

ABSTRACT

Rice (*Oryza sativa* L.) is the main source of carbohydrates for the majority of the world's population. Aceh Province is an area rich in local rice germplasm with several advantages, including good aroma and taste as well as drought tolerance. This study was conducted to determine the effects of Acehnese local rice varieties, nitrogen fertilizer doses, and their interactions on the physiological characteristics and yield components of local rice varieties in Aceh. The research was carried out in Matang Bayu Village, West Baktiya District, North Aceh Regency, at an altitude of 1,75 meters above sea level, with laboratory analyses carried out at the Plant Physiology Laboratory and the Soil and Conservation Laboratory, Faculty of Agriculture, Malikussaleh University, and the Soil and Plant Research Laboratory, Faculty of Agriculture, Syiah Kuala University. The study was conducted from July to November 2025. This study used a Split Plot Design with two factors and three replications. The first factor as the main plot was nitrogen fertilizer consisting of three levels: control (N0), 150 kg/ha (N1), and 300 kg/ha (N2). The second factor as the subplot was rice variety consisting of five levels: Siam-siam rice (G1), CBD-08 rice (G2), Romb Balap rice (G3), Sigunca rice (G4), and Ciherang rice (G5). The results showed that the application of 300 kg/ha nitrogen fertilizer gave the best effect on various growth and yield parameters, with grain yield reaching 6.94 tons/ha. The Acehnese local rice variety Sigunca also showed the best performance in many growth and production parameters, with grain yield reaching 6.61 tons/ha. Meanwhile, the combination of 150 kg/ha nitrogen fertilizer and Sigunca rice produced the best results for several growth and yield parameters, with the highest grain yield reaching 8.57 tons/ha.

Keywords: dosage, grain yield, increase, production, variety.