Sustainably Producing Agricultural Biomass Feedstock Supplies

The Potential For New Biomass Crop Systems

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Biomass Supply: How Much is Needed

Glassner et al.- www2.ctic.purdue.edu/Core4/bio98paper.pdf
Future Needs

Department of Energy estimated in 2006 that 1 billion tons of biomass will be needed from the agriculture sector by the year 2025 to supply 25% of the nations liquid fuel needs.
Agricultural Residues

- Other residues: 31 million dry tons per year
- Manures: 35 million dry tons per year
- Grains to biofuels: 15 million dry tons per year
- Other crop residues: 21 million dry tons per year
- Small grain residues: 6 million dry tons per year
- Wheat straw: 11 million dry tons per year
- Corn stover: 75 million dry tons per year

Figure from US DOE
Sustainability

- Soil Nutrients
- Carbon
- Erosion
How to increase biomass production?

Getting More Biomass from Current Crops

- New equipment
  - Single pass harvesters
- New agronomic practices
  - Tillage changes
  - Fertilization changes
  - Creative use of cover crops

New crops & cropping systems
Strategies for Developing New Crops

Breeding programs for current crops
  Biomass soybeans

Genetically modified plants
  Switchgrass

Use of native plants
  Switchgrass, native prairies

Use of non-native plants
  Miscanthus
Challenges in Bringing Biomass Crops to Market

Time required to develop breeding programs

Perennials require 2-3 seasons before production

Agronomists not familiar with growing some species

Location Differences

Temperature, rainfall, and soil type

Resistance for some crops and cultivation methods

Non-native species, GM plants, high input plants
Evaluating new crops

- Biomass Produced
- Products co-produced with the crop
- Tillage required
- Inputs Required (Fertilizer, Pesticides, Water)
- Time to maturity

All of these factors come back to ‘Dollars and Cents’

Important to remember long term SUSTAINABILITY
Future Outlook:

Biomass will be important.

However:

The precise course to supplying that biomass has not been charted.
Biomass Gasification Project Partners

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www.sei.ie
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