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Food and food processing waste to energy: Sustainable energy for western NY

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New York is a major producer of milk, yogurt, and cheese in the US. Much of these industries are centered in Western NY and a considerable amount of waste is generated. Western NY is also the home of many small and large Universities/Colleges that generate significant food waste. Soon in NY food waste/food processing waste will no longer be accepted at landfills and so this must be addressed. Land application of food processing on agricultural land is also a problem that is very tightly regulated. Several options are available for treating food waste and food processing waste which includes treatments to generate energy from food biomass and reduce nutrient loads of food processing waste to allow for land applications or movement to wastewater treatment plants. My lab is approaching these problems through two avenues, anaerobic digestion of food waste and using microalgae to treat food processing waste streams. Both processes ultimately lead to energy production, electricity from AD, biofuels, and electricity from the microalgae. Food waste streams that are readily available include, Greek yogurt and cheese whey, egg processing wastewater, tofu whey, apple pomace, spent coffee grounds, and solid food waste. Solid food waste, yogurt and cheese whey are now being digested at large scale ADs and experiments are ongoing with egg processing waste. Microalgae treatment of yogurt, cheese, and tofu whey along with egg processing waste are ongoing with significant nutrient reduction and use of the algae biomass for fuels. We hope to integrate various processes to provide sustainable energy.

Biography

Dr. Lodge completed his PhD in Microbiology from the University of Mississippi Medical Center before doing postdoctoral research at Utah State University and Boston University. He then took a position in the Thomas Gosnell School of Life Sciences at the Rochester Institute of Technology where he still works today. He has been working on the treatment of food waste and food processing streams to generate sustainable energy for Western NY. He teaches courses in Bioenergy, Wastewater Microbiology, Food Microbiology, and Bioremediation. He is now the Director of Graduate Program in Environmental Science at RIT.

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