

## Some factors affecting canopy development and early cropping of macadamia

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Macadamia (*Macadamia integrifolia*, *Macadamia integrifolia* x *tetraphylla*) is an evergreen subtropical tree crop, currently grown in large tree, low density systems. Canopy management regimes vary widely, but in Australia are generally centred around programs of mechanical hedging, although selective limb removal is also undertaken commercially. We are currently undertaking a field systems trial investigating the effects of three planting densities (industry standard 313 trees/ha; medium-density 556 trees/ha; and high-density 1000 trees/ha) and two tree training systems (industry standard mechanical hedging; and central leader structured selective pruning) on the productivity of two cultivars. To understand the basis for differences in productivity, a range of experimentation within the trial is being undertaken to determine treatment effects on the light environment, architectural development at several scales, and the development of crop load. Tree training affected first flowering in 'A203', which occurred in the second year after planting, but there was no effect of tree training on raceme production in 'A203' in the third year after planting. There was no effect of tree training on first flowering of '741', which occurred in the third year after planting. Increasing plant density led to increases in canopy volume per hectare, raceme production per hectare, total light interception and yield per hectare. There were significant differences between cultivars in early yield per hectare, largely due to differences in early flowering. The relationships between canopy volume per hectare, raceme production, total light interception and their effects on early yield are discussed.