

**ANALYZE THE DROUGHT IN LOW ELEVATION
TEA AREAS AND EVALUATE OF IRRIGATION
AS A TOOL OF DROUGHT MITIGATION**

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ABSTRACT

In low elevation tea growing areas of Sri Lanka, drought causes significant yield reductions and sometimes death of tea plants during the comparatively short dry period between January and March. One prominent feature associated with drought is the high ambient temperature which sometimes research more than 33⁰C. Also tea plant is most vulnerable to climate changes and associated drought conditions, when compared with other perennial crops in Sri Lanka.

A research was carried out to investigate the drought low elevation tea growing areas with following objectives:

Analyze the drought in low grown tea (Rathnapura district) and evaluate the feasibility of irrigation as a tool of low grown tea industry.

Identify the yield gain via irrigation and yield gain differences of both (TRI 2023/ TRI 3025) tea cultivars, financial evaluation of cultivars base on the incensement for low country

We extracted the yield data from a long term irrigation experiment, conducted by Tea Research Institute and analyze the response of low grown tea for the irrigation. TRI 2023/ TRI 3025 were used for this long term experiment. Identify the most significant metrological parameter(s) affecting drought, by doing a simple regression analysis and multiple regression analysis by using Minitab 15 software and identify the most significant factor comparing P values. Identified the relationship between metrological parameters and irrigated and Rain fed yield by doing Co relation analysis. Evaluate the feasibility of irrigation by doing a Two Sample way T Test. Financial evaluation was performed to identify which cultivar has most significant effect based on incensement of yield via irrigation.

Maximum temperature is the most significant individual variable affecting yields for both TRI 2023 and TRI 3025, Multivariable (T Max + RF + Sunshine hours+ T min) P value 0.008 for TRI 2023 and P value 0.000 for TRI 3025. Based on Two way T test, there was a significant yield difference between irrigated and rain-fed yields of both TRI 2023 And TRI 3025 (P value less than 0.05). Based on the yield incensement rate because of irrigation TRI 2023 is most suitable when comparing TRI 3025.

Key wards- Drought, Irrigation, Mitigation, Cultivars, Drought susceptible