

# Demand Forecasting for Agro Tech Technical Textiles

**Aishwarya K<sup>1</sup> and Dr. Chitra K<sup>2</sup>**

Student MCA, IVth Semester<sup>1</sup>

Associate Professor, Department of MCA<sup>2</sup>

Dayananda Sagar Academy of Technology and Management, Udayapura, Bangalore, Karnataka, India

aishwaryayk777@gmail.com and chitra-mca@dsatm.edu.in

**Abstract:** Demand forecasting is vital in the agrotech industry, merging technology with agriculture to drive innovation and efficiency. Accurate forecasting helps companies predict market trends, optimize resource use, and enhance operations. By anticipating future demand for agricultural products and technological solutions, businesses can make informed decisions on production, inventory, and marketing. However, demand forecasting in agrotech faces challenges such as seasonal variations, limited data, technological complexity, and market uncertainties. Factors like weather patterns, regulatory changes, and shifting consumer preferences add to the difficulty. To address these challenges, methodologies such as statistical techniques, data analytics, and machine learning are employed. Common methods include time series analysis, regression analysis, and hybrid techniques, which use historical data to forecast future trends. Effective demand forecasting improves resource planning, supply chain management, and customer satisfaction. Aligning production with expected demand and optimizing inventory can cut costs, reduce waste, and boost competitiveness. Demand forecasting is essential for strategic planning in agrotech, enabling businesses to predict market trends, meet customer needs, and achieve sustainable growth in a dynamic environment.

**Keywords:** Machine Learning, Python, ABC Category Analysis, XYZ Category Analysis, MAE, MSE, MAPE