

**TECHNICAL AND ECONOMIC EVALUATION OF ROBUSTA COFFEE
SORTING MACHINE AT CAVITE STATE UNIVERSITY
COFFEE PROCESSING CENTER**

Undergraduate Thesis
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College of Engineering and Information Technology
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Bachelor of Science in Agricultural Engineering

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ABSTRACT

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The main objective of the study was to evaluate the technical and economic performance of the coffee sorting machine at the Cavite State University Coffee Processing Center. Specifically, it aimed to establish the technical specification of the coffee sorter; determine the effect of hopper opening on the sorting capacity and sorting efficiency; recommend ways on how to improve the performance of the coffee sorter; and conduct a cost and return analysis of the coffee sorting machine.

The independent variable used in the study was the opening of the control valve. The opening was evaluated at 4 levels: $\frac{1}{4}$ opening, $\frac{1}{2}$ opening, $\frac{3}{4}$ opening and full opening. The dependent variables included the duration of sorting test, output capacity, and sorting efficiency. Robusta coffee green beans were used as raw materials in the study.

The highest output capacity of 9.08 kg/min was obtained at full opening of the hopper. The highest total sorting efficiency of 99.26 % was obtained in 38.10 mm hopper opening, equivalent to $\frac{3}{4}$ " of the full hopper opening.

The sorter have a payback period of 1.26 years and breakeven point of 69, 644.8 kg of sorted beans/year. The benefit cost ratio has a value of 1.37 which means that coffee sorting machine is a good investment.