

**PERFORMANCE EVALUATION OF SEED COATING MACHINE
FOR NANOCOATING APPLICATIONS**

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**BACHELOR OF SCIENCE IN AGRICULTURAL AND BIOSYSTEMS
ENGINEERING
(AB Machinery & Power Engineering)**

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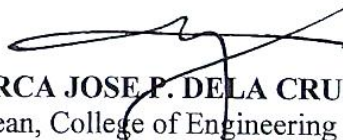
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BIOGRAPHICAL SKETCH

Nina Elaine M. Ursula, the second child of Mr. Ely C. Ursula and Mrs. Amelia M. Ursula was born on July 12, 2000 and resides at Barangay Kalaklan, Olongapo, Zambales having an older brother and two younger sisters. She was raised to live simple and humble in every aspect of life and put God as the center of her Life.

She completed her elementary education at Sergia Soriano Esteban Integrated School of Kalaklan on 2012 as valedictorian. She entered Regional Science High School III for Junior and Senior High School where she graduated with honors on 2018.

To reach her dream, she pursued her tertiary education on the same year at Central Luzon State University and chose Bachelor of Science in Agricultural and Biosystems Engineering (BSABE). Her college life was well spent and full of challenging lessons that molded her to become an educated and wise person.

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ABSTRACT

URSULA, NINA ELAINE M., Department of Agricultural and Biosystems Engineering, College of Engineering, Central Luzon State University, Science City of Muñoz, Nueva Ecija, Philippines, **June 2024**, **PERFORMANCE EVALUATION OF SEED COATING MACHINE FOR NANOCOATING APPLICATIONS.**

Adviser: Engr. John Vincent A. Nate, M.Sc.

This study assesses the performance of a seed coating machine developed for nanocoating applications to improve seed handling and storage. Built with locally sourced materials and technology, the machine features components such as a hopper, container, spiral baffle, spraying mechanism, AC motor, discharge port, and frame, measuring 180 cm in height, 100 cm in width, and 150 cm in length.

The throughput capacity was notably affected by coating time, with shorter times yielding higher seed weights for both soybeans and rice. Coating efficiency increased with longer times and lower application rates, though this also raised the risk of seed damage. For soybeans and rice, peak efficiencies were 95.23% and 94.72%, respectively, with minimal damage at lower application rates.

Analysis showed that coating time and application rate significantly influenced coating efficiency. The study highlights the importance of optimizing these parameters to enhance seed coating processes, underscoring the machine's potential to boost agricultural productivity and ensure food security.

Keywords: seed coating machine; nanocoating solution; throughput capacity, coating efficiency; seed damage percentage

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