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Horticultural Science

Relationship between tree nutritional status and apple quality

Jivan C., Sala F.:

Hort. Sci. (Prague), 41 (2014): 1-9

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Development of prediction models for the quality of apples is useful in guiding fruit tree nutrition and in optimising fruit management. The interrelationships between the leaf nutrient contents and some fruit quality indices were studied in five apple cultivars – Generos, Florina, Delicios de Voinești, Jonathan and Pionier. Highly significant relationships between N and Fe contents ($R^2 = 0.734$; $P < 0.01$) and between Cu and K ($R^2 = 0.702$; $P < 0.01$) were found. Acidity was negatively correlated with soluble solids content in the cvs Generos, Delicios de Voinești and Jonathan, whereas the respective correlation in the apple cv. Pionier was positive. In cv. Florina fruits no significant correlation was found between acidity and soluble solids content. Among macroelements, nitrogen had a considerable contribution to fruit acidity and this allows to predict this index with a high degree of safety ($R^2 = 0.690$; $RMSEP_N = 0.105$). Microelements have a lower contribution to acidity and a higher one to the sugar accumulation; in case of Zn are $R^2 = 0.809$; $RMSEP_{Zn} = 4.250$.

Keywords:

foliar diagnosis; nutrient content; quality indices; prediction model

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