



Agro-Climatic Resource Inventory Characterization of Punjab State in Spatial Domain

S.K. Bal*, J. Mukherjee, Gurjot Singh, Anil Sood¹, B.V. Choudhury¹,
Harpreet Singh and Prabhjot Kaur

Department of Agricultural Meteorology, Punjab Agricultural University, Ludhiana 141 004, India

¹Punjab Remote Sensing Centre, Ludhiana, India

**E-mail: bal_sk@yahoo.com*

Abstract: Agro-climatic resource inventory characterization in spatial domain can play a great role in site specific suitability of sustainable agricultural crop production. An attempt has been made for creation of spatial database and zoning of agro-climatic resources of Punjab in spatial environment using GIS approach. This zoning approach divided Punjab into five zones for temperature and seven zones for Length of Growing Period (LGP). These newly drawn zones reflect that the average annual temperature of the state varies from 21-26°C, with LGP ranging from < 60 to 180 days. Temperature and LGP variation in the entire state depicted a reverse trend, being maximum temperature in south-western part with lowest LGP while lowest temperature being recorded in the northern most parts with highest LGP. Amongst all thermal zones, area under annual average temperature 23-24 °C was highest (58% of total geographical area) followed by annual average temperature 24-25 °C and the least area was under annual average temperature 21-22 °C. Similarly, the state has highest area (29.5%) where LGP varies from 120-140 days (L₃ zone) followed by L₄ and L₅. Less than 1 per cent of the total area of the state has LGP of >160 days. Overlaying of thermal and LGP layers further resulted into 7 thermal-LGP zones. Maximum area of the state (36% of total geographical area) was under annual average temperature 23-24°C & LGP 120-140 days zone followed by zone with annual average temperature 23-24°C & LGP 100-120 days.

Key Words: Agro-climatic resources, ArcGIS, LGP, Punjab, Thermal zone