



Biobased Products: Creating New Markets in the U.S. and Around the World

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Agenda

- The USDA BioPreferred® Program
 - Mandatory Federal Purchasing
 - Voluntary Labeling Program
 - Current Initiatives
- The Market for Biobased Products
- On the International Front

The USDA BioPreferred® Program



U.S. Legislative Definition of a Biobased Product

- A product composed of recent biological components from agriculture, forestry, and marine
- Does not cover all things biobased; like bio-fuels, food, or feed



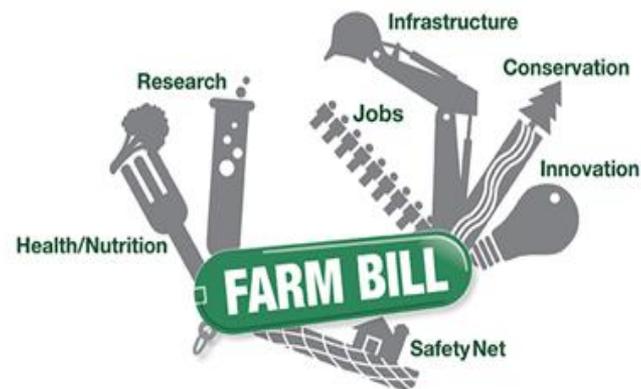
Our Working Definition

Biobased Products are derived from plants and other renewable agricultural, marine, and forestry materials. Biobased products generally provide an alternative to conventional petroleum derived products and include a diverse range of offerings such as lubricants, detergents, inks, fertilizers, and bioplastics.

The Basis of the BioPreferred Program

- Created in the 2002 Farm Bill
- Reauthorized and expanded in the 2008 and the 2014 Farm Bills
- Codified in the Federal Acquisition Regulation
- Part of Sustainable Acquisition in Presidential Order 13514
- Subject of 2012 Presidential Memo

Agricultural Act of 2014



Why the National Interest in Biobased Products?

- **Energy Security-** Reduce dependence on fossil fuels, produce biofuels, solar, wind, water energy in rural America
- **Environmental Security-** Help reduce climate change...plants sequester carbon
- **Economic Security--** American jobs in rural areas and all across the value chain
- **Food Security—** Keep agriculture strong, cheapest, safest food supply in the world



BioPreferred Through the Supply Chain



Study: Why Biobased? Overview of Existing Literature on the Economics of Biobased Products

AMEC Environment & Infrastructure, Inc.
Durham, NC 27703

- Sponsored by USDA BioPreferred
- Released, October, 2014
- Primary authors: Dr. Jay Golden Director of the Duke Center for Sustainability & Commerce AND Dr. Robert Handfield Professor of Supply Chain Management at North Carolina State University

Duke UNIVERSITY | CENTER for SUSTAINABILITY & COMMERCE

NC STATE UNIVERSITY
POOLE COLLEGE OF MANAGEMENT | SCRC

WHY BIOBASED?

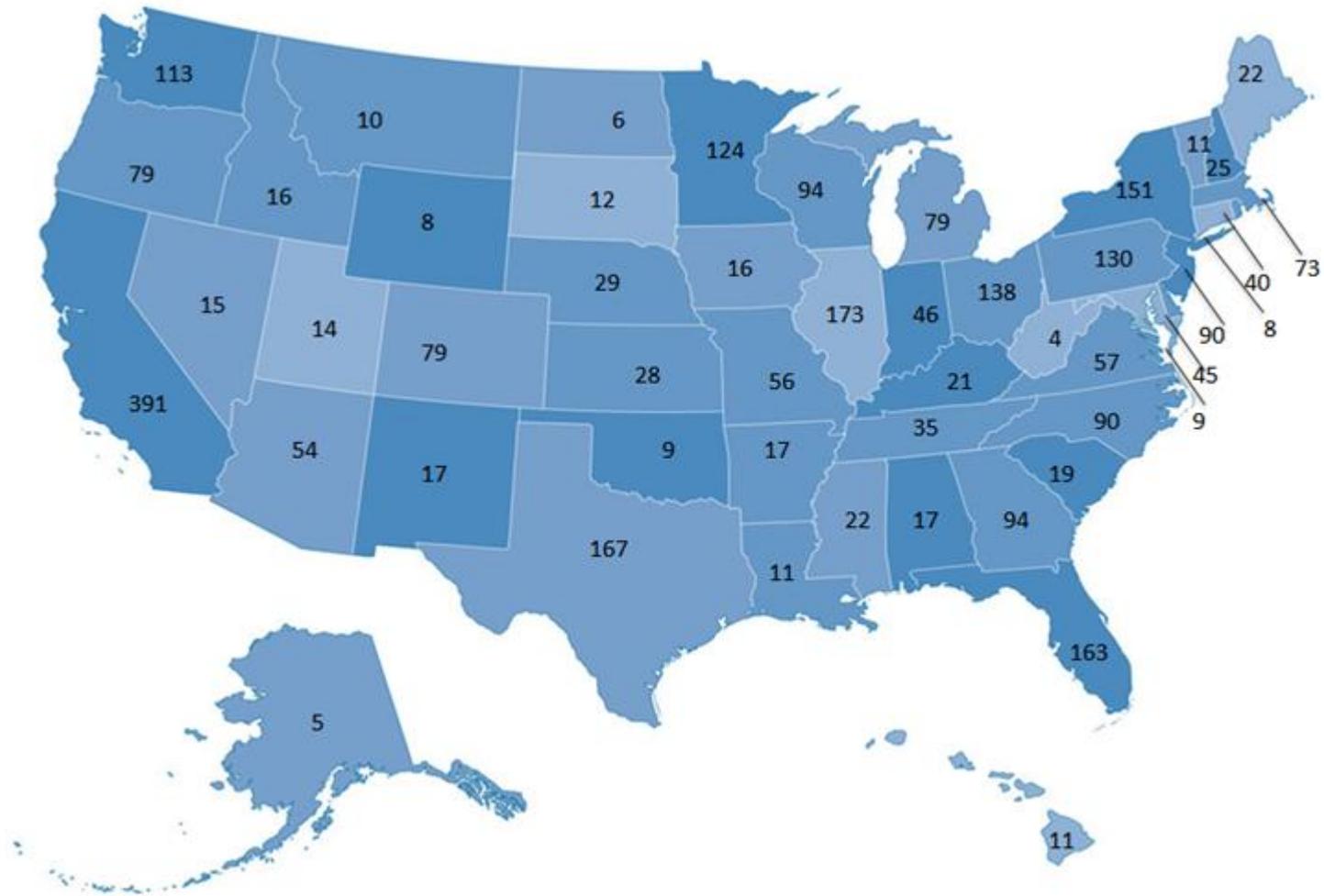


Opportunities in the Emerging Bioeconomy

Jay S. Golden and Robert B. Handfield

July 25, 2014

Economic Impact Across the U.S.



Growing Industry Example

- Segetis, “green chemistry” company
- Makes plant-based solvents that are petroleum substitutes,
- Plans to start construction on a \$105 million plant in Northeast Minnesota.
- The Segetis biobased plasticizers are rooted in cellulosic-based chemistry, and indicate their plasticizers function as well or better than oil-based ones.
- The Segetis project is forecast to have an annual **\$55 million economic impact, an inaugural 55 jobs, and support 545 jobs** in related industries,
- Current customers include Seventh Generation and Method

Source: Minneapolis Star Tribune, April 24, 2014



Two Components of BioPreferred Program

- Mandatory Federal Purchasing
- Voluntary Labeling



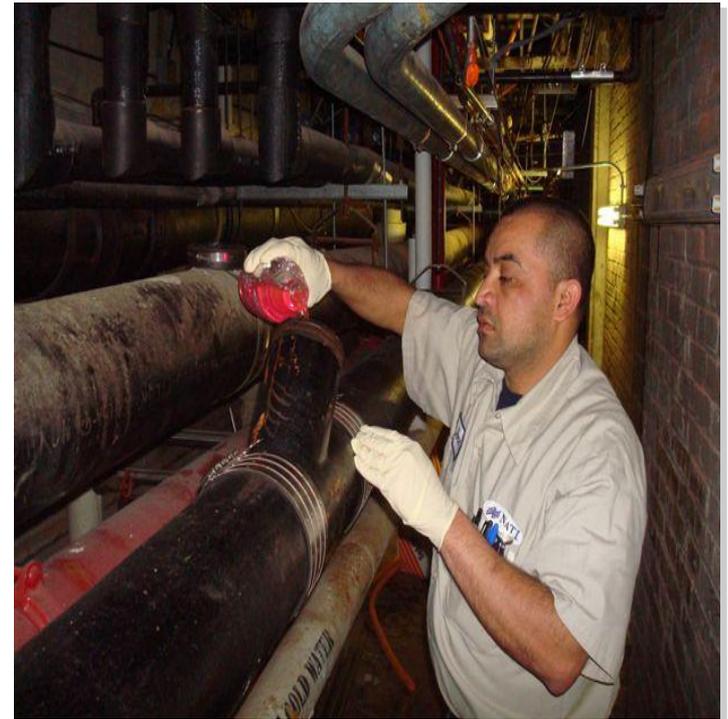
Mandatory Federal Purchasing of Biobased Products

- Requirement for:
 - Federal Agencies
 - Federal Contractors
- USDA identifies **product categories** that make sense for mandatory purchasing



The Categories for Mandatory Federal Purchasing include:

- Currently, 97 product categories
- Representing more than 10,000 products
- Product categories continue to be added



Examples of Product Categories and Associated Minimum Biobased Content

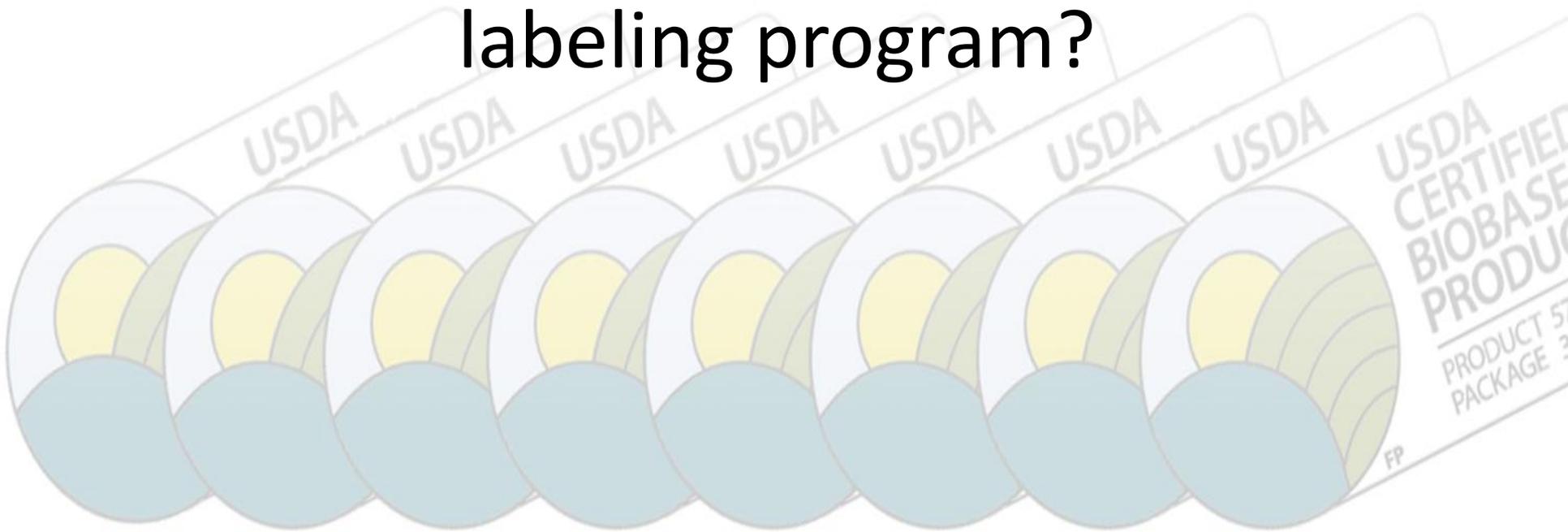
Product Category	Minimum Biobased Content
Countertops and Solid Surface Composites	89%
Gasoline Fuel Additives	92%
Paint Removers	41%
Crankcase Oil	25%
Floor Cleaners and Protectors	77%
2 Cycle Engine Oil	34%
Slide Way Lubricants	71%

Mandatory Purchasing Requirements Extend to:

- Solicitations
- Contracts
- Specifications
- Direct Purchases



What is the voluntary labeling program?



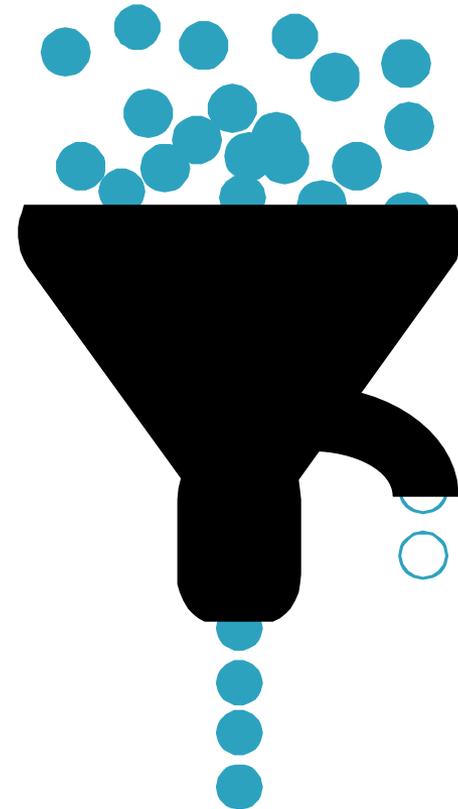
The USDA Certified Biobased Label

- Consumer focused
- Serve as an unbiased indicator of biobased content
- Independent third party certification partnership with ASTM International
- “Sun, sea, and soil” motif
- Biobased content percentage listed
- FP – included in Mandatory Federal Purchasing

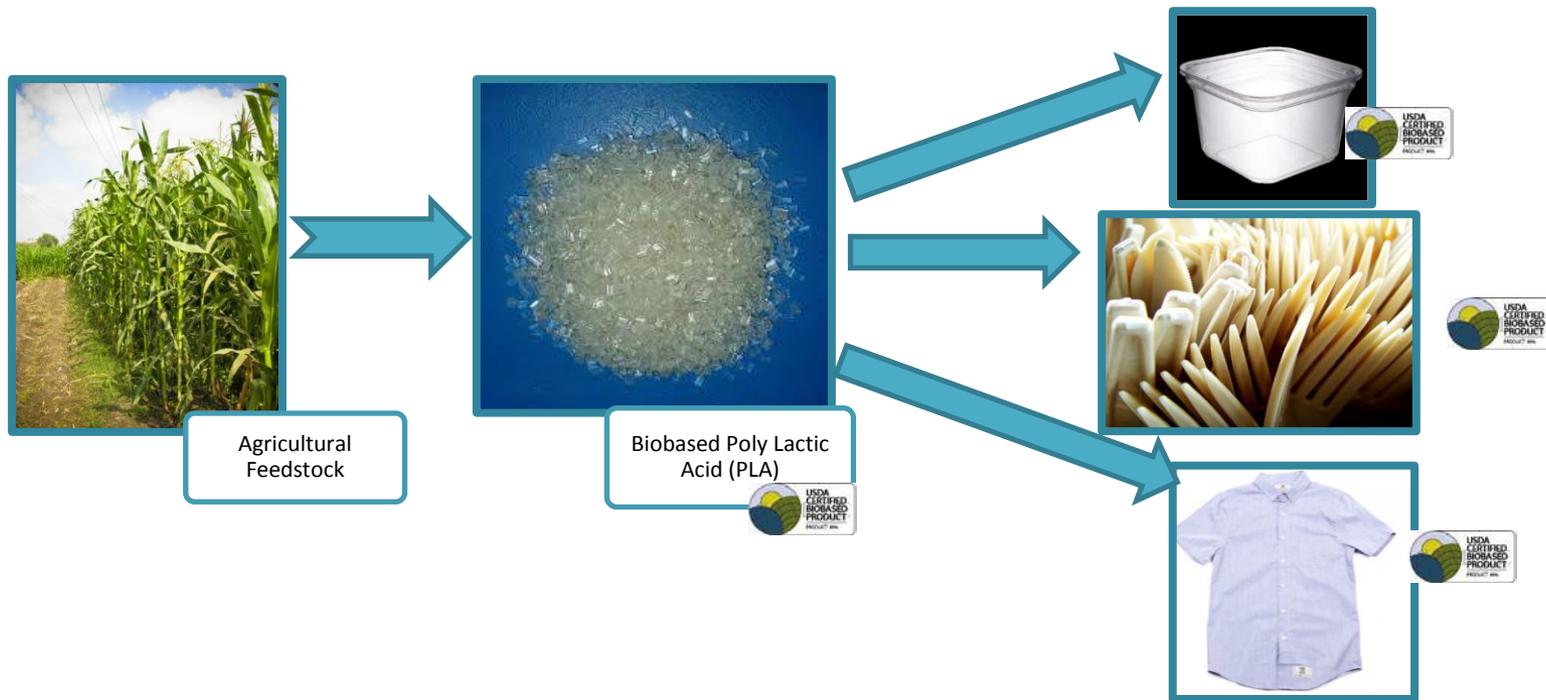


Label Activity

Category	Numbers
Label Applications (from 634 companies)	~2860
Certified Products	~1910
Applications in Process	~150



Biobased Products May Include Certified Biobased Intermediates



2014 Farm Bill Changes to BioPreferred® Criteria

Prior to 2014 Farm Bill:

- Products had to be “new and emerging”
- This eliminated “mature market” products such as a 2X4 lumber

2014 Farm Bill changed to:

- BioPreferred considers products “that apply an **innovative** approach to growing, harvesting, sourcing, procuring, processing, manufacturing, or application regardless of market entry”
- Innovative biobased products now being evaluated after submission



Innovation

Next Focuses: Intermediates and Complex Products

Intermediate Ingredient requires significant value added processing

- thermal
- chemical
- biological
- mechanical



Complex product

A multi-component assembled products with one or more component being made with biobased material (such as an automobile)

The International Marketplace



United States Department of Agriculture



Open-Bio European Union Report: BioPreferred Cited as Best Practice

“USDA BioPreferred shows that a focused governmental action makes it possible to set down clear rules of what can be considered a bio-based product, to award one clear label and compile a very comprehensive product list, combining it with a preferred procurement programme for public authorities.”



Biobased Crosses Many Industries But Trending Up

Industry	CAGR Projections*	Source
Biopolymers	14.3%	Research and Markets, 2013
BioSurfactants	3.5%	Transparency Research, 2013
Biobased Lubricants	6.6%	Transparency Research, 2013
Biobased Succinic Acid	45.6%	Allied Market Research, 2014
Natural Fiber Composites	11.2%	Research and Markets, 2014
BioPlastics	19%	Fredonia, 2013



*CARG – Compounded Annual Growth Rate

This an attractive time for the biotech investor. DataFox, 2014

Overall, the biobased industry raised \$1.318 billion in new capital in the past 12 months. Biofuels Digest, 2014

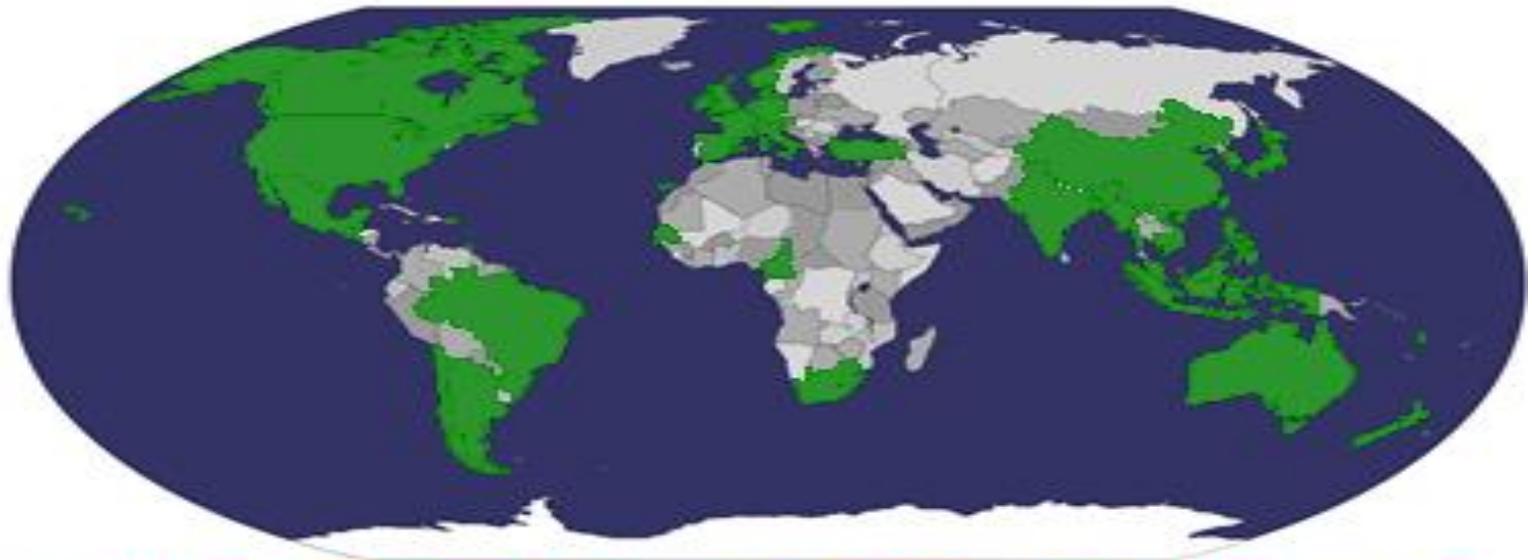
EU Market for Biolubricants, Biosolvents, BioSurfactants

- Biolubricant annual growth rate of 3.6%
- Bio-solvent annual growth rate of 4.8%,
- Biosurfactants annual growth rate of 3.5%



*Assessment of the Bio-based Products Market
Potential for Innovation: BioChem*

International Participation in BioPreferred



International Cooperation

- TEC Innovation Action Partnership focuses on commercialization of emerging technologies and sectors
- Collaboration on promoting the development and use of biobased products
 - Standards Harmonization
 - Best Practices
 - Linkages



[Transatlantic Economic Council Joint Statement](#)

Contact

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