Impact of Climate on Sugarcane Yield Over Belagavi District, Karnataka Using Statistical Mode

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Abstract : The impact of climate on agriculture could result in problems with food security and may threaten the livelihood activities upon which much of the population depends. In the present study, the development of a statistical yield forecast model has been carried out for sugarcane production over Belagavi district, Karnataka using weather variables of crop growing season and past observed yield data for the period of 1971 to 2010. The study shows that this type of statistical yield forecast model could efficiently forecast yield 5 weeks and even 10 weeks in advance of the harvest for sugarcane within an acceptable limit of error. The performance of the model in predicting yields at the district level for sugarcane crops is found quite satisfactory for both validation (2007 and 2008) as well as forecasting (2009 and 2010).In addition to the above study, the climate variability of the area has also been studied, and hence, the data series was tested for Mann Kendall Rank Statistical Test. The maximum and minimum temperatures were found to be significant with opposite trends (decreasing trend in maximum and increasing in minimum temperature), while the other three are found in significant with different trends (rainfall and evening time relative humidity with increasing trend and morning time relative humidity with decreasing trend).
Keywords : climate impact, regression analysis, yield and forecast model, sugar models
Conference Title : ICSECG 2023 : International Conference on Social, Economic and Cultural Geography
Conference Location : Barcelona, Spain
Conference Dates : December 18-19, 2023