

## AMELIORATION OF HIGH SOIL pH LEVELS IN ORGANICALLY MANAGED TEA LANDS THROUGH SULPHUR AMENDMENTS

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Organic inputs tend to increase pH in organic tea soils. A series of experiments were conducted to lower the pH in organic tea soils through sustainable means. The pH levels were correlated with yield; prune time and post prune assessments. An organic tea soil with high pH was ameliorated using sulphur amendments alone and incorporated with compost. Effects on soil microbial activity and plant performance of *Beans*, *Sesbania* and *Arachis* were also evaluated. The results revealed that, increased soil pH had negatively affected the growth and yield of organic tea as assessed through prune time and post prune measurements. The variation of soil pH by 1, caused a yield drop of fresh tea by 8%. The efficiency of soil pH reduction was better in elemental sulphur with compost. The rate of application per bush was 45 g of elemental sulphur and 300 g of compost. Treatment of elemental sulphur revealed a pH reduction of 7.66, 4.88, 3.27 and 2.19% after 10, 20, 30 and 40 days from treatment and the soil pH reduction effect was 3.89, 8.03, 4.46 and 2.6% when elemental sulphur was applied with compost. Hence, soil treatment of sulphur is beneficial when mixed with compost and also practically feasible and cost effective. Elemental sulphur applications did not cause any harmful effect on plant performance and significantly increased soil microbial activity. *Hydrangea macrophylla* was used as a bio-indicator of soil pH. Its bloom colour ranges as blue in pH < 4.5, pink in pH > 6.0 and green or blue mixed white in between 4.5- 5.5 pH, that is optimum for tea. Generally, use of elemental sulphur proved as an ideal solution to avoid limiting growth and yield, due to high pH in organically grown tea.

**Key words:** Compost, Elemental sulphur, Soil pH, Optimal pH range, Organic tea soils