Modeling Organic Waste Management Ramsey/Washington County Resource Recovery Project Board

> Matt Domski & Jessica Primozich MnTAP Advisor: Sarah Haas

Minnesota Technical Assistance Program



Agenda

- Project motivations
- Replication model overview
- Food processing plants
- Restaurants
- Challenges for future implementation
- Personal benefits of project



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Goal of Resource Recovery **Project Board**

- By 2030, organics recovery will account for 15% of garbage collected within the Twin Cities **Metropolitan Area**
 - Develop and expand source separated organic material (SSOM) programs to divert material
 - Gather preliminary data
 - Develop replication model to collect SSOM from high and medium volume generators



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Motivations for Change

- True cost of solid waste for businesses
 - Raw material
 - Labor invested
 - Disposal
- County Environmental Charge (CEC)



CEC: Trash Collection Only

ltem	Amount	Subject to CEC
Basic Trash Service	\$300	✓
Fuel Surcharge	\$100	
CEC	\$212 (53% for Ramsey) \$150 (37.5% for Washington)	
MN State Solid Waste Management Tax	\$68 (17%)	
Total	\$680 for Ramsey \$618 for Washington	

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CEC: Trash, Recycling, Organics Collection

ltem	Amount	Subject to CEC
Basic Trash Service	\$150	✓
Recycling Service	\$100	
Organics Service	\$50	
Fuel Surcharge	\$100	~
CEC	\$133 (53% for Ramsey) \$93 (37.5% for Washington)	
MN State Solid Waste Management Tax	\$68 (17%)	
Total	\$601 for Ramsey \$561 for Washington	

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Replication Model Overview

- 1. Evaluate waste stream
- 2. Research end market options
- 3. Choose who to involve
- 4. Implement organics management program



Evaluate Waste Stream

- Gather data regarding:
 - Current waste disposal methods
 - Amount of waste
 - Composition of waste
 - Food, compostable, recyclable, trash





Research End Market Options

Food Recovery Hierarchy





Choose Who to Involve

- Management
- Staff
- Current solid waste haulers
- Potential organic waste haulers



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Implement

- Reduce food waste
- Coordinate with waste haulers
- Develop organics separation procedures
- Train and educate staff
- Continual measurement and evaluation



Supplemental Information

- End market disposal options
- Waste container options
- Food waste conversions





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Land O'Lakes Matt Domski

MnTAP Advisor: Sarah Haas

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Food Processing Industry

• Full-scale facilities

- Product for distribution/sale
 - Efficient production

- <u>R&D facilities</u>
 - Pilot/trial production
 - Product reformulation
 - Scale-up readiness
 - Consumer testing





Replication Model Overview

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Land O'Lakes - Dairy Foods R&D Food research, testing, and pilot facility





Organic Waste - Land O'Lakes R&D

Facility Location	Waste Description
Pilot Plant	Processed cheese excess, shredded cheese, fats/oils
Food Service Lab	Cheese sauce, mac n' cheese, shredded cheese
Ingredients Lab	Spray dried cheese powders, powdered seasonings
Retail Lab	Butters/spreads, yogurt, cheese, miscellaneous food
Cold and Frozen Storage	Dairy inventory from all labs and the pilot plant

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Waste Evaluation: Land O'Lakes R&D

R&D Food Waste Collection





Waste Evaluation: Land O'Lakes R&D

- Inconsistent waste quantity
- Food waste
 - 90-95% dairy
 - Tested product
- Food packaging
 - 60% unpackaged
 - 40% packaged





End Market Recommendations: Land O'Lakes R&D



Food-to-livestock options:

- 1. Feed processing
- 2. Directly to livestock farms

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End Market Recommendations: Land O'Lakes R&D

- Decision: Directly to livestock
 - Charges per bin collected, ~ \$4/barrel
 - Collects full bins only
 - Accounts for 60% of food waste



Recommendations

Recommendation	Hierarchy Level	Benefits/Savings	Status
Barthold Farms, packaging-free food collection 3 days/week	Feed Animals	 Reused ~1.5 tons of organic material per month (60% of food waste) Reduced weight/volume of trash 	Implemented
Reduce trash pickup from 5 to 3 days/week	N/A	 Over \$900/month 	Implemented

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Recommendations Summary: Recommended

Recommendation	Hierarchy Level	Benefit or Savings	Status
Add container from Endres Processing for packaged food waste	Feed Animals	 1 ton of organic waste reused (the other 40% of food waste) 	Recommended
Reduce trash pickup from 3 to 2 days/week	N/A	 About \$600/month 	Recommended



Who to Involve: Land O'Lakes R&D

- Technical Assistance Sarah Haas
- Plant Manager Carle Shanks
- Sustainability Becky Kenow
- Building & Office Services
- Current Waste Haulers
- Lab and pilot plant employees
 - Don Ackman and James Deputie help separate food waste (right).





Keys to Implementation: Land O'Lakes



- Find correct vendor
- Educate staff
- Pilot program
- Assess feasibility of reducing trash service
- Monitor organic service
- Consider additional future options

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Restaurants Jessica Primozich MnTAP Advisor: Sarah Haas

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Restaurants

- White Bear Lake
 - Donatelli's
 - Rudy's Redeye Grill
 - Ursula's Wine Bar and Café
 - Washington Square Bar & Grill
- Stillwater
 - The Green Room
 - Leo's Grill & Malt Shop
- Downtown St. Paul
 - Burger Moe's
 - Day by Day Café
 - Downtowner Woodfire Grill
 - Sweeney's Saloon

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Criteria for Restaurant Selection

- Geographic concentration
 - Coordination of services
- Type of restaurant
- Interest in organics reuse





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Organic Waste: Restaurants





Replication Model Overview

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Waste Evaluation: Restaurants

- What is the organic waste?
- Why is it generated?
- Where is it thrown away?
- How much?

Waste Chart*					
Date	Food Item	Weight	Spoilage	Prep Waste	Customer Plate Waste

* Based on a chart provided within the EPA's Food Waste Audit Tool

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Volume of Waste

A Number of Garbage Containers	B Size of Garbage Containers	C Frequency of Pickup Per Month	D Volume of Waste Generated Per Month
1 container	8 cubic yards	8.66 pickups	69 cubic yards



Waste Composition: Restaurants



*"Targeted Statewide Waste Characterization Study: Waste Disposal and Diversion Findings for Selected Industry Groups," *California Integrated Waste Management Board*, June 2006, <u>www.ciwmb.ca.gov/Publications/</u>.



Composition of Waste

A Volume of Total Waste Generated per Month	B Volume of Waste that is Food Waste (multiply A x 56%)	C Volume of Waste that is Compostable (multiply A x 27%)	D Volume of Waste that is Recyclable (multiply A x 8%)	E Volume of Waste that is Trash (multiply A x 9%)
69 cubic yards	39 cubic yards	18 cubic yards	6 cubic yards	6 cubic yards



Volume to Weight

A Volume of Food Waste per month	B Weight of Food Waste Generated per month (multiply A x 1,000 pounds)
39 cubic yards	39,000 pounds



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End Market Recommendations: Restaurants

- Source Reduction
 - Observe prep work
 - Monitor food orders
 - Rotate food
 - Modify portion sizes
 - Eliminate
 preventable waste





End Market Recommendations: Restaurants

Donations

- Call as needed for pickup
 - Un-served menu and buffet items
 - Un-served food from catered events
 - Surplus food inventory

 Federal Bill Emerson Good Samaritan Food Donation Act



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End Market Recommendations: Restaurants

- Beneficial Reuse
 - Feed Hungry People
 - Feed Animals
 - Industrial Uses
 - Composting
- Dependent on composition
- Work with multiple haulers





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Who to Involve: Restaurants

- Owner/manager
- Restaurant staff
- Technical assistance programs
- Current solid waste haulers
- Potential organic waste haulers



Implement: Restaurants

- Reduce food waste
- Monitor in-house recycling
- Coordinate with waste haulers
- Develop organics separation procedures
- Train and educate staff
- Continual measurement and evaluation



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Restaurant Savings

- Annual average reductions of waste - Between 88 and 270 tons per
 - restaurant
- Collective savings
 - \$80,000



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Implementation Challenges

- Limited space for bins
- Lack of route density
- Cost of organics pickup
- Waste separation
- Smell of containers





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Personal Benefits

Experience

- Waste evaluation procedures
- Organic waste disposal
- Professional communication
- Technical writing
- Chance to work with incredible people - THANK YOU!



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Personal Benefits

Real work experience

- 10 site assessments
- Networking
- Waste composition study
- Technical writing

Thank you!





Questions?



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