

National Algae Association Announces That Its 100-Acre Challenge Has Been Met!

Source: National Algae Association

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THE WOODLANDS, Texas -- In December, 2009, the National Algae Association challenged the algae production industry to build a 100 acre commercial-scale algae farm as the true test of profitable algae production systems, and to allow algae producers to look at real economies of scale. Since that time, NAA created plans and specifications and then revised them to substantially reduce CAPEX. It is now successfully modeling its second commercial algae growing system, which has ten times the capacity of its original design at half the cost. NAA also developed technical specifications for algae-based fuel and co-products, its third incubator site is in production and its online Algae Production Certification Course is in its second year.

A lobbyist group formed just months after NAA “promotes the development of viable technologies and commercial markets for renewable and sustainable products derived from algae.” according to its website. NAA cannot figure out what they have accomplished – its website has conference events and its news releases applaud the latest government research or its members, but one cannot tell what it, as an organization, has accomplished vis-à-vis commercial algae production. Alleged production claims by its members cannot be substantiated because no one has been allowed on these properties. Over one-third of the registrants at their most recent event were from universities. Common sense tells us that researchers have extensive experience in laboratories and virtually none in the business world. They are all finally realizing that their technologies have no value if they cannot be scaled for commercial applications.

The Department of Energy awarded \$44 million to a consortium including The Donald Danforth Plant Center as Team Manager, and Los Alamos National Laboratory, Pacific Northwest National Laboratory, USDA – ARS, Brooklyn College, Clarkson University, Colorado State University, Iowa State University, Michigan State University, New Mexico State University, North Carolina State University, Texas AgriLife Research/Texas A&M University System, University of Arizona, University of California Los Angeles, University of Colorado (Palmer Labs), University of Pennsylvania, University of Texas (sub), University of Washington, Washington University St. Louis, Catilin, Diversified Energy, Eldorado Biofuels, Genifuel, HR Biopetroleum/Cellana, Inventure, Kai BioEnergy, Solix Biofuels, Targeted Growth, Terrabon and UOP a Honeywell Company (National Alliance for Advanced Biofuels and Bioproducts, or “NAABB”). It was formed to further understand the impacts of algae on overall biomass and liquid transportation fuel production. The consortium primarily focused on feedstock supply, feedstock logistics, and conversion/production pathways. According to various versions of the NAABB website, its mission was to “lay the technical foundations for a scalable, responsible and affordable renewable biofuels industry. Our technical vision is based on several key concepts: 1) the development of agronomic systems for sustainable cultivation of oleaginous microalgae using non-arable land and sustainable water sources; 2) the creation of efficient methods for harvesting and extracting fuel feedstocks; and 3) the establishment of an integrated process to support widespread commercialization of agricultural coproducts resulting from algal biomass.” The work was to focus “on the development of strains of algae that have high biomass and lipid production performance and can be safely deployed. To do this we are increasing the overall productivity of algal biomass accumulation and lipid/hydrocarbon content by mining the natural diversity of algal strains, and performing mutagenesis for increased lipid production.”

According to the NAABB close-out report, the use of genetically modified algae, which leads to issues with the Environmental Protection Agency, is required. The report went on to identify “the following broad research areas...important to the sustainability of algal biofuels...in need of further evaluation: reduction of water in the entire production system; robust cultivation, harvesting, and extraction systems; improved

production strains; cost-effective sourcing of CO2, water, and nutrients; and improvements in industrial design and logistics...” Summarizing the opportunities for further research, a principal investigator has been quoted as saying that “he \$7.50 /gal crude has some very significant technology changes in biology, cultivation, harvesting and conversion. What we saw as some of the biggest contributors were the cost of water, liners, and CO2. These are major operational and capital costs that need to be tackled very heavily.”

In other words, they have not accomplished their mission, making it another project funded by the Department of Energy that used all of the funds but did not produce results.

According to an algaepreneur who has been passed over for participation in the NAABB and every other government-funded project, “...We also developed and implemented commercial scale cultivation, harvesting, crop protection, and extraction. We’ve made ASTM 6751 spec algal based biodiesel which we used to run tractors and other diesel equipment on our project. We also did the only full scale, commercial, productivity demonstration (Ogaard et. al. 2011). We have been continually overlooked or dismissed on DOE grants ... our project, the ONLY functional, demonstrable commercial scale pilot project in the industry, just ran out of funds and is being shut down and mothballed. Is it not ludicrous that 44 million dollars went into the black hole of National Lab consortiums who failed miserably, when our project can run ponds at more than a ton of algae per acre foot of water, harvest more than 1100 pounds of pure nannochloropsis a week (per acre/foot of water) and extract more than a liter of high omega III oil every hour...” Why then was this successful project overlooked?

NAA Executive Director Barry Cohen has commented: “We are using unmodified algae strains. The commercial growing systems that NAA is using have reduced the amount of water tremendously. We don't need liners, and we are working with commercial-scale harvesting and extraction systems and CO2 suppliers at each of the various locations. These growing systems put traditional ponds to shame – in capacity, land use and efficiency. This is what NAA's done on the commercial production side and we didn't have \$44 million to figure any of it out. Imagine how much progress we would have made with that money!”

As stated above, the 100-acre challenge has been met. Unfortunately, but par for the course, the challenge to build a profitable, 100 acre commercial algae farm was met in China.

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