ABSTRACT

FOOD COMMODITY PRICE FORECASTING WITH LSTM AND GRU ALGORITHMS (CASE STUDY: Price of Onion and Chicken in Banyumas Traditional Market)

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Farmers and breeders often experience losses in the sale of their crops and livestock. Data released by the Indonesian Ministry of Agriculture in Central Java Province, including Banyumas Regency, shows that the average price difference between producers and consumers is IDR 5,900 for shallots and IDR 10,394 for chicken meat. These large discrepancies indicate the existence of price monopoly practices in the market. Price forecasting can be an effective solution to help farmers and ranchers understand the price of their crops and livestock. Accurate and relevant forecasting results can help farmers and other market players anticipate price fluctuations, make wiser decisions, and mitigate the impact of monopolistic practices. By involving sophisticated forecasting methods, such as LSTM and GRU, we can better understand the pattern of food commodity price movements. Therefore, this study forecasts the price of shallots and chicken meat in the Banyumas traditional market and measures the performance of the LSTM and GRU algorithms in forecasting the price of shallots and chicken meat in the Banyumas traditional market. In this study, the LSTM model achieved the highest performance by producing an mse value of 0.00035, while the GRU model produced an mse value of 0.00036. The LSTM model has a better performance than the GRU model in forecasting food commodity prices in the Banyumas traditional market.

Keywords: Commodities, Food, Forecasting, GRU, LSTM, Price