The USDA BioPreferred® Program: Supporting the Advancement of the Bioeconomy

Marie Wheat
USDA BioPreferred Program
BIO World Congress on Industrial Biotechnology
July 25, 2017
Montreal, Canada
Overview:
The USDA BioPreferred® Program

• The latest data on economic impact of U.S. Biobased Products Industry
  – 2014 update
  – State by State data

• The BioPreferred Program
  – Federal purchasing
  – Voluntary biobased consumer product label

• What’s next
  – Intermediates and Complex Products

• Resources for Businesses
  – Participating with BioPreferred
  – Selling to the Federal Government

• Advancing the Biobased Industry
“USDA will focus, in particular, on job creation, economic vitality, and prosperity in rural America.”

*Secretary Sonny Perdue*

*Speech to the Delta Council, June 9, 2017*
At the Nexus of Strategic National Interests
Key Findings from the Economic Impacts Analysis of the U.S. Biobased Products Industry Report

The Total Number of Jobs Contributed to the U.S. Economy by the U.S. Biobased Products Industry in 2014

4.2 Million

The Total Value added Contribution to the U.S. Economy from the U.S. Biobased Products Industry in 2014

$393 Billion

The Jobs Multiplier

2.76

For every 1 Biobased Products jobs, 1.76 more jobs are supported in the United States.
Growth of U.S. Biobased Products Industry from 2013 to 2014

**Total U.S. Employment in Biobased Products Industry**

- Direct Employment
- Spillover Employment
- Total Employment

**Total Value Added to GDP from U.S. Biobased Products Industry**

- Direct Value Added
- Spillover Value Added
- Total Value Added

 USDA
United States Department of Agriculture
Direct Value Added Contribution by the Biobased Products Industry in Each State and the District of Columbia in 2013

An Economic Impact Analysis of the U.S. Biobased Products Industry: 2016 Update (*excluding enzymes)
At the Convergence of Strategic National Interests: Thriving Rural America

An Economic Impact Analysis of the U.S. Biobased Products Industry: 2016 Update

Georgia
Total Jobs: 178,110
Direct Jobs: 80,520
Total Value Added: $16.365 Billion
Direct Value Added: $8.238 Billion

The total jobs or value added is the sum of the direct, indirect, and induced effects.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Direct Jobs</th>
<th>Direct Value Added</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture &amp; Forestry</td>
<td>17,940</td>
<td>$1.5B</td>
</tr>
<tr>
<td>Biobased Chemicals</td>
<td>620</td>
<td>$168.9M</td>
</tr>
<tr>
<td>Biofueling</td>
<td>&lt; 50</td>
<td>&lt; $5M</td>
</tr>
<tr>
<td>Enzymes</td>
<td>70</td>
<td>$14.9M</td>
</tr>
<tr>
<td>Forest Products</td>
<td>41,970</td>
<td>$5.1B</td>
</tr>
<tr>
<td>Textiles</td>
<td>21,020</td>
<td>$1.6B</td>
</tr>
<tr>
<td>Bioplastic Bottles &amp; Packaging</td>
<td>&lt; 50</td>
<td>&lt; $5M</td>
</tr>
</tbody>
</table>

Georgia Map and Additional Text:
Floors is the leading producer of sustainable, biobased flooring, produced from cork, bamboo, and FSC certified hardwood. US Floors is currently the only producer of cork and bamboo flooring with manufacturing facilities in the US.

Kansas
Total Jobs: 17,070
Direct Jobs: 9,080
Total Value Added: $1.129 Billion
Direct Value Added: $594 Million

The total jobs or value added is the sum of the direct, indirect, and induced effects.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Direct Jobs</th>
<th>Direct Value Added</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture &amp; Forestry</td>
<td>910</td>
<td>$44.2M</td>
</tr>
<tr>
<td>Biobased Chemicals</td>
<td>140</td>
<td>$56.2M</td>
</tr>
<tr>
<td>Biofueling</td>
<td>&lt; 50</td>
<td>&lt; $5M</td>
</tr>
<tr>
<td>Enzymes</td>
<td>60</td>
<td>$13.4M</td>
</tr>
<tr>
<td>Forest Products</td>
<td>6,890</td>
<td>$367.3M</td>
</tr>
<tr>
<td>Textiles</td>
<td>1,070</td>
<td>$35.6M</td>
</tr>
<tr>
<td>Bioplastic Bottles &amp; Packaging</td>
<td>&lt; 50</td>
<td>&lt; $5M</td>
</tr>
</tbody>
</table>

Kansas Map and Additional Text:
LC Bioplastics (Wichita, KS: schoolplastics.com) LC Bioplastics manufactures a range of bioplastic resins and additives, including a line of ready-to-use finished goods such as custom film and bag products. Biobased resins, which are a blend of renewable thermoplastic materials and traditional polyolefins, increase the renewable content of a product by up to 50 percent in comparison to traditional packaging.

An Economic Impact Analysis of the U.S. Biobased Products Industry: 2016 Update

USDA United States Department of Agriculture
At the Convergence of Strategic National Interests: Thriving Rural America

**Michigan**

Total Jobs: 81,820  
Direct Jobs: 37,790

Total Value Added: $6.426 Billion  
Direct Value Added: $2.882 Billion

The total jobs or value added is the sum of the direct, indirect, and induced effects.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Direct Jobs</th>
<th>Direct Value Added</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture &amp; Forestry</td>
<td>5,210</td>
<td>$243.2M</td>
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<tr>
<td>Biobased Chemicals</td>
<td>950</td>
<td>$169.8M</td>
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<tr>
<td>Biorefining</td>
<td>&lt; 50</td>
<td>&lt; $5M</td>
</tr>
<tr>
<td>Enzymes</td>
<td>&lt; 50</td>
<td>&lt; $5M</td>
</tr>
<tr>
<td>Forest Products</td>
<td>30,090</td>
<td>$2.4B</td>
</tr>
<tr>
<td>Textiles</td>
<td>1,880</td>
<td>$117.1M</td>
</tr>
<tr>
<td>Bioplastic Bottles &amp; Packaging</td>
<td>70</td>
<td>$5.5M</td>
</tr>
</tbody>
</table>

**Example Biobased Product Firms**

- **Biobased Chemicals**  
  Lear Corporation (Southfield, MI; lear.com): Lear Corporation produces SoyFoam, derived from soybean oil, for automotive interior applications on North American Ford and other customer vehicles.

- **KTM Industries, Inc.** (Lansing, MI; ktmindustries.com/products.html): KTM Industries develops, manufactures, and markets new technologies that incorporate bioplastics. One of the company’s products is Green Cell, a starch-based biodegradable foam.

**Bioplastic Bottles & Packaging**

- **BioSafe, Inc.** (Dewitt, MI; hydrosafe.com): BioSafe products use vegetable-based oils as base fluids for a number of market products, including hydraulic oils, cleaners, and lubricants.

- **Green Cell Foam** (Lansing, MI; greencellfoam.com): Green Cell Foam produces a unique natural packaging material, produced from high-grade, non-GMO cornstarch.

**Texas**

Total Jobs: 178,480  
Direct Jobs: 88,680

Total Value Added: $15.228 Billion  
Direct Value Added: $6.828 Billion

The total jobs or value added is the sum of the direct, indirect, and induced effects.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Direct Jobs</th>
<th>Direct Value Added</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture &amp; Forestry</td>
<td>24,440</td>
<td>$1.7B</td>
</tr>
<tr>
<td>Biobased Chemicals</td>
<td>1,680</td>
<td>$471.3M</td>
</tr>
<tr>
<td>Biorefining</td>
<td>&lt; 50</td>
<td>$5.4M</td>
</tr>
<tr>
<td>Enzymes</td>
<td>350</td>
<td>$101.2M</td>
</tr>
<tr>
<td>Forest Products</td>
<td>57,020</td>
<td>$4.4B</td>
</tr>
<tr>
<td>Textiles</td>
<td>6,750</td>
<td>$253.1M</td>
</tr>
<tr>
<td>Bioplastic Bottles &amp; Packaging</td>
<td>60</td>
<td>$5.6M</td>
</tr>
</tbody>
</table>

**Example Biobased Product Firms**

- **DSI Ventures, Inc.** (Tyler, TX; dsvventures.com): DSI offers a comprehensive line of eco-friendly, biodegradable lubricant solutions. Feedstocks for the biobased lubricants include vegetable and citrus oils.

- **Samsill Corporation** (Fort Worth, TX; samsill.com): Samsill Corporation manufactures business accessories and office supplies. The company’s Earth’s Choice™ Biobased binders are made using a biobased intermediate, and the BioPreferred® label signifies USDA Certified Biobased Products.

**Bioplastic Bottles & Packaging**

- **Accredo Packaging, Inc.** (Sugar Land, TX; accredopackaging.com): Using renewably sourced resin from sugarcane feedstock, Accredo successfully pioneered sustainably produced packaging with a renewable content. The renewable packaging is predominantly used for the pre-packaged foods and consumer products markets.

An Economic Impact Analysis of the U.S. Biobased Products Industry: 2016 Update
At the Convergence of Strategic National Interests: Thriving Rural America

An Economic Impact Analysis of the U.S. Biobased Products Industry: 2016 Update

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**Minnesota**

- Total Jobs: $1.670
- Direct Jobs: 35,850

**Total Value Added:** $7.371 Billion
**Direct Value Added:** $3.392 Billion

The total jobs or value added is the sum of the direct, indirect, and induced effects.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Direct Jobs</th>
<th>Direct Value Added</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture &amp; Forestry</td>
<td>3,280</td>
<td>$146.9M</td>
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<tr>
<td>Biobased Chemicals</td>
<td>270</td>
<td>$74.1M</td>
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<tr>
<td>Biorefining</td>
<td>&lt; 50</td>
<td>$6.3M</td>
</tr>
<tr>
<td>Enzymes</td>
<td>50</td>
<td>$10.5M</td>
</tr>
<tr>
<td>Forest Products</td>
<td>28,880</td>
<td>$3.1B</td>
</tr>
<tr>
<td>Textiles</td>
<td>1,730</td>
<td>$81.6M</td>
</tr>
<tr>
<td>Bioplastic Bottles &amp; Packaging</td>
<td>&lt; 50</td>
<td>&lt; $5M</td>
</tr>
</tbody>
</table>

**Example Biobased Product Firms**

- **BioPreferred**: BioPreferred (Plymouth, MN; bio-preferred.com)

NareWorks, LLC (Minnetonka, MN; natureworkslc.com): NatureWorks is dedicated to driving environmental progress through developing the global market for biobased plastics and fibers. Industry partnerships include service ware, home textiles, food packaging, and apparel.

- **StarchTech, Inc.**: StarchTech is a global manufacturer of cornstarch-based loose fill packaging material produced from ReNew Resin.

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**Alabama**

- Total Jobs: 102,850
- Direct Jobs: 49,650

**Total Value Added:** $9.010 Billion
**Direct Value Added:** $4.978 Billion

The total jobs or value added is the sum of the direct, indirect, and induced effects.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Direct Jobs</th>
<th>Direct Value Added</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture &amp; Forestry</td>
<td>10,740</td>
<td>$776.5M</td>
</tr>
<tr>
<td>Biobased Chemicals</td>
<td>260</td>
<td>$82.6M</td>
</tr>
<tr>
<td>Biorefining</td>
<td>&lt; 50</td>
<td>&lt; $5M</td>
</tr>
<tr>
<td>Enzymes</td>
<td>50</td>
<td>$14.2M</td>
</tr>
<tr>
<td>Forest Products</td>
<td>33,420</td>
<td>$3.9B</td>
</tr>
<tr>
<td>Textiles</td>
<td>5,840</td>
<td>$266.0M</td>
</tr>
<tr>
<td>Bioplastic Bottles &amp; Packaging</td>
<td>&lt; 50</td>
<td>&lt; $5M</td>
</tr>
</tbody>
</table>

**Example Biobased Product Firms**

- **BioPreferred**: BioPreferred Program

- **Jasper Lumber Company** (Jasper, AL; jasperslumber.com): Jasper Lumber Company has manufactured quality southern pine lumber for more than 25 years, offering a wide range of wood products. The company is the only lumber manufacturer in the southeast U.S. to hold certifications from both the Forest Stewardship Council and the Sustainable Forestry Initiative.

- **Alpha CLP**: Alpha CLP manufactures a biobased, non-gunning firearm cleaner, lubricant, and protectant. The finished product is 99 percent biobased, utilizing vegetable oils during the production process.

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United States Department of Agriculture
## Top Ten States: Direct Jobs and Value Added

### Top 10 States for Direct Jobs in the Biobased Products Industry in 2013

<table>
<thead>
<tr>
<th>Rank</th>
<th>State</th>
<th>Direct Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>California</td>
<td>145,080</td>
</tr>
<tr>
<td>2</td>
<td>North Carolina</td>
<td>90,040</td>
</tr>
<tr>
<td>3</td>
<td>Texas</td>
<td>88,680</td>
</tr>
<tr>
<td>4</td>
<td>Georgia</td>
<td>80,520</td>
</tr>
<tr>
<td>5</td>
<td>Pennsylvania</td>
<td>71,360</td>
</tr>
<tr>
<td>6</td>
<td>Wisconsin</td>
<td>68,250</td>
</tr>
<tr>
<td>7</td>
<td>Ohio</td>
<td>52,930</td>
</tr>
<tr>
<td>8</td>
<td>New York</td>
<td>52,300</td>
</tr>
<tr>
<td>9</td>
<td>Alabama</td>
<td>49,650</td>
</tr>
<tr>
<td>10</td>
<td>Florida</td>
<td>47,690</td>
</tr>
</tbody>
</table>

### Top 10 States for Value Added in the Biobased Products Industry in 2013

<table>
<thead>
<tr>
<th>Rank</th>
<th>State</th>
<th>Direct Value Added</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>California</td>
<td>$9,862,930,000</td>
</tr>
<tr>
<td>2</td>
<td>Georgia</td>
<td>$8,237,608,000</td>
</tr>
<tr>
<td>3</td>
<td>Texas</td>
<td>$6,828,425,000</td>
</tr>
<tr>
<td>4</td>
<td>Pennsylvania</td>
<td>$6,522,151,000</td>
</tr>
<tr>
<td>5</td>
<td>North Carolina</td>
<td>$6,437,140,000</td>
</tr>
<tr>
<td>6</td>
<td>Wisconsin</td>
<td>$6,252,403,000</td>
</tr>
<tr>
<td>7</td>
<td>Alabama</td>
<td>$4,977,941,000</td>
</tr>
<tr>
<td>8</td>
<td>Tennessee</td>
<td>$4,429,804,000</td>
</tr>
<tr>
<td>9</td>
<td>Ohio</td>
<td>$4,276,668,000</td>
</tr>
<tr>
<td>10</td>
<td>South Carolina</td>
<td>$4,227,162,000</td>
</tr>
</tbody>
</table>

*An Economic Impact Analysis of the U.S. Biobased Products Industry: 2016 Update*
How the USDA BioPreferred Program Helps Drive the Bioeconomy

• Policy and program based on federal law
• Federal purchasing drives sales
• Voluntary biobased consumer product label drives recognition of biobased
• Fosters international cooperation on standards, labels, etc.
• International collaboration increases export potential
• Increases investor confidence
• Economic impact analyses drives interest in biobased at the national and state level
Federal Purchasing of Biobased Products

- 97 categories of products identified for federal purchasing
- Over 15,000 biobased products that qualify for federal purchasing listed in BioPreferred Catalog
- In FY 2017, Federal agencies have committed to 84,433 contracts to include biobased product purchasing requirements totaling $453,150,168.

<table>
<thead>
<tr>
<th>Agency</th>
<th>FY17 Biobased (contracts)</th>
<th>FY17 Biobased (dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DHS</td>
<td>340</td>
<td>$500,000</td>
</tr>
<tr>
<td>DOC</td>
<td>86</td>
<td>$31,657</td>
</tr>
<tr>
<td>DOD</td>
<td>60391</td>
<td>$129,686,772</td>
</tr>
<tr>
<td>DOF</td>
<td>300</td>
<td>$50,000,000</td>
</tr>
<tr>
<td>DOI</td>
<td>1000</td>
<td>$30,000,000</td>
</tr>
<tr>
<td>DOJ</td>
<td>200</td>
<td>$4,950,000</td>
</tr>
<tr>
<td>DOL</td>
<td>10</td>
<td>$1,400,000</td>
</tr>
<tr>
<td>DOT</td>
<td>25</td>
<td>$21,000,000</td>
</tr>
<tr>
<td>ED</td>
<td>none</td>
<td>$0</td>
</tr>
<tr>
<td>EPA</td>
<td>149</td>
<td>$5,272,000</td>
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<tr>
<td>GSA</td>
<td>9504</td>
<td>$45,783,579</td>
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<tr>
<td>HHS</td>
<td>274</td>
<td>$1,100,000</td>
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<tr>
<td>HUD</td>
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<td>$6,100,000</td>
</tr>
<tr>
<td>NARA</td>
<td>217</td>
<td>$17,000,000</td>
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<tr>
<td>NASA</td>
<td>1100</td>
<td>$1,000,000</td>
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<tr>
<td>OPM</td>
<td>14</td>
<td>$6,299,155</td>
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<td>SI</td>
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<td>$0</td>
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<tr>
<td>SSA</td>
<td>10</td>
<td>$10,561,000</td>
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<tr>
<td>State</td>
<td>400</td>
<td>$40,000,000</td>
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<tr>
<td>Treas</td>
<td>9000</td>
<td>$4,750,000</td>
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<tr>
<td>TVA</td>
<td>200</td>
<td>$800,000</td>
</tr>
<tr>
<td>USACE</td>
<td>1000</td>
<td>$64,916,000</td>
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<tr>
<td>USDA</td>
<td>200</td>
<td>$2,000,000</td>
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<tr>
<td>USPS</td>
<td>none</td>
<td>$0</td>
</tr>
<tr>
<td>VA</td>
<td>none</td>
<td>$0</td>
</tr>
</tbody>
</table>

Totals: 84,433 contracts, $453,150,168
BioPreferred: Voluntary Biobased Consumer Product Label

- Helps to drive consumer recognition of biobased products
- Requires 3rd party product testing for biobased content
- Products certified by USDA may display the USDA Certified Biobased Product Label
- States biobased content on label
- FP indicates that product qualifies for federal purchase
Currently over 3,000 voluntary labeled products
- consumer goods
  - about **1,800** products
- renewable chemicals
  - about **500** products which will qualify for federal purchasing as a result of regulation “Round 11”
- industrial goods
  - about **700** products
Catalog Offerings of USDA Certified Biobased Products

- National Farm Supply
- Bed, Bath, Beyond
- Office Depot
- Lowes
- Walmart
- Amazon
- Home Depot Catalog
  - Natural Origins Black BioBased Vinyl Deskpad
  - USDA certified biobased – 26%
USDA Certified Renewable Chemicals

Processes underway to include renewable chemicals as categories in Federal Purchasing

INTERMEDIATES - PLASTIC RESINS: 86
INTERMEDIATES - PERSONAL CARE PRODUCTS: 32
INTERMEDIATES - PAINT & COATING COMPONENTS: 44
INTERMEDIATES - OILS, FATS, AND WAXES: 20
INTERMEDIATES - LUBRICANT COMPONENTS: 43
INTERMEDIATES - FOAMS: 14
INTERMEDIATES - FIBERS AND FABRICS: 35
INTERMEDIATES - CLEANER COMPONENTS: 17
INTERMEDIATES - CHEMICALS: 98
INTERMEDIATES - BINDERS: 9
INTERMEDIATE FEEDSTOCKS: 149

United States Department of Agriculture
Example of Biobased Products From Biobased Intermediates

A USDA Certified Biobased Intermediate used in creating multiple USDA certified biobased end-use products.
Selling Biobased Products to the Federal Government and Federal Contractors

- Participating in BioPreferred
  - Include your products in Catalog
  - Apply for labw
- Federal Business Opportunities
  - Sources Sought
  - Award Notices
- GSA Schedules
Why Your Business Should Participate in the USDA BioPreferred Program

- Listing your products in the BioPreferred catalog allows federal buyers and federal contractors to source your products.
- USDA certified and labeled biobased products are easier for federal buyers to find in retail environments (using federal purchase cards).
- USDA certified biobased intermediates listed in the catalog develop “name recognition” for both consumers and makers of finished goods.
- BioPreferred uses various social media avenues and outreach to advance the recognition of biobased products in the marketplace.
- International cooperation increases export possibilities.

BioPreferred Outreach to Federal Agencies

USDA staff showing biobased products to attendees of the National Contract Management Association National Convention

BioPreferred Article in National Contract Management Association Magazine
Participating in BioPreferred

- Register a Business
- Company Tools
- How to Participate
FBO: Sources Sought

Need help navigating federal procurement? We can help.
**FBO: Award Notices**

**Opportunities**

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>Agency/Office/Location</th>
<th>Type</th>
<th>Posted On</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Custodial, Waterloo, IA</strong></td>
<td>Department of the Army Contracting Command, MOCO, MOCO - Fort McCoy</td>
<td>Award / Woman Owned Small Business</td>
<td>Jun 12, 2017</td>
</tr>
<tr>
<td><strong>R--CLEANING SERVICES</strong></td>
<td>Department of the Interior Bureau of Indian Affairs BIA - DAPM</td>
<td>Award</td>
<td>Jun 12, 2017</td>
</tr>
<tr>
<td><strong>S2--JANITORIAL (SCOTIA)</strong></td>
<td>Defense Logistics Agency DLA Acquisition Locations DLA Strategic Materials</td>
<td>Award</td>
<td>Jun 09, 2017</td>
</tr>
<tr>
<td><strong>Hensley Lake, CA, Janitorial Services</strong></td>
<td>Department of the Army U.S. Army Corps of Engineers USACE, Sacramento</td>
<td>Award</td>
<td>Jun 08, 2017</td>
</tr>
<tr>
<td><strong>S--BOO Janitorial Services</strong></td>
<td>Department of the Interior Bureau of Land Management Idaho Region</td>
<td>Award</td>
<td>Jun 06, 2017</td>
</tr>
</tbody>
</table>

**Synopsis:**

This requirement includes all labor, supervision, management, and materials, except those specified to be Government furnished, for the following services: facility investment (including preventative maintenance, equipment, inspections, and facility repairs (under service call parameters), system operations and service calls for heating, ventilation, and air conditioning (HVAC) system, boiler, and backflow preventers, custodial, pest control, and grounds maintenance which are currently being performed under five different requirements.

**Contracting Office Address:**

N96450 NAVFAC Southeast, Southeast Bldg, 903 Building 903 P. O. Box 30 NAS Jacksonville Jacksonville, FL

**Point of Contact(s):**

Courtney Peterson
904-542-8815
Schedules

- GSA establishes long-term government-wide contracts with commercial companies to provide access to millions of commercial products and services at volume discounts [http://www.gsa.gov/portal/category/100615](http://www.gsa.gov/portal/category/100615)
- The GSA Schedules program is an important acquisition vehicle in government, with approximately $50 Billion a year in spending or 10 percent (10%) of overall federal procurement spending.
- There is a vendor toolbox to help you determine if it is worth your time and effort

*GSA Advantage! (schedules) provides the ability to search by Biobased making it easy for federal buyers*
Moving the Industry Forward - Together

• Continuing to sell the biobased value proposition within:
  
  – Your company
    • Agricultural feedstock value over time
    • Consumer demands for sustainable products
    • New business lines
    • New business alliances
    • Company relations
  
  – Your community and state
    • Taking care of the farmer ensures abundant food supply
    • Enhancing economic development in rural counties
    • New U.S. manufacturing throughout U.S.
    • Making biobased a household word
    • Incentives for biobased businesses
    • State-level required purchasing
  
  – At the national level
    • U.S. jobs
    • Increased exports
    • National security (diverse energy portfolio and safe food supply)

The state of Tennessee is using biobased asphalt rejuvenators to extend the life of their highways.

The Defense Logistics Agency continues to adopt biobased products for military use.
Stretch Goals for The U.S. Biobased Industry?
How about a 25% Biobased Automobile?

Biobased components in autos today

• Soy based foam seat
• Composite exterior
• Headliners
• Trunkliners
• Carpet
• Air filter systems
• Door panel inserts
• Seat covers
• Floor mats
• Tires

How do we get there?
• Addressing supply chain issues
• Getting stakeholders invested in the value
• Making biobased a household word
Stretch Goals

NASA Journey to Mars:
Sending Humans to Mars in the 2030’s

“Requires a continuing chain of new innovation and new technologies.”

Biobased can be part of the journey to Mars throughout the technology and innovation chain to:
• reach Mars
• live on Mars
Thank you!

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