Effectiveness of Grass Clippings as a Fuel Alternative

Marriott, Oakely (School: Fremont High School)
Mitchell, Keiley (School: Fremont High School)

The purpose of this project was to determine if grass clippings can potentially be refined into an alternative heat source. Throughout the summer, grass clippings are produced in large quantities by homeowners, creating an underutilized resource ending up in landfills to be burned and wasted. It was hypothesized that grass clippings can be processed to become a viable and economical alternative heat source. Equal amounts of grass clippings were collected and placed in a conventional oven in order to remove all of the moisture. Samples were made by mixing small amounts of melted soy wax and grass clippings then compacted into a mold. A comparable commercial fire log was cut into samples weighing equal to that of the grass samples. These samples were burned one at a time in a bomb calorimeter to measure the heat output. The data from burning each sample was obtained and recorded. The recorded data was used to calculate the British thermal unit (Btu) of each sample. The data show that the average Btu for both the grass clippings and fire logs was 16.8 and 24.8 respectively. The grass clippings price per Btu was $0.0029 and the fire logs price per Btu was $0.0017. Based on the data collected, the hypothesis was true as a direct result that grass clippings are a viable heat source, however false in regard to the fact that grass clippings are not as economical as fire logs.