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Development of a relationship between a drought index and its impacts on rubber yield in wet zone

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A significant change in worldwide crop production has resulted through the severity and frequency of extreme weather events like droughts. This study was undertaken to build up relationships between the rubber yield per tree per tapping with independent weather variables and a drought index incorporating the ratio between the potential evapotranspitation and precipitation. From four estates in the Ratnapura and Kalutara districts representing the wet zone,meteorological and productivity data were obtained for the period 2002–2015. Before selecting the final predictors any autocorrelation in the residuals was checked. Regression analyses between the rubber yield per tree per tapping and selected final predictors were carried out. According to the results, the drought index two months before the current month impacted negatively on the current month's rubber latex yield per tree per tapping in the wet zone. When the relationship of rubber latex yield per tree per tapping with the independent weather variables was considered, a negative correlation with the minimum temperature and a positive correlation with the precipitation two months before the current month resulted. To predict the rubber yield per tree per tapping the model relationships derived for the wet zone could be used. It would also assist decision making to mitigate the drought effects on rubber yield and support policymakers to strengthen rubber exports.

Keywords: Potential evapotranspiration, precipitation, drought index

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