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A study of the economic feasibility of biodiesel production

John Halcomb & Scott Brown

The future of the biodiesel industry will rely on several critical issues. The major factors are the price of a barrel of crude oil versus the price of soybean oil, and the cost of turning both products into usable diesel fuel. While this relationship will be the primary focus of whether or not it is feasible to produce soybean-based biodiesel, there are many other variables that will affect the underlying economic incentives for this industry to grow. Over time, technology will improve and the cost of production will decrease. Unfortunately, creating the market at a time when the profitability is low is difficult, and this makes advances in technology slow in coming online. Government subsidies, at both the federal and state levels have played a role in jumpstarting the industry, but many wonder whether this funding is being used in the best way possible, and if so, how much should the government be willing to put in to the industry. Unfortunately, in some ways, the government programs on biofuels are working against each other, in the sense that promoting both ethanol and biodiesel causes a struggle over available land for corn and soybeans. This drives land prices higher which increases the cost of production for both crops, and eventually lowers the profit margin on producing either biofuel since the raw product prices continue to rise. In general, all biodiesel plants face the same costs of start-up and production, with regards to construction and soybean oil. The largest expense in production is the feedstock, soybean oil, which makes up nearly ninety percent of the final product, biodiesel. The other approximately ten percent of the biodiesel is a combination of methanol, or other alcohol, and a catalyst. Labor, electricity, maintenance, insurance, etc. make up the remaining costs of production. This leaves plants with few options for lowering their costs relative to other producers. The focus of this paper is to look at these other operating costs, find a range across the industry, and using FAPRI's 2007 U.S. Crops model, determine a best and worst case scenario looking at the future of this industry and how it will be influenced by these other operating costs. This project will help decide whether current government support for the biodiesel industry is sufficient for the sector to remain viable long-term.