

**DEVELOPMENT AND EVALUATION OF A MECHANICAL PELLETING  
MACHINE FOR POULTRY MANURE**

**MARY LYN C. GALLARDO  
MARY ROSE D. GALLARDO**

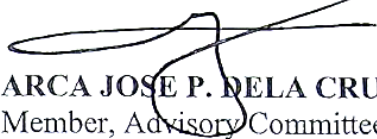
An Undergraduate Thesis Submitted to the Faculty of the Department of Agricultural  
and Biosystems Engineering, College of Engineering, Central Luzon State  
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for the Degree of

**BACHELOR OF SCIENCE IN AGRICULTURAL AND  
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(AB Machinery and Power Engineering)**

**JULY 2024**

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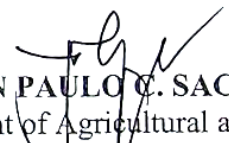
  
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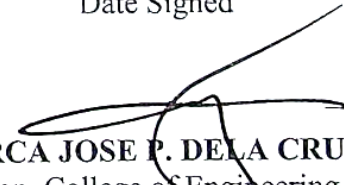
  
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## **BIOGRAPHICAL SKETCH**

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Continuing her academic journey, she enrolled in Central Luzon State University, undertaking a Bachelor of Science in Agricultural and Biosystems Engineering with a major in AB Machinery and Power Engineering. This choice reflects her passion and determination to enhance her skills and knowledge in this specialized field.

## **BIOGRAPHICAL SKETCH**

The author, Mary Rose D. Gallardo, was born on May 24, 2001. She currently resides at Purok 5, Matingkis, Science City of Muñoz. She is the third child among four siblings in the household of Mr. Cesar O. Gallardo and Mrs. Perlita D. Gallardo.

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To God be all the Glory! Thank you!

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To God be all the Glory! Thank you!

MARY ROSE D. GALLARDO

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## ABSTRACT

**GALLARDO, MARY LYN CUSTODIO & GALLARDO, MARY ROSE DOMINGO**, Department of Agricultural and Biosystems Engineering, College of Engineering, Central Luzon State University, Science City of Munoz Nueva Ecija, **July 2024. DEVELOPMENT AND EVALUATION OF MECHANICAL PELLETING MACHINE FOR POULTRY MANURE.**

Adviser: RUEL G. PENEYRA, M.Sc.

The rapid expansion of the poultry industry has led to significant challenges in managing the vast amounts of waste generated. This study addresses these challenges by developing a mechanical pelleting machine for poultry manure, converting it into nutrient-rich organic pellet fertilizer. The study was conducted to test and evaluate the performance of the machine in terms of pelleting capacity, pelleting recovery, and moisture content of the output. The final testing of the study was conducted at CLSU Layer Poultry, Central Luzon State University, Science City of Muñoz, Nueva Ecija, from March to May 2024. The developed pelleting machine, with a capacity of 17.5 liters. The machine's prime mover was gasoline engine with a speed reducer attached. The machine was fabricated using locally available materials, mainly steel, further emphasizing the practical approach. The treatments made in the performance evaluation of the machine were the different initial moisture content and different speeds of the conveyor. The lowest pelleting capacity was obtained at low speed-semi dry with 59.49 kg/hr and the highest pelleting capacity was obtained at high speed-slurry type with 85.9 kg/hr. The lowest pelleting recovery was obtained at low speed-semi dry with 76.9 % and the highest pelleting recovery was obtained at high speed-slurry type with 89.35 %. The

treatments were analyzed using factorial Analysis of Variance with a Completely Randomized Design (CRD) and the comparison among means was done using Least Significant Differences.

Keywords: Pelleting machine, pellet fertilizer, poultry manure

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