

Interference of Tapping due to Rainfall and Effectiveness of Rain Guards Under Different Rainfall Scenarios: A Case Study in the Dartonfield Rubber Estate

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Well distributed moderate rainfall is essential for good growth and production of rubber trees. However, rainfall may be a limiting factor for tapping activity, as most of the rubber plantations of Sri Lanka are spreaded in the Wet Zone, where the annual rainfall is greater than 2500 mm. And thus an average of 35% of potential yield of rubber is lost due to interference of rain. In this context, rain guards have been introduced to reduce the yield loss during rainy periods. Therefore, this research study was conducted to evaluate the rainfall interference on tapping and the effectiveness of rain guards under different rainfall scenarios, as a case study in the Dartonfield Rubber Estate, RRI, Agalawatta. Hence, rainfall distribution was identified with the help of annual rainfall, annual wet and dry days and average monthly rainfall. Further, trend analyses were done for different rainfall parameters using Mann — Kendal Test. Through, a regression analysis, the most important rainfall characteristics that affect tapping and the relationship of these characteristics with tapping were determined. Moreover, the economic benefits that can be obtained by fixing rain guards were also assessed. The results revealed that the average annual rainfall at Dartonfield is 4156 mm, together with more years having wet days above 200. Mostly during evenings and nights, rains have fallen in the whole year. Further, during April to November, there have been more than 18 rainy days. The regression analysis results revealed that, under without rain guards situation, the significant rainfall characteristics affect tapping were total rainfall duration of previous day and intensity of rains fallen during 3.00 am to 9.00 am period. The significant rainfall characteristics affect tapping under rain guarded situation were highest intensity of rain and total rainfall duration on previous day. Further, the comparison done for checking the possibility of tapping under with and without rain guards revealed that, the tapping can be practiced on additional 28 rainy days by fixing rain guards, leading to an additional income of Rs. 1,19,365/ha according to the crepe rubber price of 13th September 2015. Moreover, the rain guard establishment cost can be recovered from the earnings of 6 tapping days.

Keywords: Different rainfall scenarios, Rainfall interference, Rain guards, Rubber Plantations, Tapping