Title Post-harvest biology of sugarcane

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Abstract

Cutting of the sugarcane stalk at harvest disrupts the physiology of the plant. The altered balance amongst plant functions that results from cutting leads to changes in the composition of the stalk, many of which are undesirable. These negative effects are worsened by increased duration of the period between harvest and sucrose extraction, as well as by high ambient temperature. In addition to physiological changes within the stalk, damage to the stalk during harvesting provides entry points for microbes (bacteria and fungi) that occur naturally in the environment. Many of these microbes grow well in the sucrose-rich stalk, using the sugars as an energy source, while producing metabolic by-products that cause processing problems in the mill and refinery. Post-harvest physiology and microbiology of the sugarcane stalk are currently being studied at the South African Sugarcane Research Institute (SASRI) to determine the effects of harvesting on sucrose and hexose (glucose and fructose) levels, the growth of microbes in the stalk and the appearance of undesirable by-products of microbial metabolism. The information will ultimately be used in the development of mathematical models to quantify and predict the effects of harvest-to-crush delays on stakeholder profitability.

http://www.springerlink.com/content/m5j8348513753543/fulltext.pdf