



National Institute of Food and Agriculture
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Biomass Research and Development Initiative (BRDI)

Briefing for Biomass R&D TAC

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USDA - REE





Biomass Research and Development Initiative FY2009-2012

- Focus on advanced biofuels
- Interest in small scale processing
- Interest in rural-based processing and manufacturing
- Interest in biobased industrial products/chemicals
- Funding range \$3M - \$7M
- Required integration of:
 - feedstock development/production, feedstock logistics,
 - feedstock conversion, product development
 - system analysis, e.g. life cycle analysis, impacts on food/feed supply



Biomass Research and Development Initiative FY 2012

- **USDA contribution - FY 2012 \$40 M authorized, \$25M available**
- **DOE contribution - FY 2012 \$10M**
- **DOE Office of Biomass and Golden Field Office administer pre-application process**
- **USDA-NIFA administers the invited full application process**
- **FY 2012 solicitation announced March 2012**
- **178 Pre-applications reviewed**
- **42 Invited full applications reviewed**
- **4 awards made by USDA-NIFA prior to September 30**
 - **Not yet publically announced**



Biomass R&D Initiative FY 2012 Awards

- **Feedstocks:**
 - New sorghum hybrids; camelina; crop residues; forest residues; grasses; animal manure
- **Conversion:**
 - Fermentation/electrochemical; chemical; mobile gasification/pyrolysis; on-farm fast pyrolysis/hydrodeoxygenation; anaerobic digestion/partial oxidation/FT synthesis
- **Products:**
 - Lubricants; hydrocarbon fuels; adhesives; resins; biochar; pellets; briquettes



Biomass Research and Development Initiative

Evolution of program objectives:

- FY 2009 required Technical Area (C) Analysis
- FY 2010 required integration of all three technical areas; funding range \$3M-\$7M
- FY 2011, 2012 continue with integrated, comprehensive approach

Result:

- Increasing number of awards that focus on adding value to current ag production in addition to industrial processes
- Projects with multiple value-added products have greater likelihood of success



Biomass Research and Development Initiative

Projects that add value to existing ag systems:

- **Oklahoma State**– optimize perennial grasses for bioenergy and livestock production
- **Domtar** – expand pulp and paper mill to produce sugars from mill waste and chemicals from lignin
- **Quad County Corn Processors Cooperative** – expand corn dry mill to diversify products from whole stillage
- **University of Wisconsin** – utilize dairy manure in a closed loop system for producing feed and energy
- **Cooper Tire** – new market for guayule, a source of natural rubber and new crop for the semi-arid SW
- **ARS** – cropping systems to optimize yields for oilseed crops – feedstocks for hydrocarbon fuels



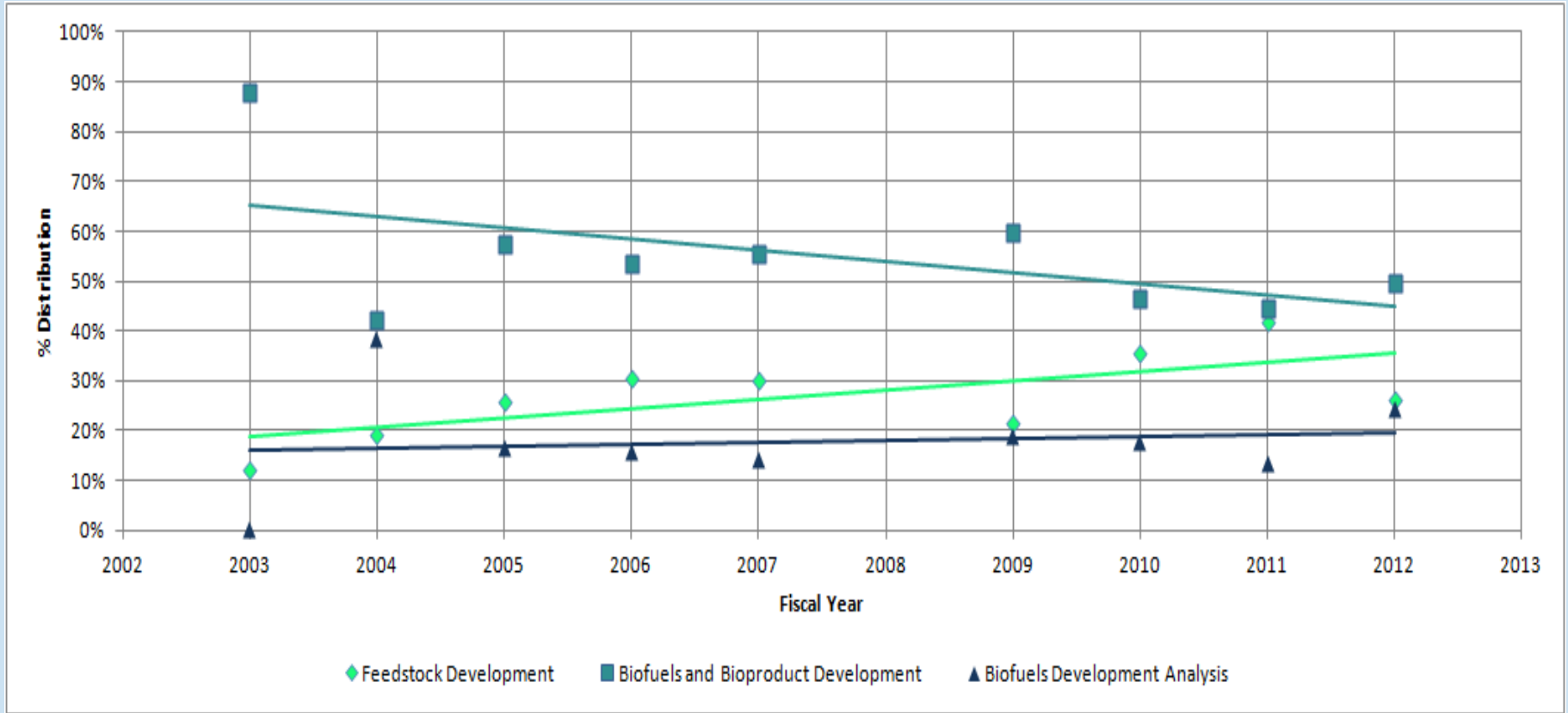
Biomass R&D Initiative Progress

ANALYSIS OF PROGRAM PERFORMANCE

- Legislative requirements
 - annual solicitation joint with DOE OBP
 - scientific peer review
 - minimum 15% funding for each technical area
 - cost share
 - consortium-based multidisciplinary awards
 - geographic diversity
 - annual report to Congress

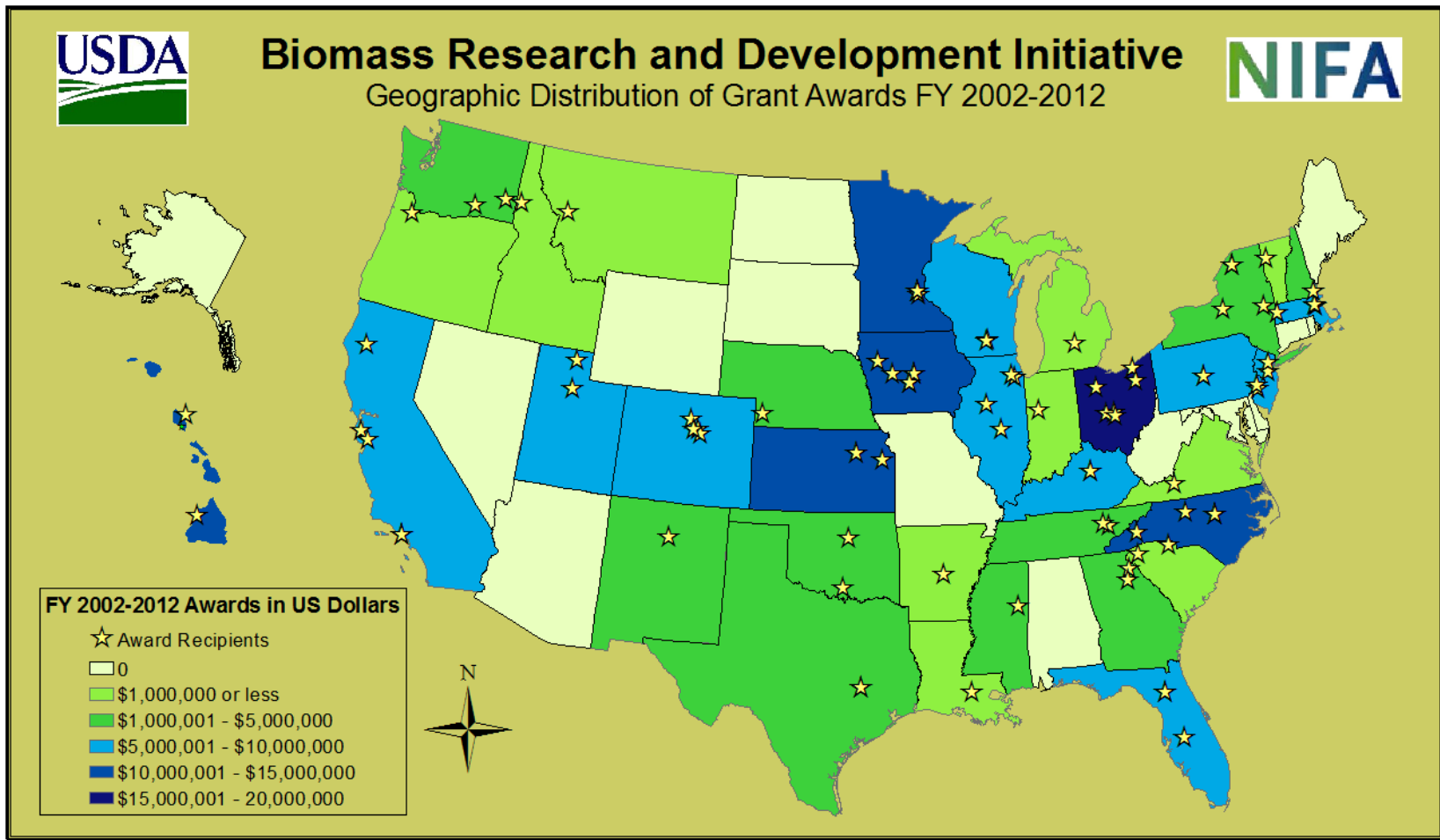


Trends in Technical Area Investment





Geographic Diversity of Awards





Biomass R&D Initiative Progress

ANALYSIS OF PROGRAM PERFORMANCE

- Program Objectives as defined in Farm Bill
 - Technologies for cost competitive biofuels
 - High value biobased products
 - Enhance economic viability of biofuels and power
 - Substitutes for petroleum-based feedstocks and products
 - Enhance value of co-products
 - Diversity of sustainable biomass for conversion to biofuels, biopower and biobased products



Biomass R&D Initiative Progress

ANALYSIS OF PROGRAM PERFORMANCE

- Program objectives – are they being met?
 - Site visits to 19 USDA–funded projects
 - FY 2005 – 2009
 - 2-3 subject matter experts/site visit, primarily from academia, also USDA-ARS, NSF
 - Project evaluations to standardized format
- Report will be included in the Secretaries' annual report to Congress



Biomass R&D Initiative Performance

Quantifiable Project Output Measures (draft numbers)

Performance Measure	Quantity
IP Protection	
Patents/Applications	12
Provisional Patent Applications	2
Invention Disclosures	1
Publications	
Peer Reviewed	113
Conference/Popular	104
Presentations	168
Students Educated	96
Courses Developed	11
Workforce Trained	92
Outreach Events	270
Learners Reached	16,900
FTEs Supported by BRDI	28
Jobs Created	25
Funding Leveraged Post-BRDI	\$53,730,000
Products Developed	
Genetic	14
Equipment/Process	4
Materials/Chemicals	10
Evaluation Tools	4



Biomass Research and Development Initiative Concurrent Activities

- **4 FY 2012 proposals awarded prior to September 30**
- **Analysis of program performance**
 - 19 site visits completed, next round of 9 ongoing
 - Progress report to Congress being finalized and will move through Departmental clearance
- **25 projects active under current farm bill**
- **NAL Digital Commons data portal is open – Project Directors will submit primary data**
- **BRDI and the new Farm Bill – what's next?**