



Alternative Crops For Fuel

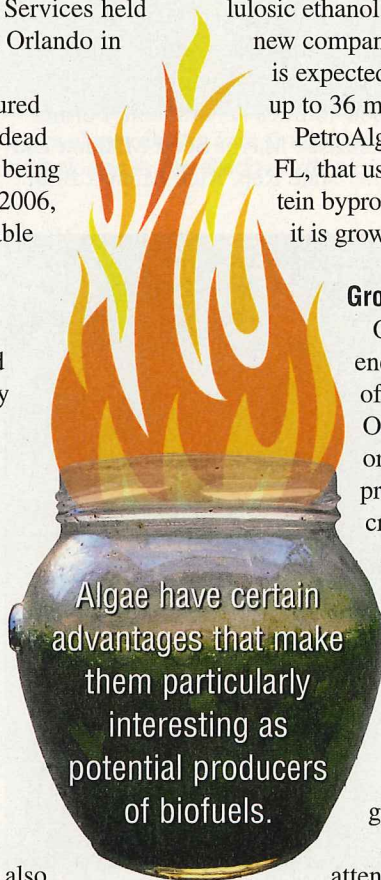
Citrus growers who have removed trees due to canker or greening have difficult land-use decisions to make. Should they replant and continue to grow citrus, or should they consider growing a different crop? Some citrus growers have started to grow small acreages of blueberries or peaches. Others are considering alternative crops that can provide raw materials for conversion to fuel.

With its warm climate and usually abundant rainfall, Florida can produce more biomass for conversion to fuel than many other states. With this in mind, the Florida Department of Agriculture and Consumer Services held the fourth annual Farm to Fuel Summit in Orlando in late July. Nearly 500 people attended.

Governor Charlie Crist, one of the featured speakers, said that Florida has gone from dead last in 2006 in developing solar energy to being No. 2 in the country. He added that since 2006, \$43 million in grants have gone to renewable energy projects.

Algae As Biofuel

Several speakers discussed biofuels and grants that have been funded for bioenergy development. The National Renewable Energy Laboratory (NREL) is working on different sources of biofuels, including algae. Algae have certain advantages that make them particularly interesting as potential producers of biofuels. Certain algal species can produce more lipids per acre than other plants — potentially 10 to 50 times more lipids. They have fast growth rates, don't require arable land, don't compete with food crops, and some strains can use saline or brackish water. They have the ability to produce products that can be converted to meet jet fuel and diesel standards and can also act as a source for biodiesel and gasoline. The oil from algae can be extracted, processed, and refined into fuels with currently available technology. Identifying algal strains with the highest oil content and growth rates and developing cost-effective growing and harvesting techniques are important research priorities.



Several oil companies are getting involved in biofuel projects. Chevron and NREL scientists are collaborating to develop strains of algae that can be harvested economically and processed into transportation fuels. Exxon and Synthetic Genomics have entered into a research and development agreement to try to turn algal byproducts into affordable transportation fuels.

Another oil company, BP, has announced that it will team up with the Verenium Corporation and build a biofuels plant in southeast Highlands County for the production of cellulosic ethanol from sugarcane, sorghum, and grasses. The new company will be called Vercipia Biofuels. Production is expected to begin in 2012, and the plant will produce up to 36 million gallons of ethanol per year.

PetroAlgae is a company headquartered in Melbourne, FL, that uses algae to produce green diesel fuel and protein byproducts. It has a facility in Fellsmere, FL, where it is growing algae in outdoor ponds.

Growth In Green Energy

Other speakers covered a variety of "green energy" projects. To deal with the rising cost of waste disposal from racehorse facilities, Ocala Equine Energy LLC plans to convert organic wastes to renewable electric power. A process called gasification uses animal manure, crop residues, wastewater treatment biosolids, wood, and yard and industrial wastes to generate energy. Gasification should not be confused with incineration. Gasification is a process that converts biomass in an oxygen-starved, high-temperature environment to "syngas" (a mixture of hydrogen, carbon monoxide, and carbon dioxide) and inorganic ash. Syngas can then be used to generate electricity.

A number of "green energy" companies attended this conference. Citrus growers considering using available land for growing an alternative energy crop may find contacting some of these companies helpful. A list of speakers and participants can be found at www.floridafarmtofuel.com/summit_2009.htm. Florida is out front in the growth of green energy, and "farm to fuel" crops will be needed.

