Maximizing Organics Diversion: A Comparison of Residential Food Waste Capture Rates

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Outline

• Background on Novamont

• The Need For Residential Food Waste Collection
  – Five Years of Growth in the U.S.
  – Metrics for Success: Participation, Capture Rates

• Lessons From Abroad
  – Canada
  – Italy

• Conclusion: Planning for SSO
Novamont’s mission is to find solutions to environmental problems by developing products from **renewable raw materials of agricultural origin**, minimizing post-consumer waste and using low environmental impact processes.

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Why Is Residential Food Waste Collection Important?

Total MSW Generation (by Material) 2010
250 Million Tons (Before Recycling)

- Paper and Paperboard 28.5%
- Yard Trimmmings 13.4%
- Food Scraps 13.9%
- Plastics 12.4%
- Metals 9.0%
- Rubber, Leather, & Textiles 8.4%
- Wood 6.4%
- Glass 4.6%
- Other 3.4%

Food scraps composted in 2010: 2.8% (0.97 million tons)
Over 50% of material disposed of could be composted.

Source: USEPA

Food makes up the largest percentage of waste going into municipal landfills and combusted for energy recovery.
Current Status: Residential SSO in the U.S.

Key Data (Dec 2011):
- Over 160 residential SSO programs across 16 states
- Over 2.3 million households served
- Roughly 50% growth in the past five years
Growth Of U.S. Food Waste Collection: Municipalities

Number of municipalities with SSO

- 2005
- 2006
- 2007
- 2009
- 2011
Metrics: Participation vs. Capture Rate

• Participation
  – Percent of households that have a green cart (if subscription)
  – Percent of households placing green cart at the curb weekly
  – Percent of households placing food waste in green cart weekly

• Recycling Rate
  – Percent of MSW diverted (out of tons MSW generated)

• Capture Rate
  – Percent of food waste diverted (out of food waste generated)
Residential Food Waste: Major Behavior Change

U.S. Trend—Food waste added to existing yard trimmings program

Pros:
• Build on initial investment in green carts, trucks, etc.
• Composting facility contract in place (likely needs new permit)

Cons:
• Separating food waste is major behavior change
• Difficult to monitor food waste capture rates
Residential Food Waste: Program Maturity

U.S. Trend—Focus on methods of increasing participation and capture rates

- Collection frequency
- Kitchen pails & compostable bags
- PAYT & other incentives
King County “Ick Factor”

2008 study *Overcoming the “Ick Factor”*

“I would recycle food scraps if…”

• **85%** - City provided products that make participation easier cheaply or at cost, specifically compostable bags and kitchen pails

• **83%** - City promoted how participating can lower my garbage bill

• **71%** - Switched to weekly organics collection

• **53%** - More info on why residents should participate

King County’s 2010 capture rate (including yard trimmings) was approximately 28.5 lbs/week/household
SSO Programs That Allow Compostable Bags (2012)

- Yes: 79%
- No: 21%
Collection Frequency & PAYT

Less-than-weekly (LTW) trash collection, paired with weekly organics and recycling collection

- Not just adding a new service, but re-thinking how all materials are handled (weekly trash no longer needed)
- Leads to space constraints in garbage cart, odor concerns from food scraps sitting for two weeks
- Connect with Pay-As-You-Throw (PAYT) pricing

LTW already practiced in: Portland (OR), Olympia (WA), King County (WA), Hutchinson (MN), Hennepin County (MN). Pilots in Seattle (WA) and San Francisco (CA).
Seattle, WA

Highlights:
• PAYT fee structure; certified compostable bags encouraged
• April 2009—organics collection frequency increased from bi-weekly to weekly pickup; all single-family customers required to either sign up for service or request an exemption for backyard food waste composting
• In 2010, capture rate for residential food waste reaches 45%
• September 2011, multi-family and multiplex customers are also required to sign up for organics service
Portland, OR

Highlights

• Piloted residential food waste in 2010, rolled out citywide in 2011.
• With citywide rollout, switched to bi-weekly garbage collection (with PAYT option for monthly and on-call service)
• Certified compostable bags promoted
• First year results:
  – Participation (green cart at curb, and had food waste): 78%
  – Food waste capture rate: 45%
Canada: Ontario

SSO Curbside Participation Rate (%)

Source: York Region Environmental Services Committee—2010
Canada: Ontario

SSO Collected Curbside in 2008 / Household Serviced (kg)

Source: York Region Environmental Services Committee—2010
Canada: Ontario

SSO Residual Rate (%)

Source: York Region Environmental Services Committee—2010
Italy

Intensive Source Separated Organics (ISSO)

→ Maximize organics diversion from landfill
→ Reduce food scraps in trash to less than 10%

• Food waste collected separately (no yard trimmings)
  • 130 kg/inhabitant
  • 300 kg/household
  • 660 lb/household

• Total organics (food waste + garden waste):
  • 150 kg/inhabitant
  • 350 kg/household
  • 771 lb/household
Italy – Best Performing Counties
(total organics, food and garden waste)

Source: ARS ambiente, 2013
ISSO Collection System

1. Vented kitchen pail and certified compostable bags are used to collect food scraps.

2. Small curbside bin just for food waste. Organics collection 1-3 per week; trash typically biweekly (to achieve high capture rates).

3. Small collection vehicles (w/o compaction) haul the organics to transfer stations.

4. Processing (composting and/or anaerobic digestion).
Conclusion: Planning for SSO

• What is the main goal?
  – Food waste is the cornerstone
  – Solid waste master plan, re-thinking all waste streams
• Pilot project
• Logistics and tools
• Measure participation and capture rates
Thank You

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