

A decade of home composting in Leeds

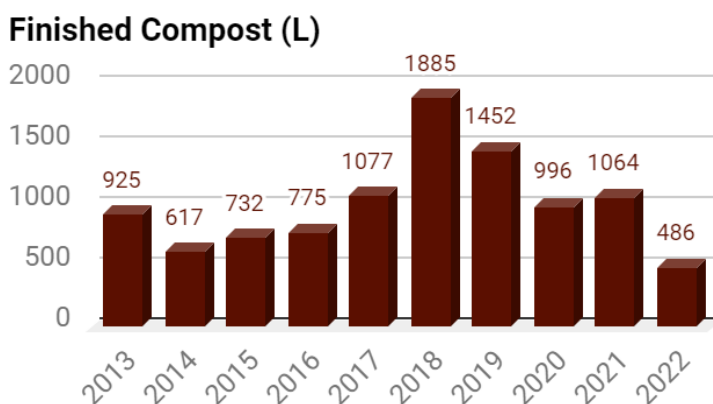
A very brief summary, facts, figures, photos & graphics

First compost bin started 25/04/2012 (with measurements & data logs)
Data & graphs here to 25/04/2022

Highlights

- In 10 years, we processed ~ 30,000L of Input Waste
- to generate ~ 10,000L of home made compost
- Annual average ~ 3000L of Input Waste to generate ~ 1000L of compost
- We have completed 48 bin cycles
- A typical bin cycle lasts ~7.5 months
- Input Waste typically reduces by $\frac{2}{3}$ of its volume over a bin cycle period

Finished Compost



A total of 10,009L over past decade



Finished home compost (taken 12/05/21)

Finished compost sieved to different grades for different purposes

Finished compost (called **Grade III**) is partly sieved to two granular sizes:

1. **Grade II** (½inch, 12 mm sieve)
2. **Grade I** (7mm sieve)
3. **Sieved Residue (SR)** material



Below: Finished compost sieved into different buckets to **Grade II** and **SR**.



Grade III compost is used directly on soil for seedlings, raised beds and large pots

Grade II: For outdoor seed planting, small pots
Grade I: For seed tray planting and indoor pots
> Grade I is usually sieved on demand

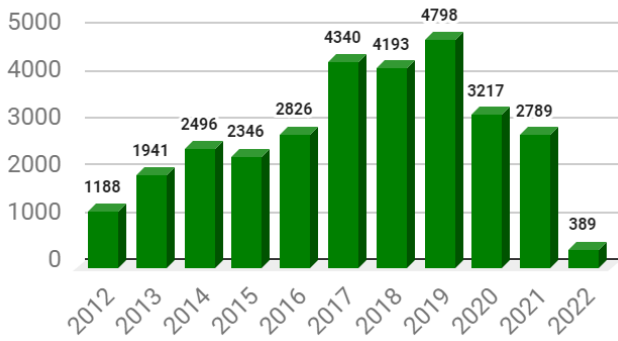


Sieved Residue (from 12mm garden sieve)
For mulching, large pots top or bottom layer or addition back to input waste for another cycle

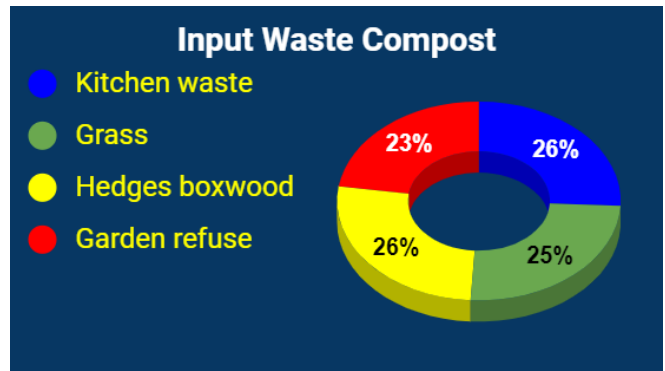


Input Waste

Input Waste (L)



Input Waste annual timeline over the decade. We got more compost bins over the years and more material from other sources to process too (friends, neighbours etc.)

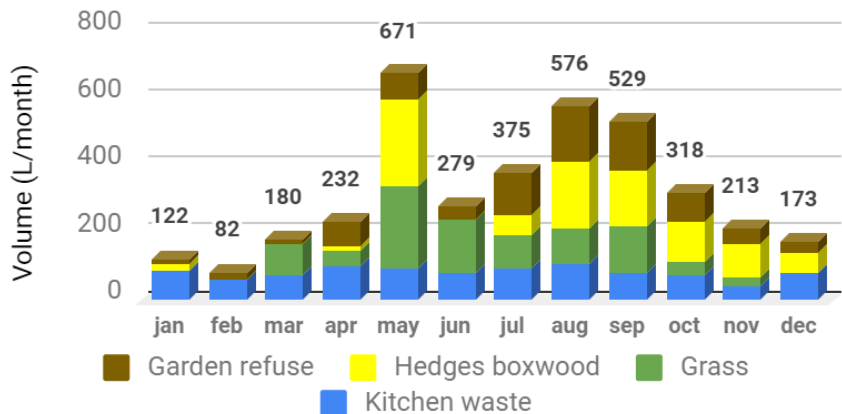


Input Waste breakdown roughly in quarters - with garden waste making up the 3/4, dominated by grass & hedge trimming material (boxwood)

A total of 30,523L Input Waste over the past 10 years.

On the right, breakdown per type on a monthly basis. Over the Spring & Summer season, the garden waste becomes dominant.

Input Waste Compost



We collect ~3000L Autumn Leaves annually around Nov-Dec to make the brown part (carbon) of the Input Waste mix



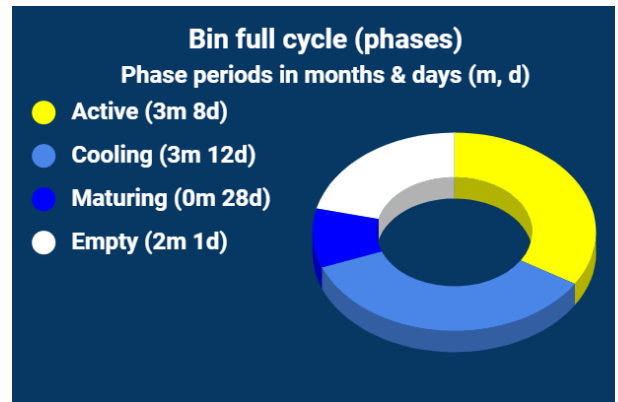
An example of the green (nitrogen) part; mix of grass, kitchen waste and garden refuse (shredded)

Bin Cycles

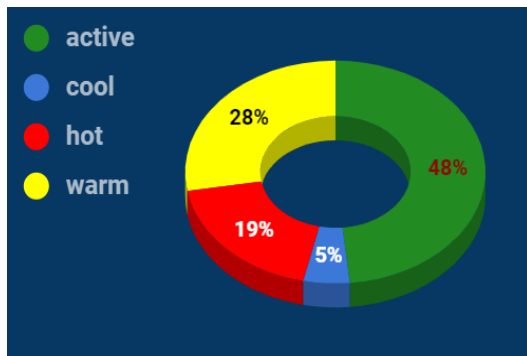
Average bin cycle finishes in 7 months 19 days
 48 bin cycles completed in the decade
 3 bin cycles in current operation

A bin complete bin cycle goes through 4 phases:

1. **Active:** Multiple Top ups of Input Waste
2. **Cooling:** Decomposition (no more top-up); gets to ready-to-use compost material
3. **Maturing:** Additional time for further decomposition or if no space/time to empty the bin
4. **Empty/Available:** Bin available for next cycle



Hot and Cold Composting



Compost Thermometer (degC)	
0 - 25	cold (maturing)
25 - 40	warm
40 - 55	active
55 - 70	Hot
70+	overheating

The pie chart shows the % of (total) Input Waste volume that was decomposed under different heating regimes - during their first two weeks (meso & thermophilic stages).






Nearly 50% of the ~30,000L Input Waste was in Active mode (40-55°C) and 20% in Hot composting (55-70°C).

A compost thermometer on the right: Compost Bin E (cycle 41), temperature 66°C on 04/05/20. 117L were added On 02/05/20 (on top of an existing 318L volume), and the temperature reached 66°C 2 days later.



Our Compost Bins

We have a total of **five** compost bins with a capacity of **1520L**

Our compost bins description & Usage					
Bin name	A	B	C	D	E
Bin Type	Dalek black plastic	Dalek black plastic	Dalek black plastic	Rolling tumbler, black plastic	Custom-built wooden frames
Bin Volume	330L	330L	220L	190L	450L
Bought	Q4 2012	Q4 2012	Q1 2012	Q4 2016	Q2 2017
# completed cycles	11	13	14	5	5

Key Decay Ratios

The Input Waste material decays (as it is added) in the first couple of weeks of the Active phase.

We typically add twice (~2.1) the bin volume worth of Input waste over the Active phase (~3months, 8 days). The finished compost material then reduces to **70%** of the bin volume over the cooling phase.

Input Waste to Bin volume	Finished Compost to Bin volume	Input Waste to Finished Compost
2.1	0.7	2.9

Example:

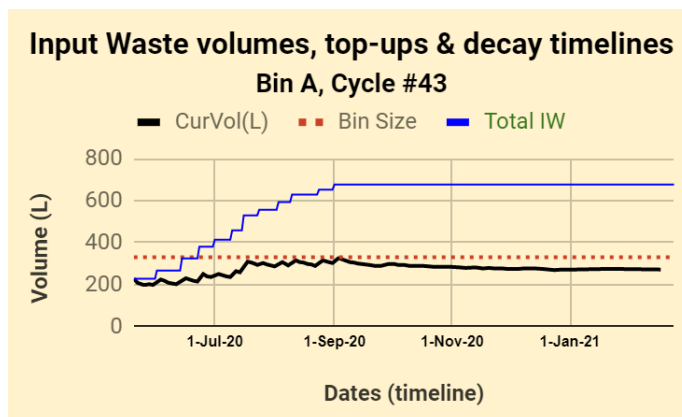
Bin A (cycle 43), with a total of **677L** input waste in **12** top-ups to the **330L** bin during the **active** (top-up) period (3 months 14days); yielding **242L** of finished compost at the end of cycle.

Fill-up & decay Ratios

Input Waste to Bin volume: **2.1** (677/330)

Finished Compost to Bin volume: **0.7** (242/330)

Input Waste to finished Compost: **2.8** (677/242)

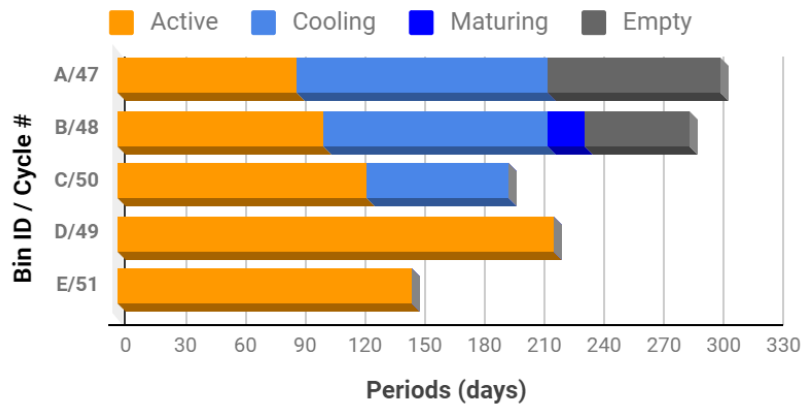


Current Operation & Status

The five compost bin status as it stood on 25/04/22.

- Three bins in processing mode and two bins available

Current status - Bins (and cycles)



About

- Home Composting in Leeds Chapel Allerton
- Contact: mourad.kara@gmail.com
- Version Draft 0.4 06/05/2022