

**SOIL FERTILITY DIAGNOSIS USING RICE GROWTH PATTERNS  
FROM A MINUS ONE ELEMENT TECHNIQUE  
TEST SET UP IN BICOL AND AGUSAN**

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This undergraduate thesis manuscript entitled **“SOIL FERTILITY DIAGNOSIS USING RICE GROWTH PATTERNS FROM A MINUS ONE ELEMENT TECHNIQUE TEST SET UP IN BICOL AND AGUSAN”**, prepared and submitted by **RIZELDA C. AQUINO**, in partial fulfillment of the requirements for the degree of **BACHELOR OF SCIENCE IN AGRICULTURE (SOIL SCIENCE)**, is hereby accepted:

  
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## **BIOGRAPHICAL SKETCH**

The author, Rizelda Cortez Aquino was born in Sta. Veronica, Guimba, Nueva Ecija on October 31,1998. She is the eldest among three children of Mr. Wilson M. Aquino and Mrs. Chona C. Aquino.

She accomplished her primary and secondary education at the Our Lady of the Sacred Heart College of Guimba Incorporated. In the ten years she spent in their school she is not only academically inclined but is also good in other fields such as music. She became a member of the school rondalla, where she played an octavina. In 2015, she was admitted at the Central Luzon State University under the Bachelor of Science in Agriculture program, where she decided to pursue major field in Soil Science.

Aside from academics, she also engaged in extra-curricular activities. She is a member of Soil Science Society, a college based organization, where she was elected as the Press Relation Officer.

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## ABSTRACT

**AQUINO, RIZELDA C.**, Department of Soil Science, College of Agriculture, Central Luzon State University, Science City of Muñoz, Nueva Ecija, Philippines. **JANUARY 2020, SOIL FERTILITY DIAGNOSIS USING RICE GROWTH PATTERNS FROM A MINUS ONE ELEMENT TECHNIQUE TEST SET UP IN BICOL AND AGUSAN**

Adviser: PURISIMA P. JUICO

A study was conducted to evaluate the fertility status of the soil through Minus One Element Technique (MOET) and Laboratory Method in rice production area in Agusan On Farm 1, Agusan On Farm 2, Agusan On Station, Batang Ligao, ICM Bicol and Tuliw. The study was conducted at Agronomy, Soils, and Plant Physiological Division (ASPPD), Central Experiment Station, Philippine Rice Research Institute (PhilRice) Maligaya, Science City of Munoz, Nueva Ecija.

Results through MOET showed that the rice production area in Agusan On Farm 1, Agusan On Farm 2, Agusan On Station, Batang Ligao, ICM Bicol and Tuliw were deficient in nitrogen. Results of the laboratory analysis showed that nitrogen in all areas were medium except for the soil in Batang Ligao which is low (0.113%). However, for the phosphorus all of the area were found to be deficient through MOET except for Batang Ligao, ICM Bicol and Tuliw, which was analyzed in the laboratory to obtain high with 50.34 ppm. On the other hand for the potassium, all of the area were found to be deficient through MOET except for the ICM Bicol, which was analyzed to be medium level with 0.33 cmol/kg.

Soil samples from different areas used in the study were analyzed for the pH, total nitrogen, available phosphorus and exchangeable potassium using the laboratory method of analysis

Specific fertilizer rates for the different areas were computed through MOET data based on the nutrient deficiencies. Mathematical model was used to optimize fertilizer recommendation to target 6 t/ha harvest of Philippine rice cultivars. Growth preference of rice through Leaf Area Index, Crop Growth Rate and Net Assimilation Rate were also used as growth parameters in rice.

Keywords: Minus One Element Technique, Laboratory Analysis, Fertilizer rate

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