

RAINFALL PATTERN CHANGES IN NON-TRADITIONAL RUBBER GROWING AREAS IN SRI LANKA

A dissertation submitted to the

Faculty of Animal Science and Export Agriculture

Uva Wellassa University

In partial fulfillment of the requirements for the award of
Bachelor of Science in Palm & Latex Technology and Value Addition

By

**WANASINGHE MUDIYANSELAGE SACHITHRA THAMALI
WANASINGHE**

Palm & Latex Technology and Value Addition Degree Programme

Faculty of Animal Science and Export Agriculture

Uva Wellassa University of Sri Lanka

2019

ABSTRACT

Rubber cultivation was extended to non-traditional areas of Intermediate and Dry Zones to increase the 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 continuously. 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 to 2017 were collected from Meteorological Department. Rainfall anomalies were analyzed using Standardized Precipitation Index (SPI) for 1 month, 2 months, 3 months, 5 months and 12 months timescales and Mann Kendall test was performed to identify trends in SPI time series. It was observed significant positive trends in 3 months SPI values in Anuradhapura, Wellawaya in Northeast monsoon and in Muthuiyankaddu Kulam 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 Anuradhapura, Badulla and Muthuiyankaddu Kulam in May, 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 Kulam and Vavuniya and it is favourable for non-traditional locations of rubber. As Badulla showed a negative trend in rubber planting season, there is a risk of drought occurrence which needs to be among concerns of rubber plantations in Badulla.

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