

Biorefining – The future of the sugarcane industry

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ABSTRACT:

Sugarcane is a major global agricultural crop that produces significant quantities of sugar and biomass in tropical and sub-tropical regions. Over many centuries, the crop has been grown primarily for its sugar content which contributes the vast majority of the revenue derived from the crop. While the production of renewable electricity from bagasse is well established, in more recent decades significant advances have been made in the production of cogeneration products and fuel ethanol at large scale.

There are significant opportunities to increase the value derived from sugarcane and hence diversify the revenue base. In particular, finding ways to add value to the lowest value (non-sucrose) components of the crop offers significant new product opportunities. Value-adding opportunities exist for processing by-products including bagasse, molasses, mud, ash. In addition, there are opportunities with modification of the sugar production process, to extract higher value components including waxes, phytosterols, minerals, and oligosaccharides.

Sugarcane is one of the leading crops internationally for the establishment of new biorefinery industries. Sugarcane biorefineries, co-producing fuels, green chemicals and bio-products, offer great potential for improving the profitability and sustainability of sugarcane producers and processors. Sugarcane bagasse is widely regarded as one of the best biomass feedstocks for early-stage and large-scale commercialisation of biomass into biofuels and bioproducts.

This paper will address the opportunities available for tropical biorefineries to create a new future for sugarcane industries.