

ABSTRACT:

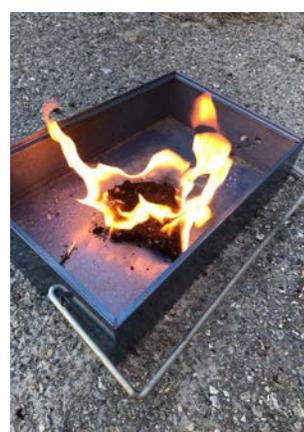
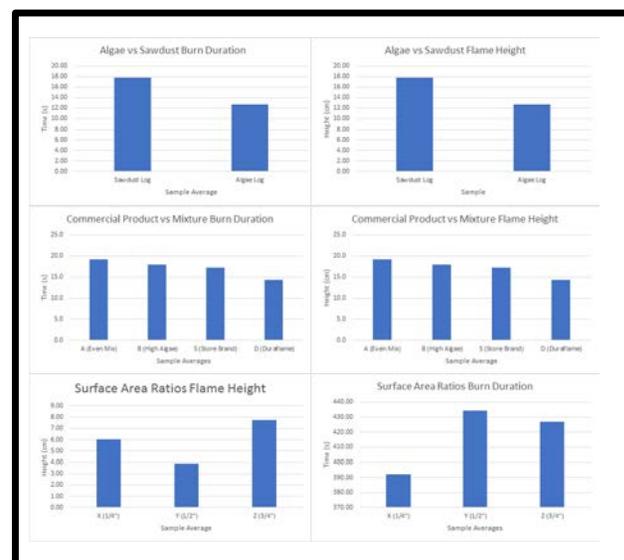
- Harmful algal blooms flourish under the conditions of substantial sunlight and excess nutrients. In the Chesapeake Bay, agricultural and urban run-off account largely for these inputs of nutrients. Algal blooms result in anoxic conditions and negatively impact humans and wildlife.
- The Algal Turf Scrubber (ATS) is an ecologically engineered technology (ecotechnology) used to remove nutrients from a body of water and to produce biomass, which is capable of being used for several purposes such as biofuel, animal feedstock, fertilizer, and health products.
- Driven primarily by solar energy, the system is a flexible and scalable technology that can be designed into available space near waterways where water quality is impaired.
- Significant quantities of algal biomass are the result of the ATS technology.
- Biomass produced by ATS technology has not been purposed commercially and is currently disposed of by operators at an expense.
- With the development of an algae based fire log, the system of cleaning water through nutrient uptake via Algal Turf Scrubber technology is reinforced and a commercially viable and locally made product can compete with products whose sourcing and manufacturing are less transparent.

METHODS:

Our fire logs were created by combining harvested algae, sawdust, and paraffin wax. The wax was carefully heated to a liquid consistency. Algae and sawdust were added to liquid paraffin. Trials attempted to assess the effects of lessened inputs of sawdust and paraffin and a maximized biomass component.

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES (AG12C) IDEATION COMPETITION

The algal firelog concept recently won recognition in the Ag12C University of Maryland College of Agriculture and Natural Resources ideation competition earning 1st place and the Dean's Choice awards.



FUTURE GOALS OF OUR ALGAE BIOFUEL

- Minimize inputs of high value materials such as paraffin wax.
- Replace sawdust input with a non-use post agricultural product or similar.
- Producing a paper packaging that is suitable for starting combustion.
- Producing an optimal burn based on surface area and shape.
- Promote a local, low-tech product that creates jobs and inspires environmentally focused dialogue and ideas.
- Establish and expand the business model in close proximity of hotspots for algal blooms.
- Encourage consumers to save and use the firelog ash for fertilizer needs.