

Title: Development of Fabricated Laboratory Scale Extruder Machine for the Production of Rice-like Grains from Cassava (*Manihot esculenta Crantz*) Dough.

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Developing a laboratory scale extruder machine in producing rice-like grains from cassava dough was done to enhance the efficiency, recovery, and profitability in contrast to manual batch production using pasta maker. Three screw speeds (40 rpm, 50 rpm, and 60 rpm) were evaluated to determine the optimum performance of the machine. The optimum performance was based on the result of the machine capacity and the physical properties of grains (size, width, shape, color, and hardness).

The fabricated extruder machine has an efficiency that ranged from 88.38% to 93.86% with overall cassava dough recovery of 78.13%. Thus, the efficiency was enhanced by 2.33% to 8.67% while the overall dough recovery was improved by 160.43% based on the capacity and throughput using the fabricated extruder machine in comparison with 86.37% efficiency and 30% overall recovery of the manual operation using pasta press. The optimum performance of the machine is at 40 rpm screw speed with a desirability of 91.7%.

Furthermore, the economic analysis and value engineering of the machine showed that the machine is economically viable with Internal Rate of Return of 45.87% for a period of 10 years and demonstrated a performance value that was greater than the cost of machine fabrication.

Biography:

Richelle Mae D. Mendoza graduated her bachelor's degree in Agricultural Engineering from Mindanao State University- General Santos City as Cum Laude. She pursued her master's degree in Agricultural Engineering at University of the Philippines – Los Baños. She hopes to share her knowledge in agricultural engineering in the academe and in the research world.

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