Sustainable Agriculture
Bioenergy and Supporting Industries

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Sustainable Agriculture Sprouting in Arkansas

Arkansas is a natural choice for bioenergy fuels production. Arkansas has several growth opportunities related to biomass that can be used to produce bioenergy. While the most commonly used feedstock for the production of bioenergy is currently corn and soybeans, and soybeans are grown in approximately two-thirds of the counties in Arkansas, the best options for long-term production and sustainability are fuels made from second and third generation biomass such as wood chips and pellets, native perennial grasses, crop waste, municipal waste, animal fat and waste, and algae.

One of Arkansas's greatest natural resources is timber with more than 18.8 million acres of forest land representing over 50 percent of the total land base. Wood and wood pellets, especially from trees grown for industrial forestry, are an excellent source of cellulose and can be used for conversion into bioenergy.

One area closely linked to the idea of agricultural sustainability is the growing use of waste from crop processing as sources of bioenergy. Due to its large agricultural sector, the state of Arkansas can provide good sources of crop waste for bioenergy operations. In fact, Colusa Biomass Energy Corp. of Colusa, California, announced plans in August 2008 to start construction on an $80 million plant that will convert rice hulls and rice straw to ethanol and produce commercial silica in Stuttgart.

FAST FACT:

A CENTER OF EXCELLENCE IN RENEWABLE ENERGY TECHNOLOGY CAN BE FOUND AT PHILLIPS COMMUNITY COLLEGE.

Another growing area related to agricultural sustainability is the use of animal fat and waste as sources of bioenergy. In November 2010, Dynamic Fuels LLC, a 50/50 joint venture of Syntroleum Corporation and Tyson Foods, began operations in Geismar, Louisiana. Tyson Foods is headquartered in Springdale and has a division dedicated to bioenergy called Tyson Foods Renewable Energy. Dynamic Fuels uses animal fats, greases, and vegetable oils supplied by Tyson to produce high-quality biodiesel.

Algae can also be used as a fuel source to produce bioenergy and has much faster growth rates and higher oil yields than other crops. Algae could be an excellent feedstock because it does not require the use of good farmland. Researchers in Arkansas are currently looking at ways to use water from the Mississippi River to grow algae.

About Arkansas

Arkansas's labor force is nearly 1.5 million strong and projected to grow by four percent by 2015. More than 12 percent of Arkansas's workforce hold jobs in manufacturing industries, which translates to a trained workforce with transferable skills to jobs in bioenergy fuels manufacturing.

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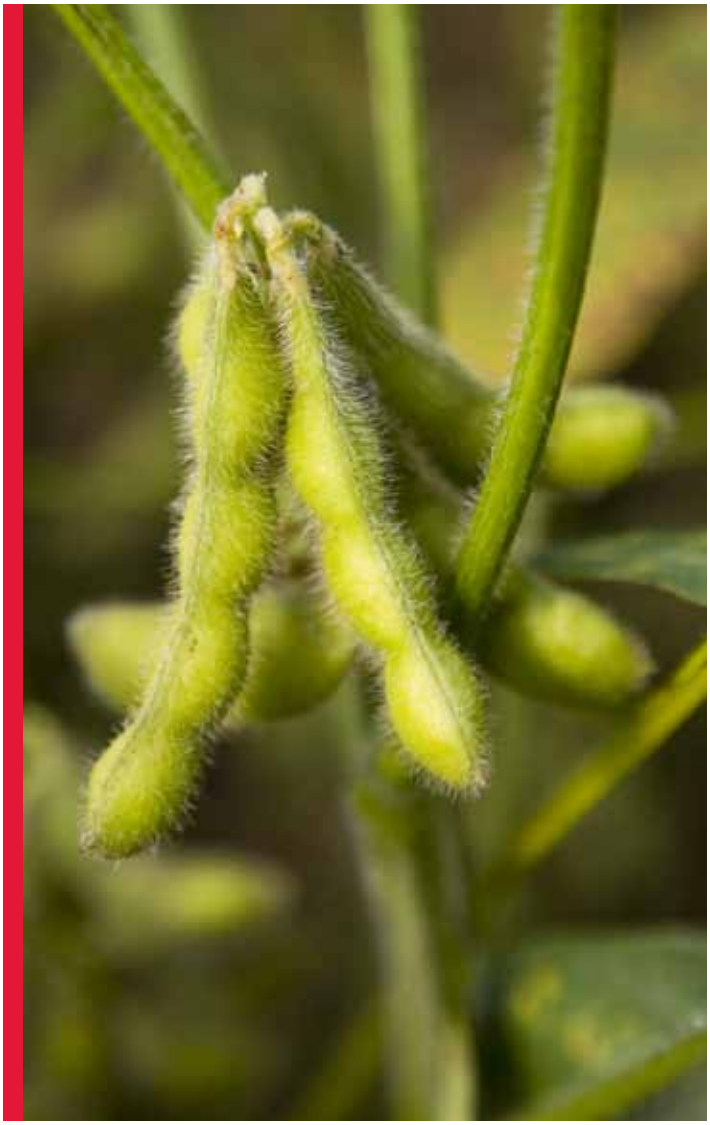
In addition to a trained manufacturing workforce, Pulaski Technical College in North Little Rock and Northwest Arkansas Community College in Bentonville are each establishing Centers of Excellence in Green Technology to provide job training for green jobs in energy efficiency. Phillips Community College of the University of Arkansas is creating a Center of Excellence in Renewable Energy Technology that will offer courses to earn a Certificate of Proficiency, Technical Certificate, or Associate of Applied Science in Renewable Energy Technology.

Arkansas State University offers a Bachelor of Applied Science degree with an emphasis in Renewable Energy Technology. The degree program includes focus areas of Process Technology for Agricultural Products and Advanced Bioenergy.



Additional research in the bioenergy sector is being conducted in the state. In October 2010, the Arkansas Science and Technology Authority received a $20 million grant from the National Science Foundation to support renewable energy research at seven Arkansas universities, some of which will be used to study bioenergy.

Including the programs previously mentioned, there are 21 four-year colleges and universities and 22 two-year colleges located in Arkansas. In addition, nearly 50 percent of Arkansas residents have an Associate's, Bachelor's or Graduate degree or have attended some college.

Along with an available workforce and education and research facilities, the state of Arkansas is a major producer of feedstock for bioenergy companies. Arkansas is a leading producer of rice, soybeans, chickens, sorghum, corn, and wheat, all of which can be used to produce bioenergy. Some of Arkansas's fertile farmland could be converted to grow switch grass or other fast-growing cellulosic crops.

One of the state of Arkansas's greatest natural resources is timber with more than 18.8 million acres of forest land representing over 50 percent of the total land base. Wood and wood pellets are an excellent source of cellulose that can be used for conversion into bioenergy.

To encourage alternative energy and biodiesel production in the state, a tax refund is available to suppliers on the sale of biodiesel fuel that is used in producing a biodiesel fuel mixture. In addition, the Arkansas Alternative Fuels Development Fund offers grant incentives for capital and operation incentives for alternative fuel producers and feedstock processors, production incentives for feedstock producers, and distribution incentives for alternative fuels distributors.

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The state of Arkansas also offers an array of competitive incentives, including three special programs for "targeted businesses," including bioenergy and potentially some supporting industries. These incentives include:

- A refund of sales and use taxes paid on the purchase of building materials, machinery, and equipment associated with the approved project.
- A transferable income tax credit equal to 10 percent of payroll for up to five years.
- A transferable income tax credit equal to 33 percent of eligible research and development expenditures.

In addition, a number of other incentives are available to projects that are not eligible for the targeted business incentives. These include income tax credits, sales and use tax credits and refunds, payroll rebates and possible cash grants for new and expanding companies.

In addition to competitive incentives, Arkansas's economy is strong and offers excellent opportunities for bioenergy companies to grow and succeed in the state. The Little Rock-North Little Rock-Conway metropolitan area was named the fourth strongest metro economy in the U.S. by *Business Week* magazine in late 2009. CNN Money also ranked the Fayetteville-Springdale-Rogers metropolitan area the 13th best midsize metro in the U.S. to launch a new business.

Another advantage for companies located in Arkansas is the state's central location and extensive intermodal transportation infrastructure. Interstate 40 is a major east-west thoroughfare reaching from North Carolina to California that runs through Arkansas. Interstate 55 links eastern Arkansas to St. Louis and Chicago to the north and New Orleans to the south, while Interstate 30 connects Arkansas with markets to the southwest, including Texas and Mexico.

Arkansas's railroad infrastructure includes three Class I systems: Union Pacific, BNSF Railway, and Kansas City Southern Railway. Union Pacific operates major yards in Little Rock and Pine Bluff, along with a locomotive repair facility in North Little Rock. In addition, the state has 22 smaller railroads operating over its more than 2,700 miles of track. The state offers water transportation along the Arkansas River, with ports in Little Rock, North Little Rock, Pine Bluff, and Fort Smith, in addition to Mississippi River terminals in Osceola, West Memphis, and McGehee.

In addition to office and laboratory space, Arkansas has more than 250 available buildings which range from 10,000 to 1.4 million square feet. There are 14 certified Select Sites available in the state. The largest is the Interstate 530 Megasite, a 2,045-acre site located in Saline County.

FAST FACT:

Arkansas is

1 OF 4 STATES

in the U.S. to enter fiscal year 2011

WITHOUT OFFICIAL DEBT.