Florida Center for Renewable Chemicals and Fuels (FCRC)
(http://fcrc.ifas.ufl.edu)

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FCRC – BioRefineries for Florida

*serves as a hub for education and research to produce biofuels and chemicals from biomass

Lignocellulosic Biomass

1. Agricultural (sugarcane bagasse) and Urban (trees and shrubs) residues
2. Oil Crops – jatropha, soy, palm
3. Cellulosic Crops – trees, grasses, canes

1 M dry tons biomass = 60 - 90 M gallons of fuel ethanol
Bagasse is the fibrous residue of the cane stalk left after crushing and extraction of the juice.

- 60 million tons produced worldwide from sugar industry.
- Mainly used for fuel to generate steam and thus electricity; the rest to produce pulp and board.

Cellulose 45%
Hemicellulose 25%
Lignin, Ash, other 30%
Conversion of Biomass to Fuel Ethanol & Chemicals

Desired traits of microbial biocatalysts:

1. Need to tolerate inhibitors present.
2. Can ferment both pentose and hexose sugars.
3. Can produce at least 40 g L\(^{-1}\) Ethanol (ethanol made depends on amount of sugars released by pretreatment and enzyme).
The Biofuels Pilot Plant at UF

Refining biomass conversion processes:

- Fuel ethanol conversion technologies
- Production of other fuels (hydrogen, biogas and biodiesel)

* Funded by the Board of Governors, Florida State University System
Dedicated in January 9, 2012, the UF Biorefinery Pilot Plant at Perry, Florida was built in partnership with Buckeye Technologies, Inc. It is named after the late Florida House of Representative Stan Mayfield who was a champion in education and energy research.

It will serve as a testing ground to refine the processes of producing cellulosic ethanol and biochemicals from various biomass sources before the process is done at a full scale commercial production.

Full operations is expected in Fall, 2012.
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Feedstock Production → Feedstock Logistics → Biofuels and Biochemicals Production → Distribution → End Use

FCRC:
- Ethanol
- L- & D- Lactic Acid
- Malate
- Succinic Acid

Biomass to BioProducts Supply Chain
Industry Partners

BP Biofuels: a growing alternative

UF's Stan Mayfield
Biorefinery Pilot Plant at Budkeye, Perry, Florida

Purac Lactic Acid Plant
Barcelona, Spain