

DEVELOPMENT, FABRICATION, TESTING AND EVALUATION

OF A REAPER WINDROWER ATTACHMENT

By

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Thesis

Submitted in partial fulfilment of the requirements

for the degree of

MASTER OF PHILOSOPHY

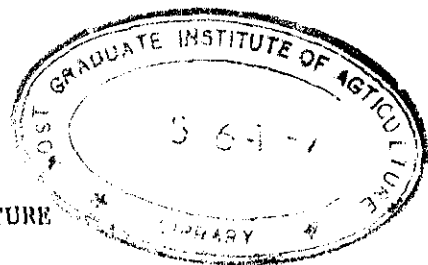
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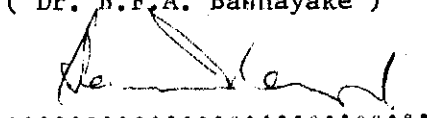


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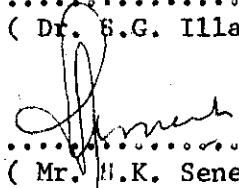
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ABSTRACT

A simple, low cost reaper-windrower for paddy harvesting was developed and fabricated at the Farm Mechanization Research Centre, Maha Illuppallama, using the Chinese concept of vertical plant conveyance. The reaper-windrower, which was mounted on to a power tiller, was tested and evaluated in the yala and maha in Mahaweli systems C and H.

The machine harvesting capacity in the field tests was 0.205 ha h⁻¹ and the fuel consumption was about 2.64 litre ha⁻¹. The total harvesting loss was low (0.85%) and the quality of windrow was good, as it laid the cut crop with all panicles in one direction; collection by hand was therefore easy. The machine requires about four persons for continuous operation (an operator, two helpers and one extra operator). The labour and monetary savings resulting from the use of the reaper-windrower, compared to traditional manual harvesting, were about 148 man hours and about Rs 184 per hectare respectively.

According to benefit-cost and break-even point analysis, it was found that investment in the reaper-windrower is profitable.