

**TRENDS OF RAINFALL AND TEMPERATURE OF RICE GROWING AREAS IN DRY AND INTERMEDIATE ZONES OF SRI LANKA AND THEIR ASSOCIATIONS TO THE RICE YIELD**

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Trend analysis of rainfall, temperature and crop yield data and associations among them are useful information for the agricultural planning of a country especially in relation to climate change and variability. This study investigates the trends of rainfall, temperature, rice yield, and their possible associations in the dry and intermediate zones of Sri Lanka for a period of 30 years. Innovative Trend Analysis (ITA) and Mann Kendall test (MK) with Sen's slope estimator were used as trend analysis techniques. The relationships between trends in rainfall, temperature with rice yield were studied by correlation analyses. MK tests showed that there were an increasing trend of rainfall for 76.31%, 31.57% and 84.21% stations during annual, *Yala* and *Maha* rainfall respectively, while ITA exhibits 81.57%, 36.84% and 84.21% for the same time scales. Both ITA and MK tests confirmed increasing trend of rice yield of all the stations tested except for *Baticoloa*. A positive correlation was detected between annual rice yield and annual rainfall for 68.42% of the stations tested, while *Kanukkeni*, *Kanthalai*, *Medawachchiya*, *Thissamaharamaya* and *Wellawaya* stations indicated a statically significant positive correlation ( $p < 0.05$ ). Moreover, a positive correlation exists between rice yield and rainfall during *Maha* season at 68.42% of stations, while 26.31% of stations showed a positive correlation between rainfall and yield during *Yala* season. The study concludes that the increasing trend of rice yield especially during *Maha* season could be partially attributed by the increasing trend of rainfall in the dry and intermediate zone of Sri Lanka.

**Keywords:** Dry and intermediate zone, Innovative Trend Analysis, Mann Kendall test, Rainfall, Rice yield