MULTI-PURPOSE GRATING MACHINE

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ABSTRACT

MUNCAL, VIANCA MAE C., Department of Agricultural and Biosystems Engineering, College of Engineering, Central Luzon State University, Science City of Muñoz, Nueva Ecija, Philippines, **JUNE 2023**, **MULTI-PURPOSE GRATING MACHINE**

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In this study, a multi-purpose grating machine has been developed, and its performance has been evaluated and analyzed. The machine was designed for multi-commodity grating, high throughput capacity, easy assembly, and disassembly, and reduction of grating time. The performance evaluation of the grating machine was conducted to establish its capacity, efficiency, power consumption, size reduction, and distribution based on the Philippine Agricultural Engineering Standard for the multi-crop grater. A belt and pulley combination design was adopted as primary power transmission mechanism.

Using a 5 mm abrasive hole size, the grating capacities for turmeric and bamboo shoots were found to be 30.13 kg/hr and 22.24 kg/hr, respectively. Grating efficiencies for turmeric and bamboo shoots were found to be 92.62% and 84.72%, in average respectively. The energy consumption were measured to be 0.1167 kW-hr and 0.2478 kW-hr per kilogram of turmeric and bamboo shoots, respectively.

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