

**EVALUATION OF YIELD LOSS IN DIFFERENT PADDY
VARIETIES AND COMBINE HARVESTER TYPES IN THE
MANMUNAI WEST DS DIVISION BATTICALOA DISTRICT OF
SRI LANKA.**



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ABSTRACT

This study evaluated the yield loss in different paddy varieties and combine harvester types in the Manmunai West Divisional Secretariat Division of the Batticaloa District, Sri Lanka. The research employed a factorial randomized complete block design (RCBD) with three rice varieties (Bg 94-1, Bg 366, and Bg 374) and three combine harvester models (Kubota DC-70G Pro, Yanmar YH 850, and Sumo Stainless), alongside manual harvesting as a control. Data was collected on total yield loss, grain moisture content, panicle length, and panicle paddy count, with all measurements conducted under standardized field and machine conditions. Statistical analyses, including ANOVA, Tukey's HSD, and correlation tests, were performed to determine significant differences and relationships among factors.

The results revealed that total yield loss ranged between 3.77% and 9.01%, with an overall mean of 6.32%, indicating that combine harvesting under optimal conditions performs within acceptable operational thresholds. Grain moisture content averaged 19.65%, falling within the ideal range (18–22%) for mechanical harvesting. Varietal differences were modest, with Bg 94-1 achieving the highest mean yield (116.5 g/0.025m²) but slightly greater losses, while Bg 366 and Bg 374 showed balanced performance. Correlation analysis revealed weak, nonsignificant associations between total yield loss, panicle length and grain-bearing.

The findings underscore the importance of matching harvester settings with varietal characteristics and maintaining optimal field conditions to minimize losses. The study contributes practical recommendations for improving mechanized harvesting efficiency, reducing post-harvest losses, and enhancing the productivity and profitability of paddy farming in Sri Lanka.

Keywords:

Combine harvester, Harvest efficiency, Mechanized harvesting, Rice varieties, Yield loss

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