

UW System Solid Waste Research Program

Enabling Legislation

Wisconsin Statute §36.25 Special programs of the UW System

(3m) SOLID WASTE EXPERIMENT CENTERS

- (a) In this subsection, "solid waste disposal" has the meaning given in s. 289.01 (34).
- (b) The board may establish one or more solid waste experiment centers for the purpose of developing, demonstrating, promoting and assessing the costs and environmental effects of alternatives to solid waste disposal. The board shall determine the location of the solid waste experiment centers. In making the determination, the board shall consider the solid waste disposal needs of the various regions of the state. The board may establish, through cooperative agreements, solid waste experiment centers at existing publicly owned or privately owned storage, treatment or disposal facilities.
- (c) The board shall conduct research into alternatives to solid waste disposal, including the reuse and recycling of materials, composting, source separation and the disposal of household hazardous wastes. The board shall also conduct research into the safe disposal of solid waste that cannot be composted or recycled. Research conducted under this paragraph shall include technologies suitable for application to waste streams of less than 50 tons of solid waste per day and shall consider the environmental effects of the technologies being researched and measures which could be taken to mitigate such effects. Research conducted under this paragraph shall be designed for the benefit of all public and private entities responsible for the collection, storage, transportation, treatment or disposal of solid waste and all persons who generate solid waste.
- (d) The board shall appoint a solid waste research council under s. 15.04 (1) (c) consisting of the chancellor of each institution that has faculty with expertise in solid waste disposal or his or her designee. The council shall advise the board concerning the awarding of funds for research projects under par. (c) proposed by institutions.

Background

The program was established by the Wisconsin legislature in 1990. It provides funds for research into alternative methods of solid waste disposal. The program offers maximum awards of \$30,000 to faculty and staff with principal investigator status. Student grants of up to \$4,500 are also awarded.

In 1997, the funding source for the program was changed from GPR to SEG funds. The state's Environmental Management Account has been providing an annual appropriation of \$155,400 to the program for grants and salary and fringes for a .50 FTE academic staff position to administer the program.

During the most recent five-year period, the program has funded 14 principal investigator projects and 44 student research projects. These recent projects are listed below and the full reports may be found at:

<https://www.wisconsin.edu/waste-research/>

Principal Investigator Projects Funded in FY 11 through FY 15

Investigators		Project Title
MS N	William Likos	Beneficial Use of Municipal Solid Waste Incineration Fly Ash for Road Construction I
PLT	Faheem, Penn & Cornett	The Effective Use of High Carbon Fly Ash in Hot Mix Asphalt Pavements
MS N	F. Arriaga & D. Soldat	Improving Municipal Yard Waste Compost Performance with Recycled Wallboard Gypsum
MIL	Nidal Abu-Zahra	Use of Recycled Materials in Thermoplastic Foam Extrusion
PLT	Ben Bocher	Improving Scalability for Anaerobic Co-Digestion of Organic Solid Wastes
STP	Jacob Prater	Improved Production of Magnesium Ammonium Phosphate (Stuvite) from Landfill Leachate
MS N	S. Pilla & L. Turng	A Novel Approach to Enhance the Recyclability and Reusability of Post-Consumer Plastics
MS N	Mark Renz	Evaluation of Composting as a Management Strategy for Garlic Mustard
GBY	D. Dolan & J. Katers	Analyzing the Effectiveness of Recycling for WI Responsible Units
PLT	Zauche & Hitchins	Codigestion of Biobased Plastics, Food Waste with Dairy Manure
STP	Michitsch & R. Larson	Anaerobic Digester for on-site Evaluation of Food Processing & Municipal Food Waste
MIL	Chris Yingchun Yuan	Recycling Printed Circuit Board Wastes through Supercritical Fluid Delaminating
MS N	Richard Wolkowski	Nutrient Availability from Pelletized Waste Materials
MS N	Katherine McMahon	Bioaugmentation of Bioreactor Landfills to Improve Waste Conversion to Methane

Student Projects Funded in FY 11 through FY 15

Students		Project Title
MSN	Brown & Natarajan	Evaluation of Leaching Data from Unencapsulated Roadway Applications Using Fly Ash
OSH	Jessi Zimmerman	Microbial Community Analysis of the University of Wisconsin Dry Biodigester
STP	Matt Tlachac	Dissolved Phosphorus Removal Using Steel Slag By-Products
MSN	Ali Soleimanbeigi	Engineering Properties of Foundry Sands for use in Highway Embankment Fill
PLT	Cassandra Yustus	Creation of a Guide to Waste Auditing and Minimization for UW Campuses
MSN	Benjamin Warren	Thermal Preloading to Improve Engineering Properties of Recycled Asphalt Pavements
EAU	Sean Morrison	Dredging Organic Waste in WI Lakes: Effective Practice for Locating Sunken Lumber
EAU	David Simenson	Dredging Organic Waste in WI Lakes: Effective Practice for Locating Sunken Lumber
FOX	Danielle Handler	Feasibility Study for a Neighborhood led Composting Program
GBY	Kyle Sandmire	BOW Resource Recovery Facility Feasibility Study
GBY	Brian Yangle	DATCP Clean Sweep Grant Program Data Analysis
MSN	Jiannan Chen	Leaching Characteristics of Fly Ash from Municipal Solid Waste Incineration
MSN	Mababa Diagne	Effects of Recycled Clay Brick on Resilient Modulus of Recycled Concrete Aggregate
MIL	Lucia Feriancikova	Use of Biosolid-derived Biochar to Control Leaching of Nutrients & Bacteria from Ag Soil

MIL	Melissa Taylor	Food Waste Reducer App
OSH	Brooke Koenig	Comparison of Composted Digestate to Undigested Waste from an Anaerobic Digester
OSH	R. Bartell & S. Hands	Optimizing Biogas Output by Biological Means
MSN	Axel Adams	<i>Hugelkultur</i> Gardening Technique as a Source Reduction Strategy for Yard Trimmings
STO	Massey & Lucchesi	Waste Audit and Analysis of a Three Bin Waste Reduction System
STP	Tracy Westbury	Composting Food Paper Products Treated with Fluorotelomer-based Sufactants
OSH	Hailey Rushing	Biogenic Methane Potential of Various Solid Waste Substrates
WT W	Kevin Marks	Marketing Strategies on Recycling and Waste Minimization in the Residence Halls
PLT	Jessica Chepp	Improved Operations at the City of Wauwatosa Drop Off Location
MIL	Issam Qamhia	Characterization of Regenerated Cellulose for Bio-based Epoxy Fibrous Composites
OSH	Ryan Bartell	Chemical Characterization of Food Waste for Potential Use in a Dry Anaerobic Digester
MSN	Kongrat Nokkaew	Influence of Moisture on Resilient Modulus for Recycled Asphalt Pavement
MSN	Ryan Shedivy	Leaching Characteristics of Recycled Asphalt Pavement Used as Unbound Road Base
MSN	Chen & Soleimanbeigi	Leaching Characteristics of Recycled Asphalt Shingles
MIL	Qiang Zhai	A Low Cost Separation Technology for Recycling Manufacturing Metal Chip Wastes
GBY	J. Gumz & R. Nielsen	Waste Stream Committee in Brown County Wisconsin
STP	Sarah Kogler	Polylactic Acid Cups versus Paper Cups: A Composting Efficiency Comparison
MSN	R. Shedivy & A. Meier	Leaching Characteristics of Recycled Asphalt Pavement used as Road Base
MSN	J. Chen & B. Brown	Leaching Characteristics of Recycled Concrete Aggregate used as Road Base
MIL	Qiang Zhai	Recycling Metal Chips through a Hydrodynamic & Electromagnetic Separation Approach
STP	Andrew Kiefer	The Effects of Storage on the Quality of Vermicompost
STO	Kyle Mills	Composting Audit of the City of Menomonie
MSN	Ali Soleimanbeigi	Asphalt Shingles Mixed with Foundry Sand for Construction of Highway Embankments
OSH	Korin Franklin	Recycling Rates of E-waste for Northeastern Wisconsin Businesses and Institutions
MSN	S. Fong & N. Mohapp	Biochemical Methane Potential of Municipal Solid Waste and Biosolids
STP	Waneta Kratz	Plant Nutritive Value of Composted Polyactic Acid-Based Dinnerware
GBY	Paula Olig	Assessing the Effectiveness of Wisconsin Recycling Market Development Efforts
MSN	Lea Zeise	Commercial Pre-Consumer Food Waste Diversion
PLT	Josh Bohnert	Mobility of Nanotech Waste in the Presence of Natural Organic Matter & Humic Acids
LAC	Leah Schiller	Maximizing the Efficiency of a Large Scale Vermicomposting Project