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Identification of suitable areas to cultivate Aloe vera in Kegalle District, Sri Lanka using GIS

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Aloe vera (*Aloe barbadensis Miller*) is used in ayurvedic medicine, pharmaceuticals, cosmetic products and also as a food product such as drinks or mixer with yoghurt. It is getting popular with the improvements in technology of harvesting and processing the product. In Sri Lanka, it is popular as a home garden crop, but not as a crop growing in large-scale. Most Sri Lankans are less aware of getting an income from Aloe vera. Therefore, the aim of this study is to make Aloe vera cultivation popular by identifying suitable areas to cultivate Aloe vera in Kegalle district, which was the study area of this research. Data analysis was done by using ArcGIS software tools to select the suitable areas. The criteria to grow Aloe vera successfully were selected using relevant literature. They were namely land uses such as coconut or bare lands, annual rainfall range as 1800 mm-2300 mm and annual temperature range as 25 °C - 26 °C. Those criteria were considered as most favorable factors to grow Aloe vera successfully with demanding leaf thicknesses. Land use data was collected from the Survey Department, Colombo and rainfall and temperature data were collected from the Meteorology Department, Colombo. Rainfall and temperature layers were developed by using Kriging interpolation technique in spatial geostatistics in ArcGIS software. Then land use layer, rainfall layer and temperature layer were overlaid using spatial analysis tools to identify the most suitable area, moderately suitable areas and not suitable areas. Kelegama and Rambukkana DSD areas are the most suitable areas to grow Aloe vera in Kegalle district. The final map generated from this study will be useful for extension/field officers of the Department of Agriculture, to enhance the awareness of people in Kegalle district about suitable places to grow Aloe vera in order to get an extra income as well as to get the maximum utility of the land.

Keywords: Aloe vera, geostatistics, weighted overlay, interpolation, Sri Lanka