

## LSU Agricultural Center Bio-energy Research/Extension Activities in 2008

Area of Emphasis	Crop	Affiliation	Faculty Member
<b>Feedstock Development &amp; Evaluation</b>			
Development of alternative crops as feedstocks for biodiesel production. Emphasis is on non-food crops that do not compete directly for land traditionally used for food production.	Perennial oilseed crops <i>Jatropha curcas</i> , Tung oil tree ( <i>Aleurites fordii</i> ), and Chinese Tallow tree ( <i>Sapium sebiferum</i> Brassica crops (canola, rapeseed, black and brown oilseed mustards, and crambe ( <i>Crambe abyssinica</i> ) summer oilseed crop sunflower	School of Plant, Environmental and Soil Sciences	<a href="#">Gary Breitenbeck</a> in collaboration with Don Boquet (Northeast Research Station) and Brooks Blanche (Rice Research Station)
Production and management and nutrient inventory; switchgrass can remove more phosphorus than bermudagrass and ryegrass; coupling biomass production for bio-fuel feedstock with phytoremediation would make switchgrass grown on high phosphorus soil desirable; switchgrass cropping with poultry litter fertilization might provide a sink for excess phosphorus in poultry litter	Switchgrass	School of Plant, Environmental and Soil Sciences	<a href="#">Lewis Gaston</a>
Characterization and screening of lignocellulosic features (content and structure) that could control biomass conversion of alternative bio-energy crops	Not crop specific	School of Plant, Environmental and Soil Sciences	<a href="#">Jim Wang</a>
Sweet sorghum – cooperative effort with Turf Grass Farms, LA Green Fuels, Lake Charles Cane Coop, and the Lacassine Mill to look at fertilization use of cane harvesting equipment; plants were processed at the Sugar Station; Michael Saska with the Audubon Sugar Institute is involved	Sweet sorghum	County Agents, Calcasieu and Jefferson Davis Parishes	<a href="#">Jerry G. Whatley</a> <a href="#">Allen Hogan</a>
Interest in biodiesel area and DNA fingerprinting and molecular data for Chinese Tallow	Chinese Tallow Tree	Rice Research Station	<a href="#">Herry Utomo</a>
Evaluation of high fiber and commercial type sugarcane varieties for the bio-fuels market; cooperative effort with the USDA-ARS Sugarcane Research Unit in Houma and the American Sugar Cane League. The LAES purchased a	Sugarcane	Sugar Research Station	<a href="#">Kenneth Gravois</a>

NIR system located at the Sugar Research Station for sugarcane and sweet sorghum quality analyses. Analyses included brix, pol, sugar/ton of cane and fiber. The system was successfully used in 2007			
Evaluation of the costs of producing energy sugarcane and evaluating economic potential as an ethanol feedstock	Sugarcane	Dept. of Agricultural Economics & Agribusiness	<a href="#">Michael Salassi</a>
Production and management aspects and bio-fuel potential	Sweet sorghum	Dean Lee Research Station	<a href="#">Steve Moore</a>
Production and management aspects and biofuel potential	Sweet sorghum	Rice Research Station	<a href="#">Dustin Harrell</a>
Production and management aspects and biofuel potential	Sweet sorghum	Northeast Research Station	<a href="#">Don Boquet</a>
Evaluation of high dry matter sweetpotato genotypes for yield and ethanol production	Sweetpotato	School of Plant, Environmental and Soil Sciences	<a href="#">Don Labonte</a> (in collaboration with Arthur Villordon and Paul Wilson)
Production and management aspects and bio-fuel potential; research is concentrating switchgrass establishment in humid, competitive environments; grant proposal with University of Arkans and Michael Blazier to evaluate cottonwood-switchgrass agroforestry systems as potential sources of biofuel feedstock	Switchgrass	Hill Farm Research Station	<a href="#">Buddy Pitman</a>
Previous research with production and management aspects of sweet sorghum or other bio crops	Sweet sorghum	Iberia Research Station	<a href="#">Howard "Sonny" Viator</a>
<b>Feedstock Processing &amp; Bioenergy Production</b>			
Use of Supercritical H <sub>2</sub> O and CO <sub>2</sub> for biomass chemical conversion into industrially useful compounds; liquefaction of biomass into phenol alternatives; cellulose hydrolysis with the addition of oxidizing agents	Preservative-treated wood wastes	Louisiana Forest Products Development Center School of Renewable Natural Resources	<a href="#">Todd Shupe</a>
Nanomaterials fabricated from cellulosic biomass for use as aqueous-based-catalysts to enhance the transformation efficiencies of biomass to higher value fuels or chemical intermediates.	Cellulosic Biomass	School of Renewable Natural Resources	<a href="#">Qinglin Wu</a> (in collaboration with Kun Lian, LSU CAMD)
Use of bran to produce bio-diesel	Rice	Department of Biological and Agricultural Engineering	<a href="#">Mary Beth Lima</a>

Harvesting, processing, oil extraction	Various feedstocks - soybeans, rice, wood byproducts, animal waste, Chinese Tallow, etc.	Department of Biological and Agricultural Engineering	<a href="#">Dorin Boldor</a>
Gasification and harvesting	Various feedstocks - soybeans, rice, wood byproducts, animal waste, Chinese Tallow, etc.	Department of Biological and Agricultural Engineering	<a href="#">Mike Mailander</a>
Gasification technologies and animal waste utilization	Various feedstocks - soybeans, rice, wood byproducts, animal waste, Chinese Tallow, etc.	Department of Biological and Agricultural Engineering	<a href="#">Chandra Theegala</a>
Development of integrated technologies to convert lignocellulosic feedstocks into higher value products including ethanol from both cellulose and hemicellulose, specialty chemicals, biomaterials and animal feed	Sugarcane and other crops	Audubon Sugar Institute	<a href="#">Giovanna DeQueiroz</a>
DOE sponsored project - characterize the process streams resulting from biomass pretreatment, investigate the methods of their separation and fractionation	Sugarcane	Audubon Sugar Institute	<a href="#">Vadim Kochergin</a>
Bagasse to ethanol - team effort by ASI faculty to develop a complete process for converting bagasse to ethanol based on an enzymatic hydrolysis/fermentation pathway that will be adaptable to Louisiana Sugar Mill operations Cellobiooligosaccharides – a program to produce nutraceuticals and anti-microbials from cellobiose produced during lignocellulose (bagasse) hydrolysis Oleogenic yeasts - production of oleogenic yeasts as an oil source for biodiesel using hemicellulosic components from bagasse hydrolysis	Sugarcane	Audubon Sugar Institute	<a href="#">Donal Day</a>
Efficiency of bagasse boilers at Louisiana sugar factories - help factories become energy self-sufficient on bagasse; possible added effect of producing excess bagasse for alternate uses	Sugarcane	Audubon Sugar Institute	<a href="#">Harold Birkett</a>
Development of alternative renewable fuels such as ethanol and biodiesel from waster recycling. Functioning bio-diesel plant to characterize biodiesel and evaluate quality control procedures.	Various feedstocks including used vegetable oils.	Callegari Center	<a href="#">Bill Carney</a>