

BICHSEL, STANLEY E., Bryan C. Tunland, and Patrick O. Darrow.
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Springs, CO 80918. - The determination of sugar beet technological value.

This paper focuses on the relationships between sugar beet characteristics and subsequent sucrose yield after processing. Basic information is presented concerning the non-sucrose characteristics as affecting recovery (yield based on beets purchased) and extraction (yield based on beets sliced). Current research indicates that type of non-sucrose can dramatically affect any ability to determine the technological value of the beet. It is argued that currently used equations do not take into account the dynamic nature of non-sucrose concentrations. Imperial Holly has undertaken the task of developing for our eight growing areas, a measure of the technological value of the beet. The goal is to obtain a robust measurement of recovery (extraction) given facilities that process both fresh and stored beets. To this end, a predictive equation based on second carbonation purity and diffusion juice impurities was developed. This equation, using lactic acid, glucose, fructose, amino nitrogen, potassium, and nitrate, accounted for 97% of the variation observed in second carbonation purities. The new equation was 75% more accurate than results using only sodium, potassium, and amino nitrogen.