B-37 Evaluation of land suitability for coconut production in relation to soil physical properties

L P Vidhana Arachchi[1], R B Mapa[2], P A J Yapa[3], H Somapala[4]
([1]*Coconut Research Institute, Lunuwila,* [2]*Dept. of Soil Science, Univ. of Peradeniya,* [3]*Dept. of Botany, Univ. of Sri Jayewardenepura,* [4]*Dept. of Agriculture*)

Coconut (*Cocos nucifera* L.) has been cultivated in different agro-ecological regions without due regard to land suitability. The aim of this study was to characterize soil physical properties to evaluate the suitability of land for coconut production.

Soil physical characters of major soil series (about 20) in the coconut triangle were characterized to evaluate their performance in coconut production. Profile description of all soil series were done according to the procedure proposed by FAO. Four soil profiles on either side of 2 soil pits (1.0 x 1.5 x 1.5 m) for each soil series were used for the analysis of physical properties.

Regression models using soil physical properties as dependent for each soil series with respect to coconut yields, were computed using stepwise regression. Data was also analyzed to categorise soil series according to their performance on coconut production, using clustering technique.

Results showed that physical properties were significantly fitted ($r^2 = 81.37$; $p<0.01$) with coconut yield. The predicted equation was found to be reliable to evaluate the land characters on coconut performance. Results also showed that

available water, bulk density, ratio of macro to micro porosity and fine particles (silt and clay) were the key factors affecting coconut yield significantly ($p<0.01$). Using soil physical properties in relation to coconut yields, soil series were classified into 3 major groups: (a) high (b) moderate and (c) low productive series.

Soil physical limitations and favourable factors on coconut production were also identified. Land suitability evaluation using soil physical parameters can assist in identifying high potential areas for coconut cultivation and in generating site-specific recommendations for cultural practices.

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