



Natural Upcycling Analyzes the WasteMaster WM400 Technology

Natural Upcycling is a food scrap and organics collection company currently operating in Linwood, New York and is co-located with the Noblehurst Green Energy Anaerobic Digester. Natural Upcycling collects pre and post-consumer food waste and packaged food waste from businesses and institutions which is used as feedstock in the anaerobic digester or in compost.

CHALLENGE

Food waste comes in many forms: liquids, solids, by-products, out-of-spec products and everything in between, but can be a valuable resource when recovered. Additionally, food waste, in its raw state, is very heavy, odorous, and can attract vermin. This typically dictates hauling businesses, like Natural Upcycling, to frequently collect food waste from their clients, sometimes several days per week or more. These requirements cause inefficiencies for Natural Upcycling and limits their ability to expand.

SOLUTION

The New York State Pollution Prevention Institute (NYSP2I) performed an evaluation of Natural Upcycling's WasteMaster WM400 (WasteMaster), which has the potential to reduce several of the issues associated with collection and management of raw food waste. NYSP2I focused on characterizing the input and output of materials, as well as cost of ownership and operational performance, which was used to compare the WasteMaster system to the incumbent pathway of traditional organics hauling without any preprocessing.

CHALLENGE

- Natural Upcycling wanted to compare their WasteMaster system to traditional organics hauling

SOLUTION

- NYSP2I performed an evaluation of Natural Upcycling's WasteMaster

RESULTS

- When paired with the relevant process and layout changes, the WasteMaster can provide the opportunity for a cleaner and more organized collection area, fewer bins in circulation, and fewer pickups
- Energy and greenhouse gas impacts of using the WasteMaster as pre-processing depend greatly upon the source of grid energy and overall transportation distance of food waste
- There were no significant changes to the nutritional characteristics between the input and the output, other than for the parameters that are very tied to moisture content



Examples of raw food waste inputs (top) and dried outputs from the WasteMaster (bottom)

RESULTS

Based on the work performed by NYSP2I the following was identified:

- There were no significant changes to the nutritional characteristics between the input and the output, other than for the parameters that are very tied to moisture content
- The nutritional characteristics of the output are dependent of the characteristics of the input
- For what was tested, the material appears to be best suited as feedstock for anaerobic digestion. If mixed with other feedstock material, the food waste output may also be well suited as fertilizer and as a feedstock for compost

When paired with the relevant process and layout changes, the WasteMaster can provide the opportunity for a cleaner and more organized collection area, fewer bins in circulation, and fewer pickups.

NYSP2I PARTNERS

New York Manufacturing Extension Partnership

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