

Reassessing ARS' Bioenergy Program

- 2001–2007 Action Plan (*lunch today*)

- Ethanol
- Biodiesel
- Energy alternatives
- Energy crops

**Capacity well-positioned
for next cycle**

- Proposed 2008–2012 Bioenergy Strategy

(*under construction*)

- Feedstock development
- Feedstock production
- Conversion and Co-Products

ARS Bioenergy Strategy

Major Research Goals

- I. Feedstock Development:*** Develop superior and optimal biobased feedstocks that enable substantial increases in the production of bioenergy and co-products.
- II. Feedstock Production:*** Develop optimal agronomic practices and systems that maximize the sustainable yield of substantially increased volumes of high-quality biorefinery feedstocks.
- III. Feedstock Conversion and Co-Products:*** Enable, in the shortest possible timeframe, substantial increases in the production of bioenergy and co-products from agriculturally-derived materials by developing and integrating commercially-viable technologies.
 - *ARS will partner with stakeholders to ensure that the entire value-added chain (production, harvesting, collecting, transporting, storing, fractionating, preprocessing) is available to enable commercial deployment of ARS-developed conversion and co-product technologies*

ARS' Unique Capabilities

- Characterization/application of plant genetics, molecular biology and biotechnology for crop improvement
- Developing germplasm and agronomic production systems for perennial grasses, forage legumes and sugar cane
- Development of optimal and sustainable agronomic systems and practices for any region of the country

ARS' Unique Capabilities (cont.)

- Long-term, innovative, high-risk, high-impact research in utilization (*conversion*)
- Developing chemical and/or biochemical processes for making value-added products and co-products
- Research capacity for rapid assistance to utilization (*conversion*) industries

ARS' Unique Capabilities (cont.)

- Strong relationships with stakeholders in agriculture
- Strong interdisciplinary and nationwide infrastructure

Gene-to-Bioprocess Capability

ARS is uniquely capable of delivering to the Nation, within a minimal timeframe, the multidisciplinary solutions needed to enable new, biobased industries and bioeconomies

Non-technical Considerations

- Focus on R&D unlikely to be performed in the private sector or by other agencies in a timely fashion
- Food/feed vs. fuel
- Focus on technologies that are most likely to strengthen rural economies and maximize feedstock flexibility
- Emphasize sustainability and enhancing natural resources
- Biotechnology and invasive species risk management

ARS Bioenergy Strategy

Non-technical Considerations (cont.)

- Relevant industry practices & trends
- Leverage resources to work-around resource-capacity constraints

Implementing Programmatic Change

- **ARS** – *program-driven research*
 - ❖ 5-year planning cycles
 - ❖ Matrix organization
 - ❖ *Bioenergy* – just one of 21 National Programs
- **Budget Initiatives**
 - ❖ Consistent with Presidential priorities
 - ❖ Resource-constrained budget environment
 - ❖ \$10 million Bioenergy Initiative for FY'08

Prototype Action Plans

based on...

- Current state of USDA, REE and ARS strategies (*dynamic*)
- On-going input from customers, stakeholders and partners
- Complement research supported by other agencies and the private sector
- Leverage agency-wide resource capacities and respect existing resource constraints

Framework for Workshop discussions