Rainfall Pattern Changes in Non-traditional Rubber Growing Areas in Sri Lanka

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Rubber cultivation was extended to non-traditional areas of Intermediate and Dry Zones to expand rubber production in Sri Lanka. The most crucial climatic factor in rubber cultivation is rainfall; and agricultural operations are closely linked with rainfall. It is extremely important to study the changes in the rainfall pattern in these areas frequently. This study aims to find the changes in rainfall pattern in selected 11 weather stations which represent non-traditional rubber growing areas. Daily rainfall data of these stations from 1983-2017 were collected from the Meteorological Department. Rainfall anomalies were analyzed using Standardized Precipitation Index (SPI) for 1-month, 2-month, 3-month, 5-month, and 12-month timescales to represent monthly, seasonal and annual rainfall and Mann Kendall test was performed to identify trends in SPI time series. It was observed significant positive trends in 3-month SPI values in Anuradhapura, Wellawaya in Northeast monsoon, and in Muthuiyankaddu during Second inter-monsoon periods, which are recommended seasons for rubber planting in non-traditional areas. Vavuniya has shown a positive trend in 1-month SPI values in March which is recommended for fertilizer application. Whereas, negative trends were observed in 1-month SPI values in Badulla and Muthuiyankaddu in October and July respectively. Therefore, it can be concluded that the probability of having sufficient rainfall during planting and fertilizing seasons is high in Anuradhapura, Wellawaya, Muthuiyankaddu, and Vavuniya and favorable for non-traditional locations of rubber. As Badulla showed a negative trend in rubber planting season implying a risk of drought occurrence, it is advisable to proceed under effective water conservation techniques for rubber plantations in Badulla.

*Key words***:** Non-traditional rubber growing areas, Rainfall, Standardized Precipitation Index, Trend Analysis