

NEWS

From GEORGIA TECH'S ENGINEERING EXPERIMENT STATION

Atlanta, Georgia 30332

78 ll

CONTACT: Mark Hodges/Ray Moore
(404) 894-3444

2 ll / ea l.

TECH PROGRAM PROMOTES

For Immediate Release

ENERGY INDEPENDENCE ON FARM

July 10, 1981

ATLANTA, GA. - Researchers from Georgia Tech are turning a family-owned dairy farm in North Georgia into a model of energy independence.

Tech's Engineering Experiment Station (EES) is using a large Department of Energy grant to make the Aubrey Farm near Cartersville one of eight "energy integrated" farming operations in the United States.

Through this research program, Tech expects to show farmers in Georgia and the Southeast how they can generate at home most of the fuels they need.

"We intend to supply most or all of the Aubrey Farm's energy requirements with on-site systems fueled by renewable energy sources produced on the farm," says program director Richard Combes of Georgia Tech. "The key to this approach will be thorough integration of the various energy systems on the farm, so that one feeds into the other, utilizing the available energy to the fullest extent possible."

Meeting Aubrey Farm's fuel needs will be an ambitious task. The farm totals several thousand acres, of which 1,200 are devoted to crops and dairy operations. The remaining acreage is timberland. The farm presently uses about as much electricity as 25 homes--25,000 kilowatt hours per month--along with nearly 24,000 gallons of diesel fuel, gasoline and liquified petroleum gas per year.

To achieve energy independence in this setting, Tech has the following plan:

- Electricity will be provided to the farm by an engine generator which runs on methane gas produced by an anaerobic digester. This digester produces methane by breaking down cow manure by anaerobic fermentation. Engineers will install waste heat recovery equipment on the engine/generator in order to heat water for other farm operations.

(More)

Research in Electronics • Solar Energy • Resources and Waste • Economic Development • International Programs
• Applied Sciences • Systems Analysis

Commercial
Contract
Account

18,000

TAL

Sept. 30, 1984

- Sludge from the anaerobic digester will be mixed with feed or used as a fertilizer.
- Additional electric power may be produced by a small hydroelectric plant at a dam on one of the two lakes located at the farm.
- Wood cut on the farm will serve as a fuel in a boiler or furnace with the resulting energy used to produce alcohol usable as a motor fuel or to heat farm buildings and residences.
- Solar collectors will heat water for the dairy operation.
- Corn grown at the farm will become the feedstock for a fermentation process which produces alcohol fuel. The distillers grain which is a by-product of this process also will be fed to farm animals.
- Farm energy surveys and energy conservation practices will cut energy needs to a practical minimum.

"We spent the first six months of the program monitoring farm energy consumption patterns," said Combes. "Now we're studying the design for alternative energy systems to meet these needs."

The entire program will take four years to complete at a cost of approximately \$688,500. DOE's share of this budget is \$378,700 with the remaining \$309,800 coming from state funds.

x3623
Ralph Lamade
Craig 97 miles
3472
3475 Rich Combes

GIT?
(T. hydrog. ag.)

####

410,000 (4 yrs) - equip.
cost showing non cap equip.
PS, hard
#2000 farmer - equip.
agriculture
budget of
Univ. System

Others working on the program are

TAL
Combes, prog.
Ralph Lamade
Chuck Ross

EMSL
Mahandra Bery