

**DETERMINATION OF OPTIMUM AND MAXIMUM POTASSIUM  
FERTILIZER RATE FOR HYBRID RICE PRODUCTION  
IN LOWLAND ECOSYSTEM**

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An Undergraduate Thesis Manuscript Submitted to the Faculty of the Department of Soil  
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## **BIOGRAPHICAL SKETCH**

The author, Sarah Mae J. Javillonar, was born on the 18th day of September, 1998 at Munoz, Nueva Ecija. She is currently living at Barangay Maragol, Muñoz, Nueva Ecija. She is the eldest child among two children of Mr. Benito V. Javillonar Jr. and Mrs. Cristy J. Javillonar. Her sibling is Jaylord. Their family depend on farming related business as source of income.

She took her primary education at Maragol Elementary School, while her secondary education was at Muñoz National High school, Science City of Muñoz, Nueva Ecija.

In 2015, she decided to enroll at Central Luzon State University with Bachelor of Science in Agriculture as her course, to help her father in farming related business. After she took two years studying agriculture, she decided to go on the path of being a soil scientist.

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## ABSTRACT

**JAVILLONAR, SARAH MAE J.**, Department of Soil Science, College of Agriculture, Central Luzon State University, Science City of Muñoz, Nueva Ecija, Philippines, **November 2019, DETERMINATION OF OPTIMUM AND MAXIMUM POTASSIUM FERTILIZER RATE FOR HYBRID RICE PRODUCTION IN LOWLAND ECOSYSTEM**

Adviser: ARIEL G. MACTAL, Ph.D.

The study attempts to determine the optimum and maximum rate of potassium fertilizer for hybrid rice production as of 2019. The optimum rate of potassium fertilizer was 2.67 kg and the maximum level of potassium was 2.68 kg this result may seem to be very low considering that the recommended rate of potassium in most hybrid rice technologies is around 60-90 kg K/ha. It was tested using Randomized Complete Block Design with three replications and five treatments. The treatments were T1 Control (150-60-0 kg N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O/ha), T2 (150-60-30 kg N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O/ha), T3 (150-60-60 kg N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O/ha), T4 (150-60-90 kg N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O/ha), T5 (150-60-120 kg N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O/ha).

Application of increasing rates of potassium fertilizer did not improve the height, number of tillers, percent filled grains, weight of 1000 grains, dry matter yield and grain yield of hybrid rice. Simple non-linear regression for the effect of K on rice resulted to a  $r^2$  value of 0.7745. This demonstrates that the change in yield is accounted for by the increase in the level of K fertilizer. This further shows the closeness of the observed values with the estimated values determined in the regression line. The maximum level of K is 2.68 kg/ha which result to a yield of 7,409 kg/ha.

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