

# BioEnergy Science Center Partners

September 2017



## **Oak Ridge National Laboratory (ORNL, lead institution)**

As the Department of Energy's (DOE) largest science and energy laboratory, ORNL features research programs in poplar genomics, computational science, bioenergy, and plant and microbial systems biology. Additional resources such as supercomputers at the ORNL National Leadership Computing Facility are being used to investigate and simulate biomass reactions.

## **University of Georgia (UGA)**

UGA's Complex Carbohydrate Research Center maintains state-of-the-art capabilities in mass spectrometry, nuclear magnetic resonance spectroscopy, chemical and enzymatic synthesis, computer modeling, cell and molecular biology, and immunocytochemistry for studying the structures of complex carbohydrates and the genes and pathways controlling plant cell wall biosynthesis.

## **National Renewable Energy Laboratory (NREL)**

DOE's NREL has more than 30 years of experience in biomass and biofuel research and houses premier facilities for analyzing biomass surfaces. NREL also has a long and successful history of establishing biofuel pilot plants and partnering with industry for commercial development of technologies.

## **University of Tennessee (UT)**

UT conducts successful programs in bioenergy-crop genetic and field research (particularly switchgrass) and biotechnological applications of environmental microbiology.

## **Dartmouth College**

Dartmouth's Thayer School of Engineering is a leader in the fundamental engineering of microbial cellulose utilization and consolidated bioprocessing approaches.

### **Georgia Institute of Technology (Georgia Tech)**

Georgia Tech's Institute for Paper Science and Technology provides BESC with expertise in biomass processing and instrumentation for high-resolution analysis of plant cell walls.

### **ArborGen, Inc.**

ArborGen provides expertise in forest genetics research, tree development, and commercialization.

### **Mascoma, LLC**

Mascoma develops products and applications that enable the efficient and sustainable production of fuels and chemicals from biomass sources.

### **The Noble Research Institute**

This nonprofit research foundation is devoted to improving agricultural production and advancing the development of switchgrass and other grasses through genomic research. The foundation's activities are conducted through programs in agriculture, plant biology, and forage improvement.

### **Ceres, Inc.**

Ceres uses advanced plant breeding and biotechnology to develop and market nonfood crops with low-carbon footprints for next-generation biofuels and biopower.

### **DuPont**

A leader in next-generation biofuels and bioproducts, DuPont has a conversion process under commercialization for cellulosic ethanol from corn stover. DuPont will test improved BESC feedstocks using its technology and, as warranted by bench performance, progress into process development unit evaluations.

### **GreenWood Resources**

GreenWood develops and manages sustainable environmentally certified tree farms and is a world leader in the hybridization of fast-growing, high-yield poplar trees.

### **North Carolina State University (NCSU)**

NCSU is a leader in discovering and studying novel enzymes from thermophilic anaerobes to break down biomass.

### **University of California–Riverside (UC Riverside)**

Individual researchers at UC Riverside specialize in biomass pretreatment, characterization of plant-associated microbes, lignin biochemistry, and other related areas.

### **University of California–Los Angeles (UCLA)**

UCLA explores advanced biofuels in the context of other BESC deconstruction activities, including preliminary efforts on consolidated bioprocessing microbes for advanced biofuels and metabolic engineering to develop nonethanol products.

### **University of North Texas (UNT)**

UNT research focuses on using metabolic engineering to produce plant-derived chemicals that could be used, for example, to create biorenewable products and improve the quality of forage crops.

### **Cornell University**

Individual Cornell researchers focus on cellulose and enzyme modeling, lignin biochemistry, and the characterization of plant-associated microbes.

### **West Virginia University (WVU)**

As part of an ongoing association study of *Populus* supported by the National Science Foundation, WVU researchers have been developing analytical and technical tools that will be directly applicable in BESC's association mapping component.