

# RPN Webinar

## Compostable Service Ware with the Sustainable Biomaterials Collaborative

May 12, 2011

# Agenda

- **Welcome and Introduction**
- **Brenda Platt, the Sustainable Biomaterials Collaborative (SBC)**
- **Alicia Culver, the Responsible Purchasing Network (RPN)**
- **Susan Kinsella, Conservatree and RPN**
- **Wrap-up & Q&A**

# Welcome and Introduction

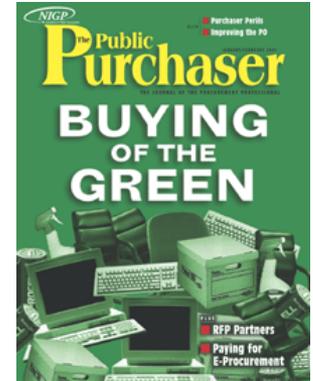
## RPN Mission

“Promote and practice responsible purchasing by identifying best practices, developing effective purchasing tools, educating the market, and using our collective purchasing power to maximize environmental stewardship, protect human health, and support local and global sustainability.”

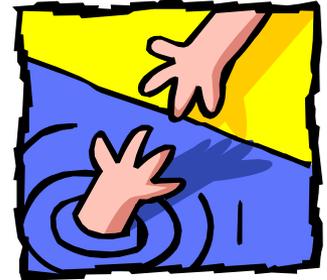
# RPN Members

Appx. 200 members

- State and local governments
- Federal agencies
- Colleges and universities
- School districts
- Faith-based organizations
- Non-profit organizations
- Businesses



# RPN Resources



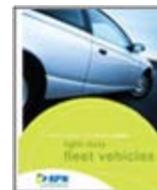
- *Responsible Purchasing Guides* for 15 product categories
- Webinars on “green” procurement issues
- Monthly newsletter highlighting “green” purchasing activities and resources
- Sustainable purchasing policies and specifications
- *Model Responsible Purchasing Report*
- Calculators and other tools

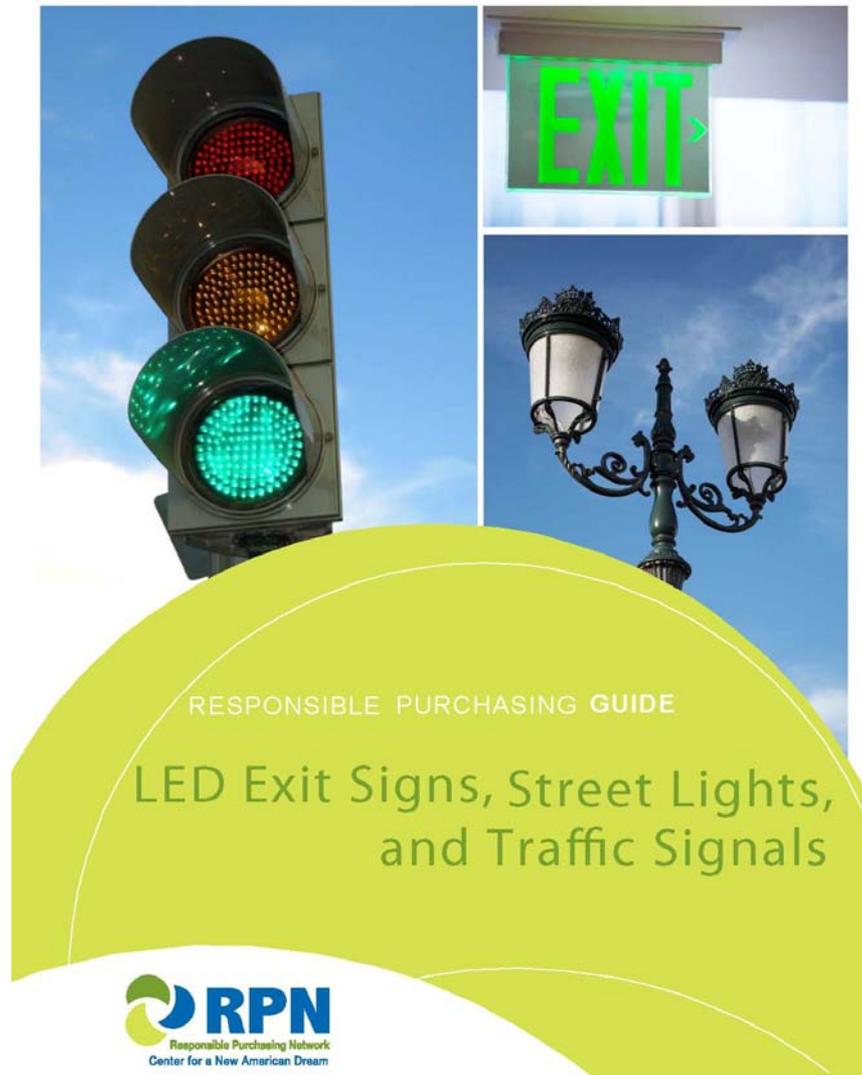


# RPN Purchasing Guides

## Contents:

- Overview
- Social and Environmental Issues
- Best Practices
- Cost, Quality, and Supply
- Policies
- Specifications
- Standards
- Definitions
- Case Studies
- Calculators





## Product Categories:

- Bottled Water
- Carbon Offsets
- Cleaners
- Computers
- Copy Paper
- Fleet Vehicles
- Fluorescent Lights
- Food Services
- LEDs
- Graffiti Remover
- Green Power
- Office Machines
- Paint
- Toner Cartridges
- Tires, Wheel Weights

# Webinars

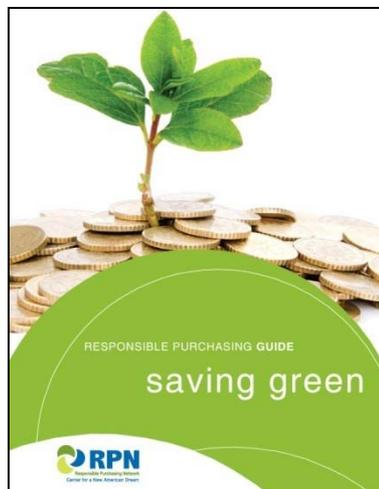
Previous:

- Purchasing for Climate Protection
- RPN Trends Report
- ENERGY STAR Certifications Changes Q&A
- Tracking and Reporting



In the works:

- Compostable Serveware
- Saving Green Guide
- Purchasing for LEED
- ... and many more!



# Other Publications

- **Purchasing for Climate Protection Factsheet**
- **Cooperative Contracts Factsheet**
- **Annual Responsible Purchasing Trends Reports**



# Contact RPN

Responsible Purchasing Network

1201 Martin Luther King Jr Way

Oakland, CA 94612

[info@responsiblepurchasing.org](mailto:info@responsiblepurchasing.org)

510.547.5475

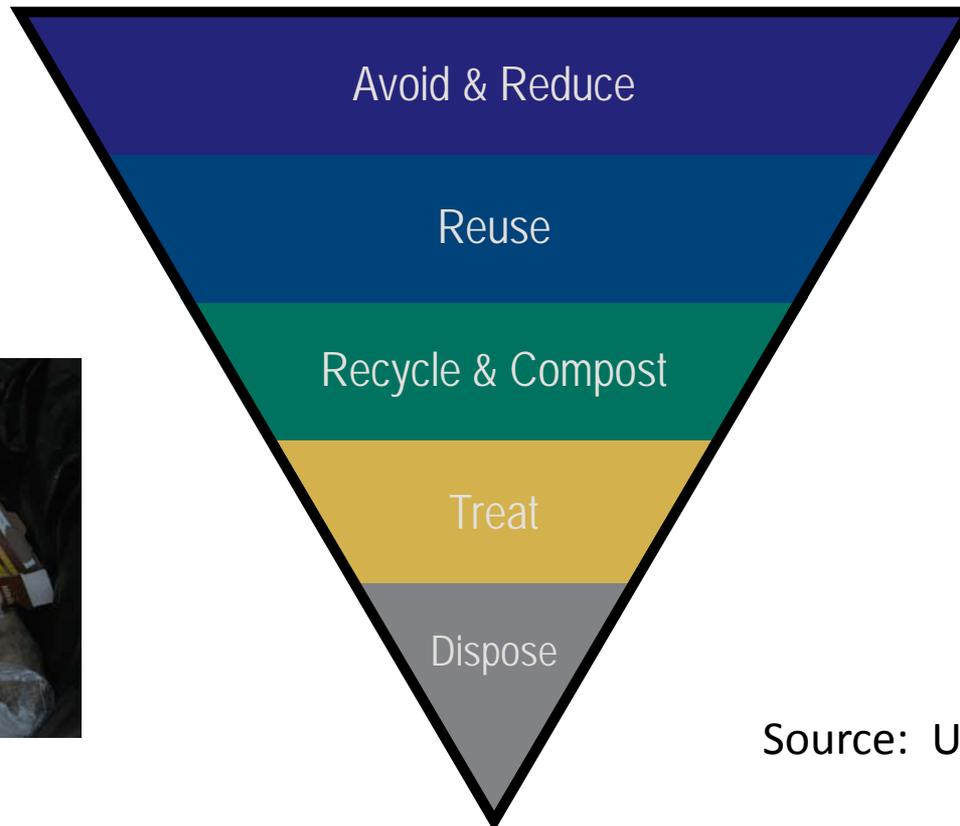


# Compostable biobased food service ware

**Brenda Platt**  
**SBC Co-Chair**  
**Institute for Local Self-Reliance**  
**May 12, 2011**  
**Responsible Purchasing Network Webinar**

# Resource Conservation Hierarchy

Most Preferable

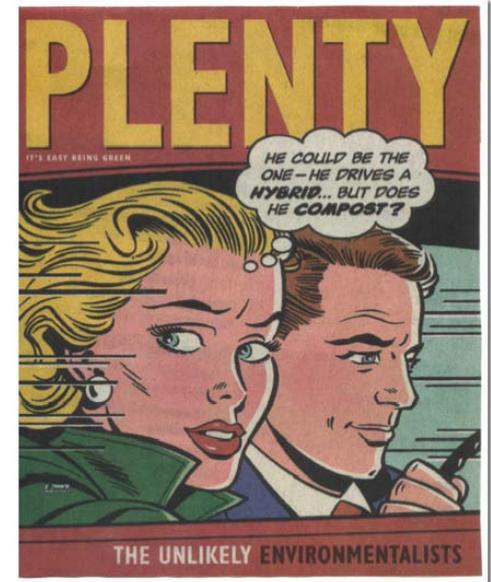


Source: U.S. EPA

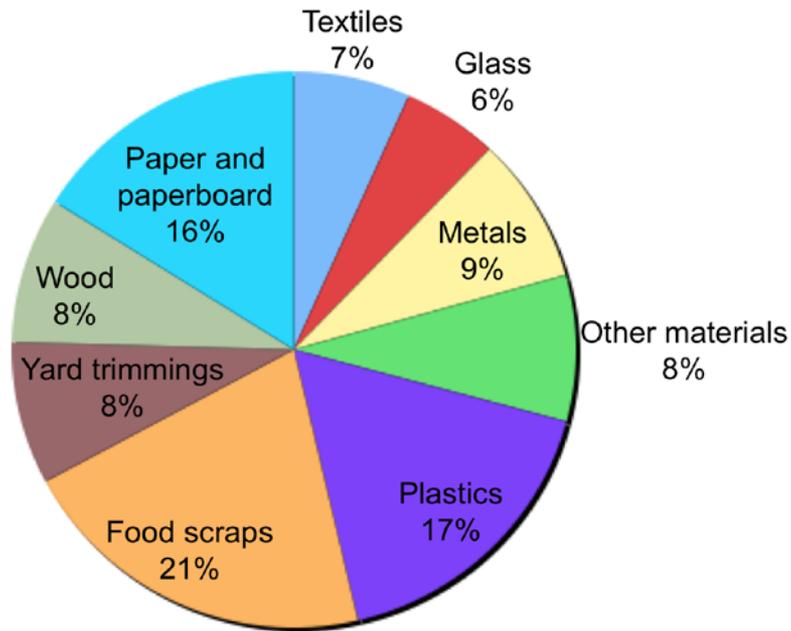
Least Preferable

# Overview

- Why use compostable food service ware?
- Understanding difference between biobased vs biodegradable vs compostable
- Programs utilizing compostable products
- Compostable alone  $\neq$  sustainable
- Criteria for environmentally preferable biobased food service ware



# U.S. municipal waste disposed



160.9 million tons in 2009



Source: US EPA, 2009 data (<http://www.epa.gov/epaoswer/non-hw/muncpl/msw99.htm>)

# Benefits of Biobased Alternatives

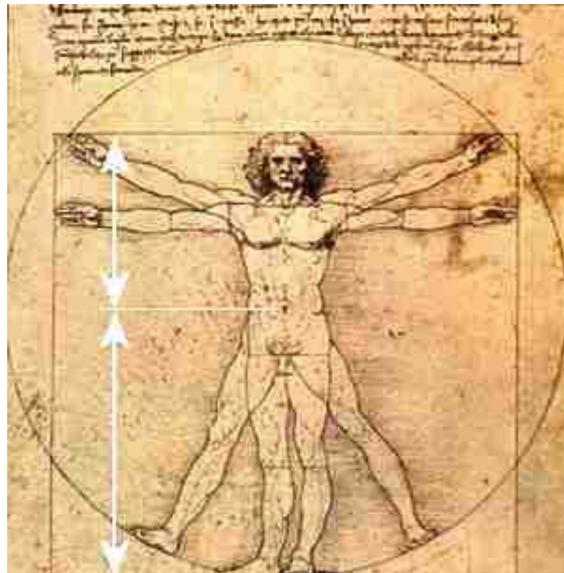
- Can replace many harmful conventional plastics
- Can be fully biodegradable (capable of being utilized by living matter)
- Can be made from a variety of renewable resources
- Can be composted locally into a soil amendment
- Can help capture food discards
- Can complement zero waste goals



- 
- **Creates a rich nutrient-filled material, humus,**
  - **Increases the nutrient content in soils,**
  - **Helps soils retain moisture,**
  - **Reduces or eliminate the need for chemical fertilizers,**
  - **Suppresses plant diseases and pests,**
  - **Promotes higher yields of agricultural crops,**
  - **Helps regenerate poor soils,**
  - **Has the ability to cleanup (remediate) contaminated soil,**
  - **Can help prevent pollution and manage erosion problems.**

**BLACK GOLD**

# How Exposure to Polystyrene Affects the Human Body



- Polystyrene is made from the monomer styrene (vinyl benzene)
- Styrene remains present in polystyrene (no polymerization process is 100% efficient)
- Styrene = a neurotoxicant and suspected human carcinogen
- Styrene impairs the central and peripheral nervous systems.
- Exposure to styrene in the workplace has also been associated with chromosomal aberrations, thus is considered a mutagen.
- Carcinogenic Effects: Proven that it causes cancer in animals, but there are no long-term studies showing that PS causes cancer in humans.
- Polystyrene contains alkylphenols, an additive linked to breast cancer.

# Styrene Leaches into Food

“The ability of styrene monomer to migrate from polystyrene packaging to food has been reported in a number of publications and probably accounts for the greatest contamination of foods by styrene monomer.”

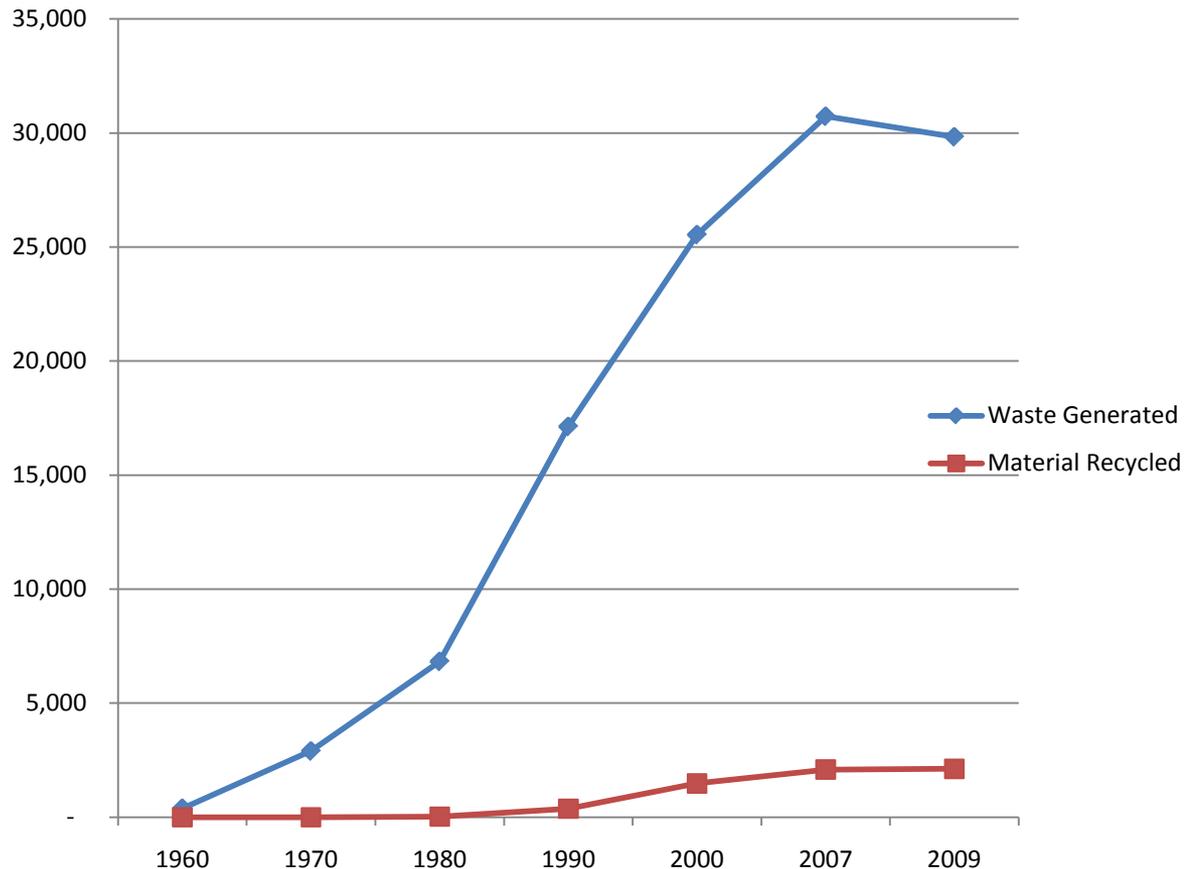
World Health Organization

Styrene Chapter, *Air Quality Guidelines-2nd Edition*, WHO Regional Office for Europe, Copenhagen, Denmark, 2000  
<http://www.euro.who.int> (search “Chapter 5.12 Styrene”)



# Plastics Recycling: Failure?

Thousands of tons  
of plastics



Source: US EPA, 2009 data (<http://www.epa.gov/epaoswer/non-hw/muncpl/msw99.htm>)

# Plastics Recycling Low

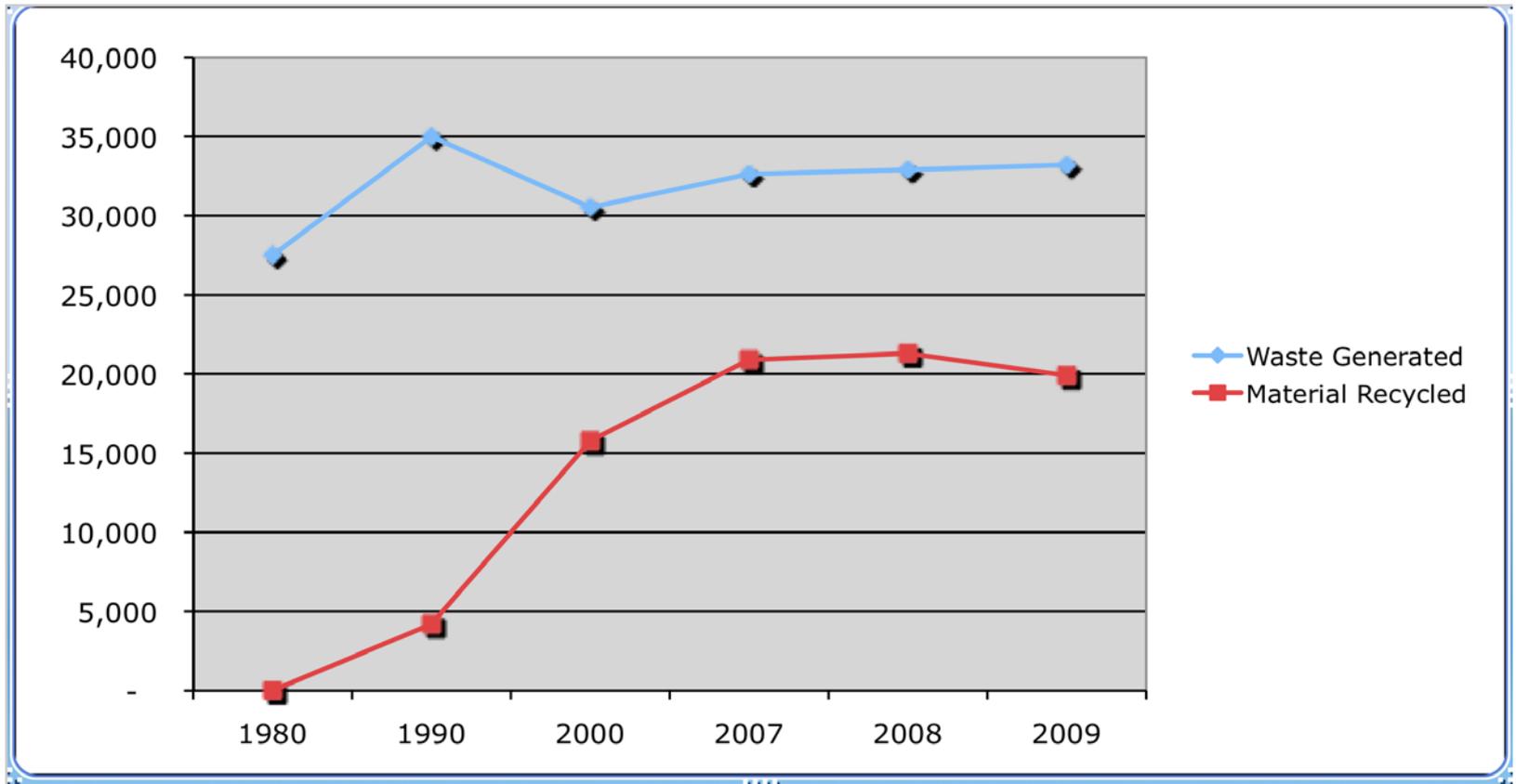
	Generation (thousand tons)	Recycling (thousand tons)	Recycling Level (percent by weight)
PET	3,530	730	20.7%
HDPE	5,210	590	11.3%
PVC	1,120		0.0%
LDPE/LLDPE	6,300	320	5.1%
PP	5,530	50	0.9%
PS	2,470	20	0.8%
Other resins	5,670	410	7.2%
<b>Total Plastics in MSW</b>	<b>28,830</b>	<b>2,120</b>	<b>7.1%</b>

Source: US EPA, 2009 data

MSW = municipal solid waste

# Composting: A Success Story

Yard Debris,  
Thousands  
of tons



Source: US EPA, 2009 data (<http://www.epa.gov/epaoswer/non-hw/muncpl/msw99.htm>)

# The Good News on Biobased Alternatives

- Variety of resins available
- Performance improving
- Experience and R&D growing
- Growth expected
- The federal biobased procurement program – BioPreferred – will open up new markets
- Standards in place
- Price competitiveness improving
- Demand increasing

# ASTM Standards

- D 6866 – defines and quantifies biobased content
- D 6400 – specification for biodegradation in commercial composting systems
- D 7081 – specification for biodegradation in the marine environment
- D 5988 – test method for biodegradation in soil
- D 5511 – test method for biodegradation in anaerobic digesters



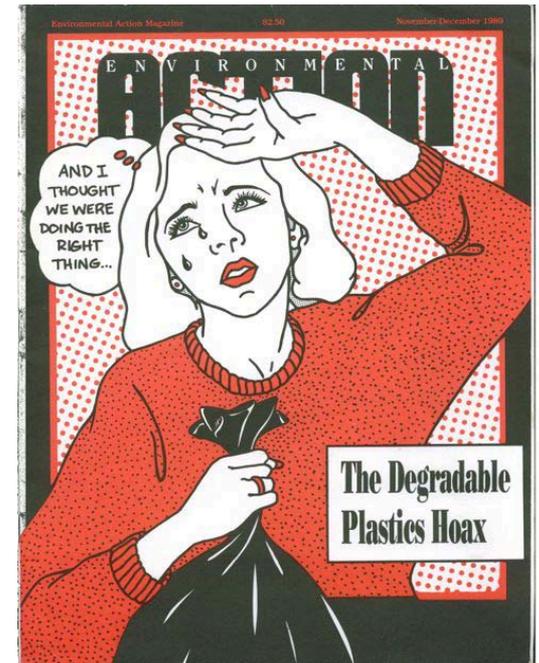
# Degradable Vs. Biodegradable

## Degradable

- May be invisible to naked eye
- Fragment into smaller pieces
- No data to document biodegradability within one growing season
- Migrate into water table
- Not completely assimilated by microbial populations in a short time period

## Biodegradable

- Completely assimilated into food and energy source by microbial populations in a short time period
- Meet biodegradability standards



1989 Cover of *Environmental Action*

Source for definitions: Dr. Ramani Narayan, Michigan State Univ.

# Biodegradable vs. Biobased



Non-biodegradable biobased plastics are here

# Biodegradability alone is not an environmental goal

Products should be:

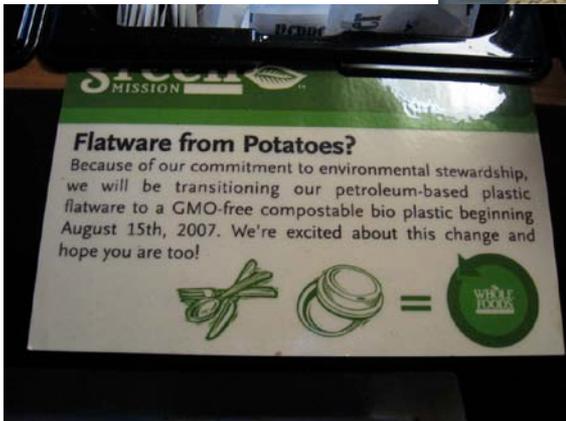
- Reusable,
- Recyclable, or
- Compostable

Purchasers can use their purchasing power to drive the market toward more environmentally preferable products

# Boulder Farmers' Market



# Whole Foods



ESPN  
X Games  
use of  
compostable  
bio-ware and  
organics  
collection =  
80% event  
waste  
diversion!



# San Francisco: Aiming for Zero Waste



# Color-coded compostable design for 400k at SF Festival



Photos courtesy of City of San Francisco

# Seattle



# Seattle: Compostable Food Service Ware



# Acceptable Compostable Products



## 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](http://www.gogreenscene.com/what_we_recycle.asp)

<a href="#">Bags</a>		<a href="#">Deli Bags</a>		<a href="#">Napkins</a>	
<a href="#">Bakery Boxes</a>		<a href="#">Deli Sheets</a>		<a href="#">Plates</a>	
<a href="#">Bowls</a>		<a href="#">Drink Carriers</a>		<a href="#">Portion Cups</a>	
<a href="#">Clamshells</a>		<a href="#">Food Trays</a>		<a href="#">Straws</a>	
<a href="#">Coffee Sleeves</a>		<a href="#">Gloves</a>		<a href="#">Take Out Bags</a>	
<a href="#">Cold Cups</a>		<a href="#">Hot Cups</a>		<a href="#">Utensils</a>	
<a href="#">Deli Containers</a>		<a href="#">Meat Trays</a>		<a href="#">Miscellaneous</a>	

<http://cedar-grove.com/acceptable/Accepted%20List.asp>

# Not All Bioproducts Created Equal

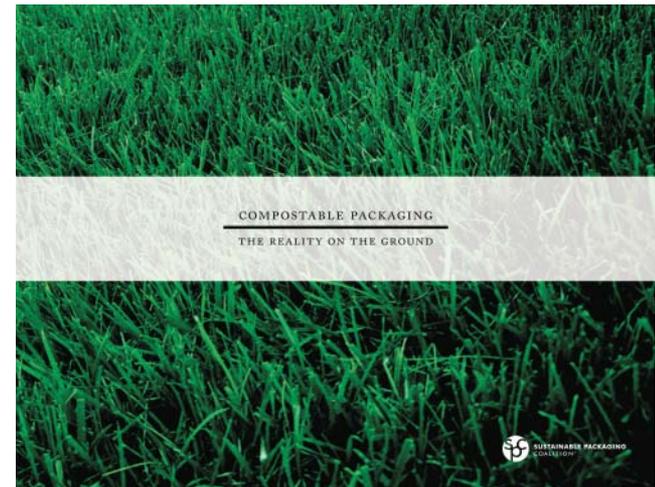
- Biobased content
- Material feedstock type
- Feedstock location
- Biodegradability
  - Commercial compost sites
  - Home composting
  - Marine environment
  - Anaerobic digestion
- Additives and blends
- Recyclability
- Performance
- Products

**Biobased content alone ≠ sustainable**



# Challenges with Biobased Products

- ⌘ Concern over genetically modified organisms (GMOs)
- ⌘ Desire for sustainably grown biomass
- ⌘ Need to develop adequate recycling and composting programs
- ⌘ Concern with nanomaterials and fossil-fuel-plastic blends
- ⌘ Lack of adequate labeling
- ⌘ Concern over contamination of recycling systems



# Genetically Modified Crops

## GM CROPS – JUST THE SCIENCE research documenting the limitations, risks, and alternatives

Proponents claim that genetically modified (GM) crops:

- are safe to eat and more nutritious
- benefit the environment
- reduce use of herbicides and insecticides
- increase crop yields, thereby helping farmers and solving the food crisis
- create a more affluent, stable economy
- are just an extension of natural breeding, and have no risks different from naturally bred crops.

However, a large and growing body of scientific research and on-the-ground experience indicate that GMOs fail to live up to these claims. Instead, GM crops:

- can be toxic, allergenic or less nutritious than their natural counterparts
- can disrupt the ecosystem, damage vulnerable wild plant and animal populations and harm biodiversity
- increase chemical inputs (pesticides, herbicides) over the long term
- deliver yields that are no better, and often worse, than conventional crops
- cause or exacerbate a range of social and economic problems
- are laboratory-made and, once released, harmful GMOs cannot be recalled from the environment.

The scientifically demonstrated risks and clear absence of real benefits have led experts to see GM as a clumsy, outdated technology. They present risks that we need not incur, given the availability of effective, scientifically proven, energy-efficient and safe ways of meeting current and future global food needs.

This paper presents the key scientific evidence – 114 research studies and other authoritative documents – documenting the limitations and risks of GM crops and the many safer, more effective alternatives available today.

### Is GM an extension of natural plant breeding?

Natural reproduction or breeding can only occur between closely related forms of life (cats with cats, not cats with dogs; wheat with wheat, not wheat with tomatoes or fish). In this way, the genes that offspring inherit from parents, which carry information for all parts of the body, are passed down the generations in an orderly way.

GM is not like natural plant breeding. GM uses laboratory techniques to insert artificial gene units to re-programme the DNA blueprint of the plant with completely new properties. This process would never happen in nature. The artificial gene units are created in the laboratory by joining fragments of DNA, usually derived from multiple organisms, including viruses, bacteria, plants and animals. For example, the GM gene in the most common herbicide resistant soya beans was pieced together from a plant virus, a soil bacterium and a petunia plant.

The GM transformation process of plants is crude, imprecise, and causes widespread mutations, resulting

in major changes to the plant's DNA blueprint'. These mutations unnaturally alter the genes' functioning in unpredictable and potentially harmful ways', as detailed below. Adverse effects include poorer crop performance, toxic effects, allergic reactions, and damage to the environment.

### Are GM foods safe to eat?

Contrary to industry claims, GM foods are not properly tested for human safety before they are released for sale<sup>1</sup>. In fact, the only published study directly testing the safety of a GM food on humans found potential problems<sup>2</sup>. To date, this study has not been followed up.

Typically the response to the safety question is that people have been eating GM foods in the United States and elsewhere for more than ten years without ill effects and that this proves that the products are safe. But GM foods are not labelled in the US and other nations where they are widely eaten and consumers are not monitored for health effects.

- Can be toxic, allergenic or less nutritious than their natural counterparts
- Can disrupt the ecosystem, damage vulnerable wild plant and animal populations and harm biodiversity
- Increase chemical inputs (pesticides, herbicides) over the long term
- Deliver yields that are no better, and often worse, than conventional crops
- Cause or exacerbate a range of social and economic problems
- Are laboratory-made and, once released, harmful GMOs cannot be recalled from the environment.

Source: <http://www.nongmoproject.org/>

# What We Put Into Corn...

- Average of over 120 lbs. nitrogen fertilizer per acre
- Among the highest levels of herbicide and pesticide use for conventional crops
- Irrigation water
- Proprietary hybrids



# Survey Data: feedstock types and sources

- China
  - Bulrush
  - Bagasse
  - PSM (Plastarch Material)
  - Corn
  - Chinese PLA
  - PHBV\*
  - PBS\*\*
  - Cornstarch
- India
  - Fallen palm leaves
- Thailand/Vietnam
  - Tapioca starch
  - Grass fiber
  - Bagasse
- Malaysia
  - Palm fiber
- USA
  - NatureWorks PLA
  - “Natural total chlorine-free pulp”
  - Recycled wood fiber

\*polyhydroxybutyrate-polyhydroxyvalerate

\*\*polybutylene succinate (petrochemical + succinic acid)



# Path from Field to Producer

“The source product is from Brazil, then turned into cornstarch in China, then the starch is used in our manufacturer’s facility.”

“Feedstocks grown in Midwestern US. Manufacture the resin in Hawthorne, CA today, but plan to manufacture in Seymour, IN shortly.”

# Recyclable?



# Sustainable Biomaterials Collaborative

The Sustainable Biomaterials Collaborative is a network of organizations working together to spur the introduction and use of biomaterials that are sustainable from cradle to cradle. The Collaborative is creating sustainability guidelines, engaging markets, and promoting policy initiatives.

## As You Sow

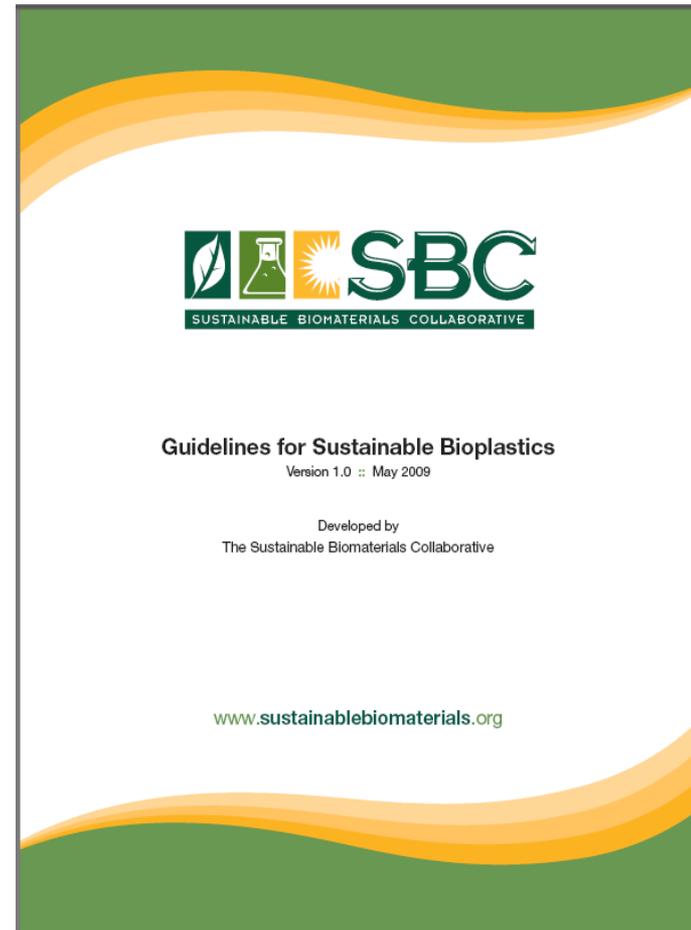
Center for Health, Environment and Justice  
Clean Production Action \*  
Environmental Health Fund \*  
Green Harvest Technologies  
Green Purchasing Institute  
Health Care Without Harm  
Healthy Building Network  
Institute for Agriculture and Trade Policy \*  
Institute for Local Self-Reliance\*  
Lowell Center for Sustainable Production \*  
Sustainable Research Group  
Pure Strategies  
RecycleWorld Consulting  
Responsible Purchasing Network  
Science & Environmental Health Network  
Seventh Generation  
National Campaign for Sustainable Ag.  
Whole Foods  
City of San Francisco

\* Steering committee

# Defining Sustainable Life Cycles by Principles

- Sustainable feedstocks / Sustainable agriculture
- Green chemistry / Clean production
- Closed loop systems / cradle to cradle / zero waste

*“Just because it’s biobased, doesn’t make it green”*



# Biomass Feedstock

- Avoid hazardous chemicals
- Avoid GMOs
- Conserve soil & nutrients
- Biological diversity
- Sustainable agriculture plan
- Protect workers

# Manufacturing

- Support sustainable feedstock
- Reduce fossil energy use
- Avoid problematic blends & additives
- Avoid untested chemicals and engineered nano particles
- Design for recycling & composting
- Maximize process safety/reduce emissions
- Green chemistry
- Protect workers

# End of Life



- Compostable or recyclable
- Biodegradable in aquatic systems
- Adequate product labeling
- Adequate recovery infrastructure

# Development of Specifications for Environmentally Preferable Products



Sustainable Biomaterials Collaborative

## BioSpecs for Food Service Ware (BioSpecs v.1.0)

Environmentally Preferable Specifications for  
Compostable Biobased Food Service Ware

Prepared by:



2011

BioSpecs for Food Service Ware – v.1.0

1

# Next Steps

- Vetted List of Products
  - Clear process for manufacturers to assess conformance to criteria
  - Beta-test conformance process
- Green Purchasing Institute finalize sample purchasing bid specifications and documents
- Work with purchasers to beta-test bid specs

# Contact

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SBC, Co-Chair

Institute for Local Self-Reliance, Co-Director

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202-898-1610 ext 230

# BioSpecs for Purchasers

RPN Compostable Food Service Ware  
Webinar  
May 12, 2011



**Alicia Culver**  
**Director, Responsible Purchasing Network**

# Sustainability Purchasing Specifications for Biobased Food Service Ware



Green Purchasing Institute





# Overview of BioSpe For Purchasers



## Mandatory Sustainability Criteria

- ✓ Specifications
- ✓ Points



## Desirable Sustainability Criteria

- ✓ Points
- ✓ Disclosure requirement (questionnaire)



# Scope of BioSpe For Purchasers



## Types of products covered

- ✓ Cutlery
- ✓ Plates, bowls, cups
- ✓ Clamshells
- ✓ Gloves, trays, etc

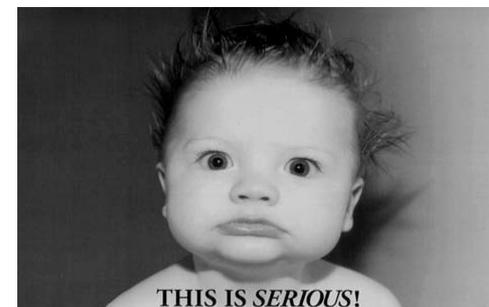


## Types of materials covered

- ✓ Bioplastics (e.g., PLA, potato starch, etc.)
- ✓ Other plant-based materials: paper, wood, bamboo, bagasse

# Mandatory Criteria

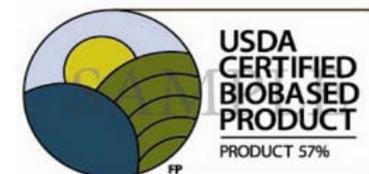
- ✓ **Minimum Biobased Material**
- ✓ **Nano-materials Declaration**
- ✓ **No fluorinated compounds**
- ✓ **Commercial compostability**
- ✓ **Products made in compliance with all applicable laws and regulations**
- ✓ **Products offered in bulk**
- ✓ **No polystyrene or PVC packaging**
- ✓ **10 samples must be provided**



# Minimum Biobased Material

**All products (other than cutlery) must contain at least 90% biobased carbon content; cutlery must contain at least 75%**

- ✓ = % weight of total carbon content
- ✓ ASTM Test Method D6866



## *Documentation required*

- ✓ Independent laboratory analysis
- ✓ Verification by USDA or an independent third party organization (e.g., OK Biobased Program of Vincotte)



# Minimum Biobased Material

*Products made of 100% (uncoated) wood, bamboo, paper or another obviously plant-based material (other than biobased plastic) will automatically meet this requirement*



# Nanomaterials Declaration

*Bidder must declare whether or not nanomaterials were intentionally added to any offered products (including surface treatments)*

## *Documentation Required*

- ✓ Written declaration on manufacturer's letterhead
- ✓ Signed and dated by a corporate officer

# No Fluorinated Compounds

- ✓ **Perfluorinated compounds are sometimes added to molded paper products as a grease barrier**
- ✓ **Bidder must verify that products do not contain fluorine or fluorinated compounds**



## *Documentation Required*

- ✓ **Laboratory tests (e.g., XRF results)**
- ✓ **Type of grease barrier used must be identified**

# Compostability

**Biobased food service ware products must be certified as “compostable” (in a commercial facility) based on verified compliance with the following standards:**

- ✓ **ASTM D6400 (North America)**
- ✓ **ISO 17099 (International)**
- ✓ **DIN EN 13432 (European Union)**
- ✓ **AS 4376 (Australia)**



# Commercial Compostability

**Products must have one of the following certifications:**

- ✓ **Biodegradable Products Institute (North America)**
- ✓ **Green Seal GS-35 (USA)**
- ✓ **AIB Vincotte Inter (Belgium)**
- ✓ **Din Certo (European Union)**
- ✓ **Australian Environmental Labeling Association**
- ✓ **Japan Bioplastics Association**



# Commercial Compostability

## *Documentation Required*

- ✓ **Product or packaging must contain certification logo**
- ✓ **If BPI-certified, manufacturer must be listed on BPI website**
- ✓ **If paper, wood, or another obvious plant-based material (other than biobased plastic) must be approved by Cedar Grove Composting site.**



*Bidder must disclose the material and coatings of each product offered.*

# Other Mandatory BioSpecs Criteria

- ✓ **Products must be made in compliance with all applicable laws and regulations**
- ✓ **Products must be offered in bulk**
- ✓ **No polystyrene or PVC packaging allowed**
- ✓ **10 samples must be provided for performance testing**



# BioSpecs Complement Other Considerations



- ✓ **Design requirements (type, size, shape, color of products needed)**
- ✓ **Performance During Use**
- ✓ **Availability of Products from Local Vendors**
- ✓ **Cost (Best Value)**

# Additional Sustainability Criteria (Desirable)

- ✓ **Additional Biobased Content (>90%)**
- ✓ **Sustainability Attributes of Biobased Material**
- ✓ **Sustainability of Biobased Product Manufacturing**
- ✓ **Other End-of-Life Considerations**
- ✓ **Transportation and Packaging Considerations**



# Higher Biobased Carbon Content

**Additional points offered for products with higher biobased content (>75% for cutlery & >90% for everything else)**



## *Documentation required*

- ✓ Independent laboratory tests (per ASTM D6868)
- ✓ Third party verification (USDA Biobased Label or OK Biobased Program of Vincotte)
- ✓ Products made of 100% uncoated paper, wood or other plant-based material automatically get all points

# Sustainability Attributes of Biobased Material

## Sustainable Production of Biobased Feedstocks

*“Bidders are encouraged to offer products containing biobased materials that protect the environment when they are grown and harvested.”*



# Sustainability Attributes of Biobased Material



Grown Without Genetically Modified Organisms (GMOs)

*“Bidders are strongly encouraged to offer products containing plant-based material for which no GMOs were intentionally added to the field.”*

- ✓ Certified GMO-free
- ✓ GeneScan ([www.gmotesting.com](http://www.gmotesting.com))
- ✓ Test data from ISO 17025-accredited lab

# Sustainability Attributes of Biobased Material

## GMO Offset Certificates

*Bidders are encouraged to offer products for which GMO offset certificates were purchased by biobased feedstock, resin and/or product manufacturers.*

- ✓ Working Landscapes Certificate Program
- ✓ NatureWorks Source Offset Program



# Sustainability of Biobased Product Manufacturing

- ✓ **Avoidance of chemicals of high concern**
- ✓ **Use of recycled content in wood- and paper-based food service ware products**
- ✓ **Protection of workers and the environment during product manufacturing**
- ✓ **Minimization of transportation impacts**



# Sustainability of Biobased Product Manufacturing

## Avoidance of Chemicals of High Concern

- ✓ **Carcinogens and Reproductive Toxins**  
(California's Prop 65 list)
- ✓ **Halogens and Halogenated Compounds**
- ✓ **Toxic Heavy Metals**
- ✓ **Phthalates**
- ✓ **Bis-Phenol-A**



The CFPA is proud to introduce our New  
Mark of Sustainability!

*Lab tests or results of XRF spectroscopy tests*

# Sustainability of Biobased Product Manufacturing

## Recycled Content

*“Bidders are encouraged to offer products that contain recycled-content (particularly post-consumer) material.”*

- ✓ **FSC 100% Recycled or Mixed Sources**
- ✓ **SCS Recycled Content Verification (Scientific Certification Systems)**
- ✓ **GS-35: Green Seal Environmental Standard for Food Service Packaging (min. 45%)**



# Sustainability of Biobased Product Manufacturing

## Protection of Workers and Environment

*“Bidders are encouraged to offer products that have been certified by an independent third-party organization to meet...”*

- ✓ ISO 14001 (EMS)
- ✓ Social Accountability 8000
- ✓ OSHA 8002
- ✓ ILO Standards
- ✓ ISO Environmental Health Protection & Safety Standards



# Sustainability of Biobased Product Manufacturing

## Minimization of Transportation Impacts

*Bidders are encouraged to reduce transportation impacts by offering products for which biobased feedstocks, resin and finished products are made in North America.*



**Bidder must identify where biobased material is grown and where resin and final product are made.**

# Additional End-of-Life Product Considerations

- ✓ **Acceptable to local commercial composting facility**
- ✓ **Clearly labeled “Compostable”**
- ✓ **Compostable in backyard or onsite system**
- ✓ **Biodegradable in marine environment**
- ✓ **Biodegradable in fresh water**





# Packaging Considerations

- ✓ **Commercially compostable**
- ✓ **Easily recyclable**
- ✓ **Devoid of chemicals of concern**
- ✓ **Contains post-consumer recycled content**



# Additional Sustainability Criteria Not in BioSpecs

- ✓ **Products made using solar or wind power**
- ✓ **Products delivered in less-polluting vehicles**
- ✓ **Manufacturing facility certified green building**
- ✓ **Products distributed by certified green business**



# Thank You!

**Responsible Purchasing Network**

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# Performance Testing for Compostable Food Service Ware Products

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# Is Performance Testing Necessary?

- Not always – Good experiences reported by others might be enough, e.g., reports on SBC and RPN websites, comments from other buyers
- You are probably already using some naturally compostable products
- Testing might be desired to be sure that new product sizes, shapes, and materials will work in your system
- Your composting facility might need to test products to be sure they will work for them

# Examples of Naturally Compostable Products

- Uncoated paper portion cups
- Paper tray sheets
- Molded pulp trays
- Napkins
- Paperboard lunch boxes
- Paperboard bakery boxes
- Baking pan liners



# Performance Considerations

- **Certification** – Biodegradable Products Institute (BPI) in North America
- **Compatibility** with intended compost facility
- **Food service function** – e.g., strength, easy use
- **Specialized requirements**, e.g., for a hospital, jail, food service preparation and transport
- **Compatibility** with food service system – for some venues, it may be all or nothing

# Benefits of Kitchen Walk-Through

- See how target products are currently being used
- Identify capabilities that compostable alternatives will need to meet
- Understand each kitchen's food service process and opportunities for flexibility
- Create buy-in from kitchen managers and food service departments
- Understand the waste management system
- Take photographs



# Benefits of Compost Facility Tour

- Determine the process it uses, how quickly compostables must decompose, what happens if they don't
- Understand features and limitations. Does it have OMRI (organic) certification?
- Identify steps for testing products, if it does testing
- Decide method for ensuring that the compostable products you choose are acceptable
- Develop buy-in from compost facility managers

# Finding Potential Alternatives

- BPI certification website
- Cedar Grove composting facility approved products list
- Local food service and restaurant supply vendors
- USDA list of Bio-Preferred Products List
- Other purchasers



# Track Options in Database

**Table 1. Sample Spreadsheet for Tracking Potential Options**

Compostable Food Service Ware							
Category	Brand	Manufacturer	Product	Manufacturer ID #	Certifications, Approvals	Material	Additional Attributes
Clamshell, Hot	Harvest	GenPak	Large Hinged 3 Section, 9"x 9.1"x 3.1", heat tolerance up to 140°	HF203	BPI, Cedar Grove	PLA/fiber	
Plate	Chinet	Huhtamaki	8 3/4" plate	25710	BPI, Cedar Grove	Smooth molded fiber	100% postindustrial paper fiber
Cup, Cold	GreenWare	Fabri-Kal	12 oz. cold cup	GC12S	BPI, Cedar Grove	Ingeo PLA	

# Samples

- Request samples from product manufacturers, vendors
- ID samples by name or code as they come in, and add the code to the database
- Get samples of lids if those will be important in evaluation and use
- ID which products the lids work with



# Evaluation Criteria

<b>Size</b>	Sufficient surface, fits facility needs
<b>Shape</b>	Works for stacking, space requirements
<b>Strength</b>	Maintains shape when carried with food
<b>Integrity</b>	Holds up with utensil use; doesn't get soggy, leak or deform
<b>Heat Results</b>	Does not deform, not too hot to hold
<b>Aesthetic</b>	Tactile feel, food does not absorb taste
<b>Technical</b>	Can withstand refrigerating, stacking
<b>Accessories</b>	Lids fit, easy to use, allow stacking; clamshell closures work well, easy to open/close, don't leak
<b>Cutlery</b>	Do not splinter, knife cuts, fork spears, tactile feel

# Evaluation Sheets

## COMPOSTABLE FOOD SERVICE WARE PERFORMANCE TESTING Plates

±

Performance Graded By		Agency		Date				
Code	Description/Grade	Performance Parameters		Additional Notes/Comments				
P-1	Plate – 7" FH807	Size appropriate		Yes No _____				
		Sufficient carrying strength		Yes No _____				
P L A T E S		Holds up with utensil use		Yes No _____				
		Absorbs liquids, gets soggy		Yes No _____				
		Leaks		Yes No _____				
		Melts with hot food		Yes No _____				
		Collects condensation		Yes No _____				
		Food absorbs plate taste		Yes No _____				
		Overall Grade		5	4	3	2	1
				Best	Neutral	Poor		
		Explanations						

# Test Day!

- Tested product categories together – e.g. all plates, all cups at same time
- Tried all kinds of food with plates, used compostable utensils with them
- Standby thermoses of hot water and jugs of ice water to test bowls and cups
- Multiple trays to test food prep scenarios with lids, stacking



# Product Evaluations

- Each tester evaluated every product
- Relevant questions answered on evaluation sheets for each product
- Each product given overall score from 1 - 5 by every tester
- Additional notes written in
- Spreadsheet calculations for the results
- Some products later site-tested in larger quantities

# Product Evaluations

## Compostable Food Serviceware Product Testing Results

Category: Hot Cups

Brands/ Lines	Manufacturer	Products	Approvals, Certifications	Overall Score (1-5)	% of Performance Criteria Passed	Comments
GalliGreen	Gallimore HealthCare	8 oz hot cup	BPI certified	5.0	100%	Not too hot to hold. Does not need a sleeve. Thick wall prevents cup from losing its shape.
EcoGreen	Kuan Chun Paper Company	4 oz cup	BPI certified	4.0	100%	Acceptable/ medium heat to hold
EcoGreen	Kuan Chun Paper Company	7 oz cup	BPI certified	4.0	100%	Acceptable/ medium heat to hold
StalkMarket, Jaya	Asean Corporation	12 oz hot cup	BPI certified	4.0	89%	Structure gives somewhat

# Highlights of Test Results

<b>Utensils</b>	Some bioplastics worked well; some bioplastics broke, one bent without breaking, some soup spoons deformed; wooden utensils were not accepted
<b>Plates</b>	Paper plates were too flimsy for cafeteria use but molded fiber and plant fiber plates worked well; some very attractive bioplastic options
<b>Clamshells</b>	Compartments made them stronger, some closures were insecure

# Highlights of Test Results

<b>Cold Cups</b>	Sizes varied despite same volumes; paper/wax cups not sturdy enough; one PLA cup crushed easily; some cups had no lids, some lids were non-compostable
<b>Hot Cups</b>	Almost all were PLA-lined paper cups; most were too hot to hold without sleeves
<b>Bowls</b>	Mix of materials (PLA-lined paper, PLA-lined fiber, bagasse, molded pulp); PLA-lined products were most successful; some products sweated, got soggy, deformed; some were too hot to hold; some lids did not work well

# Highlights of Test Results

<b>Portion Cups</b>	All were made from bio-based polymers; some were accepted but County needed different sizes; some were rejected for a strange odor
<b>Food Service Gloves</b>	Accepted
<b>Sandwich Bags</b>	Accepted but product discontinued

# Costs Comparison

- Comparisons are difficult until actual bid results
- Ballparked possible price comparisons by comparing differentials in retail pricing, but not always available
- May be able to offset price increases with waste disposal savings
- May be able to offset price increases by receiving compost products from compost facility

# Additional Considerations

## **Local Suppliers**

- Often have incomplete lines
- Some manufacturers sell direct only
- Need for more manufacturer/local vendor relationships to ensure competitive bids

## **Energy Use and Greenhouse Gas Impacts**

- Manufacturing locations and transportation impacts are difficult to sort out
- Local suppliers may import products from Asia
- Domestic products shipped by truck may produce more negative impacts than imports delivered by ship

# What We Learned

- The compostable food service ware market is very dynamic – new products all the time, changes in existing products, many different types of materials
- Wide range of quality and compostability
- Increasing number of high quality certified products and good options
- Needs more development of distribution channels

# What We Learned

- A comprehensive compostables program requires careful planning and collaboration with the compost facility
- There are significant differences between composting facilities
- Products that are not accepted in one program may well be great for another, depending on program needs and composting capabilities

# Links

**BPI:** [www.bpiworld.org](http://www.bpiworld.org)

**OMRI:** [www.omri.org](http://www.omri.org)

**Cedar Grove composting facility**

[www.cedar-grove.com/acceptable/Accepted%20List.asp](http://www.cedar-grove.com/acceptable/Accepted%20List.asp)

**USDA BioPreferred**

[www.catalog.biopreferred.gov/bioPreferredCatalog/faces/jsp/catalogLanding.jsp](http://www.catalog.biopreferred.gov/bioPreferredCatalog/faces/jsp/catalogLanding.jsp)



# Join RPN

**Because Every Purchase Matters.**

## **Membership Benefits:**

- ▶ Model policies and specifications
- ▶ Green purchasing webinars
- ▶ Certified green products database
- ▶ Expert sustainability speakers
- ▶ Responsible Purchasing Awards

## **Consulting Services:**

- ▶ Custom green specifications
- ▶ Green purchasing policies
- ▶ Life Cycle Analyses
- ▶ Green office audits
- ▶ Cost-saving green practices

