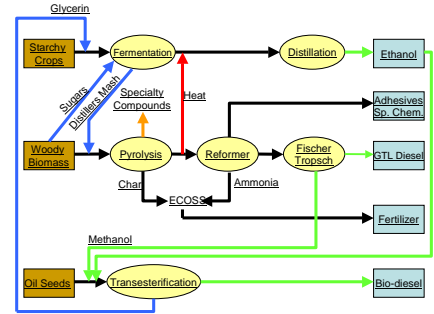
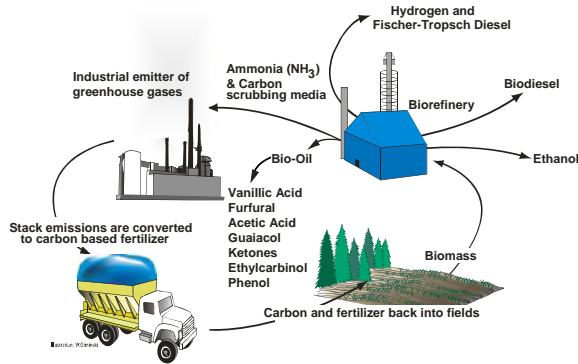




The University of Georgia Center for Biorefining & Carbon Cycling

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The Integrated Biorefinery



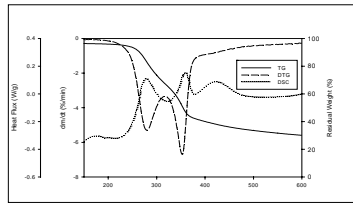
Research and Education

The Center for Biorefining and Carbon Cycling coordinates multidisciplinary graduate programs (engineering, forestry, biochemistry, ecology, etc) and facilitates research throughout the University allowing opportunity for students to gain knowledge and expertise in wide-ranging areas while focusing on biorefining

Current research projects include detailed examination of potential biomass feedstocks.

Thermochemical Conversion of Agricultural Residues to Value Added Products - Case Study of Energy and Products from Palm Oil Mill (POM) Biomass

Jesus Garcia, Scientist, CENIPALMA, Bogotá, Colombia, PhD Student, Biological and Agricultural Engineering, University of Georgia



TGA and DSC of Palm Oil biomass

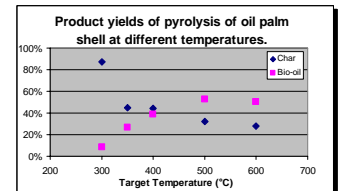
	Shell	EFB	Fiber
C (%)	49.61	40.8.8	43.35
N (%)	0.42	0.87	1.21
S (%)	0.06	0.09	0.18
Mg (mg/kg)	262.69	913.12	1509.53
P (mg/kg)	115.04	572.70	594.91
K (mg/kg)	1477.70	22289.15	5188.26
Ca (mg/kg)	173.72	889.34	1771.62

Composition of Palm Oil Mill Biomass

- Complete characterization of POM residues
- Pyrolysis process development
 - product yield, temperature & residence time
- Measurement of bio-oil and char properties
- Heat and mass transfer modeling
- Economic analysis
- Technology transfer



Experimental Pyrolysis Reactor System



Outreach and Technology Transfer

Biorefining

The systematic conversion of biomass to multiple value added products



UGA – EPRIDA Biomass to Hydrogen Thermochemical Pilot Biorefinery

Carbon Cycling

Carbon cycling is the return of carbon to the soil – resulting in carbon negative production



Experimental plot demonstrating the effect of two types of char addition on corn at 50 days

Biofuels

Conversion of biomass feedstocks in biodiesel and ethanol. UGA's Center for Biorefining and Carbon Cycling will demonstrate biofuel technology through operation of the University's 800 vehicle gasoline and diesel fleet.

Fuel Ethanol



1 million L/year Ethanol Facility

Biodiesel



190,000 L/year Biodiesel Facility