

OK EPSCOR RESEARCH OBJECTIVES

OBJECTIVE 1.

FEEDSTOCK DEVELOPMENT

To discover molecular mechanisms and tools for biomass development through the use of genomics, functional genomics and genetic transformation approach.

OBJECTIVE 2.

MICROBIAL CONVERSION

To understand the molecular basis and mechanisms underlying efficient microbial conversion of biomass to liquid fuels through direct and indirect fermentation.

OBJECTIVE 3.

CHEMICAL CONVERSION

To improve existing processes and to develop new catalytic/thermochemical conversion processes of cellulosic biomass.

BIOFUELS

INNOVATION FOR OUR ENERGY FUTURE



BIOENERGY RESEARCHERS

The OK NSF EPSCoR Research Infrastructure Improvement Award 2008-2013, "Building Oklahoma's Leadership Role in Cellulosic Bioenergy," is a multi-institutional collaborative project that includes researchers from Oklahoma State University, University of Oklahoma and Samuel Roberts Noble Foundation.

OBJECTIVE 1

FEEDSTOCK DEVELOPMENT

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OBJECTIVE 2

MICROBIAL CONVERSION

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OBJECTIVE 3

CHEMICAL CONVERSION

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THE UNITED STATES EPA PREDICTS THAT 85% OF DEDICATED ENERGY CROPS IN THE U.S. WILL BE GROWN IN OKLAHOMA BY 2022. (Federal Register/Vol. 74, No. 99/Table VB2-5)

CELLULOSIC BIOENERGY RESEARCH

Oklahoma EPSCoR scientists are developing unique methods to transform non-food energy crops, such as switchgrass, into liquid fuel.

One such innovation, the "GRASSohol" process, will enhance biofuel refinement and potentially produce more than 60 gallons of ethanol per dry ton of material.

Researchers are also investigating new technologies to convert lignocellulosic biomass to gasoline and diesel fuel. These technologies have the potential to significantly reduce the capital cost of new biofuel refineries and capture a high percentage of the biomass carbon.