

**ASSESSMENT OF THE FIELD PERFORMANCE OF A  
NEW FERTILIZER APPLICATOR (WHEEL MASTER)  
AND ITS EFFECT ON GROWTH & YIELD OF TEA  
(*Camellia sinensis* L.)**

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## ABSTRACT

With the severe labor scarcity experienced by the tea growing sector of Sri Lanka, all tea field operations have been affected. Machines are getting popularized among the tea growers for various field operations. However, fertilizer applicators can hardly be found in the local market designed for tea plantations, because of tea lands have steep slopes, hard soil, and tea is a perennial crop. Newly introduced tea fertilizer applicator (Wheel Master) is a simple and light weight tool which enables deep (3-4 inch) application in mature tea lands. Manual fertilizer is applied following surface broadcasting method. Therefore, the present study was planned to compare manual and mechanical fertilizer applications and their effect on tea growth and yield. The study was carried out at TRI, Low Country Station, Ratnapura with the treatments, T1 - Manual Full application (Control), T2 - Manual Half application, T3 - Applicator Full application, T4 - Applicator Half application (Full application is TRI recommendation i.e. =25 g/bush and Half = 12.5 g/bush)). Experiment was analyzed in Randomized Completely Block Design (RCBD) with two factor factorial with 3 replicates. Total tea yield, shoot compositions of harvest (Counts and weight of 1L, 2L, 3L, 4L, Banji and Damage), Shoot composition of plucking table before harvesting are Counts of Fish, 1L, 2L, 3L, 4L, Banji were recorded over a period of three months. Soil Nutrient distribution was checked by pre sampling soil, 6 weeks after 1<sup>st</sup> treatment application (WAA), 6 WAA 2<sup>nd</sup> treatment were recorded during a period of three months, and continuously 6 weeks period to study the nutrient retention period. Finally the machine performances were observed. The applicator used 3 LPH compared to 2 LPH for manual fertilizer application. The applicator was not able to save fertilizer compared to manual application. The new applicator could not increase the distribution of nutrients in the soil profile and found to be inferior to manual broadcasting of mature tea fertilizers. However, applicator has some signs of improved soil N and K in deep soil layers. Applicator needs improvements in proper (even) dosage selection, easier and fast mechanism of refilling and applying fertilizer into much deeper layers in the soil. Both methods showed the same effects.

Key words: Labor shortage, Fertilizer application, Fertilizer applicator, Tea yield