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GREENING YOUR TAKE-OUT PACKAGING: Marin County Takes the Lead

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(see GreenBiz.com)

Government facilities, colleges and universities, and corporations are jumping on the bioeconomy bandwagon by switching from petroleum-based plastic take-out items to compostable products made of renewable resources at their cafeterias. While greening lunches on the run might not seem like front-page news, these smaller efforts are paving the way for a larger transformation to a zero-waste green revolution, fed by corn and sugar.

One of the major barriers to switching from petroleum-based plastic to biobased to-go products has been cost.

With oil prices rising, and the market for biobased products growing, many expect the price gap to narrow. It is possible that the time has come to green take-out.

Marin County's recent switch at their Civic Center café from plastic to take-out containers, plates, and cups made from corn (PLA) and sugar cane fiber (bagasse) provides a showcase for how to make the transition. This piece walks you through the key steps to greening your take-out packaging:

- Weigh the public-relations benefits;
- Develop a green procurement or sustainability policy (helpful, but not necessary);
- Find a leader to spearhead the effort;
- Conduct research on your product needs and available options;
- Get support from senior staff;
- Select a distributor and conduct an audit;
- Conduct a cost-benefit analysis;
- Understand the issues associated with biobased products; and
- Educate the public.

#1: Weigh the Public Relations Benefits

As a first step, explore if using plastic in your food facilities projects the image you want—is this image consistent with your organizational commitment to sustainability?

Traditional foam "to-go" containers are made of polystyrene, while the clear plastic containers and bottles we see everywhere are made of polyethylene terephthalate

(PET), polystyrene, or polypropylene—all petroleum-based plastic polymers. The ubiquitous paper coffee cup, and the paper take-out containers we see everywhere, also use a petroleum-based plastic coating to make them waterproof.

According to Green Seal, in 1997, 120 million pounds of foam polystyrene hinged containers were used in the U.S. food packaging industry and each American throws away an average of 100 polystyrene cups each year. Green Mountain Coffee Roasters recently estimated that last year Americans used 14.4 billion hot paper cups (placed end-to-end, this many cups would circle the world 55 times).

Not only do these plastic cups and take-out containers create garbage that ends up in the landfill for centuries to come (a polystyrene cup has an expected lifetime of over 500 years), they are made from non-renewable petrochemicals, and styrene, a key ingredient of polystyrene, is a suspected carcinogen and known hazardous substance.

Marin County Supervisor Charles McGlashan, who initiated the switch for the County, articulates, “It is all about walking your talk. If you are the kind of organization that has sustainability values and you want to walk your talk, you can’t have a café filled with plastic.”

An obvious first strategy to implement, where feasible, is to reduce waste, energy use, and emissions by offering patrons the option to eat-in on real, reusable ceramic plates, glasses, and cutlery. Marin County does offer this option, but many on-the-run employees prefer to take their meals “to-go”. Another option is to encourage customers to bring their own cups and plates, by offering them a small discount.

#2: Develop a Green Procurement or Sustainability Policy: Helpful But Not Necessary

An overarching sustainability or green procurement policy can help set the framework for a switch to biobased products. The Marin Board of Supervisors has identified sustainability as a key value in its mission statement, and while the County does not have a formal procurement policy, the Board supports green procurement.

Supervisor McGlashan explains, “It is powerful to have a procurement policy or sustainability vision in hand first.” But, he also argues that it is not critical.

“You can also succeed merely because of the bad image that utilizing plastic could cause to any group, even if you don’t have a comprehensive sustainability vision like we do. In the case of a county or city or other organization, if your image can be tarnished by too much plastic, this approach can be executed without those larger pre-existing mandates, because those can be hard to get in the abstract in advance.”

#3: Find a Leader to Spearhead the Effort

A key to success is finding a community leader willing to spearhead the effort. Greg Stevens of Excellent Packaging and Supply, a distributor of biobased products, agrees. “I have had my biggest successes where there is an advocate to push for it.”

Many we spoke with attributed Marin’s success to Supervisor McGlashan’s leadership and high-level support to get the initiative off the ground.

Supervisor McGlashan explains it all began “with a sense that the symbolism of all that plastic sitting in the cafe was a violation of our values as a County.”

#4: Conduct Research on Your Product Needs and Available Options

Supervisor McGlashan’s summer intern Julie Goldrosen (a senior in high school at the time) worked with the concessionaire to determine their specific needs, completed extensive research on the available products and distributors, and analyzed the viability and economic cost of switching to the biobased products.

After talking to others who had used the biobased products, and looking at samples, Goldrosen quickly discovered that they have a successful track record. San Francisco’s Department of Environment, Bioneers, and companies such as Wild Oats and Newman’s Own Organics have all successfully used them.

“When I asked people how it worked, everyone was raving about it,” exclaims Goldrosen. She then got the names of a couple suppliers and when Excellent Package and Supply sent a box of sample products, “everyone was just shocked by how much they looked like the regular plastic. That is when I knew it would be feasible to make the switch--because the biobased products were comparable to what the café already had.”

The best option to replace clear plastic fossil fuel-based take-out containers and cold drink cups is corn-based products made of polylactic acid (PLA). For plates, bowls, and clamshells for hot food, sugar cane-based fiber (known as bagasse) is a good choice. Another option to consider is the EarthShell product made of starch, limestone, and wood fiber.

You would be hard pressed to tell the difference between a NatureWorks™ PLA cup and a traditional plastic cup.



A NatureWorks™ PLA cup looks and functions the same as a traditional plastic cup

Source: NatureWorks LLC

A brief overview of the most popular biobased products follows:

Polylactic acid (NatureWorks PLA): PLA is a fully biodegradable, compostable corn-based polymer made by NatureWorks LLC (a company owned by Cargill). At their plant in Nebraska, locally harvested corn is broken down into corn sugar (also known as dextrose). The dextrose is then fermented and distilled into a substance called lactic acid, which is transformed into PLA pellets.

The pellets are sent to manufacturers to be turned into clear food packaging, as well as other products, including water bottles, CD players, auto parts, and even coffins. To date, PLA has been used only for cold food and drinks because it does not function well for hot foods (over 110 degrees).

However, Green Mountain Coffee Roasters and International Paper just launched a new eco-friendly hot paper cup with a PLA lining that makes the cup heat resistant.

NatureWorks recently started purchasing Renewable Energy Certificates (RECs) to offset greenhouse gases at their plant, reducing the environmental footprint of producing the PLA.

Bagasse: Bagasse is the dry, fibrous by-product of the sugar cane harvesting process. It can be processed and molded into heat resistant cups, plates, trays, bowls, and clamshells. Products made of bagasse are biodegradable, compostable, and can be used for both hot and cold foods. At this time, bagasse products are made in China.

EarthShell: [EarthShell Corporation](#), and its US licensee Renewable Products, have developed a compostable, heat resistant material made of natural limestone and starch from potatoes or corn. At their Missouri plant, they recently started producing biobased plates and bowls, which are sold at retail stores such as Smart & Final and to select institutional customers. The County is not using these products, but they are an option to explore.

Spudware™: Spudware is biodegradable cutlery made from 80% starch (potato or corn) and 20% soy or other vegetable oil. It is extremely durable and heat resistant, but costs roughly 60% more than traditional plastic cutlery. The County decided not to replace the cutlery for the first year.

BIOTA Spring Water: Colorado-based BIOTA Spring Water is the first bottled water packaged in a NatureWorks™ PLA bottle. Marin County is not using BIOTA water, but it is an available option. According to Excellent Packaging and Supply, it can cost roughly 30% more, depending on the brand of water to be replaced.

#5: Get Support from Senior Staff

After getting educated on the alternatives, Goldrosen and McGlashan's office went to Jim Farley, the Director of Cultural and Visitor Services, whose office manages the contract with the café concessionaire Ray's Catering. He was quickly sold on the idea and asked Ray's Catering to look into what it would take to make the switch.

"When this program came to us, naturally we looked into it right away, because sustainability is something we hold near and dear," explains Farley.

It was effective to have a senior member of the staff take the issue to the board and be able to say, “I want to do this and it is feasible.”

#6: Select a Distributor and Conduct an Audit

Before requesting approval for the concept, do your homework and understand what products you are currently using and identify what performance qualities you need.

Dan Offenbach of Ray’s Catering explored a variety of products and distributors and decided to work with [Excellent Packaging and Supply](#) due to their hands-on customer service, variety of products, and distribution capacity (see the table below for a listing of resources on biobased products). You want to find a distributor who is knowledgeable about the available products and that has existing relationships with product manufacturers.

“I’ll go in and do an audit of a facility, look at all the things they are using, and then do a cost analysis of replacing items with biobased products,” explains Stevens of Excellent Packaging and Supply.

**Table 1
Resources on Biobased Products**

Company	Resource	Web Site
World Centric	Non-profit selling biobased products.	www.worldcentric.org/bio/index.htm 650-283-3797
Excellent Packaging and Supply	Information on PLA, bagasse, and Spudware™ products	www.excellentpackaging.com 800-317-2737
NatureWorks LLC	Does not sell products directly, but has a good web site on PLA.	www.natureworkspla.com
EarthShell Corporation	Information on plates and bowls made of limestone and starch.	www.earthshell.com 410-847-9420 x13
BIOTA Spring Water	Spring water in PLA bottle	www.biotaspringwater.com 970-728-6132
Green Earth Office Supply	Sells PLA and bagasse products.	www.greenearthofficesupply.com
Eco-Products	Sells PLA and bagasse products.	www.ecoproducts.com
California Integrated Waste Management Board	List of companies that sell certified products.	www.ciwmb.ca.gov/FoodWaste/Compost/Biodegrade.htm
Biodegradable Products Institute	List of companies that sell certified products.	www.bpiworld.org
PGE Energy Center	List of companies that sell certified products.	www.pge.com/003_save_energy/003c_edu_train/pec/compostprogram/product_list.shtml
Alcas (an Italian gelato cup manufacturer)	An informational video clip on PLA	www.alcas.it/index_intro.asp

Note: The list is not intended to be an endorsement of specific brands, nor is it a comprehensive list of available products.

The cost difference depends on the changes you need to make. Switching from traditional clear plastic PET cups to PLA can cost only a few pennies more per cup (and with oil prices rising, this differential may soon be gone), while switching a foam bowl or plate to a bagasse fiber product can cost 50 to 70% more.

However, sometimes making the switch can be cost-neutral or even result in a cost savings. Wild Oats commented in a LA Times article last year that their “corn-tainers” cost them less than traditional plastic.

[Green Mountain Coffee Roasters](#) is using a new 100% renewably-sourced hot paper cup with a PLA lining that costs less than a penny more per cup from International Paper. Hopefully we will see more “ecotainer” products soon.

The majority of Marin’s take-out products were foam, resulting in cost-premium to make the switch. Ray’s Catering estimated it will cost roughly \$1,200 more per month (a 40% increase) to switch to a combination of 11 sugar cane and corn-based products.

#7: Conduct a Cost-Benefit Analysis

When it became clear there was going to be a price tag to the switch, County staff worked to develop a strategy for offsetting the additional costs and negotiated a deal with Ray’s Catering.

The County offered to roughly split the extra monthly cost and provide Ray’s Catering a \$600/month subsidy to underwrite the initial cost of the transition to the biodegradable packaging. The County is in strong financial shape, so total cost for the first year (\$7,000) was easily covered as part of the Department of Cultural and Visitor Services’ \$4.6 million budget.

Private companies can offset the price difference from their marketing budget or implement a small price increase to the customer.

As oil prices continue to rise, and the market for green products grows, it is expected that the price gap will narrow soon. “There is a cost factor now, although everyone seems to think the cost factor is going to go down over the next year. I applaud the Board for being willing to subsidize it (\$600/month), until the cost factor comes down,” exclaims Farley.

Supervisor McGlashan agrees, “The cost differential is probably short lived...Plastic prices are going up fast enough that we are quite confident we won’t pay a premium over the long term.”

Once the costs are quantified, the next step is to balance them against the potential benefits to be gained from the switch. A switch can provide the following benefits:

- A way to demonstrate environmental leadership and portray the image of an agency or organization that walks their talk;

- For PLA, a reduction in the total fossil energy used by 50-70% (accounting for the fuel needed to plant and harvest the corn), with over a 70% reduction in associated greenhouse gas emissions;
- For bagasse, a reduction in the amount of traditional wood fibers used and the amount of agricultural waste burned;
- Where commercial composting is an option, the potential for a zero waste system (products typically decompose in 80-120 days) and a reduction in waste hauling fees;
- A reduction in the amount of plastic sent to a landfill, where it can last for hundreds of years;
- Support for the market for products made of renewable resources;
- A reduction in the amount of persistent, bio-accumulative, and toxic chemicals released into the environment from the manufacturing and disposal of plastics; and
- For businesses, capture the new niche of consumers willing to pay slightly higher prices for green products.

#8: Understand the Issues Associated with Biobased Products

As you explore a switch to biobased products, some of the issues that might be raised include:

- *Concern over genetically modified organisms (GMO):* As much as 50% of the U.S. corn supply used for PLA is genetically modified, and without paying an extra premium, it is difficult to ensure that products are GMO-free. [NatureWorks LLC](#) is aware of customer sensitivity and has developed a program to allow PLA manufacturers to purchase offsets, for a price premium of roughly \$5/case. While the GMO molecules themselves do not survive the fermentation process, environmental organizations are concerned about PLA's potential to support conventional corn production. Supervisor McGlashan explains, "It is more important to shift away rapidly from fossil-based materials like plastic. That is even more urgent than the GMO problem."

"Marin County has an anti-GMO ordinance, but is it free-range, seeds and plants that we don't want. Industrial GMOs are so prevalent in so many products that we use in modern society, it is hard to fight them everywhere. There is a longer term goal to be GMO-free, but it is going to take a while to get there."

- *The need to develop a compost program to achieve zero waste:* Another challenge is the fact that few jurisdictions have an active commercial composting facility, making the zero-waste, biodegradable claim difficult to fulfill. When biobased products end up in landfills, the lack of heat and light slow the decomposition process. Eventually, they will decompose faster than traditional plastic, but not in the 80-120 days touted for compostable products.

“If you throw the biobased products in with the normal trash, they will biodegrade eventually, and they are much better than regular plastic,” agrees Goldrosen. But, if you put them in a compost, they serve another purpose by becoming fertilizer and supporting a zero-waste system.

At this time, Marin County does not have a commercial composting facility, but they will need to head in that direction to fulfill their goal of reaching zero waste by 2040.

- *Concern over contamination of recycling systems:* If PLA products end up in recycling bins, it raises the concern that PLA could contaminate the PET plastic recycling processes. Since PLA currently makes up such a small percentage of the waste stream, it is not likely that it poses a great threat to recycling. To begin to address this concern, NatureWorks has launched a “buy-back” program to provide selected commercial recycling facilities an incentive to sort out the PLA and return it for recycling.

#9: Make a Commitment and Move into Action.

Despite some of the drawbacks, Marin County felt the program was a step in the right direction. Dana Armanino, a sustainability planner for the County of Marin, stresses, “For us, it is all about trying to make incremental changes and encourage the market. There is no silver bullet yet.

“We thought that the positives outweighed the negatives—which can be minimized moving forward.”

The County got final approval from the Board and jumped into launching the program in late April 2006.

To date, Ray’s Catering and the County have been pleased with the quality of the products, and customers have responded positively to the change. And while the switch bit into Ray’s Catering’s profit margin, as a result of the media attention the new program received, they have received interest from a few new clients willing to pay a small premium to green their events.



More and more agencies and businesses are turning to PLA and other biobased products
Source: NatureWorks LLC

#10: Educate the Customer

A final step to consider is to develop educational materials and signage to let customers understand the benefits of the new products.

What the Future Holds

Supervisor McGlashan sees a bright future for biobased products. “It's rippling out fast. Already there are other organizations taking a look at this switch”

The idea is spreading with local government agencies and businesses, especially in Cities like San Francisco and Oakland where new bans on polystyrene foam have been passed.

It is also spreading on a national scale. Green Mountain Coffee Roasters and International Paper have launched their new eco-friendly PLA-lined coffee cup, and WalMart, Newman's Own Organics, and Wild Oats are all using PLA containers.

This growing demand will encourage an increase in production, and hopefully, a decrease in price.

Farley concludes, “It all boils down to price points. It is a question of when the price point gets down close to plastic—that is the tipping point. The problem is that enough people have to use the products for the price to get to that point. And if anyone is suited to do that, it is public agencies or large companies that want to send the right message.”

Deborah Fleischer, founder and principal of Green Impact, works with socially responsible organizations to design and launch new sustainability solutions that produce real results. Green Impact fosters success by developing innovative sustainability strategies that integrate green values, turning green ideas into great projects, and promoting successes with compelling written communications. Green Impact also is a resource for green products and tools. For more information, see www.greenimpact.com.