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**for the Field Hearings of the**

**U.S. House of Representatives Committee on Agriculture**

**May 15, 2010**

Thank you Mr. Chairman and good afternoon.

In my comments today I would like to deliver three primary messages: 1) there are significant opportunities for developing a new bioeconomy in the southern U.S.; 2) there are major policy needs related to bioenergy in the Farm Bill; and 3) the creation of a successful biorefining industry will only be possible through significant and sustained funding of R&D conducted primarily through our land-grant university programs in education, research, and extension.

I'm here representing Auburn University and, more specifically its Center for Bioenergy and Bioproducts. As such, I speak for a diverse group of educators, scientists, and researchers working hard on developing our nation's bioeconomy. Our scientists are world leaders in technologies for producing and harvesting forest and agricultural biomass. We have nationally recognized experts in the conversion of biomass into liquid fuels, electrical power, and other valuable co-products. Further, our faculty ranks include researchers who study the impacts of the bioeconomy on the social and economic fabric of our communities.

We feel strongly that a sustainable biofuels industry is within our grasp and that it has the potential to strengthen our local communities and to revitalize our agricultural and forest economic sectors. This industry must be based on a balanced portfolio of regionally-appropriate biomass feedstocks and biofuel conversion technologies. We recognize the significant strides that the corn-based ethanol and soy-based biodiesel industries have made for the acceptance of biofuels. However, it is clear that to achieve U.S. energy security goals, we need additional biomass feedstocks and biofuel products. Like many others, we believe that various forms of lignocellulosic biomass hold great promise for expanding the biofuels industry and should therefore be emphasized in our national R&D funding priorities.

Here in Alabama, like most other southern states, we are blessed with over 22 million acres of highly productive forest land. In addition, there is great potential to produce dedicated agricultural energy crops and to take advantage of other wastes and residues from agricultural, forest, commercial, and municipal sources. For example, each year in Alabama, there are approximately 14.6 million dry tons of biomass available from

logging residues and currently unmerchantable small-diameter trees. These 14.6 million tons have the potential to produce nearly 1.5 billion gallons of liquid fuels per year.

Our vision of the magnitude of a southern bioeconomy should not be constrained by current production levels. History demonstrates that Alabama farmers and forest landowners will respond to market conditions and ramp up production to meet demand. New varieties of genetically improved trees and agricultural crops as well as highly advanced production and harvesting systems are either already available or under development to help meet the demands of a biorefining industry in a sustainable manner. Auburn University researchers and extension professionals have a long, successful history of working with Alabama agricultural and forestry producers to implement new technologies such as precision agriculture and forestry techniques that can result in increased crop yields with more efficient and precise placement of fertilizers and herbicides. Our researchers were recently awarded one of two grants nationwide to work collaboratively with Alabama forest biomass producers to demonstrate high-productivity biomass harvesting and transportation systems for pine plantations that hold the potential to deliver biomass at cost levels needed by developing biorefineries.

In a similar fashion, we believe that it is critical to fund the development of a balanced portfolio of biofuel conversion technologies—both ethanol production systems as well as those that make other fuels like butanol or synthetic gasoline. To build on our intellectual wealth, Auburn University, with the support of Congress and the state of Alabama, has invested significant resources into research and education on bioenergy and bioproducts. Our researchers are currently developing new methods to process the variety of types and forms of biomass into a set of relatively uniform commodity products such as cellulose, hemicellulose, and lignin that can be shipped and traded on global markets for more efficient production of liquid fuels or value-added co-products. Current biomass handling and conversion systems, which are challenged by the infinite varieties and forms of biomass, can be made more efficient by transforming these various biomass types into a more uniform and consistent set of universal chemical feedstocks. Our programs also emphasize thermochemical conversion processes like biomass gasification and gas-to-liquids technologies which result in synthetic gasoline, diesel fuel, and aviation fuel from biomass, as well as from biomass and coal mixtures. Beyond our new fluidized bed gasification reactor that is coming on line this summer, for the last two and one half years, we have been operating a unique mobile biomass gasification and power generation laboratory. This one-of-a-kind traveling laboratory allows us to take our research right to the source of a bioenergy feedstock and study its potential for use in generating renewable electrical power or liquid fuels. It has traveled over 15,000 miles, even to our nation's capital, and been seen by literally thousands of people who have learned that generating electrical power from biomass is really possible. Many of these programs have been made possible through the support of Alabama Congressman Mike Rogers and Congressman Bobby Bright.

As we develop the U.S. bioeconomy, it is imperative that we fully understand its social, environmental, economic, and policy issues. In preparation for the 2012 Farm Bill, I would like to highlight two areas of need in the context of bioenergy policy. First, we

encourage members of the House and Senate to continue to work together to coordinate the various definitions of renewable biomass, such as those in the Renewable Fuel Standard, the 2008 Farm Bill, and the proposed legislation for a Renewable Electricity Standard. Some of these definitions of biomass have the potential to prevent many of our farmers and forest landowners from participating in the new bioeconomy or they have the potential to highly regulate well-managed and sustainable farming or forestry systems. All of us should have the same goals of encouraging farmers and landowners to sustainably produce feedstocks that can be used for clean, renewable fuels and electrical power without having to create any unneeded administrative or regulatory processes.

Our second area of need is with the Biomass Crop Assistance Program (BCAP), which was established in the 2008 Farm Bill and has the potential to help stimulate the growth of a biomass production industry. It is critical to fully study the impacts of such programs before implementation and then to provide consistent, uninterrupted funding which will allow the program to have the desired effect of establishing the new bioeconomy. As BCAP is carried out under the current or future Farm Bill, we encourage consideration of programs beyond those that offer payments for biomass harvesting. It is equally important to have systems that provide cost-share funds to help landowners plant biomass crops as well as provide mechanisms to reduce risk for producers through biomass crop insurance programs—much like crop insurance programs are provided for agronomic crop producers today. Also, for BCAP to work most effectively, it must provide financial incentives for all major groups in the bioenergy supply chain: the farmer or landowner, the producer of the biomass, and the bioenergy production facility.

Supporting the sectors of our nation that produce renewable fuel, fiber, and food is a vital responsibility for Congress. Continued investment in new scientific discoveries and innovative practices in our agricultural, forest, and food systems is critical to the future success of our nation's economy, and the well being of communities across America. Today we face a daunting list of challenges that include: producing an adequate and affordable supply of healthy food for an ever-growing global population; addressing the problem of an overweight or obese American population; providing clean and renewable sources of energy and biobased products from our abundant natural resources; as well as responding to environmental concerns and increasing demands on resource sustainability.

As you know, the support that Congress provides today for these education, research, and extension programs comes in two primary forms: competitive funds and formula funds provided to each state. The 2008 Farm Bill established the National Institute of Food and Agriculture (NIFA) as well as the new Agriculture and Food Research Initiative (AFRI), which is USDA's primary competitive grants program. AFRI is a highly competitive program that provides funding for education, research, and extension activities in high-priority national areas of need. The formula funds, such as Hatch, Smith-Lever, McIntire-Stennis, and Evans-Allen provide a base level of support for research and extension programs delivered by the land-grant universities. This funding, which is matched with additional dollars from each state, fills a critical role by allowing

researchers and extension professionals to focus on local issues that are typically not funded by the competitive programs like AFRI.

While both of these funding mechanisms address the issues of global food security, nutrition and health, bioenergy, and environmental concerns outlined previously, unfortunately this support is at a level that is not adequate to properly address such major challenges. For every \$120 spent by the National Institutes of Health on research, we invest only \$1 for competitive funding in agricultural research. AFRI was one of the few federal science programs to receive no investment in the recent recovery act funding. Fewer than 22% of the qualified research proposals are funded in AFRI. Overall, agriculture, forestry, and food sciences receive only about one percent of the total federal research and development funds.

It is imperative that Congress continues to support the growth of AFRI through significant increases in funding. This includes insuring that funds are provided at the full authorized level now, as well as providing significant increases in the 2012 Farm Bill. Currently, our faculty at Auburn University, like many across the nation, are submitting proposals to the AFRI programs. In some cases, these are large regional efforts that employ systems approaches to problem solving and involve partnerships with multiple academic institutions and industry partners. In other cases, these are smaller individual grants focused on specific research needs. It is important to maintain a healthy balance in funding devoted to large regional funding opportunities and those that allow smaller research or extension teams to make new discoveries or deliver focused extension programs to a targeted audience. Also, it is important to have a funding base large enough to support long-term programs focused on a wide variety of problem areas so that our ranks of qualified scientists and educators remain strong. In addition to increasing the support of AFRI, it is equally critical to continue to provide sustainable funding to the traditional formula funding programs. These programs fill an important role by providing a base level of support that helps states maintain a scientific cadre devoted to solving locally or regionally specific problems in our agricultural and forest sectors. These programs are even more important today when state budgets are being reduced considerably.

As farmers, forest landowners, scientists, or policy makers, we are all focused on leaving a legacy for our children and grandchildren. At Auburn University, we hope that part of our legacy for America will be a secure, sustainable energy supply; a healthy population; and a culture of caring for our environment.

Thank you again, Mr. Chairman for allowing Auburn University to join you today.