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Into the Future: The Evolution of Solid Waste Management

An Approach to Simplified Organics Recycling

Debra Darby

Organix Solutions™

Organix Co-Collection™

One Truck. One Durable Compostable Bag.

A ONE-OF-A-KIND PROGRAM

Organics Are Recyclable – A Closed Loop

Education

Source Separated Organics at Home

Local Composting
Creates local jobs

Develop End-Use
Market for compost

Gardens
Public Parks
Agriculture
Development
DOT projects

Organics Recycling

Organix Solutions

Our Mission

To provide cost-effective and sustainable collection and treatment solutions that recover organic waste and maximize the potential value of recyclable feed stocks.

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Organix Co-Collection™

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Organix Co-Collection Research and Develop

City of Wayzata in Hennepin County, Minnesota in 2002

Hennepin County - Organics Diversion

- 2 interested parties: City of Wayzata and Randy's Environmental Services
- How to launch an organics pilot as part of recycling
- What evolved over a decade to the present system Blue Bag Organics® Co-collection in MN
- Amount of time and dedicated research invested for a solution

* Randy's is the parent company of Organix Solutions.

Research and Development for Durable Compostable Bag

Dedicated Organics Route Not Feasible

- Scattered routes were inefficient
- Devised plan to develop a compostable bag to be collected with the trash and placed in the same cart
- No available compostable bag was suitable
- Team decided to design its own compostable bag strong enough to make it through the collection process

City Receptive to Organix Co-Collection

- Neighborhood coordinators volunteered
- Community supported the program
- Residents participation was good, very little contamination

BPI Certified Compostable Bag

- Integrity during use, hauled in/out of the truck – proprietary design
- Good puncture and tear resistant; withstands cold, rain, humidity and UV
- Biodegrades 45 days at an industrial composting facility

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Co-Collection Program Launched 2012

Residents collect food scraps and food soiled papers in 13-gallon Extreme Duty Compostable Bag, tie a knot and place it in the same cart with their trash.

- On the regular trash collection day, the hauler does their normal route
- Compostable bags are sorted at a transfer station or MRF and diverted to a composting facility
- Helps reduce contamination (our data shows rate <3%)
- Co-collect organics with trash. No additional cart or truck needed – reduces cost

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Layered Approach™

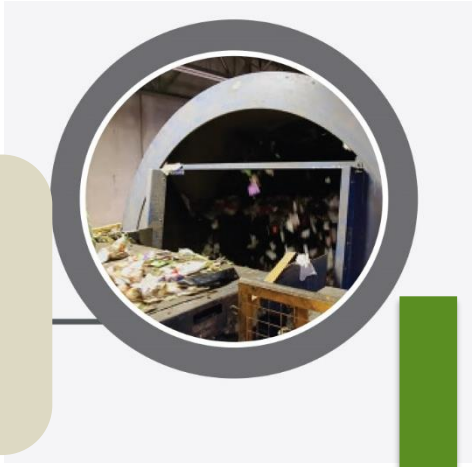
Engineered to recover valuable organic materials

Layer One

Organix Co-Collection™ and Automated Sorting Robot

Layer Two

Material Recovery; Removal of 2” Minus



Layer Three

BurCell® System processes remaining organics into engineered feedstock

Layer Four

Engineered feedstock to composting or anaerobic digestion

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Layer One: Organix Co-Collection and Automated Robotics Solution for Sorting

- Co-collected bags are delivered to facility mid or end-point

- Automated sorting robot removes organics-filled compostable bags

- Our partner - Waste Robotics develops and delivers artificial intelligence technologies and robotic equipment to enable autonomous sorting for the Circular Economy.
  - Allows for fast, precise, and reliable autonomous sorting (no human pickers) adapted to existing MRF.

WASTE ROBOTICS®

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Compostable Bag Evolution – Green Bag Organix™

Today over 48 cities in Minnesota have implemented the Blue Bag Organics® program and more communities are signing on. Outside of Minnesota the program is marketed as the Green Bag Organix™.

- We manufacture our own product line of compostable bags for both residential and commercial
- Certified by the **Biodegradable Products Institute (BPI)** to meet the industry standard test methods of ASTM D6400 for compostability at an industrial composting facility

Green Bag Organix™

Organix Solutions™

Co-Collection Patent

Utility Patent US 9,669,431 B2 issued June 6, 2017

First of its kind program, patent covers the method of collecting and processing of compostable organic waste material.

- Single waste collection vehicle can collect both organic waste and MSW waste in a single trip.
- Waste collection vehicles are typically large trucks with low gas mileage, eliminating the need for multiple trucks on even a relatively small scale has a significant environmental impact.
- Research conducted by both the Minnesota Pollution Control Agency (MPCA) and Aspen Research Corporation, an independent third-party laboratory confirmed the compostable bags were flexible and strong enough to withstand compaction in a waste collection vehicle.

Organix Co-Collection™ Program

Program Includes

- Presentations to City Council, municipal leaders and town meetings
- Initial marketing includes high frequency needs like community events, website and newsletters, mailers, door hangers, and newspaper
- Hands-on training with residents, onsite training for facilities staff
- Maintenance marketing for program expansion, phased-in over time
- Organics audit to reduce contamination
- Customer Service telephone support

Starter Kit

- Welcome Letter, “Your Guide Organics At Home” Brochure and refrigerator magnet
- 1-year supply of 13 gallon Extreme Duty Compostable Bags (60 bags) shipped directly to each household
- Content for City Website
- Customer Service telephone support
- Annual Renewal

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Benefits of Compost Use

- Sequesters carbon dioxide in soil preventing release into the atmosphere
- Increases soil moisture retention, reduces runoff into waterways
- Binds and degrades pollutants
- Reduces Desertification
  Persistent degradation of ecosystems by variations in climate and human activities
- Diverting organic materials from the Municipal Solid Waste stream
  Reducing, recycling and composting are sustainable means to protect human health and the environment


Anaerobic Digestion


Commercial Composting


Home Composting

Current linear waste disposal system should be transformed to support Organics.

✓ Infrastructure is needed for Organics Recycling that supports commercial composting and anaerobic digestion.

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