

## POST PRUNE RECOVERY, SHOOT EXTENSION AND GROWTH OF TEA GROWN UNDER ORGANIC, BIODYNAMIC AND CONVENTIONAL SYSTEMS

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Commercial tea cultivation heavily depends on synthetic fertilizers and pesticides in local context. Growing ecological awareness and concerns over reliance of synthetic inputs, has given rise to more environmental friendly organic and biodynamic tea cultivation systems.

Although Sri Lanka has pioneered in organic tea cultivation, there are more debatable issues about the feasibility and sustainability of organic tea production due to scarcity of scientific evidences. Therefore this study on close monitoring of post prune recovery, shoot extension and growth of tea grown under organic, biodynamic and conventional systems were performed with the aid of existing long term BIDORCON and TRIORCON trials laid out at the Tea Research Institute of Talawakelle.

During the period of study soil fertility and plant nutrition status, pest and disease incidences, and plant growth indicators, which affect on the post prune recovery were monitored.

Organically treated bushes had the significantly higher ( $P=0.05$ ) shoot extension and soil organic carbon content. Total leaf nitrogen content also was highest in organically managed plants and the higher soil nitrogen content was showed by the biodynamically and organically treated soil respectively. Under pest and disease damage evaluation, conventionally treated plants showed the highest susceptibility to shot hole borer (SHB) attack by giving highest gallery percentage. Bushes under biodynamic treatment were found to have maximum dry weight/fresh weight ratio of prunings (37.03%) while conventionally treated bushes posed the significantly higher collar girth per bush. The highest shoot extension rate (1.19 mm/day) performed by the organically managed bushes and thereby showed the comparable post prune growth. In overall, organically and biodynamically managed tea had ability to recover after pruning as same as conventionally grown tea and those are comparable alternatives for conventional tea cultivation.

*Key words:* Tea cultivation, Organic tea, Biodynamic tea, Soil fertility, Plant nutrition