

Land Suitability Analysis for Pineapple Cultivation in Sri Lanka Using Geo Spatial Technologies

T.A. Kamiss¹ and R.P. De Silva²

¹*National Agriculture Information and Communication Centre, Gannoruwa, Sri Lanka*

²*Post Graduate Institute of Agriculture, University of Peradeniya, Sri Lanka*

ABSTRACT

Increasing food production and ensuring food security for the growing population can be achieved by cultivation of crops where they find the best expression of environment, especially soil and climate. In agriculture, Geographic Information Systems (GIS) give the best solution for land suitability analysis by comparing land characteristics with crop requirements and by finding the most suitable location for crop cultivation. The aim of this study is to identify the degree of suitability of lands in Sri Lanka for pineapple cultivation and to develop a land suitability classification map for pineapple using a Multi-Criteria Decision Making (MCDM) technique. Land suitability analysis was assessed based on experts' opinions and FAO guidelines for rainfed agriculture. An Analytical Hierarchical Process (AHP) is a MCDM approach and was used to determine the relative importance of criteria and the resulting weights were used to construct the suitability maps using a model in GIS. A constrained layer was developed to identify constrained lands for pineapple cultivation and the final land suitability map was generated by overlaying these suitability maps. The final map shows that majority of lands in Sri Lanka are moderately suitable for pineapple cultivation.

Key words: GIS, Land suitability analysis, MCDM, Pineapple cultivation
AHP