

Effect of leaf whorl position on nutrient content of macadamia leaves

S. Hill and R. Cave

University of Queensland

scott.hill@uqconnect.edu.au

Plant tissue analysis provides an insight into plant nutrient status at time of sampling. It can identify nutrient deficiencies well before plant symptoms are observed. Macadamia leaf sampling for diagnostic nutrition purposes has been developed over the past six decades to ensure an accurate indication of nutrient content. Specific plant material is required to provide a precise comparison to published nutrient standards and provide a sound basis for nutrient recommendations. Locating sufficient satisfactory plant material can sometimes be difficult due to a spring flush occurring in sync with the recommended sampling period and plant tissue damage of the remaining recommended leaves. One of the criteria for macadamia leaf sampling is to collect leaves of the second whorl of hardened mature terminals. The current study was undertaken to provide flexibility when collecting a macadamia leaf sample by identifying differences in nutrient content of alternate leaf whorls. Consistent with published literature, phloem mobile nutrients, N, P and K were found to decline with leaf age and phloem immobile nutrients Ca, Mn, Fe and B were found to increase with leaf age. Variably mobile nutrients differed in concentration trends with leaf age. Mg, Na and Cu increased with leaf age and S and Zn decreased. Significant differences for some nutrients between whorl two and whorls one, four and five were identified with variation in the level of significance. However, whorl two and whorl three showed no significant difference for all nutrients analysed. Therefore, leaves from the third whorl could be utilised as an alternative when leaves of the second whorl are not suitable.