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Seasonal change of Casuarina sap flow and its use for windbreak trees to reduce evapotranspiration in the Nile-delta.

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Windbreak trees could reduce evaporation in an agricultural land. However, an evaluation of the effect needs also estimation of windbreak trees' transpiration. For that purpose, transpiration of windbreak trees, Casuarina, has been estimated continuously since the summer in 2011 by means of Granier method. As a result, sap flow was found to have a distinct seasonal change, and transpiration has similar seasonal change, too. Based on these results, transpiration in arbitrary period could be estimated by Penman-Monteith equation by setting a canopy resistance. From estimation of annual evapotranspiration reduction by windbreak trees, windbreak trees which have 50% porosity could reduce around 40% of annual evapotranspiration. Furthermore, transpiration of windbreak tree occupies only 10%.

Keywords: Windbreak tree, Casuarina, Transpiration, Evaporation decrement