WWW.SUNGRANT.OKSTATE.EDU

U.S. Department of Transportation

SunGrant INITIATIVE South Central Region

Project Title: ***Development of a Skid-Mounted Gasification System for On-Site Heat, Fuel, and Power Production***

DR. SERGIO CAPAREDA

Project Goal

The goal of the project was to develop modular biomass thermal conversion systems (for heat and power) for the different agricultural industries in the region that generate enormous amounts of residues and wastes.

The specific objectives include the following: a) Investigate the technical feasibility of on-site thermal gasification systems for different unique biomass wastes in the region and evaluate the gas fuel quality, composition, heat energy and power output , b) Evaluate the economic feasibility of decentralized thermal gasification systems for different on-site applications conduct systems analysis for the different applications within the region and lay-out strategies to reduce barriers for commercialization, d) Evaluate the environmental and air quality implications of the systems including permitting procedures.

PI: Dr. Sergio Capareda
Texas A&M University
Texas Agri-Life Research

Co-PI: Dr. Michael Mailander*
Louisiana State University
Biological & Ag Engineering

Co-PI: Dr. Chandra Theegala
Louisiana State University
Biological & Ag Engineering

Associate PI: Dr. Michael Farmer
Texas Tech University
Agricultural & Applied Economics

Funded: $279,380
Start Date: 07/01/2007
End Date: 06/30/2011

** deceased*

Project Outcomes

The project has developed the TAMU fluidized bed and the LSU downdraft gasifier. The individual performances have been evaluated for small and modular applications in bench and pilot scale studies.

The economic and systems analysis studies have shown numerous potential applications in several key industries in the regions as follows: cotton gins in Texas and animal farms in both Texas and Louisiana. Preliminary sizing has been made and suited to the different industries in the region. For example, numerous cotton gins in Texas have the potential to generate between 1-3MW of electrical power from gasification of cotton gin trash.

The fluidized bed technology developed at Texas A&M University (TAMU) was licensed by SDL Citadel Global (Dallas, Texas) and in the process of commercialization.

Other Sources of Funding:
The collaborating private organization contributed their time and personnel during the project implementation and through Texas A&M University's cost share.