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IS THE SUGAR PROFILE OF AVOCADO CULTIVARS RELATED TO THEIR FRUIT QUALITY CHARACTERISTICS?

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Avocado cultivars differ tremendously in their growth and fruiting habit as well as their fruit quality. Within the green-skin cultivars one can find vigorously growing types that tend heavily to alternate bearing ('Fuerte') and others that are more constant bearers ('Edranol' and 'Pinkerton'). Furthermore, fruit size differs between these cultivars from 'medium' ('Fuerte' and 'Edranol') to 'large' ('Pinkerton'). Moreover, the oil content norm for picking varies from 10% ('Fuerte') to 16% ('Edranol') to 19% ('Pinkerton'). Lastly, months to maturity vary in KwaZulu-Natal, South Africa, from 10.5 ('Fuerte') to 12.5 ('Pinkerton'). Therefore, the energy demand of these cultivars must differ, and which, during the pre-harvest period, will influence the demand and supply of carbohydrates into the fruit. This lack of or sufficient supply may, however, only become evident post-harvest, when the "residual energy" present as carbohydrates, particularly sugars and sugar alcohols, has already been depleted in some cultivars but not in others. However, avocado, as one of the fruit with the highest respiration rate, relies heavily on these energy reserves that are more accessible than oils, the predominant avocado storage products, and more abundant in the fruit than starch, a storage reserve in other tree crops. It was therefore investigated if these three cultivars differ, pre-harvest, in their sugar profile. The sugar level of avocado fruit which is highest shortly after fruit set declines thereafter to harvest. Predominant sugars in avocado were manno-heptulose, fructose, perseitol, glucose and sucrose. The relationship between pre-harvest changes in sugar profile and shelf-life potential of the various cultivars is discussed.