

**RICE SEEDLINGS PRODUCTION IN A RECIRCULATING  
HYDROPONIC SYSTEM**

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An undergraduate Thesis Submitted to the Faculty of the Department of Agricultural and  
Biosystems Engineering, College of Engineering, Central Luzon State  
University, Science City of Muñoz, Nueva Ecija, Philippines  
In Partial Fulfillment of the Requirements  
for the degree of

**BACHELOR OF SCIENCE IN AGRICULTURAL AND BIOSYSTEMS  
ENGINEERING  
(AB Land and Water Resources Engineering)**

**JUNE 2023**

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## ABSTRACT

**AQUINO, NICOLE ANNE B. and SORIAGA, ELAINE EUNICE G.,** Department of Agricultural and Biosystems Engineering, College of Engineering, Central Luzon State University, Science City of Muñoz, Nueva Ecija, Philippines, **June 2023,** **RICE SEEDLINGS PRODUCTION IN A RECIRCULATING HYDROPONIC SYSTEM.**

Adviser: GLORIA N. RAMOS, M.Sc.

The early stages of a rice crop play a vital role in determining its overall performance and yield. However, the use of unhealthy seedlings can significantly impact the crop's potential. To address these challenges, the introduction of hydroponics offers a promising solution. Traditional methods of establishing rice nurseries and managing disease and pests can be difficult and labor-intensive. This study aimed to cultivate rice seedlings using hydroponic methods within a greenhouse setting at the CLSU Hydroponics and Aquaponics Technologies (CHAT) Demonstration Farm and Experiment Station. The primary objective was to compare the effects of three different treatments on rice seedling production, growth, and water usage efficiency in a recirculating hydroponic system. The experiment followed a randomized complete block design with three treatments and three replicates. The treatments included different irrigation cycles: Treatment 1 (one-hour irrigation cycle every five minutes), Treatment 2 (one-hour irrigation cycle every ten minutes), and Treatment 3 (one-hour irrigation cycle every fifteen minutes). The growth of the rice seedlings was assessed by measuring plant height and weight. The results showed significant differences between the irrigation treatments, particularly in plant height, biomass weight, and water productivity. Treatment 2, with a one-hour irrigation cycle

every ten minutes, yielded the tallest average plant height of 16.75 cm over a 12-day period. Furthermore, Treatment 2 demonstrated more efficient water usage, resulting in increased productivity. These findings indicate the potential of hydroponics and optimized irrigation cycles to enhance rice seedling production and water efficiency.

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