**Waste 2025 Conference Abstract Submission**

**(for face-to-face Conference which includes live broadcast)**

***Are maggots the perfect upcycling machines for residential food waste?***

*My presentation is relevant to the following topic area(s).*

***\*\*\* SELECT A MAXIMUM OF 4 TOPIC AREAS ONLY \*\*\****

|  |  |  |  |
| --- | --- | --- | --- |
| [ ]  | **Aboriginal community waste management** (projects, results, planning, what else to be done) | [ ]  | **National, state and local issues** (policies, strategies, responses, opportunities, challenges) |
| [ ]  | **Circular economy** (case studies, right to repair, material traceability, new materials targeted, climate change impacts) | [x]  | **Organics** (food only vs FOGO, implementation strategies, new services) |
| [ ]  | **Collections** (innovations, new systems, vehicles, challenges) | [ ]  | **Plastics** (plastics recycling, plastics recovery schemes, small & large scale plastics projects) |
| [ ]  | **Container Deposit Schemes** (new schemes, new containers, innovations) | [ ]  | **Problem waste** (solar panels, batteries, textiles) |
| [ ]  | **Disaster waste management** (bushfires, floods, pandemic) | [ ]  | **Procurement, tenders & contracts** (from start to finish, procurement approaches, tender processes and waste service contracts) |
| [ ]  | **Economics** (business cases, data gathering, planning for financial impacts, reviews & analyses) | [ ]  | **Product stewardship & extended producer responsibility** (current & planned schemes, new materials to be captured by schemes, local schemes for recovery) |
| [ ]  | **Education** (behaviour change, community engagement, social media, planning FOGO education) | [ ]  | **Project Planning** (projects currently planned, challenges and barriers, planning controls and conditions, project management) |
| [ ]  | **Energy from waste** (projects, case studies) | [ ]  | **Regional issues** (regional responses to waste settings, collaboration, joint projects) |
| [ ]  | **Hazardous waste** (asbestos, clinical & medical, illegally dumped hazardous waste, systems for managing hazardous materials) | [x]  | **Resource recovery** (recycling, C&I/C&D, organics & other material recovery, emerging markets, insights & updates) |
| [ ]  | **Infrastructure & planning** (FOGO capacity, new material recovery planning) | [ ]  | **Social enterprise** (new entrants, recent endeavours, case studies) |
| [x]  | **Innovative projects** (sustainability innovations, artificial intelligence, case studies) | [ ]  | **Strategic waste planning & policy** (stakeholder engagement, strategy development, waste policy impacts and opportunities) |
| [ ]  | **Landfill & facility management** (facility operations management, strategic planning, compliance) | [x]  | **Technology in waste management** (AI, early adopters, innovations, improvements to services due to technology, barriers) |
| [ ]  | **Legislation, regulations & levies** (major updates, monitoring & enforcement, response to changes in regulations) | [ ]  | **Waste projects** (project management, business cases, grant delivery, case studies) |
| [ ]  | **Litter & illegal dumping** (prevention, new management systems & innovative & smart initiatives, surveillance) | [ ]  | **Other** |

[ ]  **Proposed Panel Discussion** -Proposed topic & participants suitable for key issues that may be addressed by a Panel of presenters. For this category suggest your topic & who you will arrange to attend and present (maximum of 5 panel members).

**Presenter information**

**Presenter name: :** *Jodie Larsen*

**Presenter position*:*** *Project Coordinator*

**Presenter organisation:** *City of Sydney*

**Presenter email address:** jlarsen@cityofsydney.nsw.gov.au

**Presenter phone number:** *02 8019 6902*

**Presenter mobile number:** *0422 010 930*

**Biography**

*Jodie has more than 20 years’ experience working in the waste and environment space across both the public and private sectors. Her areas of expertise include food organics collection and processing, waste auditing, and waste and sustainability education.*

*She joined the City of Sydney in 2018 following more than 7 years in waste management consulting with MRA Consulting Group. Whilst at MRA she delivered a range of projects from waste audits, to recycling improvement programs, and education and behaviour change programs including Albury City Council’s award winning Halve Waste program.*

*Jodie is currently coordinating the City’s residential food scraps recycling service and insect farming processing trial. Her role includes procurement and contract management, community engagement and education, coordination of collection service operations, as well as project evaluation, service options analysis, and business case development.*

**Abstract Summary**

*City of Sydney and Goterra are running a NSW-first organics processing trial that uses maggots to convert residential food scraps into animal feed and fertiliser via insect farming technology in the heart of Sydney.*

*This presentation covers the benefits of insect farming, why we’re testing this processing option, our journey to establish the trial, results so far, and what we’ve learnt. This includes how we engaged industry, site selection, construction of the processing unit, and how we targeted communications and media to engage the community.*

*It’s a story of what can be achieved when government and industry embrace possibilities together.*

**Abstract**

***Insect farming technology***

*Insect farming is a relatively new food waste processing technology to Australia. It uses Black Soldier Fly larvae (or maggots) to consume food waste. The process generates protein-rich animal feed which can be fed to fish and chickens, and a nutrient-dense fertiliser that can be applied to crops. This in turn puts food back on our table, making it a truly circular process. Insect farming can achieve superior environmental outcomes, including significant greenhouse gas savings, compared to other organics processing technologies. This is mainly because the insect protein can replace traditional sources of protein in animal feed, like soybeans, that are more greenhouse gas intensive to produce.*

*The technology shows great promise as a food waste solution but unlike other processing technologies, insect farming is not well proven with residential food waste feedstock. To date it has mainly been employed to process feedstocks from the commercial sector, such as hospitality venues or manufacturing, which typically generate a more consistent food waste stream with lower levels of contamination.*

***Food scraps recycling service***

*City of Sydney has been operating a kerbside food scraps recycling service since 2019. After an initial trial period of around two years, the successful service has continued for those involved. Additional apartment buildings have been added to the service on an ongoing basis. Currently more than 22,000 households across the City have access to the service and we have been investigating options for rolling out a food scraps recycling service to all residents.*

*The City is operating a food organics service rather than a FOGO service because most City residents live in apartments and have no garden waste. However, all residents generate food waste and, in fact, food comprises around 40% of the contents of residents red lid bins. As well, recovery of source separated food organics can provide more processing opportunities and better environmental results than FOGO.*

*In line with the City’s sustainability targets, a key objective for the rollout of our organics services is to select processing solutions that will provide us with the best environmental outcome. It was this objective and the lack of other available organics processing options that drove City of Sydney to approach organics circular solutions company Goterra about running a trial.*

***Goterra***

*Goterra is a Canberra-based company founded by Olympia Yarger in 2014. The company designs and operates insect farms in shipping type containers called ’Modular Infrastructure for Biological Services’ (or MIBs) that are operated by industrial robotics. Goterra’s MIBs are modular and have a small footprint allowing food waste to be processed close to where it is created cutting transport costs and emissions.*

*Goterra are now working with many organisations across Australia including Woolworths, Lend Lease, Melbourne Airport and Queanbeyan-Palerang Regional Council.*

***The trial***

*The Goterra and City of Sydney insect farming food scraps processing trial commenced on 6 January 2025 and will operate for a period of 12-months. The processing unit is located within the City of Sydney local government area at the Bingo Alexandria Recycling Centre.*

*Objectives of the trial are to:*

* *Assess the feasibility of the Goterra processing method as a long-term processing solution for residential food organics.*
* *Identify any logistical or management issues and determine procedures to address them.*
* *Determine the impacts of this processing method on the triple bottom line.*

*This presentation will cover the journey to establish the trial including drivers, initial discussions, consultation and negotiation with industry to find a suitable processing location, procurement and contract development and negotiation, engineering and construction of the processing unit, communications and media, preliminary results of the trial, and lessons learned.*