

## Summary

A multi-element soil extraction procedure (P, K, Mg, and Ca) using a mixed cation/anion exchange resin has been developed and its performance evaluated. Ion uptake to and recovery from the resin was highly reproducible over the concentration ranges typically experienced in soil. The effects on the overall reproducibility of changing various experimental parameters such as soil:water:resin ratios were quantified. Plant nutrient uptake and yield parameters obtained from either field (coconut) or pot (ryegrass) experiments using tropical or temperate soils have been used to evaluate the predictive capabilities of the proposed method. Comparisons with existing more widely acceptable soil extractants are made. The proposed method generally gave highly significant correlations with crop data which were independent of soil type. The possibility of including a simultaneous multi-element analytical step has also been assessed which greatly increases the overall advantages of the resin procedure.