MATCHING BIOBASED PRODUCTS WITH SUCCESSFUL COMPOSTING

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USCC Compostable Plastics Symposium

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Overview

- The Issues
  - Not degrading
  - Not clearly labeled
- Importance of testing
- Understand your facility is unique
- Work with purchasers
- Problem Solving
  - BioSpecs for Food Service Ware

The Research

- With the emergence of compostable products, many have been looking into how well they will compost
- Institute for Local Self-Reliance
- Sustainable Packaging Coalition
- Dr. Joseph Greene

Sustainable Plastics?

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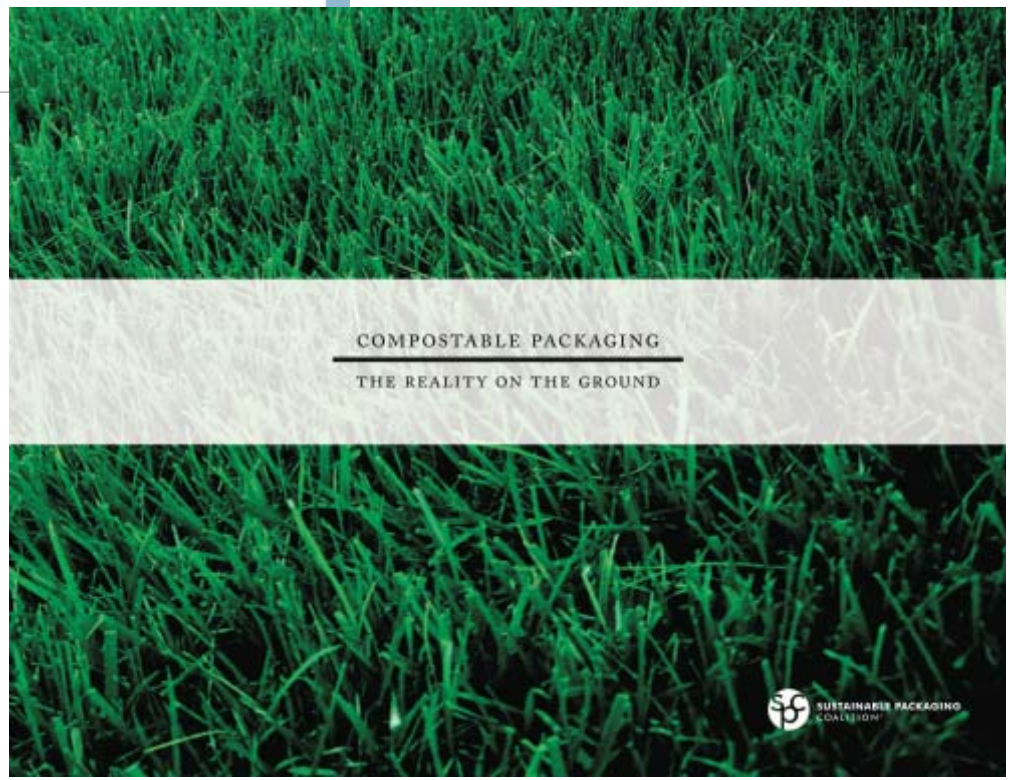
Early Adopters Using and Composting Bioproducts

One benefit of bioplastics is their ability to be composted. Bioplastic food packaging has the additional potential to help capture the 30.8 million tons of food waste now landfilled or incinerated [US EPA, 2006 data]. Little data are available on how bioplastics can best be labeled and collected for composting, who is composting bioplastics, and what their experience has been. By documenting existing practices and lessons learned, we hope bioplastic composting will leap from the early adopters to the early majority.

We have identified more than 20 venues, communities, or corporations utilizing and composting at least one type of bioplastic product.

Below we present initial data on twelve of these venues:

- California: California State University Of Monterey Bay (CSUMB) Composting Pilot
- California: San Francisco
- Colorado: A1 Organics
- Colorado: Eco-Cycle's Zero Waste Farmers' Market
- District of Columbia: Green Festival
- District of Columbia: USDA Whitten Cafeteria Composting Pilot
- Maine: Bowdoin College
- Maine: Colby College's Composting Program
- Maine: College of the Atlantic
- Maine: MOFGA's Common Ground Country Fair



The Issues

- Don't break down fast enough
  (especially cutlery)

- Can't get OMRI listed for compost

- Labeling problems and fear of petroleum plastic contamination
  - Citizen confusion

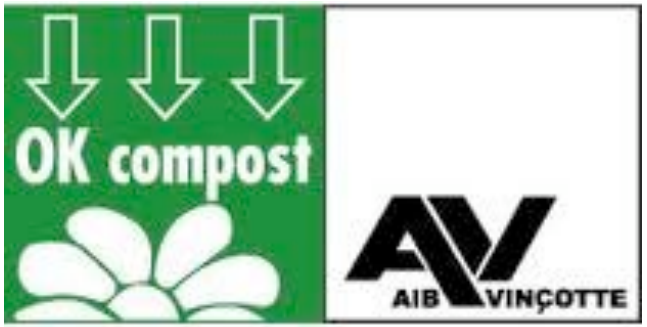
THE ISSUE
“It just won’t degrade!”

Dan Goosen, compost manager, holds up a spoon that says “Biodegradable,” found mostly undecayed in the compost heap. (Sally McCay for UVM)

Make sure it's compostable!

Standards/Certifications

- ASTM D6400
- ASTM D6868
- EN 13432
- ISO 16929



Need Labels

Courtesy: dailydanny.com

Need Labels

Photos courtesy of City of San Francisco

Where's Waldo?

Where's Waldo?

Contributing Issue: Time Difference

Courtesy: wtcc.sa.gov.au

Takes 14-18 weeks

There must be an issue with a gap this wide

Courtesy: cbn.co.za

Takes about 180 days (or 25-26 weeks)

Every product is different

Biodegradation of Bionolle® bottles in leaves compost

Courtesy: Bionolle®

Dr. Joseph Greene

Report: *Biodegradation of Compostable Plastics in Cow-manure Compost Environment, 2006*

Experiment Variables:

- plate made from sugar cane
- cup made from corn
- trash bag made from corn
- clear clamshell container made from
- NatureWorks PLA

Findings: All degraded within 70 days.

Report: *Evaluation of the Performance of Rigid Plastic Packaging Containers, Bags, and Food Service Packaging in Full-Scale Commercial Composting*

- **On-farm compost experiment:**
  - "The PLA container disintegrated after 38 days. The cellulose control material was fully disintegrated after 59 days as was the potato starch tray, the corn starch trash bag, and the PLA plate and straw. The PLA cup and fork disintegrated after 72 days."

- **Municipal experiment:**
  - "Materials were fully degraded in 7 weeks: PLA knife, PLA cup, and PLA clamshell container. After 20 weeks, corn starch trash bag degraded 88% and sugar cane plate degraded 78%."

Testing is Important!

You want products that degrade at the same rate as everything else in your compost pile, so test the product to see if it works in your system

Influential Variables

Rate of degradation influenced by compost facility:

- Climate
- Technology

Rate of degradation influenced by type of product:

- PLA
- Starch
- Bagasse
- Etc.

Cedar Grove Composting

Approved Cedar Grove Products

Test in your own facility

- Many composters want to skip this step and say they will accept only Cedar Grove approved products too

Peninsula Compost

Test in your own facility

- Many composters want to skip this step and say they will accept only Cedar Grove approved products too
- Differences exist
- Some Cedar Grove approved products may not work in another facility

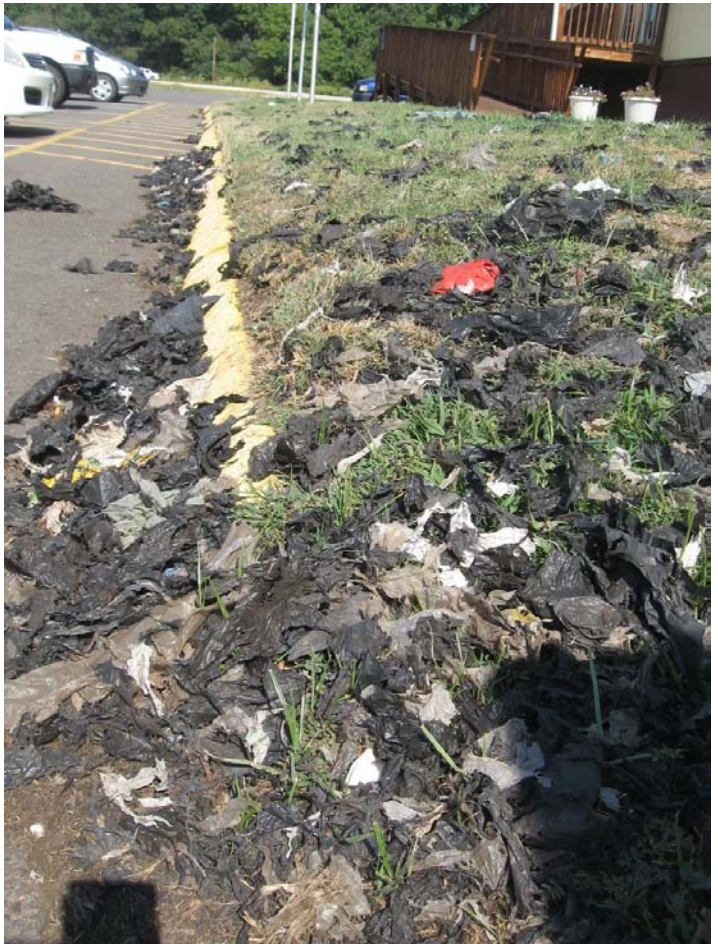
Hawk Ridge (Maine)

- Difficulty with getting all materials to break down at the same rate
- Solution: Could have upfront shredding to downsize products in order to facilitate breakdown in the compost piles

A1 Organics (Colorado)

- Compostable plastics don't break down unless in optimum conditions, which is about 20" to 40" into the windrow pile
- Plastic blows away when you turn pile

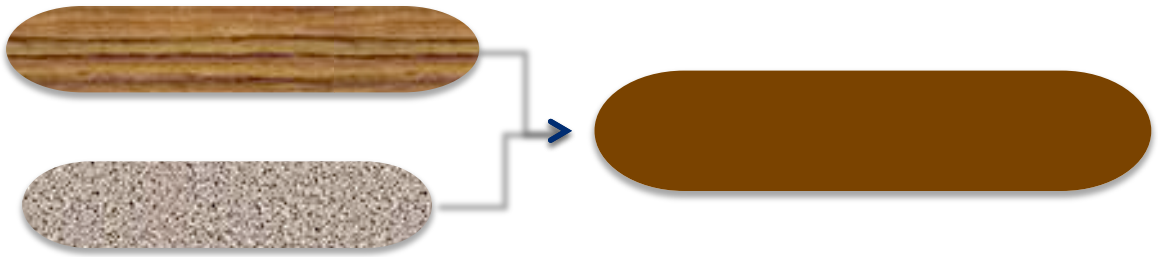
Plastic Blows



Containment

A1 Organics (Colorado)

- Compostable plastics don't break down unless in optimum conditions, which is about 20" to 40" into the windrow pile
- Plastic blows away when you turn pile
- Solution: compost the bioplastics in a separate pile with a compost catalyst added and then merge that pile to the larger windrow



Work with Generators

- Purchasers [should] buy compostable products with the intent of composting the products
- Help them find appropriate products
- Help them with education for clean collection

San Francisco

- Food Service Waste Reduction Ordinance (since 2007)
- Plastic Bag Reduction Ordinance (since 2007)
- Identify and list approved retailers of compostable products

SF Approved List

Products that meet San Francisco's Health and Environmental Requirements

Home | What You Should Do | About | Products & Services | FAQ | News | Contact

Search Products

Hit Enter to Search

Advanced Search

Join our email list

- Hear about new products, events, trainings.
- It's the only way we can tell City staff winners of green products & Team of Year Award.

Foodware

Help our City achieve zero waste by using reusable, compostable or recyclable foodware.
Click below for products SF City Staff & restaurants are REQUIRED to use, and SF Green Businesses are ALLOWED to use.

Categories

Bags (3)
Cold Cups (6)
Containers (17)
Food Wrap (3)
Hot Cups (5)
Napkins (4)
Plates (4)
Utensils (4)

Listings

Results 1 - 1 of 1

Cedar Grove Composting

***Commercially accepted food-service ware products**

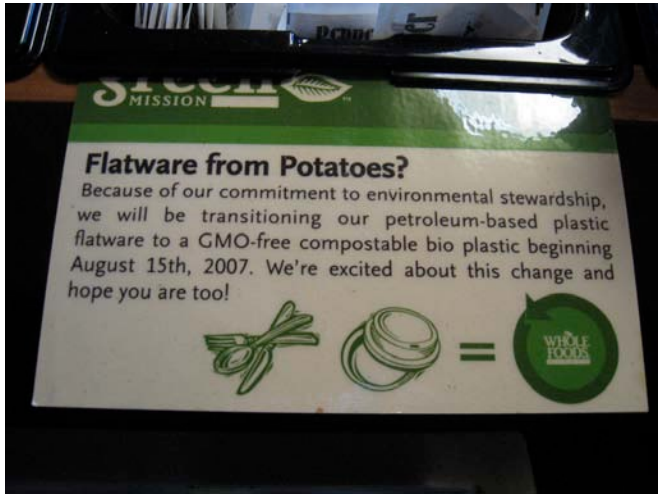
* Most items approved by Cedar Grove Composting to be placed in your guests **residential** cart must meet certain marking requirements. (see box below, right)

Cedar Grove is committed to supporting sustainability by encouraging the use of durable (reusable) food service items before choosing disposable packaging. If disposables must be used, Cedar Grove supports the evolving use of compostable and recyclable products that replace materials that would otherwise end up in a landfill.

All products shown on our accepted list have met our field testing requirements.
http://www.cedar-grove.com/services/compost.asp
~or~
Products are composed of historically beneficial and acceptable substrates used for feedstock in composting.
http://www.gogreenscene.com/what_we_recycle.asp

Bags 	Deli Bags 	Napkins 
Bakery Boxes 	Deli Sheets 	Plates 

Whole Foods (SF)



Bowdoin College (Maine)

- First composter, Northeast Organics, stopped accepting material because of high metal contamination in feedstock

- College purchasing manager didn't look into compostability claims fully

Sustainable Biomaterials Collaborative

The Sustainable Biomaterials Collaborative (SBC) advances the introduction and use of biobased products that are sustainable throughout their lifecycle. They advance their development and use by creating strong sustainability guidelines, encouraging markets, and promoting policy initiatives.

ILSR

Environmentally Preferable Purchasing

Criteria
Product must be 100% commercially compostable
Product labeled for compostability "Commercially Compostable" if facility exists Verification logo on product Clearly compostable Additional labeling if facility does not exist
100% backyard or home compostable
100% biodegradable in aquatic environment Marine biodegradable Freshwater biodegradable


Don’t let a few bad apples (or experiences) mar your reputation of all compostable products

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www.ilsr.org