

Biomass Research and Development TAC Meeting  
22 August 2018

## USDA Activities Update



# USDA Bioeconomy Research Focus Areas

## Feedstocks



## Conversion



## Products and Markets





U.S. Department of Agriculture Biomass Research Centers  
Agricultural Research Service



# ARS Work

- Creating enzyme ladders to convert crop waste to green chemicals
- Liberty switchgrass is competitive with corn in generating high yields of bioethanol
- Using sorghum to produce milo oil and high-value waxes
- Production of high value phenol and furan coproducts from catalytic pyrolysis

## 9003 Biorefinery, Renewable Chemical, and Biobased Product Manufacturing Assistance Program

- This program assists in the development, construction, and retrofitting of new and emerging technologies for advanced biofuels, renewable chemicals and biobased products by providing loan guarantees up to \$250 million.
- Loan amount cannot exceed 80% of eligible project cost
  - Total federal participation may not exceed 80% of eligible project cost
  - 20% of total eligible project costs must be funded from non-Federal sources
- New technology is eligible
- Not limited to rural locations
- Competitive application process
- Loan Note Guarantee may be issued prior to construction



## 9003 Application Process

- The 9003 Program uses a **2-phase application** process:
  - **Phase 1 applications** are the initial application submissions, must provide information to determine Lender, Borrower and Project eligibility; preliminary economic and technical feasibility; and the priority score of the application. Based on the priority score ranking, the Agency will invite applicants to proceed to Phase 2 of the process.
  - **Phase 2 applications** include the environmental report, technical report, financial model, and the lender's credit evaluation. The Phase 2 materials are submitted as the ongoing project develops and the planning and engineering is finalized.
- Two application cycles each fiscal year.
- Letter of Intent deadlines are 30 days prior to the application closing date, next letter of intent is due by Sept 1, 2018
- Application closing dates are October 1 and April 1 (Annually)



# National Institute of Food and Agriculture

- The Bioenergy, Bioproduct Bioeconomy (B3) Portfolio historically provides unique approaches to building supply chains and value propositions through research, education, and Extension
- Supports Bioeconomy through competitive and capacity grant programs

- **AFRI: Agriculture and Food Research Initiative**

- **Coordinated Agricultural Projects (CAPs)** **FOCUS + SCALE = IMPACT**
  - Integrate research, development, demonstration, education/workforce development, **Extension/outreach/tech transfer to farmers and processors**
  - Regional biomass supply chains linked to bioeconomic value propositions (biofuels, biobased chemicals and products)
- **Foundational Program** grants address bioproducts (e.g. lignin, nano-cellulosics), policy, social and environmental impacts, crop development and evaluation

- **SBIR: Small Business Innovation Research**

- **USDA & DOE Joint Solicitations**

- Plant Feedstock Genomics Program (with DOE-OS-BER)
- Biorefinery Optimization (with DOE-BETO)
- Biomass Research and Development Initiative (with DOE-BETO)

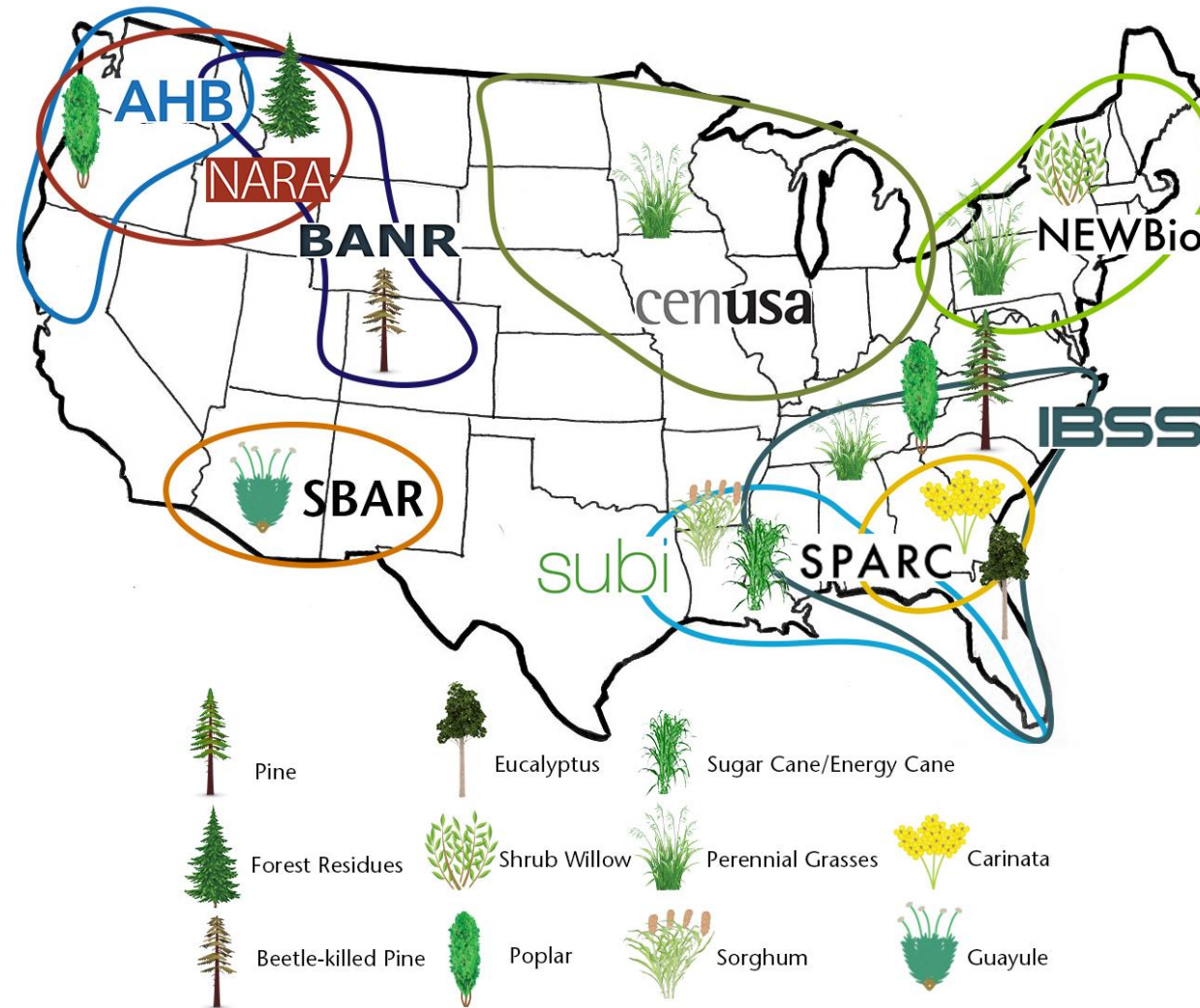


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## CAP Feedstocks and Project Regions





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# USDA NIFA AFRI CAPs

- Northwest Advanced Renewables Alliance
  - Washington State, Weyerhaeuser, Gevo, ICM, Andritz, Oregon St, Alaska Airlines, Boeing, Regional Tribes, FPL, and many others
  - Demonstrated system forest residuals, mill waste → jet fuel
  - 11/2016: World's first commercial cellulosic biofuels flight
  - MOU and infrastructure study Port of Seattle, Boeing, Alaska





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## USDA NIFA AFRI CAPs

- Biomass Alliance Network of the Rockies (BANR)
- Colorado State, Cool Planet, Confluence Energy, USFS, many others
- Insect damaged conifers
- Developed and tested analysis and decision tools economic, environmental, social
- Planning commercial demo





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## Two NEW AFRI CAPs Join the Community

### **SPARC led by University of Florida**

- Partnering with Agrisoma and ARA, others
- Targeting alternative jet fuel and animal feed from the oilseed crop *Brassica carinata* (Carinata)



### **SBAR led by University of Arizona**

- Partnering with Bridgestone America , New Mexico State, others. Targeting natural rubber, industrial chemicals, and alternative jet fuel from the dry land crops guayule (why-oo-ley) and guar.

# Future of BRDI

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