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### Reducing the gap of actual and expected yields of Cashew

K.C. Guruge and H.M.I.K. Herath\*

*Department of Plantation Management, Faculty of Agriculture and Plantation Management,  
Wayamba University of Sri Lanka, Makandura, Gonawila (NWP), 60170, Sri Lanka*

Cashew (*Anacardium occidentale* L) is a valuable cash crop in Sri Lanka. There is an unmatched gap between the actual (4-5 kg/tree/year) and the expected yields (15 kg/tree/year) set by the Cashew Corporation, Sri Lanka (CCSL). One of the main causes for low yield is the insufficient nutrient supply. This study aimed to calculate the nutrient requirement of cashew plantations considering nutrients inflows and outflows and to reduce the yield gap by using organic and conventional fertilizers. Nutrient budget was calculated based on nutrient inflows that are fertilizer application and soil nutrient status. Nutrient outflows are consumption by tree, removal by yield as cashew nut, and other losses. Ten years (2010-2020) yield records obtained from plantations of CCSL. The off-take nutrients were calculated by laboratory analysis of harvested nuts. Published data used to assess the nutrient requirements for different growth stages of trees. The nutrient budget was calculated and conventional fertilizer requirement was calculated under two scenarios. The first scenario assumed no loss of nutrients from the system. Second scenario assumed that the loss of nutrients is equal to the nutrients supplied through the soil. According to the current practices nutrients from leaf litter, flowers and cashew apples were considered as recycled for both scenarios. The harvested nuts contained 1.97% Nitrogen (N), 0.24% Phosphorus (P), and 0.68% of Potassium (K). The plant dry weight increment in terms of N, P and K was 3000 g/tree/year, 494 g/tree/year, and 1776 g/tree/year, respectively. Soil analysis showed that soil nutrient content was very low as 0.19% of N, 5.21 ppm of P and 4.60 ppm of K. These data were used to get the organic and conventional fertilizer requirements for cashew by calculating the nutrient budget. As the required conventional fertilizer for expected yield in the first scenario, could be supplied either cattle manure- 233.7 kg/tree/year or broiler litter- 101.0 kg/tree/year or layer litter- 143.8 or compost- 340.0 kg/tree/year. Fertilizer requirement for the second scenario could be either cattle manure- 234.2kg/tree/year or broiler litter- 149.5 kg/tree/year or layer litter- 153.1 kg/tree/year or compost- 340.6kg/tree/year. This application could help to minimize the unmatched gap in cashew between the current and expected yields.

\*kcguruge123@gmail.com