

A Biorefinery approach to production of lignocellulosic ethanol and chemicals from sugarcane bagasse

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Introduction

Recent development within the biofuel industry has shown that it is challenging to build a sound business case for advanced biofuels as a standalone operation, even with economic incentives from the local authorities. As a biorefinery operator, Borregaard is currently producing specialty cellulose, lignin chemicals, vanilla flavor and ethanol from various species of wood. The strategy has been particularly successful for lignin, which is considered a troublesome by product in many other contexts. We have adapted a similar strategy to the processing of sugarcane bagasse and other agricultural waste products

Results and conclusions

The result is an operation that is economically sound with a very favorable carbon footprint. Borregaards new biorefinery pilot will turn bagasse into bioethanol, lignin chemicals and protein for fish feed. We have shown that the wood based biorefinery can serve as a template for concepts based on agricultural waste products, and that lignin can be turned into valuable specialty chemicals. Examples are soil conditioners, concrete additives and pelletizing agents. The approach gives opportunities for process integration with existing "1st generation" bioethanol plants to reduce initial investment costs and optimize feedstock costs, simultaneously increasing revenue streams.

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