Developing Sustainable Biomass Supplies: A Step toward Energy, Economic, and Environmental Security

Biomass Producer Perspectives

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Tennessee’s Biofuels Initiative

Energy Crop Supply Chain
Demonstrate the establishment of a dedicated biomass energy crop supply chain with farmer

Biofuels, Bioproducts R&D
Establish premier R&D capabilities and capacity in biofuels and bioproducts

Commercialization
Develop a viable, sustainable, long-term path to commercialization of cellulosic biofuels in Tennessee

Cellulosic Ethanol Biorefinery
Demonstrate the pre-commercial production of ethanol from switchgrass

$70.5 Million
State Commitment

UT Institute of Agriculture, Knoxville, Tennessee
Production Experience

- Biomass production and harvesting experience with switchgrass, a native, perennial grass
- Contracting with local farmers to produce over 5,100 acres of switchgrass since 2008
- UT/Genera issued incentive contracts to 61 local farmers that provide payments for establishment and management of the grass over a 3 year period
- Mature switchgrass yield of 8 dry tons per acre

Biomass Producers

- Farmer-based approach very unique
  - Real world research situation
- To make the biomass based industry a success, we must begin work now with those who will produce the crops
- Farmer’s have the expertise needed to produce the crops. They are the best evaluators of the crop!
Biomass Producers

- Producer Acceptance
  - Response has been tremendous
  - Two applicants for every one acre in the incentive program
- Energy crops allow for increased diversification in the farm enterprise
- Producers can integrate energy crops into their existing agricultural operations

Producer Challenges

- Technical assistance and knowledge
  - Producers must have access to credible sources of assistance for production and management of biomass crops
- Early adopters must have some type of assistance to overcome temporal market challenges
  - Establishment cost assistance is important for perennial crops (high upfront costs, long-term return)
  - Risk management – crop insurance and other insurance products are needed
Producer Challenges

• Commercial development
  – Producers are interested and engaged but need viable long-term market opportunities and contracts
• Consistency in state and federal policies
  – With perennial crops, producers will think about rotations in terms of decades. Consistent biomass and bioenergy policies are required for producers to manage risk and make informed investment decisions

Commercial Scale Impact

| $5.7 Billion | Construction/Equipment Investment |
| $775 Million | Annual Switchgrass Farm Revenue |
| $1.9 Billion | Annual Ethanol Sales |

6,061 - Annual Total Direct Jobs
951 - Million Gallons Ethanol
784 - Thousand Acres Switchgrass

FOR ILLUSTRATIVE PURPOSES ONLY
PROJECTIONS LOOK FORWARD TO POTENTIAL DEVELOPMENT THROUGH 2025
Summary

• Producers are ready and willing to supply the emerging biomass-based industry
• Commercial success of the industry is dependent upon continued support of both crop establishment and industrial investment
• Integrated, simultaneous development of both biomass and industry must occur
• Energy crop production is long-term agriculture, rotations in decades not years, and support must be in this context

Thank You