



Optimization of Machine Parameters for Grading of Sapota through Trommel Screen Grader

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Abstract: The present work was conducted to determine physical properties of sapota (*Achras Sapota*) and to evaluate the performance parameters of a mutifruit grader for the grading of sapota. The performance was evaluated in terms of separation efficiencies for each grader and overall grading efficiency at feed trough angles 3.8°, 7° and 9.5° and speed of 14, 17 and 22 RPM for power operated grader and manually operated grader. The optimization of machine parameter was done using design expert 7.0 software. The maximum value of actual capacity and grading efficiency at optimized condition was obtained as 269.4 kg ha⁻¹ and 93.58 % respectively for power operated grader. Results of cost analysis shows lesser cost of grading (Rs 12.84 qt⁻¹) by power operated grader as compared to manually operated grader (Rs 19.51 qt⁻¹).

Keywords: Optimization, Trommel screen, Grading, Efficiency
