GROWTH, YIELD, AND QUALITY OF ORGANICALLY AND CONVENTIONALLY MANAGED TEA IN QUEENSBERRY ESTATE, SRI LANKA

W.A.K.Y. Pemalal[1], W.M.R.S.K. Warnasooriya[1], U.S. Herath[1], V.A.T. Prabashwara[2] and S. Nanayakkara[2]

[1]Department of Plant Sciences, Faculty of Agriculture, Rajarata University of Sri Lanka, Puliyankulama, Anuradhapura, Sri Lanka.
[2]Dilmah Conservation, Dilmah Ceylon Tea Company PLC, Negombo Road, Peliyagoda, Sri Lanka.

Sri Lanka being a leading tea producer and the world's first organic tea producer, an opportunity exists to expand the organic tea cultivation. This can be promoted by assessment of organic and conventional tea. The present study assessed the growth, yield, and quality of organically and conventionally managed tea at Queensberry Estate, Nawalapitiya, Sri Lanka. Mature tea field of cultivar DN, grown as organic with zero inputs (T1) and conventional with chemical inputs (T2) were assesed. Treatments were arranged in RCBD in triplicate. Growth and yield parameters were measured weekly. Soil and leaf samples were analysed. Sensory evaluation with five untrained panellists was conducted for quality assessment of made tea. Data were analysed by ANOVA, while sensory data were subjected to the Friedman test. Results revealed that soil available nitrogen was significantly greater ($p<0.05$) in conventional treatment than the organic treatment with zero inputs. Similarly, leaf total nitrogen content in T2 was significantly greater ($p<0.05$) than T1. As influenced by the nutrient status, leaf area, mean shoot length and shoot growth rates were significantly ($p<0.05$) higher in T2 compared to T1. Mean number of shoots in 100 g of flush was significantly greater ($p<0.05$) in organic treatment with zero inputs which may be due to the presence of more *banji* shoots. Leaf chlorophyll content as measured by SPAD value and yield were not significantly different ($p>0.05$). Sensory evaluation revealed that T2 has better quality characters ($p<0.05$) than T1. In conclusion, growth, yield and made tea quality of conventionally managed tea in Queensberry estate is better than organically managed tea with zero inputs. Hence, a long-term application of organic inputs is suggested to achieve sustainable growth and yield performances of organic tea.

Keywords: Leaf nitrogen, Made tea, Shoot growth, Soil nitrogen, Zero inputs