

**PERFORMANCE EVALUATION OF MOTORIZED
PADDY FIELD WEEDER FOR ROW
PLANTED RICE**

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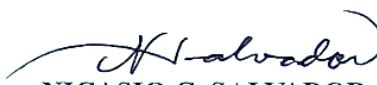
**BACHELOR OF SCIENCE IN AGRICULTURAL
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(Major in AB Machinery and Power Engineering)**

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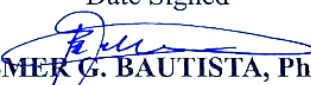

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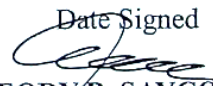
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BIOGRAPHICAL SKETCH

The Author, **Lloyd Asly Hulipas Alamani** is the son of Alvin P. Alamani and Rodelyn H. Alamani. He is an only child and was born on the 26th day of May year 2000 in Baler Aurora. He completed his elementary level at Philos Montessori Learning Center Inc in March 2013 and after four years, he completed his junior high-school at Mount Carmel School of Maria Aurora (MCSMA). In senior high-school he took a career path as a Science, Technology, Engineering, Mathematics (STEM) student and graduated with honors.

After 12 years studying at Maria Aurora, he persued his dreams at Central Luzon State University (CLSU) where he is now finishing his bachelor's degree in Agricultural and Biosystems Engineering (BS-ABE) major in AB Machinery and Power Engineering. During his college years he obtained a certificate as he accomplished his Immersion Program at the Office of the Provincial Agriculturist (OPAg) Aurora.

Outside academics and being a student, he is acquiring knowledge and experience in farming to his father. He enjoys warm air at the farm and having curiosity in life. In relation to his father's occupation which is a farmer, he wanted to develop a skill that can help the farmer's in his province.

The author, **Michael V. Magas**, was born on September 3, 2000, in Arellano, Quezon, Isabela. Mr. Michael is the second child of Mr. Roberto R. Magas Sr. and Mrs. Alice V. Magas. His siblings are Roberto V. Magas Jr., Princess Diane V. Magas, and Albert Kaizer V. Magas. In 2007, he began his primary education at Quezon Central School located in Santos, Quezon, Isabela. In 2013, he enrolled at Quezon National High School located in Alunan, Quezon, Isabela for his secondary education and pursued Science, Technology, Engineering, and Mathematics (STEM) in Senior High School. During his high school years, he encountered different kinds of people that helped shape him into a better person. He graduated with high honors.

In 2019, he commenced higher studies at Central Luzon State University, pursuing a Bachelor of Science in Biosystems and Agricultural Engineering. Michael faced a challenge when he failed one subject, which almost led him to consider shifting courses. However, the pandemic occurred, prompting him to reflect more deeply on his choices. With the support of friends and family, he became stronger and more mature, reaffirming his commitment to pursue a career in Agricultural Engineering. In 2019, he commenced higher studies at Central Luzon State University, pursuing a Bachelor of Science in Biosystems and Agricultural Engineering. Michael faced a challenge when he failed one subject, which almost led him to consider shifting courses. However, the pandemic occurred, prompting him to reflect more deeply on his choices. With the support of friends and family, he became stronger and more mature, reaffirming his commitment to pursue a career in Agricultural Engineering.

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ABSTRACT

MAGAS, MICHAEL V. & ALAMANI, LLOYD ASLY H., Department of Agricultural and Biosystems Engineering, College of Engineering, Central Luzon State University, Science City of Muñoz, Nueva Ecija, Philippines, FEBRUARY 2024, **“PERFORMANCE EVALUATION OF MOTORIZED PADDY FIELD WEEDER FOR ROW PLANTED RICE”**.

Adviser: JEFFREY A. LAVARIAS, Ph.D.

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A motorized paddy field weeder is a machine that can remove weeds from rice fields without using herbicides or manual labor. It is designed to work on row planted rice, which is a method of planting rice seeds in straight lines with uniform spacing. This allows the weeder to move along the rows and cut or bury the weeds between the rice plants. Motorized paddy field weeders have several advantages over traditional weeding methods. They can save time, labor, fuel, and water, as well as improve soil health and rice yield. They can also reduce the environmental impact of rice production by avoiding the use of harmful chemicals and preventing soil erosion.

This study aimed to evaluate the performance of a motorized paddy field weeder for row planted rice (PhilRice Prototype). The parameters are Effective Field Capacity, Field Efficiency, Damaged Rice Heel, Weeding Efficiency, Average Fuel Consumption, Average and Average Weed Density Population. There are three treatments of rotary wheel which are 10cm width, 12cm width and 15cm width, each replicated three times.

The machine achieved the highest average effective field capacity of a 30cm diameter rotary wheel at 0.3439ha/hr (15cm width) while the lowest at 0.2641ha/hr (15cm width). The average field efficiency resulted at 95.53% (15cm width) the highest

and 73.37% lowest (10cm width). The average damaged rice at 8.02 heel (15cm width) the lowest and 13.50 heel (10cm width) the highest. The highest average weeding efficiency at 78.87% (15cm width) while the lowest at 62.42% (10cm width). The average fuel consumption is at of 0.57L/hr (15cm width) more fuel efficient than 0.68L/hr(10cm width). The machines 15cm width rotary wheel is more effective in the following parameters than 10cm width rotary wheel. These results highlights as the weeder's performance indicator in terms of weeding and overall efficiency of the motorized power weeder for row planted rice.

Keywords: Motorized, Paddy, Weeder, Mechanized, Performance, Prototype

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