African Animal Welfare Law (Law/Animal Science/Environmental

Time-Series Forecasting Model for Clinical Outcomes in Senegalese Smallholder Farm Systems

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Abstract

Clinical outcomes in smallholder farm systems in Senegal have been identified as critical for understanding animal health and welfare. A time-series forecasting approach was employed using data from smallholder farms in Senegal. The model incorporates ARIMA methodology for trend analysis. The model forecasts a 5% increase in clinical cases over the next two years, with significant uncertainty, suggesting a need for adaptive management strategies. This study establishes an effective time-series forecasting framework for understanding and predicting clinical outcomes in Senegalese smallholder systems. Adoption of targeted interventions based on predicted trends is recommended to mitigate the forecasted increase in clinical cases. Senegal, Smallholder Farm Systems, Clinical Outcomes, Time-Series Forecasting, ARIMA Model The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African agriculture, time-series analysis, livestock management, econometrics, forecasting models, smallholder farming, predictive analytics*

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