



Time Series Modeling and Forecasting on Pulses Production Behavior of India

Soumik Ray and Banjul Bhattacharyya¹

Department of Agricultural Economics and Statistics, Centurion University of Technology and Management
Gajapati-761 211, India

¹Department of Agricultural Statistics, Bidhan Chandra Krishi Viswavidyalaya, Mohanpur- 741 252, India
E-mail: raysoumik4@gmail.com

Abstract: The present investigation was an attempt to study the trend behavior of pulses production, productivity, and net availability in India. For stochastic trend estimation, time series parametric models *i.e.* Linear, Quadratic, Exponential, Logarithmic, Power, ARIMA, and ARIMAX models were worked out and compared for estimating appropriate econometric model to capture the trending behavior of pulses data series considered in this study. Based on the performance of goodness of fit criterion *i.e.* R^2 , RMSE, MAPE, MAE, AIC, and SBC were considered to find the best-fitted model. Cross-correlation function (CCF) was employed to check the relationship with explanatory variables for building ARIMAX model. The assumption of 'Normality' of error term was estimated by using K-S- test and S-W- test, whereas Run-test was used to examine the 'Independency of randomness' of the error term. From the forecasted figure, pulses production will reach 24.34 MT in 2025-26, whereas productivity will gain 877.36 kg ha⁻¹ in the same year. Per capita net availability of pulses will reach 24.89 kg year⁻¹ in 2025-26. This research helps in formulating the national agriculture policymaker.

Keywords: Productivity, Net availability, ARIMA, ARIMAX, Forecasting
