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MU center drives energy innovation

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The MU Center for Sustainable Energy is encouraging researchers throughout Missouri to work together to harness the energy potential of algae like those shown above in hopes of providing a source of inexpensive biodiesel fuel. Photo courtesy of Michelle Liberton, International Center for Advanced Renewable Energy and Sustainability

MU Center for Sustainable Energy members are joining forces with researchers throughout the state in hopes of harvesting the enormous energy potential contained within algae microorganisms.

The center served as host Sept. 12 at an on-campus workshop designed to encourage collaborative development of an efficient process for converting algal oil into biodiesel fuel. Center and university leaders believe Missouri can lead the nation in developing algae-to-fuel conversion technology.

“There’s a broad investment in biosciences across Missouri,” said Robert V. Duncan, MU’s vice chancellor for research. “It’s not much of a retooling to take this investment in biosciences and apply it quite directly to algal biodiesel energy.”

Researchers for decades have seen energy promise in algal biodiesel but been stymied by production costs. A three-step process currently governs algal biodiesel conversion: Producers must grow the algae; they must remove virtually all of the water from the algae once it’s grown; and finally, they must extract oil from the dried algae to transform into biodiesel fuel.

Interest in algal biofuel has increased as the biodiesel industry has grown during the last several years. U.S. biodiesel production has jumped from 15

million gallons in 2002 to 450 million gallons in 2007, estimates the National Biodiesel Board (NBB), a national trade association based in Jefferson City, Mo.

Feedstock supplies have not been able to keep pace with demand, NBB representative Alan Weber said during last month's workshop. Weber said he believes algal biofuel holds "a lot of potential" for helping meet that demand in the long term.

Among those discussing ways of reducing the cost of producing algal biodiesel at the workshop was biofuel researcher Richard Sayre, director of the Donald Danforth Plant Science Center's Enterprise Rent-A-Car Institute for Renewable Fuels.

Sayre described a "milking technology" he is working on that would remove algal oil without killing the algae. Other potential strategies for increasing production include adding glycerol to algae containers, Sayre said.

"There are tricks you can do with algae that you can't do with plants," he said.

Other Missouri organizations that joined MU center leaders to discuss advancing algal biofuel technology development include Lincoln University, the Midwest Research Institute, the Missouri University of Science and Technology and Washington University.

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