

# **COMPARATIVE ANALYSIS OF MECHANICAL AND MANUAL HARVESTING OF TEA**

A dissertation submitted to the  
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By  
**GARU MUNI PATHMI KANTHI**

**Faculty of Animal Science and Export Agriculture  
Uva Wellassa University**

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## ABSTRACT

The purpose of this study was focused on the evaluation of mechanical tea harvesting strategies versus manual tea harvesting strategies to provide sensible information for early management decisions concerning mechanical harvesting. This was accomplished through an economic comparison of mechanical and manual harvesting of tea in the Uva region. Consideration was given to the economic and quality aspects of mechanical tea harvesting upon both growers and processors.

Two types of mechanical harvesters (TRI Selective tea harvester-shear, Battery charged machine harvester) were evaluated in contrast to the manual harvesting. Experimental design was the RCBD design that followed 3 treatments, 3 replicates and 3 blocks. Independent variable was the method of harvesting. Profitability of each method was reviewed by concerning the various aspects of output including the indicators for productivity and quality. Those dependent variables are the yield ( $\text{Kg Ha}^{-1}\text{Round}^{-1}$ ), Acceptable flush (%), Harvesting capacity ( $\text{Ha Day}^{-1}\text{Labour}^{-1}$ ), Productivity ( $\text{Kg Day}^{-1}\text{Labour}^{-1}$ ), Cost component 01 ( $\text{Cost Ha}^{-1}\text{Round}^{-1}$ ), Cost component 02 ( $\text{Cost GL}^{-1}$ ). Quality of harvested green leaves was monitored by concentrating on harvesting policies and shoot growth pattern.

Result of General Linier Model was indicated that, productivity and harvesting capacity were much higher at machine harvesting in compare to other two approaches where acceptable flush% was much lower at machine harvesting. Manual harvesting and shear harvesting had an approximately equal and greater yield component where it was much lower in machine harvesting. And also continuous machine harvesting was leading a continuous decline of yield at the later part of plucking rounds. Cost component 02 was much lower in shear harvesting where cost component 01 was much lower at machine harvesting. Machine harvesting was lead the lack of maintenance in plucking policies, extended plucking rounds and low growth rate of shoots where it was comparatively in a superior level at shear but not more than manual harvesting. Therefore the shear harvesting shows more benefits which concentrating on quality output and economic sustainability towards the better harvesting approach that critically addressed the current scenario in tea plantations.

*Key words:* Plucking round, Harvesting, Shoot, Yield, Cost