

111c Production of a Low-Cost Biodiesel Using a Novel Bacterial-Based Feedstock

Stephen Dufreche, Mark Zappi, Todd French, Darrell L. Sparks, Rafael Hernandez, and Earl Alley

The production of biodiesel has received considerable attention throughout the world in the past few years. Its advantages relating to the environment and reduced dependence on fossil fuels are helping to make “Biodiesel” a household name. Cost at the pump, however, remains the largest barrier to widespread biodiesel adoption. Governmental credits can help in the short run but are not an answer for long-term adoption of biodiesel. An analysis of soy biodiesel shows that over 70% of production cost is due to the feedstock. This, therefore, represents the best area to cut costs. Currently, soy oil is the predominant source of lipid used for the production of biodiesel within the U.S. With the new tax incentives recently passed, more and more biodiesel production facilities are expected to go on-line, resulting in a competition for lipid inventories. This will likely result in increased feedstock costs and a reduction in the glycerol pricing offset. Researchers at Mississippi State University have recently discovered a unique lipid feedstock that has potential to result in the production of biodiesel at overall costs only half that of most other biodiesel products. Additionally, the current source of this novel lipid has the capacity to support well over 1 billion gallons of biodiesel production within the U.S. alone. This presentation will give an overview of the envisioned process, detail preliminary results, and provide a summary of the projected process economics.