

THE ASSESSMENT OF THE IMPACT OF CASUARINA CUNNINGHAMIANA  
MIQ.(RIVER-SHE-OAK) WINDBREAK ON MACADAMIA TREES ORCHARDS IN  
LIMPOPO PROVINCE, SOUTH AFRICA

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## Abstract

This study focused on the investigation of *Casuarina cunninghamiana* Miq. windbreaks trees associated with macadamia orchards. Field observations showed that macadamia trees near the windbreaks have poor growth in terms of leaves and number of branches, root collar diameter and fruit yield. This problem is prevailing despite the application of drip irrigation and fertilizers to young *Macadamia tetraphylla* trees possibly due to underground competition for water and nutrients with *C. cunninghamiana* roots that might grow and extend to near-by rows where *Macadamia tetraphylla* would be growing; such roots may even extend to distant rows; however from *Casuarina cunninghamiana* roots exposure there is no actual distance recorded as to how far the roots of *C. cunninghamiana* windbreaks have extended towards the orchards. Unless this problem is solved, farmers in the study areas may resort to the removal of windbreaks like what is being done by other farmers that are growing avocado and kiwi fruits trees at Haenertsburg in Limpopo Province.

Our findings after trenching revealed that water, nutrients and stomatal conductance have been improved in trenched sites compared to those in not trenched sites. This study has indeed established the kind of interaction between *C. cunninghamiana* and *M. tetraphylla* that cause the poor growth of Macadamia in the Luvuvhu areas (farms).

This study has provided baseline information on the management of *C. cunninghamiana* windbreaks and may contribute to a reduction of their impacts on macadamia orchards in Luvuvhu farms and elsewhere in South Africa.

**Key words;** *Casuarina cunninghamiana* Miq, fruit orchard, growth performance and yield, Limpopo Province, *Macadamia tetraphylla*, windbreaks impacts.