

SULPHUR STATUS IN COCONUT ESTATES IN GAMPAHA DISTRICT, SRI LANKA

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Sulphur (S) is an essential macronutrient for plants which plays an important role for growth and development while maintaining the copra quality of coconut palms. Nevertheless, incessant removal of soil S through various parts of coconut palms without replenishment may cause adverse effects to coconut industry in future. Therefore, this study was focused to assess the status of S in coconut estates in Gampaha district in order to identify the need for S application to coconut plantations in Sri Lanka. Twelve coconut estates were randomly selected in Gampaha district and representative soil samples were collected from each coconut estate and analyzed for pH, available S, total S and organic matter content. Leaf samples were collected from the 14th frond of the same palms from which soil samples were obtained and they were assessed for total S contents using the standard methods. One sample t-test was conducted using the SAS 9.1.3 statistical package in order to identify the difference between the leaf S contents of studied samples and sufficiency range of leaf S in coconut. Soil pH of all the studied estates varied from 4.13 to 7.26 depicting the soil is slightly acidic to neutral. Soil available S content of manure circle of selected palms ranged from 5.75 to 150.23 mg/kg in 0-20 cm depth and 4.24 to 135 mg/kg in 20-40 cm depth. The total S contents have varied within the range of 104.54-572.72 mg/kg in 0-20 cm depth and 106.09-596.96 mg/kg in 20-40 cm depth. Moreover, leaf S contents of studied estates ranged from 0.08% to 0.48% and out of the studied samples 33% showed lower S content than the sufficiency range (0.15-0.21%) suggesting that there is a possibility of having a risk of S deficiency in coconut estates in future. Therefore, it is important to monitor the S dynamics and identify the requirement of external application of S before palms show S deficiencies.

Keywords: Coconut palms, Macronutrients, Manure circle, Sufficiency range, Sulphur dynamics