



Comparison of Series Prediction for agricultural productivity using Hierarchical Bayesian Space-time and ARIMA models

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This study aimed to compare the predicted soybean yield values obtained from two statistical models, the hierarchical Bayesian space-time and the Box and Jenkins models (ARIMA model). The first model considers the temporal and spatial autocorrelation together and the second considers only the temporal autocorrelation. For this purpose, soybean yield data from seven municipalities in the state of Mato Grosso provided by IBGE were used. Given the results, we can conclude that, when the autoregressive temporal terms are properly adjusted, the forecast by the Bayesian method is superior to the forecast by the ARIMA model, as agricultural yield depends heavily on climatic factors which can be incorporated in the model by Bayesian modeling.

Keywords: Bayesian hierarchical space-time models; Skew Normal; ARIMA; agricultural productivity.