



Natur-Tec[®]

Sustainable Biobased Materials



USZWBC 2015
Source Separation Maximizes
Material Value



- Introduction
- What's in a Landfill?
- A Word on Food Waste
- Single-Stream Recycling
- Source-Separated Materials
- How About Food Waste?
- Wrap-Up

Introduction



Natur-Tec is a specialty compounder and formulator of biobased and compostable bioplastics.

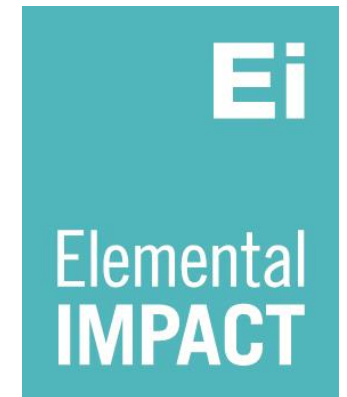
- Assist with LEED certification efforts
- Meets ASTM D6400 and EN13432 standard specifications for compostable plastics
- Made from renewable content as per ASTM D6866



Available product portfolio comprises of:

- **Natur-Bag**[®] - compostable trash bags and bin liners
- **Natur-Ware**[®] - biobased and compostable cutlery

-
- **Natur-Tec** is a proud partner of **Ei**, a national non-profit
 - Member of Sustainable Materials ACTION Team

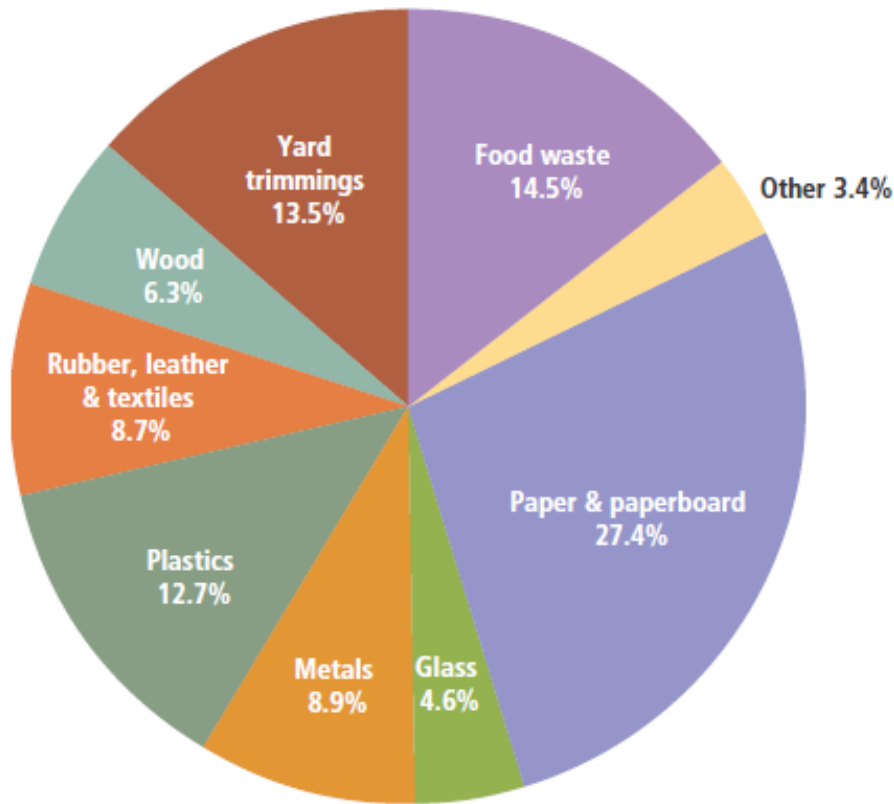




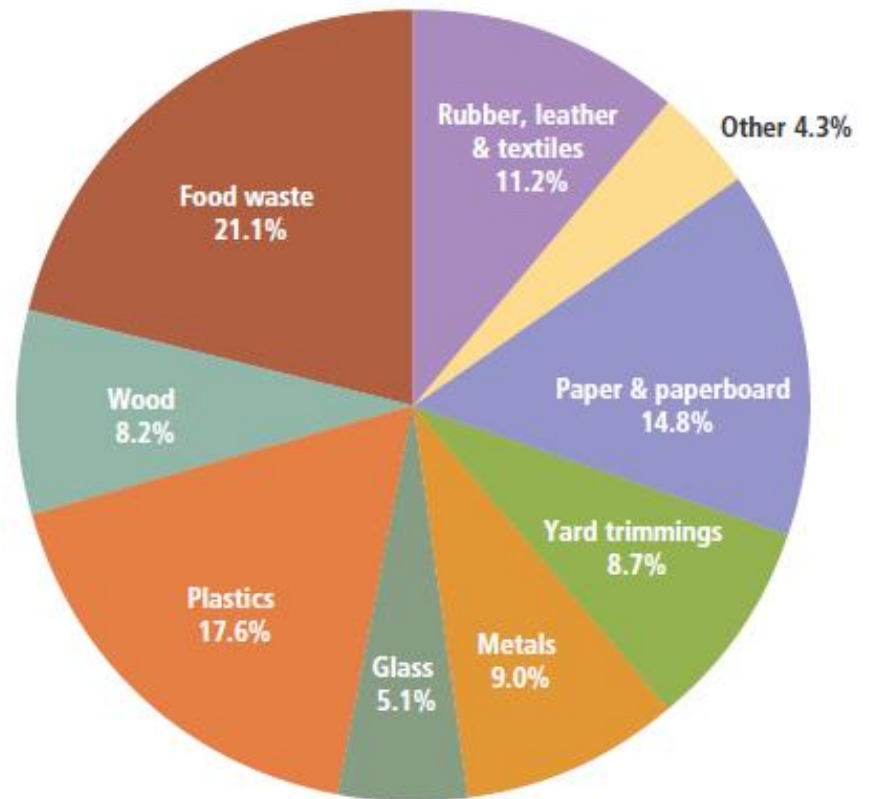
What's in a Landfill?



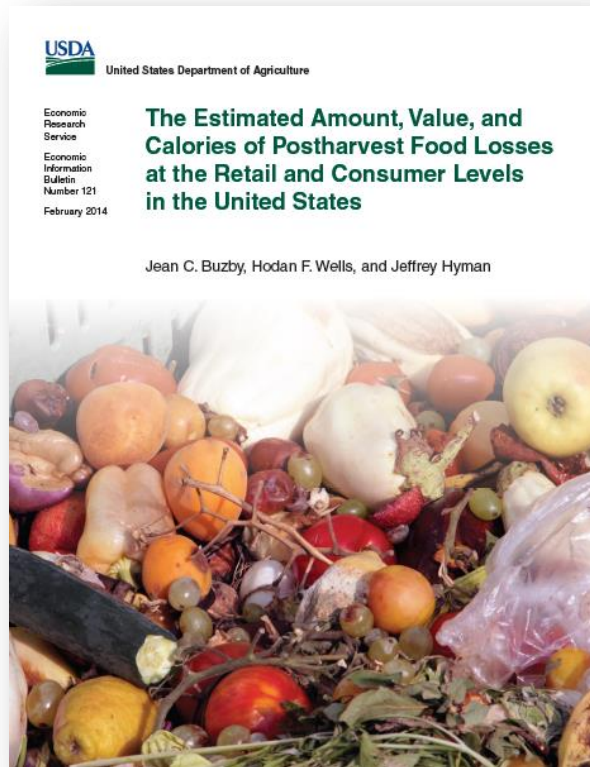
Total MSW Generation (by material):
2012 - 251 Million Tons (before recycling and composting)



Total MSW Discards (by material):
2012 - 164 Million Tons (after recycling and composting)

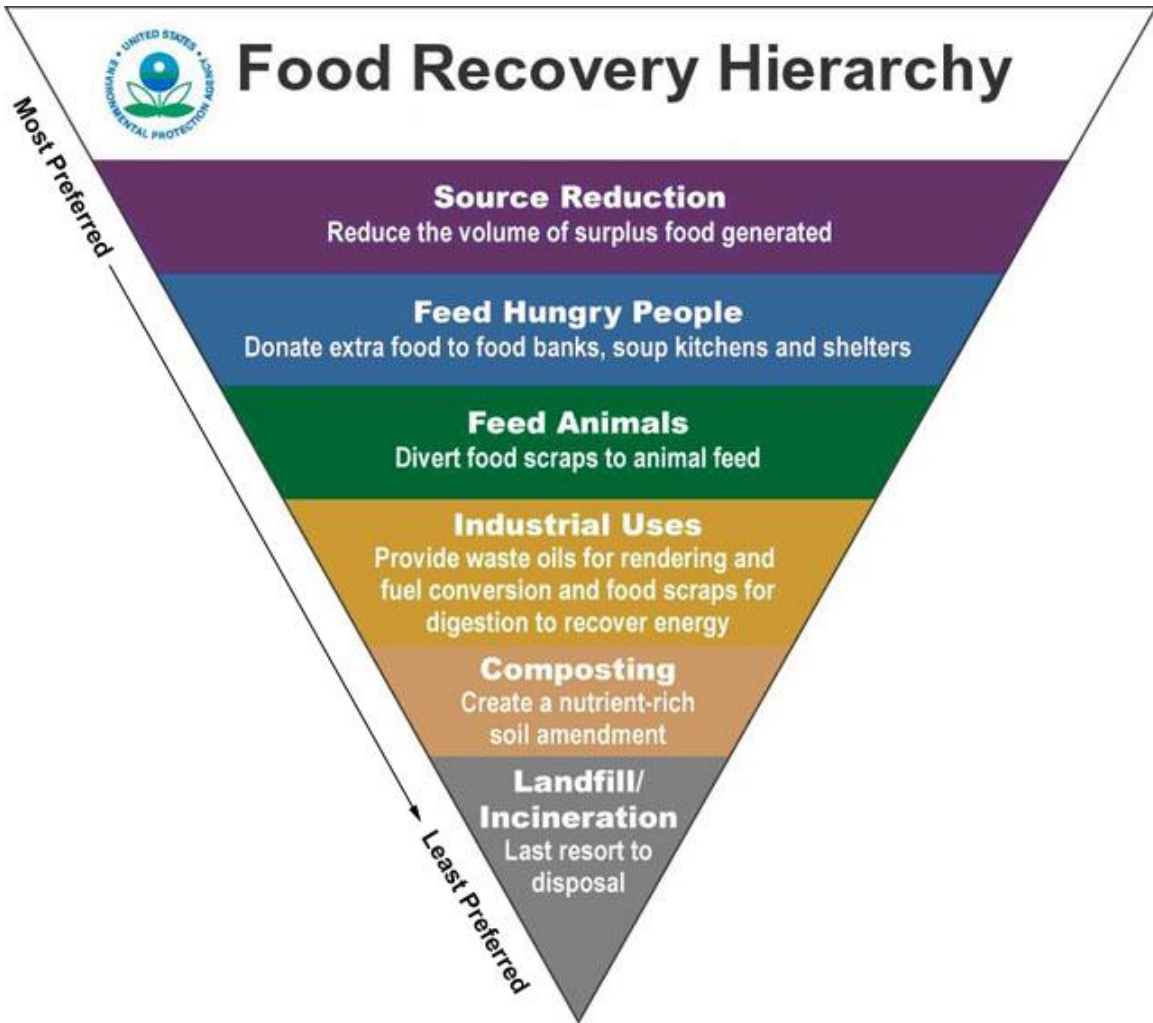


Data and Charts: EPA "Municipal Solid Waste Generation, Recycling, and Disposal in the United States: Facts and Figures for 2012"

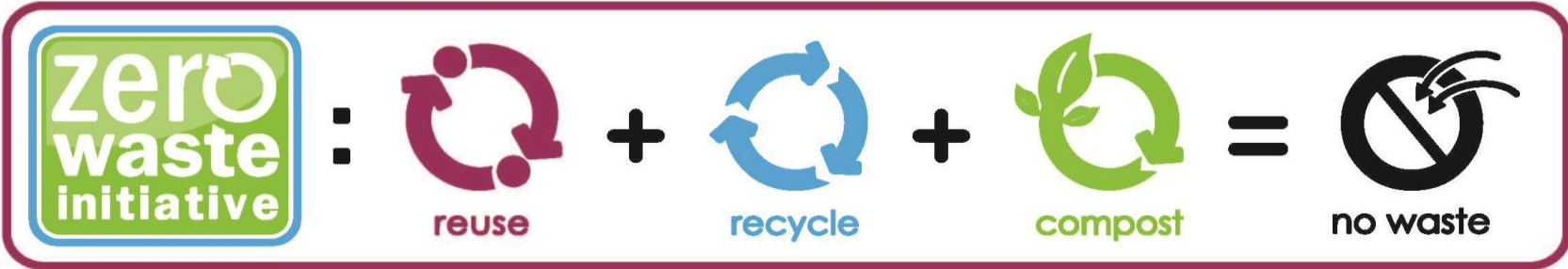


“In the USA, 31% (133 billion pounds) of the available food supply went uneaten.”

Source: 2010 USDA Study (Economic Information Bulletin Number 121, February 2014)



Food Waste Diversion is Critical

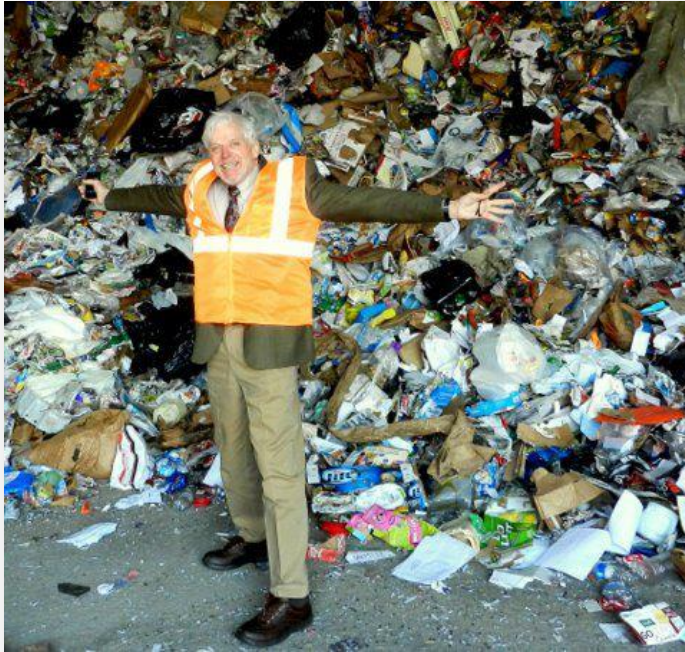


What's the Most Effective Way?



- Single-Stream Recycling?
- Source-Separation Materials?

Single-Stream Recycling



- Convenient
- Collection cost-savings
- High diversion rates
- High participation rates

Single-Stream Material Recovery

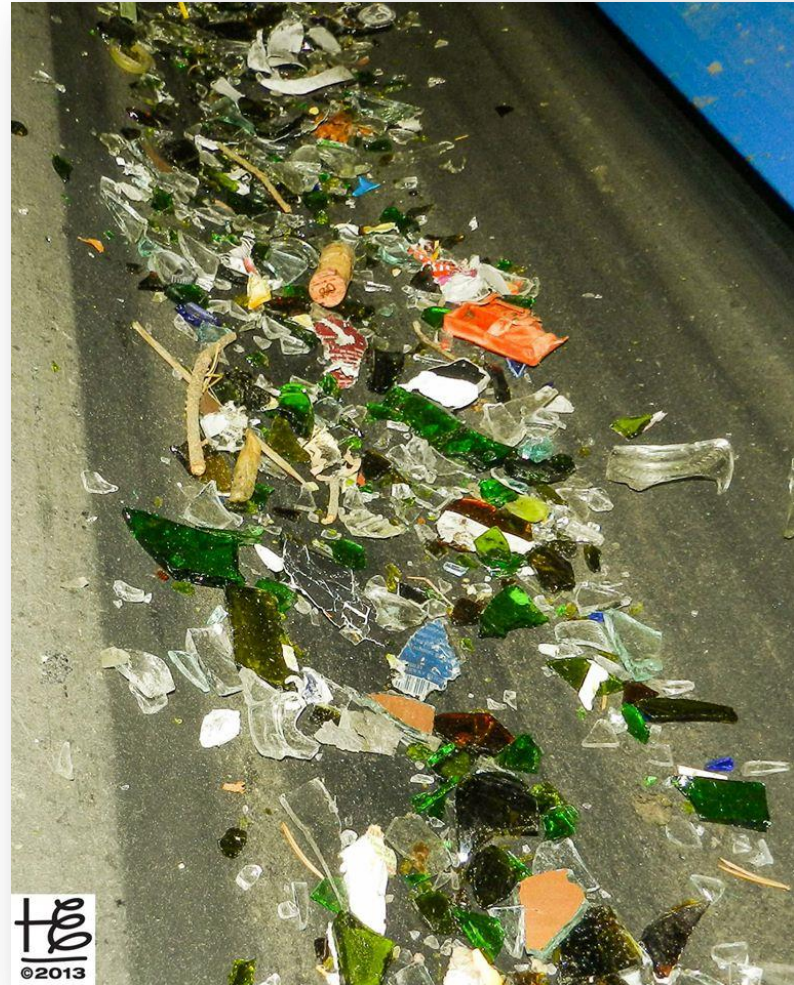


Photo Credit: Holly Elmore (2013)

Single-Stream: Contamination?



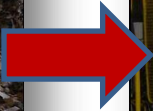
- High capital cost
- Less net recovery due to contamination
 - “¼ of single stream goes to landfill”
 - “40% loss with glass”

Susan Collins, Container Recycling Institute

Source-Separated Materials (SSM)



Plastic, Paper, Aluminum....



SSM Program

Considerations and Enablers



- Know and understand existing hauling, concessionary contracts, lease agreements, etc.
- Establish baseline metrics with on-going waste audits.
- Diversion infrastructure with performance targets and metrics
- **Control product supply: compostable, reuse, and recycle**
- **Readily available sorting stations and effective signage**
- On-going education and engagement



How About Food Waste?



The Important Role of Food Waste



- Food waste is a contaminate in Single-Stream Recycling rendering materials in stream as waste (little to no recycling options).
- Added cost due to more frequent pulls due to odor and vector concerns
- **Food waste is a valuable material!**



- Improved soil health (reduce fertilization requirements)
- Increased water retention
- Increased crop yield
- Reduce green house gas (GHG) emissions



- Source-Separated Material programs help reduce contamination concerns at compost facilities by keeping non-compostable items out of the food waste stream
- “Contamination is an expensive trip to landfill!”



“Compostable plastics are a vehicle for collecting more food waste.”

Dick Lilly

Seattle Public Works

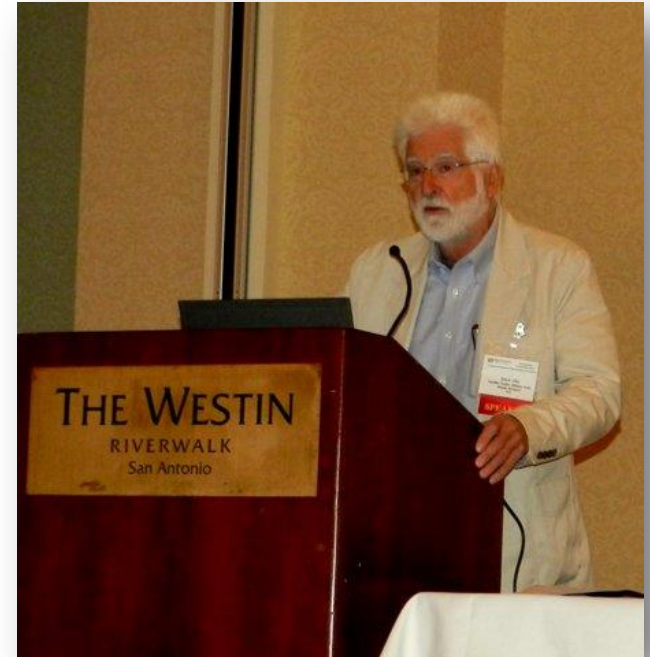


Photo Credit: Holly Elmore



Natur-Bag[®] is 100% Certified Biodegradable & Compostable

Features:

- Certified Compostable by the BPI (Biodegradable Products Institute) and AIB-Vinçotte
- Meets ASTM D6400 and EN13432 standard specifications for compostable plastics
- Does NOT contain any polyethylene or other conventional plastics
- Approved for use in Cedar Grove Compost Systems
- Engineered strong, industrial size liners (30 gallons and up) will hold a min. of 80 lbs.
- **Prevents odors and keeps bins and containers clean.**
- **Reduce need to clean bins with water and detergent.**



Thank You!!



Rick Lombardo
Director of Business Development
Natur-Tec®
SMAT | Elemental Impact Member
Phone: 517.230.5995
Email: rlombardo@ntic.com

