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Geoenviromental assessment for the development of rainfed agriculture : A case study from Pulivendula tehsil, Kadapa district, Andhra Pradesh, India

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The geoenviromental assessment is utmost important for designing and reviving rainfed agriculture through appraisal of land resources of scientific surveys. The drought prone Pulvendula tehsil (128609 hectares), in Rayalseema plateau of Andhra Pradesh, experiences serious loss of the rainfed groundnut yields with mean productivity of 623.57 ± 294.94kg/ha. With canal irrigation, bore well explorations and subsidies on drip system from the government, the farmers are encouraged to expand area under banana in place of groundnut. The land resource inventory on 1:25000 scale was carriedout to derive soil map with 43 mapping units. The soils were classified upto subgroup level in the orders of inceptisols (46% of total area), vertisols (13%), alfisols (5%) and entisols (4%). These soils are slightly to moderately alkaline with high (48%) to very high cation exchange capacity (24%), low organic carbon content and mean CaCO3 content of 87.62 ± 46.57g/kg. Using soil loss equation, the soil erosion risk zones were delineated and arranged in ascending order as : high-medum (31.16%) and high (22.05%). The land evaluation (FAO method) for groundnut showed that 43% of total area is highly suitable with limitations of available nitrogen (93%), phosphorus (47%) and deficiency of DTPA extractable Fe(57%) and Zn(51%). The economic analysis showed that the deep sodic black soils are uneconomical and concentrated in north central zones (18.29% of total area) with benefit cost ratio of 1:1.6. The results of banana suitability analysis showed that 31.78% of area in interhill basins are rated as suitable under drip irrigation. The present scientific analysis was mainly focused on sustainable intensification and climate smart agriculture to provide livelihood for small farm holders in the region.

Keywords: Aridity index, Land evaluation, Land Resource Inventory, Rayalseema

Biography:

Born in Chillamattur mandal of Hindupur tehsil, Andhra Pradesh. Graduated from Sree Venkateshwara Agriucltural College, Tirupathi, Post graduated in Soil science & Agricultural Chemistry from College of Agriculture, Bapatla and PhD from College of Agriculture, Rajendra Nagar, Hyderabad. Qualified Aricultural Research Service exam and joined as scientist in soil survey and land use planning during 1990 at NBSS&LUP, Nagpur. Engaged in soil survey projects of Andhra Pradesh, Maharashtra, Kerala, Tamil Nadu and North eastern parts of country. Published over 150 research articles. One book.12 survey reports. presented over 40 articles in various seminars. Served as reviewer to various journals.