



ESW

BIOFUELS

Fall 2021 Newsletter

Contents



Team Updates



Business & Outreach



Research & Development



Bioenergy Implementation

Biofuels Fall 2021





Team Updates

This semester, Biofuels took on six new members!

Business and Outreach

Kadijat Alakiu - sophomore, environmental engineering
Joey Armstrong - freshman, chemical engineering

Research and Development

Stacie Dressel - sophomore, biological engineering
Corey Drummond - sophomore, chemical engineering

Bioenergy Implementation

Rob Mosher - freshman, chemical engineering
Cate Westbrook - freshman, chemical engineering



Biofuels Fall 2021





Business & Outreach

The Business and Outreach sub-team worked on several new projects this semester in addition to their roles of website maintenance and creating the Fall 2021 newsletter. One was hosting interactive demos at the Ithaca Sciencenter about current environmental issues and biofuels. The team also started a new partnership with CCE Suffolk for three longer term projects. The first project is developing three sustainability lesson plans for a target audience of students K-4. The second project they began was brainstorming for a portable and interactive sustainability museum, with exhibits based on their drafted lesson plans. The third is a podcast with the Shinnecock Indian Nation that will hopefully draw attention to their current environmental issues.



Sciencenter Demos!

Biofuels Fall 2021





Research & Development

This semester, the Research and Development sub-team has started a new project focusing on the impregnation of biochar with ammonium phosphate. The team is now working on implementing this project in the lab, with the aim of demonstrating the practicality of forming ammonium phosphate in the pores of biochar using aqueous phase reagents. In preparation for their lab work, the team has focused much of their efforts on reviewing available literature and meeting with their advisors to discuss novelty.

Along with this project, R&D is continuing to work on their previous project of Computationally Modeling Struvite Formation. R&D has modeled the formation of struvite, a slow release fertilizer, using the equilibrium modeling software Visual MINTEQ. The team is now analysing the data found in the lab and formatting these findings into a research paper that they will seek to submit to a journal for publication.

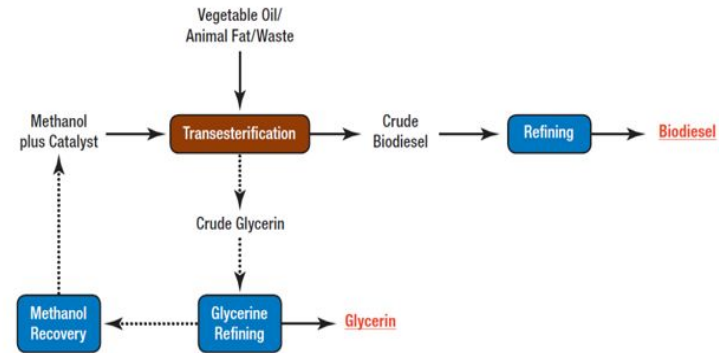




Bioenergy Implementation

This semester, BioImp continued their work on the REE TEA project. They updated their existing spreadsheets with the costs, materials, and feedstock that Professor Barstow requested, and developed process flow diagrams to model the bioleaching and biosorption.

BioImp also took on a new project this semester, which is to design and build a continuous biodiesel apparatus. The goal of this project is to design, construct, and operate a system that can generate enough biofuel to power a tractor for one summer. Once the project is completed, the system will be handed over to Cornell Dairy to use at their discretion.



Basic Schematic of Biodiesel Production

