ABSTRACT

Hydrometeorological disasters, particularly floods, can disrupt rice farming through crop damage, reduced harvested area, and decreased rice production and productivity. Flooding that occurred in Langkat Regency at the end of 2025 affected rice fields in several areas. This study aimed to analyze the differences in rice production and productivity before and after the hydrometeorological disaster in Langkat Regency. The study used a quantitative comparative approach with primary and secondary data. Primary data were obtained from 30 rice farmers in Secanggang, Gebang, and Babalan Districts, while secondary data were obtained from related agencies. Data were analyzed using the Shapiro-Wilk normality test and one-tailed Paired Sample t-Test. The results showed that average rice production based on data from 23 districts increased from 11,271.03 tons before the disaster to 11,316.43 tons after the disaster, but the difference was not statistically significant (Sig. 0.471). Meanwhile, average rice productivity among the 30 respondents decreased from 5.8158 tons/ha to 5.5730 tons/ha, with a significant difference (Sig. 0.035). The decrease in productivity was associated with flooding lasting approximately 7–15 days, with water depths of 0.5–1 meter, occurring during the vegetative phase. The results indicate that hydrometeorological disasters did not significantly affect aggregate rice production in Langkat Regency but significantly affected rice productivity among farmers in the study area.

Keywords: Hydrometeorological Disaster, Rice Production, Rice Productivity, Flood, Paired Sample t-Test.