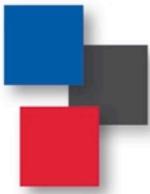


Adrienne Tipton, Ph.D.  
Vice President, Innovation and Market Development



Private & Confidential





2018



2015



HERITAGE



2014



2013



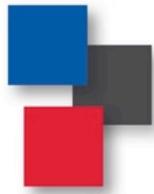
2012



# Markets

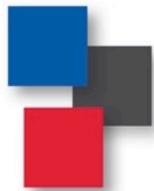


 GROCERY	 UNIVERSITY	 MEDICAL	 FOOD PROCESSOR	 CASH & CARRY	 RETAIL	 CONVERTING
 FOODSERVICE	 DISTRIBUTION	 INSTITUTIONAL	 HOSPITALITY	 WINE & SPIRITS	 E-COMMERCE	 CONSTRUCTION
 CONVENIENCE	 CONCESSIONS	 INDUSTRIAL	 ON DEMAND	 LAWN & GARDEN		



# Foodservice





# Grocery

# Meat

# Dairy



# Bakery

# Del

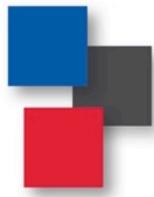
# Pharmacy

# Produce



Private & C

# ~19% Recycled Plastic, ~48% Recycled paper



## Recycled Content

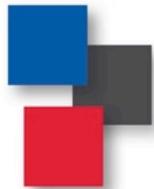


## Recyclable

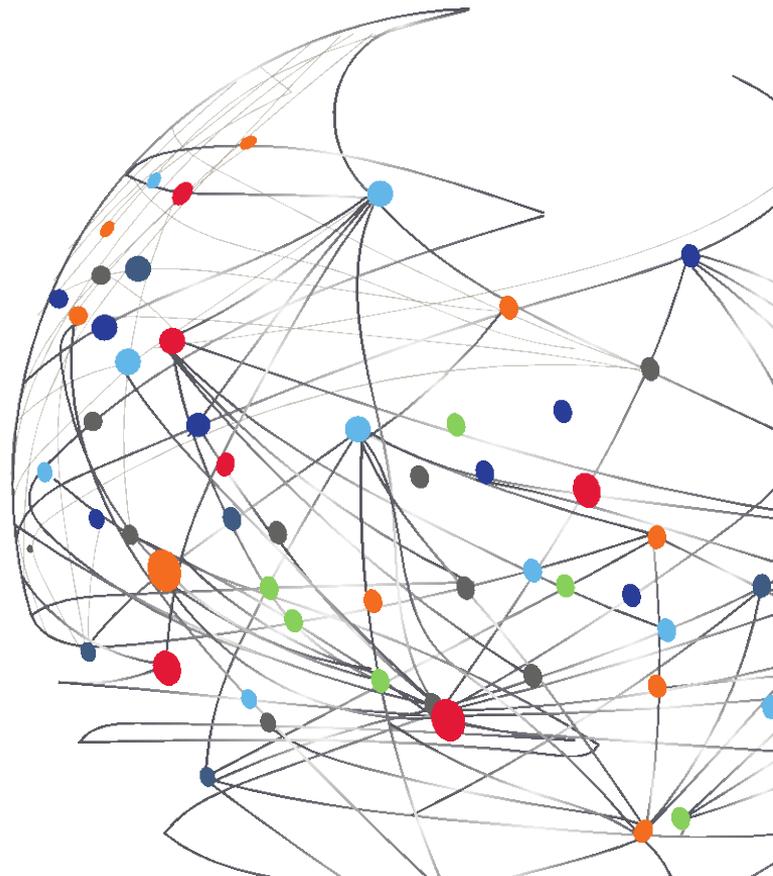


## Compostable





# Compostability

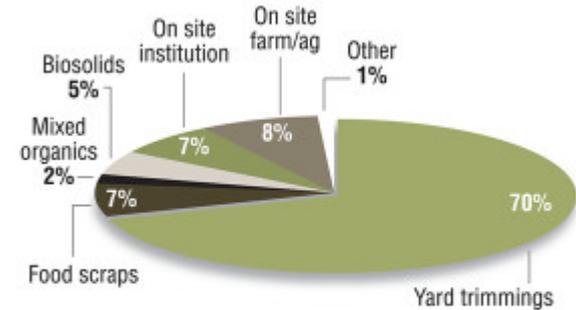


# State of Composting in the US



- ~4900+ composting facilities in the US
- 70% yard trimmings
- 7% food waste
- **Goal:** Increase the number of facilities that will accept food packaging

Figure 1. U.S. composting facilities by type



Yard trimmings compost sites represent 70% of the 4,914 total compost sites reported

Source: BioCycle

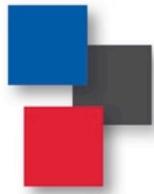
<https://www.biocycle.net/2014/07/16/state-of-composting-in-the-u-s/>

# US Compostable Standards



- **ASTM**-American Society for Testing and Materials
  - 6400- Labeling of Plastics Designed to be Aerobically Composted in municipal or Industrial Facilities
  - 6868- Standard Specification for Labeling of End Items that Incorporate Plastics and Polymers as Coatings or Additives with Paper and Other Substrates Designed to be Aerobically Composted in Municipal or Industrial Facilities
  - Tests end product- components less than 1% of the structure do not need to be tested separately
  - Certification
- **BPI**- Biodegradable Products Institute
  - Requires of individual components to be compostable
  - Certification
- **CMA**- Compost Manufacturing Alliance
  - Includes Cedar Grove
  - Approves for composting- is not a “certification”





# Composting Technologies



All methods are not created equal



**General**  
COMMERCIALY ACCEPTED ITEMS  
CMA-G



**Covered In-Vessel**  
COVERED IN-VESSEL: COMMERCIALY ACCEPTED ITEMS  
CMA-I



**Aerated**  
AERATED STATIC PILE (ASP): MECHANICAL AERATION  
CMA-A



**In-Vessel**  
AGITATED TUNNEL OR CHANNEL  
CMA-T



**Aerated**  
TURNED AERATED STATIC PILE (TAP)  
CMA-P



**Mass-Bed**  
MASS BED TECHNOLOGY  
CMA-M



**Windrow**  
WINDROW TECHNOLOGY  
CMA-W

# Challenges with Food Packaging



- Plastics



- Paper



- Paper mixed substrate



Wax coated



Paper/poly lamination



2 ply lamination

- Molded Fiber

BPI- not Cedar Grove



Pass ASTM and Cedar Grove- not BPI  
Adhesives are a challenge

Products with FDA approved fluorochemical (PFAS) grease (OGR) barriers will not be accepted by BPI or CMA starting Jan 2020

# Development areas



- Continue to....
  - work with composters to accept food packaging
  - develop products (plastic and paper) that will deliver on consumer needs and meet compostable standards
  - develop PFAS alternatives for compostable markets
  - educate on zero waste events and waste diversion

## Zero Waste event example:

Less than 1lb of landfill waste

Approx. 150 lbs organic waste

Approx. 75 lbs glass and aluminum

