**Current ORD Food Waste Research**

1. ***Food Waste “State of the Science” Reports****.*  These products will build a scientific foundation for the EPA’s work to support the U.S. goal to halve food waste by 2030 by analyzing the “State of the Science” for key issues related to US food waste. The reports will cover: characterization of food waste; life cycle environmental impacts of food waste and food waste reduction strategies and technologies; contaminants in food waste that may impact the market for or safe land application of recycled food waste products; impact of biodegradable and compostable food packaging on food waste; performance of compost for environmental services, such as remediation and runoff control; factors that may impede food waste reduction; and elements of effective informational programs. The reports will also identify key research gaps.
2. ***Life Cycle Assessment of Food Waste Management Pathways****.* The full economic and environmental consequences underlying EPA’s food recovery hierarchy and its recommended priorities for diverting food waste have not been quantified through a systematic evaluation. Using new economic input-output models (USEEIO), ORD will evaluate the life cycle impacts of a series of scenarios for food waste management and evaluate their effects. The work will define various reasonable scenarios for source reduction, food donation, industrial uses, and composting, using various food waste components and multiple technologies, based on expert stakeholder input and data availability, and generate life cycle (LCA) results using all available environmental and economic indicators in the USEEIO model.
3. ***Development of environmental indicators for food loss and waste****.*  The indicators will provide a quantitative description of some environmental impacts of wasted food. These impacts are multi-media (air, land, water) and large. We do not currently have well-documented estimates for the impacts that food waste has on the environment. After an initial review of the literature and available data sources, EPA has identified the following top candidates for further development as indicators:  Fresh water used (consumption/depletion of surface and groundwater); Fresh water aquatic ecotoxicity and eutrophication; Carbon footprint/GHG emissions; Acres of agricultural land used.
4. ***Evaluating processed waste quality and “downstream” impacts/benefits from real-world kitchen digester use****.* Growing interest in and/or government mandates for handling food waste (which comprises 30-40% of municipal solid waste) in environmentally friendly ways have led to aggressive marketing for and purchasing of a variety of on-site food waste processing systems. There is a strong need to assess and evaluate food waste pre-processing systems in real-world settings with respect to factors such as performance, capital costs, existing infrastructure, quantity and quality of waste and water streams, and its overall potential to address organic waste reduction and diversion. This project will study pre-processing technology in use in commercial kitchens in New York City.
5. ***Evaluating de-packaging technologies***. This project will test the performance of food de-packaging equipment available on the market in real-world settings. Contamination of food waste with packaging (including film plastics) may complicate composting and anaerobic digestion operations and decrease the market desirability and safety of land application of the compost and digestate. Research efforts will characterize plastics in food waste streams after the use of de-packaging technologies.

**STAR RFA on Food Waste to be issued in early FY 21**

A Science to Achieve Results (STAR) Request for Applications, “Research to Reduce Food Waste in the U.S” is planned for early FY 21. Potential research topic areas are: (1) Successful food waste prevention strategies in households, retail, and food service sectors; (2) Comparative life cycle environmental impacts of food waste management strategies; (3) Effect of food waste pre-processing technologies on the environmental impact of food waste; (4) Impact of contaminants (e.g., plastics, PFAS, persistent herbicides) in food waste streams on recycling of food waste.

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