Workshop on Sugarcane Engineering for Improved Stress Tolerance and Biofuel

Sugarcane is a successful feedstock for bioethanol in Brazil and serves as an exemplary model for sustainable "Green Energy" and how it can be implemented in a large economy. Under field conditions, crop plants are constantly challenged with biotic stresses in the form of insect and microbial attacks, as well as abiotic stresses such as heat, drought and cold. These stresses cause a direct reduction in plant biomass through the loss of tissues to disease or physical damage and an indirect reduction in yield due to the reduced capacity of stressed plants to capture energy and convert it into sugars and carbohydrates. They also limit the regions in the U.S. that are suitable for sugarcane cultivation. The overall scientific objective of this workshop is to identify specific areas of sugarcane cultivation and processing that can be addressed by synergistic collaborations between the participants from U.S. as well as Brazilian institutions. In addition to investigators from Rutgers University and the University of Sao Paulo of Brazil, sugarcane researchers from Texas, Louisiana and Florida will present their research during a one-day symposium on October 8th, 2008 that will be open to the public, followed by focus-group and round-table discussions on October 9th, 2008. We believe this workshop will help drive the development of sugarcane and related grass species and feedstocks to improve biomass production and facilitate their processing into sustainable and renewable fuel for the 21st Century. Please contact Prof. Eric Lam (Lam@aesop.rutgers.edu) by September 25th if you are interested to attend the open symposium on Oct. 8th since seating is limited.

This Workshop is made possible through financial support by the School of Environmental and Biological Sciences, the Biotechnology Center for Agriculture and the Environment, the Rutgers Energy Institute, the Waksman Institute of Microbiology, and the Turfgrass Center of Rutgers University. It is organized as part of the International Cluster for Sugarcane Engineering that was established by Rutgers University in 2007.

Sugarcane Engineering Workshop Program (Oct. 8th, 2008)
Douglass Campus Center

I. Current Sugarcane Research and Relevant Problems

9 am: Jim Shine (Sugarcane Growers Co-op, Florida)
"Prospects and Hurdles for Energy/Fuel Production from the U.S. Sugarcane Industry"

9:30 am: Glaucia Souza (USP-SP, Brazil)
"Designing the Energy Cane"

10 am: Helaine Carrer (ESALQ-USP, Brazil)
"Genetic Transformation of Sugarcane: Biotechnology Applications"

10:30 am: Marico de Castro Silva Filho (ESALQ-USP, Brazil)
"Herbivory by *Diatraea saccharalis* Triggers Accumulation of A Sugarcane Orthologue of Barwin, an Antifungal Protein"

11 am: Ed Richard (USDA Houma, Louisiana)
"Sugar/Energy Canes as Feedstocks for the Biofuels Industry"

11:30 am: Coffee break

11:45 am: Bob Goodman (Executive Dean, SEBS, Rutgers)
Welcome address.

12:20 pm: Lunch for Speakers at Douglass Campus Center

II. Translational Research Between Energy Grasses and Model Plants

2 pm: Ray Ming (UIUC, Illinois)
"Sequence Conservation and Synteny Between Sorghum and Sugarcane Genomes"

2:30 pm: Martin Calvino (Waksman Institute, Rutgers University)
"Translational Genomics of Biofuel Traits"

3 pm: Jorge da Silva (Texas A & M)
"The Cane-Grasses Platform: A Sweet Fuel for the U.S."

3:30 pm: Neil Glynn (USDA Canal Point, Florida)
"Challenges and Opportunities for Developing Bioenergy Grasses in the Canal Point Breeding Program"

4 pm: Zane Helsel (Rutgers University)
"Ethanol Potential from Perennial Grasses and Sweet Sorghum in Southern Florida"

4:30 pm: Michael Lawton (Rutgers University)
"*Physcomitrella patens*: a Model Genetic System for Studying Biotic Stress and the Plant Cell Wall"

III. Technology Development

5 pm: Eric Lam (Rutgers University, Organizer)

"Application of Genetic Engineering for Making Plants More Fermentable"

5:20 pm: Nilgun Tumer (Rutgers University)
"Genome-wide Analysis of Fusarium Mycotoxin Targets"

5:40 pm: Peter Kahn (Rutgers University)
"Engineering Cellulases for Thermotolerance"

6:10 pm: Randy Kerstetter (Rutgers University)
"Genomics with NextGen Sequencing Technology: Applications to Biofuel Research"

6:30 pm: Jiong Ma (OMarvel International, LLC/IMCS, Rutgers)
"Developing Biofuels in China"

6:50 pm: Eric Lam
Closing address for Day 1 of Workshop

7:00 to 9 pm: Buffet Dinner for Speakers at room 204B, Foran Hall