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Land suitability Assessment for rainfied wheat using GIS and agro-climatic indices in the Qoochan watershed

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Abstract

The knowledge of climate and climatic requirement are important factors in crops production. on the other hand, using modern technologies in agricultural general planning is suggestive in recent years strangle with agriculture climatic studies maximum utilization of climatic facilities. In different are is more efficiently considering the importance of climatic factors in rainfed production and capability of qoochan land in rainfed wheat production, a comprehensive study using climatic long-term statistics conducted in this areas precision agriculture is a new and applied subject that agriculture scientific emphasis. In precision agriculture five technology use: geographic information system, remote sensing, global positioning system, yield mapping and variable rate technology. In this study, geographic information system(GIS) used and parameters are: probability of annual precipitation 300mm or more, fall and spring precipitation amount with 75% probability of suitable temperature (8-14C°) in rainfed wheat germination stage, probability of maximum temperature as 25C° or more in flowing stage and probability of maximum temperature as 30C° or more in grain filing stage. Precipitation and temperature of 14 station (Mashhad, Golmakan, Qoochan, Nishabor, Sabzevar, Torbat jam, Torbate hydarye, Kashmar, Bojnourd, Fat abad,Joghataye, Gonabad, Sarakhs)analyzed. To achieve time of different stages, growth degree day(GDD) used. by using suitable climatic for rainfed wheat, information layers, classified and value-weighted of each area specified finally, with overlapping and intersection of layers, final map prepared that showed climatic potential of rainfed wheat culture in Qoochan .results shows that role of each climatic parameter(precipitation and temperature)according within different growth stages, in different station differs. In addition by overlapping effective layer in rainfed wheat culture, suitability of different area for this crop specified.

Key words: land suitability, rainfed, GIS, Qoochan