Abstract

Agriculture plays a critical role in ensuring food security and economic growth, with crop selection being a key factor in maximizing productivity. The choice of crops for cultivation depends not only on soil type and water availability but also on climatic conditions and the seasonal variations of a given region. This paper presents an agricultural crop recommendation system based on productivity potential and seasonal suitability. The system uses climatic data, soil characteristics, and historical crop yield data to recommend the most suitable crops for a specific region and season. By leveraging modern data analytics and machine learning techniques, the system aims to enhance productivity, optimize resource use, and increase the resilience of agricultural practices to changing climatic conditions. It also takes into account market demand trends and economic feasibility to ensure the financial viability of recommended crops. The findings suggest that region-specific, seasonally optimized crop recommendations can significantly improve agricultural productivity, reduce risks, and increase farmers' income potential.