

Using Remote Sensing and Geographic Information System for Prioritization of Areas for Site Specific Agricultural Development in Limpopo Province, South Africa.

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Abstract

Agriculture serves among others as a cornerstone for development in South Africa. It contributes significantly to the provincial and national economy. Agricultural development need to be coordinated and implemented effectively in order to achieve the objectives of sustainable production and efficient regional development. It is therefore always important to ensure that any form of development tally with environmental sustainability for a sustained economic output.

This study is conducted within Limpopo Province of South Africa. The Province has been identified as one of the country's prime agricultural regions for production of crops and livestock. It is characterized by distinct climatic regions varying from semi-arid, arid to sub-humid climate. However, it is generally regarded as a water scarce province. It has diverse soils which vary in productivity. The soils are also vulnerable to various forms of degradation. This justifies the need to assess and characterize different areas in the province to identify their agricultural development potential. This will in turn help in implementing strategies that will ensure a prosperous and sustainable agricultural sector.

This study assesses site specific characteristics in selected areas of the Province, to determine their relevant agricultural development opportunities. Particular emphasis is given to priority agricultural development areas identified in the Limpopo Department of Agriculture's (LDA) Agricultural Development Strategy. It is this state of affairs that prompted the current study.

Remote sensing and geographic information system (GIS) provides an opportunity for integrated assessment of resource development potential within a given time and scale. This entails assessing the suitability in terms of land/soil and climatic variations, which are determinant factors for specific agricultural production. Results show that identified areas exhibit varying potential for different agricultural commodities, dependent upon different soils and the local climates. Geoinformatic technologies contributes positively towards directing specific agricultural development within the limits of the environment's carrying capacity.

Key words; agriculture, agricultural development, remote sensing, GIS, sustainable production.