

Food Waste Composting to Build Urban Soils: A Systems Approach to Scaling Up

Proposal Stage

- Built on previous 3-year topic exploration supported by USDA-AFRI Award 2011-68004-30044
- Pre-proposal outlined a “systems approach” to scaling up food waste composting in Milwaukee
- Potential multi-sector partners (24) invited to meeting at Growing Power in Milwaukee
- Web-based survey of direct-market farms around Milwaukee and a literature review were both conducted by an AFRI-funded graduate student



Will Allen hosts first Milwaukee meeting

Launching Work Plan

Project overview: [youtube.com/aginnovation](https://www.youtube.com/aginnovation)



- Video-interview Partners about project expectations
- Project kick-off meeting on Partner campus followed by public social event
- Meet with faculty and students
- Interviews with composters/haulers
- Boost project visibility via YouTube video and Facebook
- Prepare for compost trials at Cream City Farms

Student Contributions

- Tim Allen's thesis, *The State of Food Waste Composting in Greater Milwaukee*, provides a baseline description of the system in 2016-17 (Dr.Ventura advising)
- Nicole Enders' GIS maps (Genzmer advising) inform supply chain analysis (led by Dr. Ross)
- Local public policy review by Dr. Morales' students
- Dr. Dawson's students conduct greenhouse trials
- Dr. Berges' students support outdoor compost trials
- Dr. Runge's engineering students design a food waste transfer station at a project partner's request



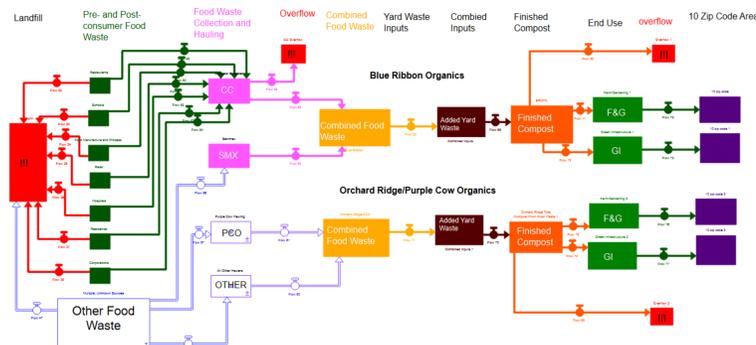
Challenges, Advancements



Meeting at Milwaukee Metropolitan Sewerage District (MMSD) led to an unpredicted opportunity to support a green infrastructure pilot in one of the targeted zip codes: 53212.

- Data acquisition challenges
- Compost trial challenges
- Loss of major partner, Growing Power
- Food waste contamination identified as a concern
- Concerns about exceeding capacity lead to breakthrough meeting
- Successful daylong composting workshop in 53218
- Farmer discussions lead to new education effort (led by Schone)
- Green infrastructure pilot developed

Supply Chain Model



Graduate student Sheamus Johnson is using systems modeling software (Stella), to present data from Tim Allen's thesis (Dr.Ventura and Lawless advising)

8-Point Plan draft 3-26-2018

1. Strengthen & expand our coalition of interests
2. Improve data collection & analysis
3. Educate food waste generators
4. Expand the City's residential food waste collection pilot
5. Secure options to redirect food waste when composting capacities are exceeded
6. Increase use of composted food waste for green infrastructure projects
7. Grow more farmers in the Milwaukee region
8. Sponsor compost for gardens in ten Milwaukee zip codes

Based on Tim Allen's recommendations, new iterations of this draft are shared with Partners as opportunities permit. From March – July 2018 we will seek partner agreements, with the goal to implement some elements prior to project completion in September.

Reflections on Systems R&D

Research purpose: inform the expansion of a real-world system

System requirements: public and private investment, good management practices, and increasing market demand for high quality compost products

System dynamics: Competition between private sector stakeholders presents limitations on collaboration, but significant progress can be made by aligning private and public-sector goals and actions. Alignment requires communication, transparency, and trust. Incremental steps should reward all contributors. Positive personal relationships between actors, public awareness and support, and methods of tracking progress are required to sustain development. Academia may play a temporary facilitative role, but the public good and private profit are more lasting system drivers.

