

## **Dr. SANTOSHA RATHOD**

**Email id:**

**Phone: 040-24591319 (O) 9900912188 (M)**



### **1. Personal bio-data:**

**a) Position/Designation** : Scientist (Agricultural Statistics)

**b) Joining date in ICAR** :

**c) Discipline and Specialization** : Agricultural Statistics

#### **d) Training/advance exposure in the area of work:**

- DBT CREST Fellowship to University of Aberdeen - Nitrogen Use Efficiency in Rice: Meta analysis and Association Mapping
- ICAR Sponsored 21 days winter school on “Advanced Statistical Tools and Techniques for Modeling and Forecasting Agricultural Data” as course Director.
- Six days Hindi Training programme on “Statistical Modelling and Forecasting Techniques for Agricultural Data” to technical/Scientist of ICAR-IASRI, New Delhi, from 09-14, February, 2017 as Co-Course Coordinator.
- Two days Training to RA/SRF of ATFC project on Technology Forecasting Methods at ICAR-IASRI, New Delhi from 20-21 July 2016 as Co-Course Coordinator.

#### **e) Contribution to the scientific advancement:**

Agricultural Statistics, Statistical modeling and forecasting of agricultural systems, Modeling of Biological and Biometrical data, Statistical Genetics, Spatio-temporal modeling, Artificial Intelligence (AI) in Agricultural System, Machine learning and Optimization Techniques and Genomic Selection and Prediction.

### **2. Future Planning of research :**

- Forecasting of spatio-temporal time series data using Space Time Autoregressive
- Moving Average (STARMA) model
- Nonparametric bootstrap approach for constructing prediction intervals for non-linear and bivariate time series models
- Development of Hybrid Time Series Models using Machine Learning Techniques for
- Forecasting Crop Yield with Covariates
- Future perspective of Bt technology in Indian agriculture
- Parameter estimation of time series models using Bayesian technique

### **3. Publications:**

- Alam, W., Ray, M., Kumar, R.R., Sinha, K.K., **Rathod, S.** and Singh, K.N. (2018). Improved ARIMAX modal based on ANN and SVM approaches for forecasting rice yield using weather variables. *Indian Journal of Agricultural Sciences* 88 (8): 1909-2013.
- Sinha, K., Kumar, R.R., Ray, M., **Rathod, S.**, Singh, K.N. and Arya, P. (2018). Hybrid linear time series approach for long term forecasting of crop yield. *Indian Journal of Agricultural Sciences* 88 (8): 1275–79.  
**Rathod, S.** Mishra, G.C. and Singh, K. N. (2018). Hybrid Time Series Models for Forecasting Banana Production in Karnataka State, India. *Journal of the Indian Society of agricultural Statistics.* 71(3): 193-200.
- **Rathod, S.**, Gurung, B., Singh, K.N. and Ray, M. (2018). An improved Space-Time Autoregressive Moving Average (STARMA) model for Modelling and Forecasting of Spatio-Temporal time-series data. *Journal of the Indian Society of agricultural Statistics.* 72(3): 239-253.
- **Rathod, S.** and Mishra, G.C. (2018). Statistical Models for Forecasting Mango and Banana Yield of Karnataka, India. *Journal of Agricultural Science and Technology.* (2018) Vol.20: 803-816.
- **Rathod S,** Singh K N, Patil S G, Naik R H, Ray M and Meena V S. (2018). Modeling and forecasting of oilseed production of India through artificial intelligence techniques. *The Indian Journal of Agricultural Sciences.* 88(1): 22-27.
- **Rathod, S.,** Singh, K, N., Paul, R.K., Meher, R.K., Mishra, G.C., Gurung, B., Ray, M. and Sinha, K. (2017). An Improved ARFIMA Model using Maximum Overlap Discrete Wavelet Transform (MODWT) and ANN for Forecasting Agricultural Commodity Price. *Journal of the Indian Society of agricultural Statistics.* 71(2): 103–111.
- **Rathod, S.** Singh, K. N., Arya, P. Ray, M., Mukherjee, A., Sinha, K. and Kumar, P. (2017). Forecasting maize yield using ARIMA – Genetic Algorithm approach. *Outlook on Agriculture.* 46(4):265-271.
- Kanchan, S., Gurung, B., Paul, R.K., Kumar, A., Panwar, S., Alam, W., Ray, M and **Rathod, S.** (2017). Volatility Spill over using multivariate GARCH model: An application in futures and spot market price of black pepper. *Journal of the Indian Society of Agricultural Statistics,* 71 (1), 21-28.
- **Rathod, S.,** Mishra, G.C. (2017). Weather based modeling for forecasting area and production of mango in Karnataka. *International Journal of Agriculture Environment and Biotechnology.* 10(1): 1-8.
- Naveena, K., Subedar Singh, **Santosha Rathod** and Abhishek Singh. (2017). Hybrid ARIMA-ANN Modelling for Forecasting the Price of Robusta Coffee in India. *International Journal of Current Microbiology and Applied Sciences,* 6(7): 1721-1726.
- Naveena, K., Subedar Singh, **Santosha Rathod** and Abhishek Singh (2017).

Hybrid Time Series Modelling for Forecasting the Price of Washed Coffee (Arabica Plantation Coffee) in India. International Journal of Agriculture Sciences, 9(10): 4004-4007.

- Meena, V.S., Mittal, R. K., Choudhury, P. R., **Rathod, S.**, Mahadevaswamy, H. K. and Choudhary, R. (2017). Utilization of molecular and morphometric tools for assessment of genetic diversity of Rice bean [Vignaumbellata (Thunb.) Ohwi and Ohashi]. International Journal of Current Microbiology and Applied Sciences. 6(5): 2882-2892.
- Pardhi, R., Singh, R., **Rathod, S.** and Singh, P.K. 2016. Effect of Price of Other Seasonal Fruits on Mango Price in Uttar Pradesh. Economic Affairs, 61(4):1-5.
- Naganagoudar, Y.B, Kenchanagoudar, P.V., **Rathod, S.**, Keerthi, C.M., Nadaf, H.L. and Channappagoudar, B.B. (2016). Inheritance of fresh seed dormancy in recombinant inbred lines (RIL) developed for mapping population TAG 24 x GPBD 4 in groundnut (Arachis hypogea L.), Legume Research, 39 (5): 844-846.
- Naveena, K., **Rathod, S.**, Shukla, G. and Yogish, K.J. (2014). Forecasting of coconut production in India: a suitable time series model. International Journal of Agricultural Engineering. 7(1): 190-193.

#### **Courses taught:**

- Thought Stochastic Process (AS-607) course to Ph.D (Ag. Stat.) students of IARI PG School in 3rd Trimester 2017-18.
- Thought Paper II on introduction to statistics in senior certificate course at IASRI 2017-18.

#### **Conference Attended:**

Attended and presented papers in 15 national and international conferences.

**Software handling:** SAS, R, MATLAB, SPSS, Excel Data Analysis

#### **Awards:**

Received Dr. G R Seth memorial young scientist award of Indian society of agricultural statistics for the paper entitled “An improved space time autoregressive moving average model for Modeling and Forecasting spatio-temporal time series Data” at 71st Annual National Conference of Indian society of agricultural statistics at ICAR- DRMR, Bhartapur from 25-27 November 2017.

#### **4. Other relevant activities of Scientist:**

1. All India Co-coordinated Rice Improvement Project (AICRIP) Data Analysis
2. Statistical Modeling and Data Analysis
3. Resource person in training programmes.