



INSTITUTE FOR AGRICULTURE AND TRADE POLICY

Making Sustainability the Standard: Green Chemistry and Sustainable Biomaterials

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IATP works at the intersection of policy and practice to ensure fair and sustainable food, farm and trade systems for all people



SUSTAINABLE BIOMATERIALS COLLABORATIVE

SBC Mission and Approach

- To spur the introduction and use of biomaterials that are sustainable from cradle to cradle;
- To advance the development and diffusion of sustainable biomaterials by creating sustainability guidelines, engaging markets, and promoting policy initiatives.

www.sustainablebiomaterials.org

Making Sustainability the Standard

- The emerging biomaterials sector and Green Chemistry
- Real and perceived sustainability issues with current biomaterials
- The need for sustainability throughout the lifecycle of biomaterials
- Connecting sustainable agriculture and the bioplastics sector in policy and the market

Green Chemistry Requires New Thinking and Systems

- Prevention of pollution and toxicity in development of materials and products
- Consideration of full life cycle in design and production
- Efficient use of renewable, sustainable resources and materials
- Real-time monitoring and analysis of materials for pollution prevention

The Emerging Biomaterials Sector



Making Biomaterials Green

- Feedstock
- Production and processing
- Distribution and Use
- End-of-life



Sustainable Bioplastic Guidelines

- Developed by stakeholders for stakeholders



- Addresses entire life-cycle
- Provides steps for achieving goals
- Engages industry at design stage
- Promotes indicators and transparency in monitoring

Available at www.sustainablebiomaterials.org

Biospecs

*Environmentally Preferable Purchasing Specifications
for Compostable Biobased Food Service Ware*

BUSINESS-NGO
WORKING GROUP

FOR SAFER CHEMICALS AND SUSTAINABLE MATERIALS



SUSTAINABLE BIOMATERIALS COLLABORATIVE

- Criteria and recognition levels for food service ware made from compostable biobased materials.
- Framework to enable buyers to assess the sustainability of these products through life cycle
- Created to encourage market development of biobased food service ware that meet high sustainability standards

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Making Biomaterials Green

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The Feedstock of Today's Bioeconomy



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



What Else is Produced

- Soil erosion and nutrient run-off and leaching
- Water, air, soil, health and biodiversity impacts of chemical use and GMOs
- Greenhouse gas emissions
- Pressure on ecosystems and land uses
- Reduced rural economic benefit from agricultural production



It can be different!

Even commodity
crop production
can be part of a
sustainable
farming system

**But markets and
policies need to
support it**



Working Landscapes Certificates

www.workinglandscapes.org



- Enable customers and retailers to support sustainable crop production based on current commodity use
- Separate commodity crop and agro-environmental services for farmer marketing
- Do not require “identity-preserve” infrastructure and additional transaction costs

2010 WLC Corn Production Criteria

www.workinglandscapes.org

- No GMO varieties
- No continuous cropping
- Soil testing and fertilization according to state criteria and test results
- No use of known human or animal carcinogenic chemicals
- Use of cover crops or at least 70% of residues left on entire field
- Creation of whole farm plan that includes biodiversity and energy aspects



WLC Goals



WLC Farmer in Minnesota

The “Ultimate” Green Job!

- Farmers receive a higher and more stable price for sustainable production
- Expanded production of sustainable feedstocks
- Growth of markets for sustainable products
- Begin movement towards perennial biomass feedstocks

Closing the Lifecycle Loop

*Sustainable feedstocks
are just the first step*

- Additives can effect preferred end-of-life solutions
- Composting and bioplastic recycling infrastructure limitations impact overall life-cycle value



Closing the Lifecycle Loop

End-of-Life is also a feedstock issue!

- Synthetic fertilizers are a key GHG emission source and high energy input, with many environmental implications
- Increased compost availability can reduce need for synthetic fertilizers



A Sustainable Bioeconomy

- Provides food, fuel, fiber and materials we need
- Safer products and processes
- Protects and enhances the environment and climate
- Benefits farmers, rural communities and society
- Is fair and responsive





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Thank you!

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