

ABSTRACT

PREDICTION OF CHICKEN EGG PRICES IN BANYUMAS USING DEEP LEARNING

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The agricultural sector contributes significantly to the Indonesian economy, especially the economy in Banyumas. One of the many livestock products produced in Banyumas is chicken eggs. The problem of farmers is the uncertainty of selling prices, which is caused by exploitation by middlemen. So, in solving this problem, it needs information in the form of a prediction of the price of chicken eggs to help farmers know the price of chicken eggs before being sold to the market. Predictions are made by using Deep Learning algorithms namely LSTM and GRU which are evaluated using RMSE, MSE, MAE and R Square to determine the performance of the two algorithms in predicting prices. This study uses data from April 2017 to December 2023 sourced from the National Strategic Food Price Information Center (PIHPSN). Based on the research scenarios, that have been carried out, the best LSTM model is obtained in the 2-layer LSTM architecture (64 and 32-unit neurons) and 1 Dense layer (1-unit neuron), optimizer Adam, batch size 64 and epoch 100 obtained MSE of 0.001205 while the best GRU algorithm model in the 2-layer GRU architecture (32 and 16-unit neurons) and 1 Dense layer (1-unit neuron), optimizer Adam, batch size 64 and epoch 200 obtained MSE 0.001203. The result of the experiment of 2 algorithm models found that the GRU algorithm was more dominant in making predictions so that the GRU model was chosen to make predictions. The GRU model is hyper tuning parameters with learning rate of 0.001 and evaluated with MSE obtained a metric value in the Pasar Manis of 0.001199 while in the Pasar Wage of 0.001338. With this research, the GRU algorithm is more dominant than LSTM.

Keywords: *Chicken Eggs, GRU, LSTM, Prediction.*