

Title Post-harvest behaviour of pineapple affected by sources and rates of potassium
Author J.A. Quaggio, L.A.J. Teixeira, H. Cantarella, E.V. Mellis and J.M. Sigrist
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Abstract

Potassium is the foremost nutrient required for the pineapple crop and the lack of this nutrient reduces plant growth, fruit yield and affects fruit quality. A field experiment was conducted in order to determine the response of 'Smooth Cayenne' pineapple to sources and rates of potassium fertilization. The experiment presented a complete factorial design with four rates (0, 175, 350, and 700 kg K₂O/ ha⁻¹) and three combinations of K sources (100% KCl, 100% K₂SO₄, and 40% K₂SO₄ + 60% KCl). The fruits were picked when bottom eyes turned from a pale-green colour to yellow and were stored for 28 days at 10±1°C and 85-90% RH for post-harvest evaluations. The total soluble solids (TSS) of the fruit pulp varied significantly as a function of K rates. There was no difference between K sources until three weeks of storage, when TSS of fruits treated with KCl decreased significantly in comparison to other sources. The ascorbic acid content (AC) of fruits was affected by K rates and sources and decreased during fruit storage in all treatments. The differences between K sources on AC content occurred during the storage period and the lowest values were observed for K₂SO₄. Total titratable acidity (TTA) increased in response to K application, especially as KCl, decreasing the ratio between TSS and TTA. The use of K₂SO₄ resulted in better fruit ratio, mainly at higher K rates. The effect of different K rates on fruit translucence was not significant and the small difference observed between K sources was only observed right after harvest. Despite the long storage time, there were no symptoms of fruit internal browning. Fruit firmness decreased along the storage period. This effect was less intensive without K application, but it was observed for all sources, especially for KCl.