

ABSTRACT

Peanut is an important agricultural commodity cultivated by farmers in Stabat District, Langkat Regency. Crop rotation is a land-use practice that can help reduce pest and disease attacks and maintain soil productivity. However, not all farmers apply crop rotation, indicating differences in farmers' decisions. This study aimed to analyze the factors influencing farmers' decisions to implement crop rotation in peanut farming in Stabat District, Langkat Regency. The study was conducted in Pantai Gemi, Banyumas, and Sidomulyo Villages using a census sampling technique involving 62 peanut farmers. Data were obtained from primary and secondary sources and analyzed using binary logistic regression. The dependent variable was farmers' decision to implement crop rotation, while the independent variables consisted of agricultural land area, pest and disease attack levels, agricultural extension participation, and age. The results showed that the binary logistic regression model was feasible, with a Hosmer–Lemeshow significance value of $0.303 > 0.05$. The Nagelkerke R Square value was 0.489, indicating that the independent variables explained 48.9% of the variation in farmers' decisions. The model classification accuracy reached 83.9%, and no serious multicollinearity was found. The Omnibus Test was significant, with a chi-square value of 28.180 and a significance value of $0.000 < 0.05$, indicating that the independent variables simultaneously influenced farmers' decisions. Partially, pest and disease attack levels and agricultural extension participation had significant effects, with significance values of 0.001 and 0.010, respectively. Meanwhile, agricultural land area and age had no significant effects, with significance values of 0.070 and 0.343, respectively. Thus, pest and disease attack levels and agricultural extension participation were significant factors influencing farmers' decisions to implement crop rotation.

Keywords : Agricultural Extension; Binary Logistic Regression; Crop Rotation; Farmers' Decision; Peanut Farming.