

CHANGES IN RAINFALL TREND IN KOTTAYAM DISTRICT, KERALA AND ITS POSSIBLE IMPACT ON RUBBER CULTIVATION

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In regions where rubber cultivation is prevalent, rainfall is of great importance as it is one of the major climatic factors affecting latex production from rubber trees. While optimum rainfall can lead to increase in yield by increasing soil moisture, it can also decrease productivity by hindering tapping schedule. A trend analysis of historical rainfall data (1963-2022) of Kottayam district of Kerala was carried out using modified Mann Kendall test. The study period was divided into two, the first period from 1963 to 1992 and the second period from 1993 to 2022. Analysis of data indicated that summer rainfall showed increasing trend while rainy days during southwest monsoon period showed a decreasing trend. While the first period (1963-1992) showed rising trend in rainfall and rainy days in June, second period (1993 to 2022), witnessed a decline in rainfall and rainy days. Rain-free days increased during the southwest monsoon and decreased in October. Additionally, the analysis indicated a rise in heavy rainfall events in the first period, contrasted by an increase in very light rainfall during the second period. Drought analysis of Kottayam region showed that four moderate drought events occurred, one in the first period of study and three in the second period of study. From the 60 year analysis of rainfall it was understood that, in the traditional belt of rubber cultivation, rainfall and rainy days showed a decreasing trend in the annual and southwest monsoon period. Contradictory to the annual and southwest monsoon rainfall, average of summer and northeast monsoon rainfall and rainy days increased during 1993 to 2022 period. Change in rainfall pattern has to be taken into consideration by farmers and policy makers for maximising production from rubber trees.

Keywords: Climate change, Modified Mann-Kendall, Rainfall, Rainy days, Rubber

Climate is one of the major influencing factors for crop production. Usually it is denoted as an average of long-term weather parameters, which include rainfall, temperature, sunshine hours, relative humidity, atmospheric pressure, wind *etc.* Understanding past and present weather has received considerable attention in recent time due to the changing climatic scenarios,

which drastically influence crop production, crop planting and other weather influenced practices. In this changing climatic scenario, rainfall is one of the most influencing weather parameters. Rainfall pattern in an area influences agriculture, industrial, domestic and energy sector demands.

Natural rubber obtained from *Hevea brasiliensis* is an important product of