

Mineral Nutrition of Chinese Waterchestnut (*Eleocharis Dulcis* (Burm. F.) Hensch)

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Recently, there has been considerable interest in Australia in the commercial production of Chinese waterchestnuts for import substitution and export. However, Australian growers face problems with the quality of their produce which may be improved by nutrient management. Yet, little information is available on nutrient demand and fertilisation of Chinese waterchestnuts.

The effect of different rates (0-600 kg/ha) of N, P K and form (KCl and K₂SO₄) of K on nutrient absorption, quality and yield of this aquatic vegetable grown in nutrient solution was studied at Central Queensland University, Rockhampton.

Results show antagonistic and synergistic interactions between uptake of NH₄ and PO₄. Absorption of NH₄ was inhibited at the highest levels of applied N and P (600 kg/ha) as indicated by high residual ammonium in the floodwater. This may be due to oversupply of N not required for metabolism and ion-competition during absorption. Uptake of PO₄ required a minimum of N 200 kg N/ha). When no N was applied, PO₄ accumulated in the floodwater whereas at the high N rate, PO₄ was completely absorbed.

No interactions between K and other nutrients could be found pointing to the high demand for this nutrient. However, the sulphate in K₂SO₄ affected absorption of PO₄ and K. Uptake of PO₄ decreased with increasing rates of applied SO₄. The K from K₂SO₄ was initially more slowly absorbed than from KCl but total uptake was greater.

The effects of nutrients on quality and yield, and implications for optimum fertilisation of Chinese waterchestnut are discussed.