives

olive oil

pinch of salt & twist of black pepper

Put the lentils in a bowl, add the flour, chili, herbs, 1 tablespoon olive oil, salt & pepper and mix with enough water to make a dough that holds together. Knead for a minute to create a smooth dough, then leave to rest, covered, for 15 minutes.

Divide dough into 6 and shape each into a ball. Dust your table and the balls with flour. Roll each ball into a 6" circle.

Brush a fry pan lightly with oil, gently heat, then place a flat bread in the pan pressing down well, cook for 1 minute, then flip over. Brush the surface of the flatbread with oil, flip again and brush the upper side with oil. Slide onto a plate and repeat with the remaining flatbreads.

## *Tomato sauce*

2k tomatoes

1 teaspoon salt

2 x 500ml kilner jars

Wash the tomatoes.

Using a sharp knife quarter the tomatoes and cut out the core and seeds dropping them into a sieve over a bowl as you do. Place the tomatoes quarters into the bowl of a processor and add the strained juice from the seeds.

Blitz the tomatoes then tip the puree into a large stainless steel pot.

Very gently, bring the tomato puree to the boil and simmer for about 30 minutes or until the mixture has reduced by about a quarter. Stir from time to time to prevent sticking

Sterilise your jars in a hot oven.(without any rubber seals) for 10 minutes whilst your mixture reduces.

Put ½ tsp of salt in the bottom of each jar.

Using a funnel and ladle, fill the jars with the tomato mixture, leaving about a ½ inch space at the top of the jar.

Fasten the lid securely, having first replaced any rubber seals.

Line the bottom of a pan with a dish towel to prevent the jars from banging around too much cover with water and bring to a boil.

Gently simmer the jars for 30 minutes. Turn off the heat. Very carefully remove the jars from the water.

Allow to cool store the jars in a cool, dry place for up to a year.

## *Ratatouille chutney*

1k plum tomatoes, skinned, seeded and roughly chopped  
500g onions, peeled and roughly chopped  
4 cloves garlic, finely diced  
2 chili, seeded and finely diced  
1 tablespoon crushed coriander seeds  
1.5k mixture of the following, whatever needs using up:  
aubergine cut into ½" dice,  
any summer squash sliced or diced  
peppers (green, yellow or red) cut into ½" squares  
a handful of any herb you have to hand- thyme, oregano,  
parsley, chopped  
1 dessertspoon salt  
16 fl oz apple cider vinegar  
500g rapadura sugar

Place everything except the sugar in a stainless steel pan, gently bring to the boil.

Add the sugar and stir until dissolved.

Reduce the heat and cook for an hour until the chutney is quite thick.

Ladle into sterilised jars and securely fasten.

Store in a cool place for at least a month before using.

## *Windfall apple & tomato chutney*

Replace the 1.5k veg with 1.5k peeled & cored windfalls cut into chunks.

## *Dog biscuits*

250g oat flour

(no oat flour? - blitz porridge oats to a fine powder)

100g cooked sweet potato

1 egg

100g grated carrot

oven to 350°F/180°C

Place the oat flour in a bowl.

Mash or blitz the sweet potato & egg together and add to the flour with the grated carrot.

Mix all the ingredients together adding enough water to make a dough.

Roll out to ¼" thickness.

Cut out shapes and place on a buttered baking tray.

Bake in the oven for 25 minutes until golden.

Cool & store in an airtight container in the fridge for up to a week.

## *Why compost?*

- ♥ Composting connects us to the life cycle of food, to compost and back to soil.
- ♥ Composting transforms your kitchen waste into a nutrient rich food for the soil.
- ♥ Composting helps reduce the amount of food sent to landfill.
- ♥ Many councils offer green waste collections but home composting avoids transport.
- ♥ It's easy to make and use.
- ♥ Compost helps to retain soil moisture – so it helps save water.
- ♥ Compost improves soil structure - so better quality vegetables are grown.
- ♥ Its a great way for children to learn.
- ♥ There are different methods of composting here we offer information on hot & cold heaps, vermiculture & bokashi,



## *Hot composting*

A hot pile needs to be built balancing carbon-rich materials, or "browns," and nitrogen-rich materials, or "greens." Carbon materials are dried leaves, straw, paper, cardboard and twigs. Nitrogen materials are vegetable and fruit trimmings, kitchen scraps and grass mowings. Aim for a balance of about 50:50 or perhaps a little more green than brown as this will contribute to a correct level of moisture, warmth, structure & aeration. To get started either purchase a bin\* build a wooden frame or find a spot for a free standing heap of around 3 cubic feet. There are different approaches but basically you need to gather your materials. This may take a little time so you may need some holding containers. When you are ready toss everything together and assemble your heap moistening with water as you go. If your heap is exposed to the elements you may want to cover with a tarpaulin to maintain moisture.

Your compost will heat up in 24 – 36 hours and you are looking to maintain a temperature between 145 – 155°F (you may like to monitor this with a thermometer). After 7 days the temperature will drop turn the heap over to introduce more oxygen and heat it back up, repeat once a week or as necessary over the next month. After six weeks the mixture will have turned to compost – leave it for at least 2 weeks before using.

*\*see resources*

## *Troubleshooting hot heap compost*

<b>Symptom</b>	<b>Problem</b>	<b>Solution</b>
feels & looks dry	lack of moisture	add water and remember to water the pile as you build it
matted ingredients; clumps of leaves, sawdust or grass	lack of oxygen	turn pile to incorporate oxygen & remember to mix well as you build
heap doesn't heat up and is slow to break down	lack of nitrogen	add high-nitrogen material: grass cuttings, kitchen scraps, coffee grounds
soggy heap	too few brown materials	add paper, cardboard, ash or soil; ensure your heap is built on soil

## *Cold composting*

A cold pile requires minimal effort but the drawback is it may take a year or two before it produces compost you can use in your garden. It's an add as you have the material pile but a perfect option for those with little spare time for turning or being attentive.

Do not put weeds that have gone to seed or diseased plants into the compost. Without high temperatures to kill off weed seeds or disease pathogens, you will be spreading them on your garden.

You can throw vegetable peelings, fruit waste, plant prunings, grass cuttings, cardboard, paper, wood ash and fallen leaves onto your cold pile which works best if contained in a compost bin.\*

*\*see resources*

# *Vermiculture*

Vermiculture takes place in a wormery. It is a self contained unit that usually consists of at least two compartments; a lower collection sump for the liquid and an upper composting area where the kitchen waste goes in and the worms live. There can be several linked composting areas which gives you a succession of trays in various stages of decomposition. Whatever the design the principle is the same, in return for food the worms create nutrient rich worm casts.

A natural by-product of making worm compost is a liquid known as worm tea. The worm tea must be siphoned off regularly it is very concentrated, it can be diluted and used as a liquid fertiliser for your plants

The best foods to feed your worms are:

Fruit peelings and cores with the exception of all citrus fruit

Vegetables, cut into smaller pieces if large, with the exception of onion & garlic.

Tea leaves & coffee grounds.

Small quantity of leaves and waste paper

No food of animal origin should be used and cooked food is best avoided.

There are a wide range of wormeries available,\* the size you choose will be determined by the amount of waste available to feed your worms.

The wormery needs to be sited in a sheltered spot, out of direct sunlight and protected, with a cover or by bringing inside, in very cold weather. Garden, doorstep, shed, garage or balcony are all good options.

\* see resources

## *Bokashi*

If it's just not possible to turn your kitchen scraps and leftovers into another meal then bokashi composting is a brilliant alternative. With bokashi all your waste - vegetables, dairy, meat, fish, raw or cooked, can all be used to make compost in the kitchen.

The bokashi technique is an anaerobic form of fermentation created by using effective micro-organisms. Effective micro-organisms (EM) are a mixed culture of beneficial natural organisms.

EM are infused into organic matter like rice, wheat or oat bran to make bokashi bran, left to multiply and then dried.\* The bran is layered into the bokashi bucket\* with your leftover food. Inert until moistened, the micro-organisms will come alive in the bucket and work their transformative magic.

Once the bin is full it is set aside for 14 days by which time the waste in the tub should be thoroughly pickled with a slight whiff of fermentation. It can then be dug into a fallow patch of the garden or layered into containers either way it is still very acidic at this stage so plant roots should not come into contact with it for 4 weeks.

*\*see resources where to buy bokashi buckets & bran or how to make bokashi bran.*

# *Bokashi*

## *Troubleshooting*

A foul smell indicates that something has gone wrong. This diagnosis is a bit tricky until you get to know to how bokashi should smell!

Basically it's the difference between a “sweet and sour odor,” indicating fermentation, and a “foul odor,” indicating decay.

Bokashi should not smell like other sorts of anaerobic decay because the inoculating microbes — yeasts, producers of lactic acids, and others — do not produce the sulfuric acid that gives outdoor anaerobic piles their characteristic aroma.

## *What to do with compost if you don't have a garden*

The ability of soil to sustain food production relies on its biological activity, which delivers nutrients to plant roots. Organic compost, produced from food waste, is an ideal means of improving this biological activity, and thereby the soil's fertility.

Even if you do not have a garden, you can still connect to the cycle of life and make compost.

Here's a few suggestions how your compost can be used.

Start growing a few green leaves to eat on the balcony, windowsill or back doorstep and liven up your salads.

Connect with a neighbour that has a garden and offer them your nutrient rich compost (you may receive a few veg in return!)

More & more schools are growing food, donate your compost to them. Help co-ordinate a system where others can do the same.

Join an urban growing project or community garden both would benefit from your compost.

# *Glossary*

**bokashi** ~ *bokashi composting is an anaerobic process using effective micro-organisms to break down waste*

**bokashi bran** ~ *a medium inoculated with effective microorganisms*

**effective micro-organisms (EM)** ~ *a liquid mixture of beneficial micro-organisms*

**hot pile** ~ *compost heap turned to create heat, breaks down quickly (2 months)*

**cold pile** ~ *compost made without turning breaks down slowly (1 – 2 years)*

**vermiculture** ~ *process of composting using worms*

**wormery** ~ *container for recycling food waste with worms*

**worm tea** ~ *worm tea is the liquid co-product of worm cast compost*



# *Resources*

## **Food Waste**

[www.friendsoftheearth.uk/food-waste](http://www.friendsoftheearth.uk/food-waste)

[www.wrap.org.uk/food-drink](http://www.wrap.org.uk/food-drink)

[www.wrap.org.uk/sites/files/wrap/A Food Waste Recycling Action Plan For England 0.pdf](http://www.wrap.org.uk/sites/files/wrap/A_Food_Waste_Recycling_Action_Plan_For_England_0.pdf)

## **Storage containers**

[www.pyrexuk.com/range/borosilicate-glass/glass-food-storage-containers.html](http://www.pyrexuk.com/range/borosilicate-glass/glass-food-storage-containers.html)

## **Kilner jars**

[www.kilnerjar.co.uk](http://www.kilnerjar.co.uk)

## **Composting**

[www.charlesdowding.co.uk/advice-on-making-compost/](http://www.charlesdowding.co.uk/advice-on-making-compost/)

[www.gardenorganic.org.uk/compost](http://www.gardenorganic.org.uk/compost)

[www.the.compostingpeople.co.uk](http://www.the.compostingpeople.co.uk)

[www.organiccatalogue.com/feeding-soil-care/making-compost/compost-bins/](http://www.organiccatalogue.com/feeding-soil-care/making-compost/compost-bins/)

[www.gardenersworld.com/how-to/diy/how-to-build-a-compost-bin/](http://www.gardenersworld.com/how-to/diy/how-to-build-a-compost-bin/)

## **Wormery**

[www.wormcity.co.uk](http://www.wormcity.co.uk)

[www.wigglywiggers.co.uk/composting/wormeries.html](http://www.wigglywiggers.co.uk/composting/wormeries.html)

## **Bokashi buckets**

[www.wigglywiggers.co.uk/bokashi-value-pack-18-litre-black kit.](http://www.wigglywiggers.co.uk/bokashi-value-pack-18-litre-black-kit)

[www.bokashidirect.co.uk](http://www.bokashidirect.co.uk)

## **Bokashi bran**

[www.bokashidirect.co.uk/bokashi-bran.html](http://www.bokashidirect.co.uk/bokashi-bran.html)

[www.wigglywiggers.co.uk/bokashi-active-bran.html](http://www.wigglywiggers.co.uk/bokashi-active-bran.html)

5k bokashi bran will last the average family of 4 about 6 months

## *Resources*

Video showing how to assemble a bokashi bin & make bokashi bran

[www.youtube.com/watch?v=-w3jajq5-tM&t=5s](http://www.youtube.com/watch?v=-w3jajq5-tM&t=5s)

### **What not to feed your dog**

[www.battersea.org.uk/pet-advice/dog-care-advice/toxic-food-dogs](http://www.battersea.org.uk/pet-advice/dog-care-advice/toxic-food-dogs)

### **Gleaning**

[www.feedbackglobal.org](http://www.feedbackglobal.org)

### **Books**

**Composting: an easy household guide** - Nicky Scott & Roy Chadwick - Green Books

**Composting (Bob's Basics)** - Bob Flowerdew - Skyhorse Publishing

**Composting with Worms** - George Pilkington - Eco Logic Books

**Commonsense compost making** - M E Bruce- Faber & Faber

**The biochar debate (Schumacher briefing 16)** - James Bruges- Green Books

**Edible Cities** - Judith Anger, Immo Fiebrig, Martin Schnyder - Permanent Publications

**The Humanure Handbook** - John Jenkins - Joseph Jenkins, Inc

## *Greencuisine Trust*

Through inspiring projects, courses and consultancy Greencuisine Trust encourages ways of growing and eating that nourish people without harming the environment.

Everyday we make decisions about the food we eat. These choices shape our world and influence not only our individual health but also the wellbeing of all with whom we share planet earth

The Trust is part of a global food movement driving change in our food systems. We believe that through the widespread sharing of both indigenous & scientific knowledge we can maintain the integrity of the planet and all eat nutritious food.

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[greencuisinetrust.org](http://greencuisinetrust.org)

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Text & design ~ Daphne Lambert

Layout ~ Jean Taylor

Linocut ~ [hugh@dunfordwood.com](mailto:hugh@dunfordwood.com)