

SRI LANKA

Seasonal Impact of Climate on Tea Production in Sri Lanka

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We investigated the impact of the seasonality of climate (rainfall, minimum and maximum temperature) on seasonality of tea production in Sri Lanka as a step towards an analysis of extreme events. We have taken some safeguards to account for the trends in temperature and production in the recent decades. Monthly averages of variables were taken for 1960-1990 and 1991-2016 to estimate the climatology. Tea production has a bimodal seasonality- the major mode with peak of 25 million MT is from March to June and the secondary mode with a peak is from September to January (22 million MT) for 1960 to 2008. Seasonally tea production peaks one month after rainfall peaks.

Correlation analysis of the production with rainfall, minimum and maximum temperature (leading by one month) showed very high significance in some months. The February to April production had a highly significant correlation with rainfall and maximum temperature. The production in July to August was correlated with June to July maximum temperature. The October to December production was highly correlated with the minimum temperature from September to November. Thus, there is clear statistical evidence for the substantial influence of rainfall, maximum and minimum temperature on tea production for selected seasons. In work not included here, we find there is a strong regional variation in the seasonality. Thus, the relationships reported on aggregate for production mask the impact of climate on tea. These and other findings reported here shall enable us to identify the impact of extremes and develop climate based statistical models for yield predictions.