FORECASTING COFFEE PRODUCTIVITY IN WEST SUMATRA

UNDERGRADUATE THESIS

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ABSTRACT

Coffee productivity in West Sumatra has been fluctuating during 24 years. Therefor, it is essential to forecast the coffe productivity for effective farm management, resource allocation, and market stability. As the 10th highest coffee-producing region in Indonesia, West Sumatra plays a significant role in the country's coffee sector. Accurate forecasting provides insights into future trends, enabling policymakers to implement strategic interventions that enhance productivity and support sustainable growth. This study aims to analyze the development of coffee productivity in West Sumatra and to identify the most suitable forecasting model for coffee productivity in West Sumatra and to project productivity levels for the years 2024 to 2028 using the selected model. The research method used is descriptive analysis method by using time series analysis forecasting method. The data used from this study is historical data of Coffee Productivity in West Sumatra for the past 24 years. The data used is yearly data from 2000 to 2023. This study finds that while coffee productivity in West Sumatra has shown modest progress in recent years, the average yield still falls short of global standards. Using the ARIMA model, the study determines that ARIMA (1,3,0) is the most suitable, with a Mean Absolute Percentage Error (MAPE) below 50%. The results indicate a declining trend in coffee productivity over the forecast period. The projected productivity values (tons per hectare) are 1.000 in 2024, 0.6266 in 2025, 0.6125 in 2026, 0.0538 in 2027, and -0.1709 in 2028.

Keywords: *ARIMA Model, Coffee Productivity, Forecasting, West Sumatra*