

# PRODUCING BIOENERGY AND MITIGATING INCREASING ATMOSPHERIC CO<sub>2</sub>

A McIntire-Stennis project to address energy security  
and atmospheric pollution



UNIVERSITY OF  
**GEORGIA**  
Warnell School of Forestry  
& Natural Resources

This project focuses on growing pine trees in the Southeast US that can be used to generate renewable biomass energy. The desire is to produce US based energy for national security interests and to reverse the trend of an increasing concentration of CO<sub>2</sub> in the global atmosphere. This project will specifically research how changing the number of trees planted per acre at the start of a pine plantation or how much fertilizer or herbicide is used may affect the types and amount of wood products produced (i.e., bioenergy feedstock, pulp fiber, or sawn timber). Also, this project will research the overall carbon balance of the pine plantation management focusing specifically on certain other gases known as trace gases (i.e., nitrous oxide and methane) that like CO<sub>2</sub> can trap heat in the atmosphere. Understanding the complete budget of carbon inputs and outputs from the forest allows managers to change practices to ensure that there is a benefit to the atmosphere from displacing fossil fuels with energy produced from pine biomass.



## COLLABORATION

We are collaborating with forest industry through the Plantation Management Research Cooperative. Field research is based on operationally managed lands. Scientists at other universities participate in this research.



Managed plantations in GA, FL, and AL are included in this research.

## About McIntire-Stennis

The McIntire-Stennis program, a unique federal-state partnership, cultivates and delivers forestry and natural resource innovations for a better future. By advancing research and education that increases the understanding of emerging challenges and fosters the development of relevant solutions, the McIntire-Stennis program has ensured healthy resilient forests and communities and an exceptional natural resources workforce since 1962.



## IMPACT

Bioenergy production from woody biomass continues to grow approaching 10 million tons.



Wood pellet and woody biomass for domestic use and exports has grown to nearly \$300 million in Georgia.



Woody biomass and wood pellet production is expected to grow to a \$21 billion dollar market worldwide by 2027.



Biomass and waste fuels made up 2% of total US electricity generation in 2016 and displace CO<sub>2</sub> emissions from fossil fuels.