

The Time for Commercial Algae Production is Now

By B B I

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According to an article published in Algae Technology & Business, we might end up replacing OPEC oil with that of other countries.

Algae is feedstock, a solution for national security, the environment and our economy. It is one of several solutions that have been proven capable of providing a new range of biofuels that can help reduce U.S. dependency on foreign oil while creating green jobs in America. “Their high oil and biomass yields, widespread availability, absent (or very reduced) competition with agricultural land, high quality and versatility of the byproducts, their efficient use as a mean to capture CO₂ and their suitability for wastewater treatments and other industrial plants make algal and aquatic biomass one of the most promising and attractive renewable sources for a fully sustainable and low-carbon economy portfolio,” states the European Algae Biomass Association. “Algae have the potential to produce considerably greater amounts of biomass and lipids per hectare than terrestrial biomass, and can be cultivated on marginal lands, so does not compete with food or other crops. Algae can be cultivated photosynthetically using sunlight for energy and carbon dioxide as a carbon source. They may be grown in shallow lagoons or raceway ponds on marginal land or closed ponds.”

The problem in the emerging biofuels industry is not lack of research or technology. One issue that has resulted from 50-plus years of government-funded research is that the researchers are trying to either find or create the “perfect” algae before going into production. What they do not realize—or choose to ignore—is the fact that you may not be able to replicate on a commercial-scale what you can create in a laboratory. We know what works well now. Why should we waste another 10 years waiting for some lab to decide that its species is the best of the best, and the years of arguments that are sure to follow, when we could be scaling up production now and deciding which is best later? After all, according to the U.S. DOE, this is a \$66 billion dollar industry. There is plenty of room for a lot of different strains.

The problem is that there is not enough feedstock to test the existing technologies at commercial-scale, let alone enough to supply the biorefineries. My biorefinery contacts all said the same thing: they cannot secure enough feedstock to make their operations profitable.

Potential oil yields from certain algae strains are projected to be at least 60 times higher than from soybeans, approximately 15 times more productive than jatropha and approximately five times that of oil palm per acre of land on an annual basis (Rodolfi et al., 2009). For example, soybeans can produce 48 gallons per acre per year, while algae can produce 1,000 to 5,000 gallons per acre per year, according to the DOE’s Algal Biofuels Roadmap. So why are we not producing more algae?

Algae has emerged as one of the lowest-cost feedstocks for the biofuels and cellulosic industries. It is considered to be a promising source of renewable oil that can be processed and refined into a variety of transportation fuels. Recent breakthroughs in raceway pond development and closed end loop systems put algae oil production companies on the leading-edge of the renewable oil industry. All we need is a little equity investment funding and our pre-laid plans will take care of the rest. If biofuels are going to the marketplace, that move will likely be driven by the private sector. But care must also be taken to prevent this from becoming another dot-com investment fiasco. When I read business plans and public filings, and talk to potential investors, I always ask the same question: “Do you have feedstock supply contracts?”

Without feedstock, you cannot make oil, and without oil, we will never reduce our dependence on foreign

oil. What we might do is replace our dependence on OPEC oil with that of other countries. When Boeing announced its partnership with U.S. government agencies and Chinese research institutions and state companies including Air China Ltd. and PetroChina Ltd., a Boeing official was asked why the initiative was taking place in China rather than in the U.S. His response was that “they’ve made the decision to move faster” (Canadian Business, May 26, 2010). U.S. equipment manufacturers are forced to seek international markets because that is where they can earn revenues. We as Americans cannot afford to allow that to happen.

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NAA's mission is to fast track commercialization of algae as an alternative fuel to reduce US dependency on foreign oil and to create jobs in the US by putting algae researchers, algae growers, farmers and producers, and equipment manufacturers together

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