Envisioning the Circular Economy

A survey of leaders in the sector

9/24/2020
Housekeeping

• Agenda
  • Scott Fister, NC DEQ
  • Ryan Hunt, Algix/Bloom
  • 1-2 Q+A
  • Emily Neville, Reborn Clothing Co.
  • 1-2 Q+A
  • Q&A Session & Discussion

• Q+A- please remember to use the chat feature and write in your questions.

• Disclaimer: This presentation is intended for educational and inspirational purposes only. As a state government agency this is not an endorsement or recommendation of any of the products, services or companies here within.
What is a Circular Economy?

NUTRIENT METABOLISMS

BIOLOGICAL NUTRIENTS

TECHNICAL NUTRIENTS

CRADLE TO CRADLE PRODUCTS INNOVATION INSTITUTE

DEQ

NORTH CAROLINA
Department of Environmental Quality
Total Available Markets for "carbontech"

**US**

**PRODUCT**

**BUILDING MATERIALS**
- Cements: $1,240
- Concretes: $65,000
- Asphalts: $12,190
- Aggregates: $22,700
- **Total**: $101,130

**WOOD-BASED PANELS**
- **Total**: $12,508

**FUELS**
- Gasoline: $543,400
- Jet Fuel: $38,760
- Diesel: $186,660
- Natural Gas: $83,705
- Ethanol: $23,550
- Biodiesel: $6,074
- **Total**: $882,149

**PLASTICS**
- High density polyethylene: $25,393
- Linear Low density polyethylene: $20,502
- Low density polyethylene: $11,522
- Polypropylene: $14,276
- **Total**: $71,694

**CHEMICALS**
- **Total**: $1,800

**AGRICULTURE AND AQUACULTURE**: N/A

**CONSUMER GOODS**: N/A

**TOTAL**: $1,069,281
### THE FUNGI INDUSTRY LANDSCAPE

#### CONSUMER GOODS
- **Fungi Perfecti**
- **Mushroom Cups**
- **Mushroom People**
- **Primorroots**
- **Soloti**

#### FOOD
- **Fungi Factory**
- **Namaq**
- **Sculpt**
- **Wild**
- **Jewels of the Forest**

#### INGREDIENTS
- **Egg Whites**

#### HEALTH & BEAUTY
- **Fungi Perfecti**
- **Mushroom Cups**

#### FASHION
- **Accessories**
  - **Fungal Futures**
- **Textiles**

#### PACKAGING
- **Kroan**
- **Ecovative**

#### OFFICE
- **Ecovative**

#### FEED
- **Wild Earth**

#### ENVIRONMENTAL REMEDIATION
- **Fungi Perfecti**

#### CONSTRUCTION
- **BIOHM**

#### HOUSE & HOME
- **BiOHM**

#### NEWPROTEIN.ORG/MAPS

Olivia Fox Cabane
The Biopreferred Program Companies Map tool assists in locating companies with biobased products within a particular state, zip code, or congressional referenced on this map have chosen to list their company and product information in the BioPreferred Program Catalog.
Textiles

AlgiKnit Inc. is a biomaterials company integrating science and design into textile production. AlgiKnit is creating durable yet rapidly degradable yarns. We aim to operate in a closed loop product lifecycle, utilizing materials with a significantly lower environmental footprint than conventional textiles, to bring sustainable bio-based textile alternatives to the footwear and apparel industries.

Bolt Threads
We developed Mylo from mycelium cells by engineering it to assemble into a supple yet durable material that has the potential to biodegrade and can replace real and synthetic leather.
At OSOMTEX®, we repurpose millions of pounds of discarded post-consumer and post-industrial textile waste directly from brands and the general supply chain to create high-quality upcycled yarns and fabrics. Our process uses No water, No dyes, and NO harsh chemicals, making it the best sustainable solution to help reduce the negative impact of creating new clothing and virgin fibers, saving millions of gallons of water every year and also our people, rivers, and oceans from pesticides and toxic waste.
Packaging

Apeel adds a layer of plant-derived protection to the surface of fresh produce to slow water loss and oxidation — the factors that cause spoilage. It sounds simple, but it took a lot of figuring out.
Building Materials

Orb is 100% biodegradable, vegan, sustainable and renewable. We achieve this by sourcing waste by-products from the food production or agricultural sectors and processing it into a homogenous filler which is bound together with our unique and completely organic binder to form an affordable and sustainable replacement for wood-based sheet materials.

Ecovative
Using our Mycelium Foundry, we are collaborating with companies to create alternative meat products, biodegradable packaging materials, animal-free leather and more.

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Consumer Materials
Building Materials Cont.

aggregate
waste aggregate
(85% by volume)

biologics
bM natural bacteria, nutrient

solution
water, calcium source

= product
reaches full strength in less than 72 hours of production, same composition as natural stone

bioMASON®
building with nature

NORTH CAROLINA Department of Environmental Quality
We have developed a device that recycles CO₂ into cost-competitive chemicals and fuels. Our technology bolts onto any source of CO₂ emissions, and with only water and electricity as inputs, transforms that CO₂ into some of the world's most critical chemical products.
Tires
BIOFABRICATE is a platform for biomaterial innovators and consumer brands growing a sustainable future.

We’re building the backend of the bioeconomy. Biology is everywhere. At Ginkgo, we see the potential for biology to transform all industries. Working with our partners and growing ecosystem, we design custom organisms that bring new products to life for countless applications.
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