

ABSTRACT

Rice (*Oryza sativa* L.) is the primary source of carbohydrates for most of the world's population. Aceh Province is a region rich in local rice germplasm with various 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 rates, and their interactions on the morphological and agronomic characteristics as well as 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 175 meters above sea level, and in the Agroecotechnology and Soil Science Laboratory, Faculty of Agriculture, Malikussaleh University, North Aceh Regency. The study was conducted from May to August 2025. This research employed a Split Plot Design with two factors and three replications. The first factor, assigned as the main plot, was nitrogen fertilizer consisting of three levels: 0 kg/ha urea (N0), 150 kg/ha urea (N1), and 300 kg/ha urea (N2). The second factor, assigned as the subplot, was rice variety consisting of five levels: Siam-siam rice (G1), CBD-08 rice (G2), Sigunca rice (G3), Romb balab rice (G4), and Ciherang rice (G5). The results showed that the application of nitrogen fertilizer at 300 kg/ha provided the best effects on various growth and yield parameters, with grain yield reaching 6.94 tons/ha. Among the Acehnese local rice varieties, Sigunca exhibited the best performance in various growth and production parameters, with grain yield reaching 6.61 tons/ha. Furthermore, the combination of 300 kg/ha nitrogen fertilizer and the Sigunca variety produced the best response in several growth and yield parameters and resulted in the highest grain productivity, reaching 8.57 tons/ha.

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