

In the 150 miles that surround the area of the Palouse there is nearly 2 million tons of waste biomass that is accumulated by lumber mills every year. This waste is nearly valueless. This waste takes up valuable space that the lumber mills can use for other equipment or inventory. A lumber mill can try to sell the waste biomass at prices of anywhere from 25 dollars a ton, in the best case, all the way to having to pay someone to ship it away, which is a common occurrence. The idea is to take this valueless waste and turn it into something that can be sold for up to 2,000 dollars a ton, biochar. To go along with the problem that the lumber mills are having, the farming industry is struggling with topsoil degradation. The topsoil is becoming less and less nutritious which creates problems for trying to feed a growing population. The farmers are also needing to use more fertilizer to grow the same number of crops. This is both costly and reduces the amount of phosphorus, a key ingredient in fertilizer, that is available. All these problems create an environment that provides a unique opportunity that with our product can kick start a brand-new market here in the U.S.

Biochar is rich in fixed carbon and has an enhanced surface area caused by micro and macro pores that easily absorb and maintain moisture and nutrients. When it is integrated into soil it works to bring soils from both ends of the spectrum, sandy and clay soils, to a more nutrient rich middle. Biochar is a very powerful soil enhancer, which makes the soil more fertile, boosts food security, and reduces the need for some chemical fertilizers. Given all of biochar's qualities it is capable of aiding farmers in meeting the demand of a growing population and reducing the need for more fertilization.

In an attempt to take advantage of biochar's potential and start a new market in the U.S. the team is designing an attachment that will go on a pre-existing boiler and produce biochar at a continuous rate. This system uses exhaust heat from the boiler system to cook the waste biomass to produce biochar. This means that it will not take any resources the lumber mill already has. It is recycling various aspects of their operation to provide an economically viable solution to the biomass waste that is accumulation. This device will move lumber mills towards a minimal waste operation.

Since the biochar market is so new in the U.S. there are very few producers of biochar, and of those producers most of them are batch producers. This means that they do not produce biochar continuously, which the attachment to the pre-existing boiler would be capable of doing. A continuous process would spearhead the development of biochar in the U.S. An increase in the production of biochar would not only aid the lumber mills, but it would aid the farming industry. The impact of biochar could extend far beyond our current generation and impact many generations to come.