

Title A Comparison of the use of BrimA versus soluble solids/titratable acidity ratio as a maturity standard for navel oranges

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Abstract

Maturity and time of harvest for California navel oranges is primarily determined by the ratio of the soluble solids concentration (SSC) to titratable acidity (TA). This standard has been used in the industry for decades but its usefulness and relationship to flavor have often been questioned. In recent years BrimA, a measure calculated by subtracting TA times a constant from SSC, has been reported to be more closely tied to flavor in a number of fruit types and has been proposed to be a replacement for SSC/TA. As part of a three-year experiment evaluating the maturity standard for navel oranges in California, BrimA was directly compared to SSC/TA to determine if it was a better predictor of flavor. In the course of the experiment over 2000 fruit were harvested throughout the growing season, analyzed for SSC and TA content, and then subjected to evaluation by a taste panel for likeability (hedonic score), sweetness, tartness, and richness of flavor. Likeability was linearly related to BrimA while a quadratic function best fit the response between likeability and SSC/TA. BrimA was more closely correlated than SSC/TA to hedonic score ($R^2 = 0.56$ vs. 0.50), indicating a closer overall relationship between BrimA and likeability. This difference between the two measures was found to be primarily due to the superior ability of BrimA to predict likeability at low acidity levels.