

BIOENERGY PROGRAMS AT BELTSVILLE

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CRIS FUNDED ACTIVITIES

- × Manure to Energy
- × Anaerobic digestion of dairy manure
 - + Objectives
 - × Algae production using digestate
 - × Codigestion of manure with algae/other wastes
 - × Overall efficiency as function of temperature
- × Facilities
 - + BARC Dairy Biogas Digester, outdoor algal turf raceways, indoor algal turf units, 700 liter pilot-scale digesters, bench-scale digesters
- × SY: Smith, Mulbry



DIGESTER AND CONTROL BUILDING



SEPARATED SOLIDS



MICROTURBINE AND BIOGAS CONDITIONING

LOCALLY FUNDED ACTIVITIES

- ✘ Hybrid Biomass Gasification Facility
 - + Partnering with DOE-NETL
 - + Feasibility study in progress – report due Apr 2007
 - + Up to 15% coal-fired
 - + Utilize opportunity biomass feedstocks
 - + Objectives
 - ✘ Syngas composition, materials handling, pyrolysis, biomass drying and heat recycle, CO₂ capture and reuse for algal production, ash as soil amendment
- ✘ SY: Smith

LOCALLY FUNDED ACTIVITIES

- × Biomass Production

- + Switchgrass and Hybrid Poplars – Others to be Identified

- + Objectives

- × Net energy production

- × Nutrient uptake

- × Carbon sequestration

- × SY: Smith, Meisinger, Dao

LOCALLY FUNDED ACTIVITIES

- ✘ Energy Value of Other Waste Streams
 - + Poultry processing wastewater
 - + Poultry fat
 - + SY: Schmidt
- ✘ Bioenergy Byproducts
 - + Ash from combustion of poultry litter as soil amendment
 - + Char from pyrolysis as soil amendment and effectiveness for carbon sequestration
 - + SY: Codling

CRADA FUNDED ACTIVITIES

- ✘ Quick methods for QA/QC of biodiesel production
 - + Analytical procedure using FT-IR spectroscopy has been developed to determine the degree of completion of the transesterification of triacylglycerols into fatty acid methyl esters in real time.
 - + Can be used for on-line process quality control as well as for research and method development
- ✘ SY: Schmidt