



Bioenergy 2016  
*July 13, 2016*

# The Problem?



# Take a Bountiful Resource



# Apply Technology



# Produce Bio-Res Products



Bio-Res PLA



Bio-Res Powder

# Light Weighting in Thermosets



# Bio-Res Pellets Injection Molding



# A plastic Pot



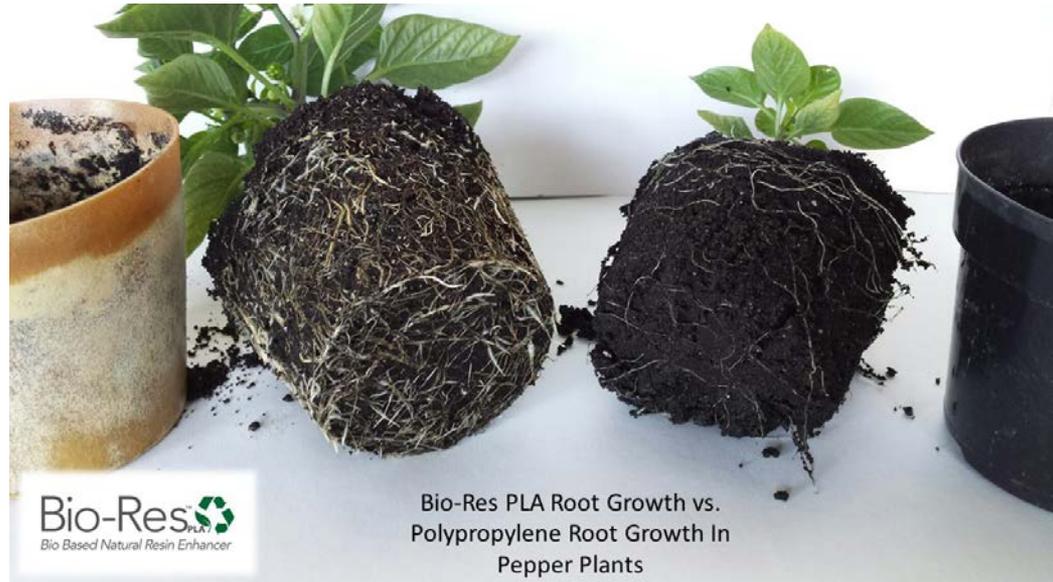
Or Not?



# Discovering Value



# Discovering Value



# Standards



**BPI**®

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**COMPOSTABLE**  
IN INDUSTRIAL FACILITIES

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Check locally, as these do not exist in many communities. **Not suitable for backyard composting.** CERT # 10528558

# Value Add In Plant Pots

- Compostable
  - Target is Soil Degradable
  - Nutrient Effect
  - Root Growth Effect
    - Less Root Wrap
  - Renewable, plant based content
  - Shorter Greenhouse Cycle Time
  - Better Transplant Survival
  - Less returns
- 

# What We Have Done

- ▶ Invented a Technology
  - ▶ Developed a Process
  - ▶ Tested and Scaled Up
  - ▶ Secured Feedstock
  - ▶ Designed and Built a Plant
  - ▶ Quality Assurance/Consistency
  - ▶ Developed Relationships
  - ▶ Understand what Customers Want.
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# Business and Industrial Guaranteed Loan

- ▶ USDA Rural Development
  - Lengthy, Difficult Process
  - High Value to Launch of Project
- ▶ Security Bank, Laurel Nebraska
  - Huge Value in Local Partnership

# USDA Biobased Certification and Label

- ▶ Qualification Process
- ▶ Value to Market
  - Limited recognition and value in non governmental marketplace.
- ▶ Applicability to Bio-Res Products
  - Bio-Res Products are components of finished good.
  - Would like to see change:
    - If all components that go into final manufactured part are qualified products than final product is qualified.

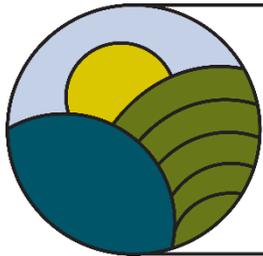
**BioPreferred**<sup>®</sup>

# USDA BioPreferred Program

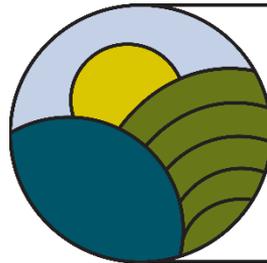
Bio-Res™  
POWDER   
*Bio Based Natural Resin Enhancer*

Bio-Res™  
PLA   
*Bio Based Natural Resin Enhancer*

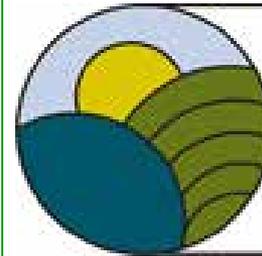
Bio-Res™  
PE   
*Bio Based Natural Resin Enhancer*



**USDA  
CERTIFIED  
BIOBASED  
PRODUCT**  
PRODUCT 100%



**USDA  
CERTIFIED  
BIOBASED  
PRODUCT**  
PRODUCT 97%



**USDA  
CERTIFIED  
BIOBASED  
PRODUCT**  
PRODUCT 62%

# Bio Fuels

- ▶ We strongly support ethanol
- ▶ Ethanol industry will continue to improve efficiency
- ▶ It is estimated that each pound of traditional plastics we replace with Bio-Res products saves 1 / 3 of a gallon of oil.
- ▶ Conversion of cellulose from distillers grain to Bio-Res may be a better energy trade off than conversion of this cellulose to ethanol.

# Policy in the Marketplace

- ▶ How do we understand policy
  - ▶ How do we influence Policy
  - ▶ How do we share information across groups
  - ▶ Lack of policy that drive bioplastics in the commercial market
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Laurel BioComposite, LLC  
*Clean. Green. Renewable*

Bio-Res<sup>TM</sup>  PLA  
*Bio Based Natural Resin Enhancer*

# Contact Information

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