

Effect of Nitrogen Fertilizer on the Growth, Yield and Quality of Rice (*Oryza sativa*) in Taitung.¹

Ching-Ying Liao²

Abstract

The purpose of this study is to investigate the effects of nitrogen fertilizer on rice growth, yield, and disease damage to serve as a basis for the application of nitrogen fertilizer on rice. The study was carried out in Taitung, and the rates of fertilizer used were 0, 90, 150, 210, and 270 kg ha⁻¹. These fertilizers were applied to three of Taitung's rice varieties: Kaohsiung No. 139, Taitung No. 30, and Taikeng No. 2. The study looked at the plant height, leaf SPAD values, tiller count, yield of unhulled rice, appearance of milled rice, sheath blight, brown spot, and rice blast as well as the agronomic efficiency of the nitrogen fertilizer. The results showed increased the rate of nitrogen fertilizer resulted in higher leaf SPAD values, and plant height were for all three varieties of rice plant and the decreased the productive tiller ratios were for all three varieties of rice plant. A quadratic curve resulted for the yield, with the highest yields found in the fields where the 150 and 210 kg ha⁻¹ rates of nitrogen fertilizer were applied. And increased that the damaged grain ratios and decreased the milling yield, normal white rice grain, and taste values, which showed that higher rates of nitrogen fertilizer reduced the quality of the rice. Also increased the rice blast ratios, stem sheath blight ratios, and sheath blight height ratios and decreased the brown spot ratios ratios.

Keywords: Rice, Disease damage, Yield, Quality

¹ The research bulletin is a part of master thesis of author.

² Assistant Researcher of Taitung DARES, COA.