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COMMITTEE FOR TRADE, INDUSTRY AND
ENTERPRISE DEVELOPMENT

Working Party on Standardization of Perishable
Produce and Quality Development

Specialized Section on Coordination of Standardization
of Fresh Fruit and Vegetables
(Forty-eighth session, Geneva, 23 to 26 April 2002)

REPORT ON THE WORK OF ITS FORTY-EIGHTH SESSION

Addendum 6

Note by the secretariat: This document contains a summary of the research begun during the 2000/2001 season on the sensory acceptance of citrus fruit with respect to sugar/acidity balance. The text of the report is reproduced in the form in which it was received.

Summary of the research begun during the 2000/2001 season on the sensory acceptance of citrus fruit with respect to sugar/acidity balance

1. During the 2000/2001 season, Intercitrus began a study with a projected duration of three to four years. The aim of the study was research on the sensory acceptance of various citrus fruits, and the main objectives of the study were the following:
2. Study of the relationship between the chemical parameters for total acidity, Brix, maturity index and sensory acceptance of citrus fruit, in order to:
 - Establish a good sensory quality indicator for citrus fruit;
 - Specify the limits within which the Brix, total acidity and maturity index parameters determine the best acceptance of the citrus fruits studied;
 - Define other physical or chemical parameters affecting the acceptance of citrus fruits.
3. During the first season, tastings were made of the follow citrus fruits:
 - Marisol clementine: 6 tests;
 - Navelina: 18 tests;
 - Clemenule: 18 tests;
 - Hernandina clementine: 21 tests;
 - Lane late: 11 tests;
 - Valencia late: 9 tests.
4. Some tasting periods ended before the scheduled date owing to the lack of fruit.
5. A total of 83 tests were conducted and there were 60 tasters at each tasting session.
6. Spot tastings were made with fruits from other countries:
 - Valencia late, from Cuba;
 - Navel, from Argentina;
 - Navel, from Uruguay.

7. The following results were obtained after the first season:
8. The relationship between overall evaluation and the chemical maturity index is apparently quadratic. A variation in the chemical maturity index does not affect overall evaluation in the same way throughout the entire season.
9. The Brix chemical variable is a variable that influences overall evaluation. This variable does not affect overall evaluation uniformly according as the acidity level rises or falls, owing to interaction between the ° Brix and total acidity variables. Thus, a decline in acidity values within the limits of high Brix values results in a decline in overall evaluation, while a decline in acidity values within the limits of the lower Brix values results in an increase in overall evaluation.
10. It is possible to predict overall evaluation from the equations generated by the explanatory variables: ° Brix, total acidity and percentage juice, and other variables deriving from them. The perception of the overall evaluation of citrus fruits is determined not only by the soluble components (sugars and acids); there are other components that play an important role, such as the volatile components, which are responsible for aromas, fibre, colour and the segment appearance.
11. The conduct of a greater number of tests, particularly at the end of the maturity period for different varieties, would perhaps make it possible to simplify the prediction equations, or even obtain a general equation.
12. During the current season, three additional varieties were tasted. These were:
 - Marisol clementine;
 - Satsuma;
 - Navelina.
13. The aim of these tastings was to obtain data, particularly at the beginning and the end of the season, when acidity levels are highest and sugar levels are lowest, and vice versa.
14. The tastings have just ended and we are currently collecting and analysing data. We expect to have results by the end of the season.
