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Role of information technology, remote sensing and gis in agricultural sciences and biodiversity conservation: A Review

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Information Technology (IT) Remote sensing and geographical information system (GIS) practices are becoming stable and increasing its important in the field of Agricultural sciences. The benefit of combined the spatial and non-spatial information can be effectively used in various aspects of crop production, phytodiversity and their conservation. There are numerous studies that have demonstrated potential application of modern remote sensing in crop production, entomology, agro-environment, irrigation system, ecology etc. Remote sensing helping to recognize areas of high biodiversity, high yield, high performance, mapping and updating maps, making inventory of crop species, deforestation, water management, Forestry, Biodiversity, Pest/diseases outbreaks, Hydrology, vegetation cover, soil sensing, Agricultural farm classification, farm assessment, crop yield estimation, structure and function of eco-system, environment monitoring, natural resources management prediction of species distribution, and modeling species responses to environmental and anthropogenic changes. A set of satellites are available to generate information on vegetation and land covers, crop species, crop rotation, cropping system and pattern, crop yield estimation, pest and insect attack, availability of water sources, land preparation have been discussed. The objective of present study the important contribution of remote sensing for cropping density and type of cropping, bsiodiversity and their assessment – landscape to species, delineation of gregarious species and community types, as stratification base for ground sampling, temporal monitoring, wildlife management, species distribution patterns and modeling, gap areas for biological examination, gap analysis for protected area network, mapping and monitoring of invasive species, forest fire monitoring, vegetation status, and climate change studies. It was concluded that remote sensing and geographic information systems provide efficient tools for Agriculture sciences and associated fields.