

NP1001 UNIVERSITY OF SOUTH AUSTRALIA NODE OF EXCELLENCE

CARBON REDUCTIONS FROM COMPOSTING FOOD WASTE

Research Question

The critical research challenge is to correlate the predicted reduction of GHG emissions of different food waste composting methods with the actual results from field trials and learn from any discrepancies. The research modelling will quantify the benefits of two forms of onsite composting versus the baseline offsite composting model.



Figure 1: Commercial kitchen food waste.

Methodology

The GHG modelling PhD will study the uptake of carbon by the soil via various composting routes and will use input-output analysis to estimate the whole of economy effects of diverting food waste through composting, quantifying the total carbon reduction including soil carbon.

The modelled results will be compared with actual results obtained from the trialling of a two food waste processing systems – in-vessel composting and

worm farms as well as the baseline centralised offsite composting facility.

Results

The GHG modelling PhD is part of a larger CRC Composting Food Waste for Food Production project with a focus on microbiological and sociological outcomes as well. The Composting Food Waste project has been approved recently by the CRC LCL and the field trials will commence in 2016 when the microbiological PhD position has been filled.

To date, the composting technology partners have been selected and a number of trial sites have been identified including multi-unit residential towers, office tenancies, café precincts and large scale hospitality facilities.

It is expected the trialling of the two technologies across a number of trial sites will give a sufficient data set to validate the modelled GHG reductions.



Figure 2: Restaurant in-vessel composter.



Figure 3: Small office worm farm.

Conclusions

With the movement to higher density living in Australian cities, new models for food waste diversion need to be researched and developed. In particular, onsite composting systems that integrate well into local food production. The GHG modelling PhD with the linked microbiological and behavioural PhDs will validate onsite composting systems for high density residential and commercial contexts.

Anticipated impacts

A potential breakthrough is that onsite composting may be the better food waste management option for particular types of high-density facilities in terms of GHG reductions instead of transporting food

waste to larger centralised composting facilities. This breakthrough would assist developers and planners to best incorporate onsite composting into the inner city built environment.

Key statement about the research project:

The suite of composting carbon accounting tools will assist decision makers in identifying and adopting the most effective food waste processing options from a GHG reduction perspective.

Further information

Contact Dr Vivienne Waller

E: vwaller@swin.edu.au

(Project leader for *Composting Food Waste for Food Production | A CRC for Low Carbon Living project*)

Contact

Name: Charles Ling

Organisation: University of South Australia

E: charles.ling@mymail.unisa.edu.au

Twitter: [@charles_ling](https://twitter.com/charles_ling)