# ABSTRACT

*Determining land suitability is crucial to ensure optimal agricultural productivity. This is because each plant has different growth requirements, including soil, climate, hydrology, and relief. By knowing land suitability, farmers can cultivate the right crops for their land, thereby increasing productivity and ultimately boosting farmers' income. Therefore, this research focuses on determining land suitability using machine learning classification systems. The study utilizes algorithms such as K-Nearest Neighbors, Decision Tree, and Random Forest for shallot cultivation, with real-time soil data collected from Selaawi, Indonesia. Evaluation results show that Decision Tree and Random Forest algorithms achieve an accuracy of over 98%. This indicates that the proposed methods can effectively determine land suitability for shallot cultivation.*

*Keywords: Random Forest, Decision Tree, Onion Red, prediction of land suitability.*