



Bioproducts – Providing Rural Development and Environment Benefits

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Plant Based Products Council

NASDA Rural Development and Financial Security Committee Meeting
February 15, 2022

About PBPC

- 🌱 Launched in January 2019
- 🌱 Represents companies large and small who are committed to advocating for a shift toward a more circular bioeconomy through greater adoption of renewable, plant-based materials supported by appropriate end-of-life infrastructure
- 🌱 Members include:
 - ADM
 - Cargill
 - Danimer Scientific
 - Delta Ag
 - Eco-Products
 - Green Dot Bioplastics
 - NatureWorks
 - Novamont
 - PepsiCo
 - TIPA



DIVERSE PRODUCTS



Household
Cleaners



Furniture



Building
Materials



Personal Care
Products



Food Service
Ware



Textiles



Packaging



Auto Parts



Office
Supplies



Toys



Medical
Supplies



Footwear

DIVERSE FEEDSTOCKS



Agricultural
Residue



Algae



Bamboo



Sugar Cane



Hemp



Sugar Beet



Wood



Dent Corn



Cassava (aka Yucca)



Rice Husk



Palm Leaf



Soy Beans

Benefits of Bioproducts



Support growth of the U.S. bioeconomy



New market opportunities for commodity crops



Same or better functionality



Improved circularity



Addresses numerous environmental challenges

Supporting the Bioeconomy



CONTRIBUTED A TOTAL OF

\$470B

VALUE ADDED TO THE
U.S. ECONOMY



GENERATED

2.79

JOB IN OTHER SECTORS
OF THE ECONOMY FOR
EVERY BIOBASED JOB

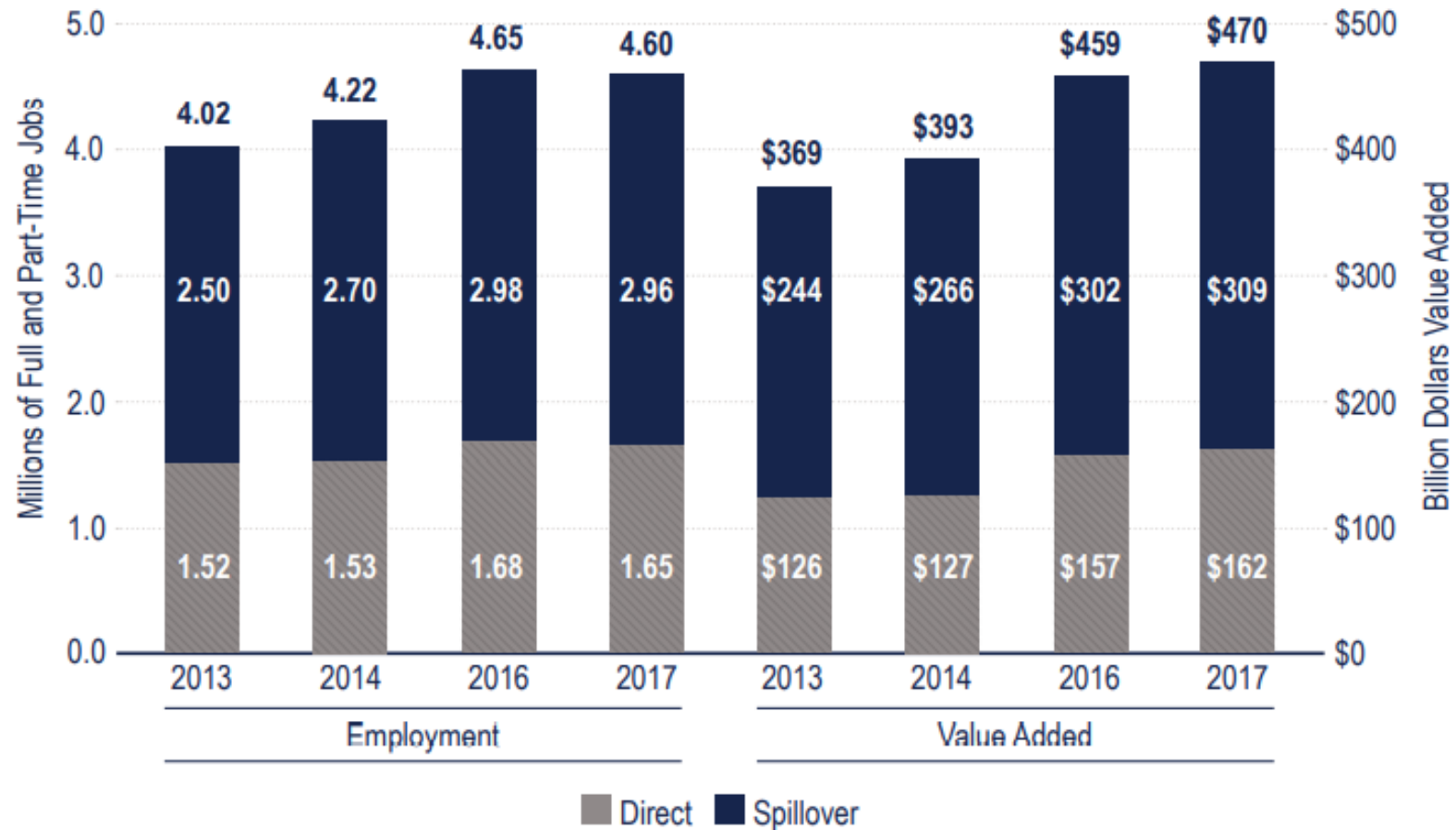


SUPPORTED A TOTAL OF

4.6M

AMERICAN JOBS THROUGH
DIRECT, INDIRECT, AND
INDUCED CONTRIBUTIONS

Economic Impacts 2013-2017



Continued Industry Growth...

Cargill and HELM partner to build \$300M commercial-scale, renewable BDO facility, first in the US, to meet growing customer demand

New joint venture unveils QIRA, a bio-based 1,4-butanediol (BDO) that saves up to 93 percent of greenhouse gas emissions compared to the use of conventional BDO

Wayzata, MN and Hamburg, Germany (June 8, 2021) — Cargill and HELM are entering into a joint venture, Qore, to help

Danimer Scientific breaks ground on new biodegradable plastic facility in US

By NS Packaging Staff Writer 30 Nov 2021

The company will construct a new 2,000,000ft² facility for the production of polyhydroxyalkanoate, a biodegradable plastic

Green Dot Bioplastics Breaks Ground on Plant Expansion



June 8, 2021 · 3 min read



Kansas-based global bioplastics company expansion project will double capacity ahead of new product launches

MARCH 6, 2018 [PRESS RELEASES](#)

DuPont Tate & Lyle Bio Products Expanding Bio-based Propanediol Production in Tennessee

...Driven by Corporate Sustainability Efforts...

DIVE BRIEF

Mars Wrigley strikes a deal to develop biodegradable candy wrappers

Published March 17, 2021

PEPSICO EUROPE SETS AMBITION TO ELIMINATE VIRGIN FOSSIL-BASED PLASTIC IN ALL OF ITS CRISP AND CHIP BAGS BY THE END OF THE DECADE

    01/25/2022

Apple plans recycled and renewable materials push

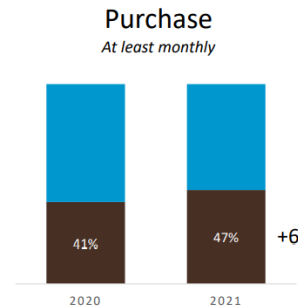
October 4, 2021 | Rebecca Coons

By 2025, all of McDonald's Packaging to Come from Renewable, Recycled or Certified Sources; Goal to Have Recycling Available in All Restaurants

...Driven by Consumer Demand for Sustainable Products.

Nearly half of Americans (47%) report purchasing plant-based products monthly.

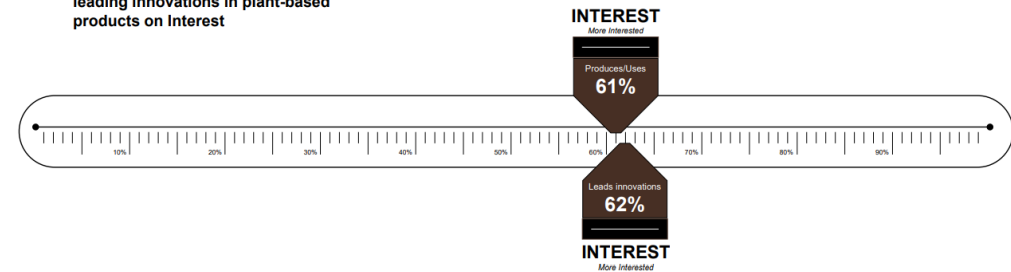
- Up +6 from 2020



Plant-Based Products Drive Consumer Interest

Consumers are much more likely to be interested in a company that leads innovations to create plant-based products OR who use plant-based products.

Impact of Company producing/using or leading innovations in plant-based products on Interest



WWF: Huge rise in demand for sustainable goods during Pandemic

New global research conducted by the Economist Intelligence Unit (EIU), commissioned by WWF, shows a staggering 71% rise in popularity of searches for sustainable goods over the past five years, with continuing growth during the COVID-19 pandemic.

18 May 2021

Press Release



Recent Study Reveals More Than a Third of Global Consumers Are Willing to Pay More for Sustainability as Demand Grows for Environmentally-Friendly Alternatives

While attitudes vary across generations, countries, and industries, 85% of consumers have become 'greener' in their purchasing in recent years. Companies must act now to avoid obsolescence in the future.

October 14, 2021 11:33 AM Eastern Daylight Time

The Global Picture – Bioplastics Example

Global bioplastics production will more than triple within the next five years

Berlin, 1 December 2021 – European Bioplastics presented today at the 16th EUBP Conference a very positive outlook for the global bioplastics industry. Production is set to more than triple over the next five years according to market data which was compiled in cooperation with the nova-Institute (Hürth, Germany).

Global production capacities of bioplastics in 2021 (by region)



Source: European Bioplastics, nova-Institute (2021)

More information: www.european-bioplastics.org/market and www.bio-based.eu/markets

Bioproducts in the Circular Economy



Environmental Benefits



Municipal
Waste



Soil
Health



Greenhouse
Gas Emissions



Water
Quality



Biobased products displace about **9.4 million barrels of oil** a year.



Biobased products have the potential to reduce greenhouse gas emissions by an estimated **12.7 million metric tons of CO_2** equivalents per year.

Addressing Climate Challenges

Case in Point: Green Dot Bioplastics

- Kansas-based company
- Making bioplastics used in furniture, toys, car parts, etc.
- Using American grown feedstocks
- Providing quality, STEM jobs with employees making 2-3x average local salary
- Helping customers re-shoring manufacturing facilities
- Reducing time, costs, environmental impacts

Opportunities to Grow the Bioproducts Industry

Common terminology

Additional market demand (e.g., state procurement)

Tax incentive programs

University research and education

Innovation and commercialization support

Public-private partnerships

Recycling and composting infrastructure needs



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