



Agricultural Crop Recommendation System Based on Productivity and Season

Tadi Hemalatha¹ | B.N.Srinivasa Gupta²

¹PG Scholar, Department of Computer science, SVKP &Dr K S Raju Arts & Science College(A), Penugonda, W.G.Dt., A.P, India

²Associate Professor in Computer science, SVKP &Dr K S Raju Arts & Science College(A), Penugonda, W.G.Dt., A.P, India

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ABSTRACT

Coastal states face uncertainty in agriculture which decreases its production.. There are so many factors which effect the crop production. With more population and area, more productivity should be achieved but it cannot be reached. Farmers are following old methods of farming for cultivation which are not updated. Farmers have words-of-mouth in past decades but now it cannot be used due to climatic factors. Agricultural factors and parameters make the data to get insights about the Agri-facts. Growth of IT world drives some highlights in Agriculture Sciences to help farmers with good agricultural information. Intelligence of applying modern technological methods in the field of agriculture is desirable in this current scenario. Machine Learning Techniques develops a well-defined model with the data and helps us to attain predictions. By following all these techniques, farmers can achieve more crop production. Agricultural issues like crop prediction, rotation, water requirement, fertilizer requirement and protection can be solved. Due to the variable climatic factors of the environment, there is a necessity to have an efficient technique to facilitate the crop cultivation and to lend a hand to the farmers in their production and management. This may help upcoming agriculturalists to have a better agriculture. A system of recommendations can be provided to a farmer to help them in crop cultivation with the help of data mining. To implement such an approach, crops are recommended based on its climatic factors and quantity. Data Analytics paves a way to evolve useful extraction from agricultural database. Crop Dataset has been analyzed and recommendation of crops is done based on productivity and season.

KEYWORDS: Machine Learning, Data analytics, crop and yield production

1. INTRODUCTION

India being 3rd largest area in Asia has 2nd largest population. It is the leading producer of agriculture products. Agriculture is the main occupation of Indian people. Agriculture is the main occupation of Indian people Agriculture has a sound tone in this competitive world. Cauvery is the main source of water. Cauvery

delta regions are called as rice bowl of Tamil Nadu. Rice is the major crop grown in Tamil Nadu. Other crops like Paddy, Sugarcane, Cotton, Coconut and groundnut are grown. Bio-fertilizers are produced efficiently. Many areas Farming acts as major source of occupation Agriculture makes a dramatic impact in the economy of a country. Due to the change of natural factors,

Agriculture farming is degrading now-a days. Agriculture directly depends on the environmental factors such as sunlight, humidity, soil type, rainfall, Maximum and Minimum Temperature, climate, fertilizers, pesticides etc. Knowledge of proper harvesting of crops is in need to bloom in Agriculture. India has seasons of

1. Winter which occurs from December to March
2. Summer season from April to June
3. Monsoon or rainy season lasting from July to September and
4. post-monsoon or autumn season occurring from October to November

Due to the diversity of season and rainfall, assessment of suitable crops to cultivate is necessary. Farmers face major problems such as crop management, expected crop yield a productive yield from the crops. Farmers or cultivators need proper assistant regarding crop cultivation as now-a-days many fresh youngsters are interested in agriculture

Impact of IT sector in assessing real world problem is moving at a faster rate. Data is increasing day by day in field of agriculture. With the advancement in Internet of Things, there are ways to grasp huge data in field of Agriculture. There is a need of a system to have obvious analyzes of data of agriculture and extract or use useful information from the spreading data. To get insights from data, it has to be learnt.

II. Knowledge discovery in databases Extracting knowledge from the data set is the process of mining. It aims to give accurate results to farmers. It finds hidden patterns. It discovers useful knowledge from the tremendous data set. It is one of the processes in Knowledge Discovery in Databases (KDD). Apart from the KDD process, in recent days with the development in IT world, Machine Learning has emerged to handle big volume of data and involves high performance computing too. Application of Machine Learning in Agriculture peaks up day by day. Machine Learning techniques are used in crop management, livestock management, water management and soil management [18] recommendation algorithm. They provide personalized products in E-Commerce. These recommendation concepts are used in agriculture in this paper to provide crops to sow. Simple Data Analytics is used on crop dataset and personalization of agricultural crops are suggested to farmers.

2. LITERATURE SURVEY

A well-defined and systematic method is required in the agricultural industry for projecting crop yields and assisting farmers in making informed decisions to improve farming quality. Konstantinos G. Liakos, Patrizia Busato (2019)- Machine Learning in Agriculture: A Review. With the rise of big data technologies and high-performance computers, machine learning has opened up new possibilities for data-intensive science in the multidisciplinary Agri-technology arena. In this paper, we give a comprehensive assessment of research on machine learning applications in agricultural production systems in this study. Ramesh Babu Palepu (2020)-An Analysis of Agricultural Soils by using Data Mining Techniques. The use of data mining techniques in agriculture, particularly on soils, can boost cultivation yields and change the status of pledge making. Soil analysis is critical for resolving a variety of challenges in the agricultural area. This paper discusses the role of data mining in the context of soil analysis in agriculture, as well as many data mining approaches and their associated work by several authors in the context of soil analysis. A.Swarupa Rani(2021)- The Impact of Data Analytics in Crop Management based on Weather Conditions. The purpose of data mining is to extract knowledge from an existing data set and transform it into a unique human-readable format for future usage. Crop management in a particular agricultural region is influenced by local climatic circumstances, as climate has a significant impact on crop productivity. Real-time weather data can aid in effective crop management. The use of information and communications technology allows for the automation of extracting significant data in order to obtain knowledge and trends.

3. PROBLEM STATEMENT

- ❖ Existing system mainly concentrates on fertility of soil but does not concern about the farmer's profit
- ❖ Today farmers are facing lot of financial problems due to lack of crop prediction
- ❖ Many crop prediction yield models have been developed. Clustering approaches such as k-means, kmeans++ are used to perform grouping of data as clusters to predict crop yield is used [1]. Tripathy et al., [2] provided a system to have management of pesticides for crop cultivation using data mining process.

❖ Essential parameter for agriculture analysis is nature of soil. Diverse varieties of soil are available in this India. Crops are cultivated depending on the type of soil in the land. The role of soil in improving crop cultivation is discussed [3]. Data mining techniques are applied to analyze the soil parameter.

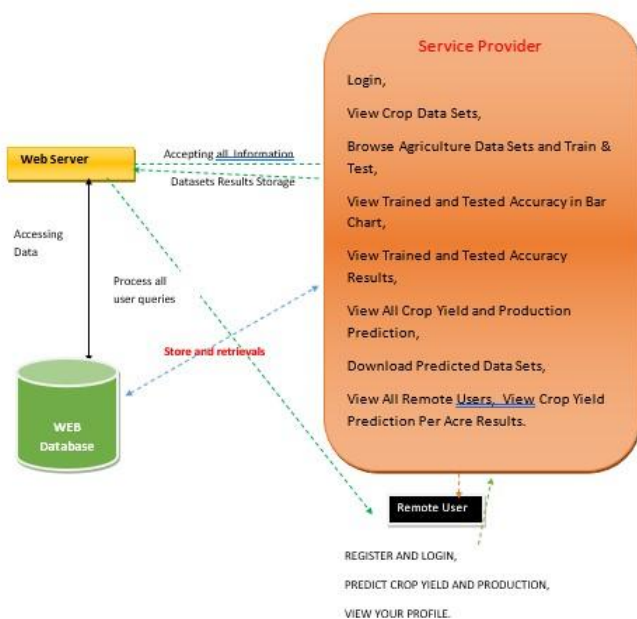
❖ JRip, J48 and Naive Bayes techniques are applied [4] which produces more reliable results in analyzing red and Black soil. Impact of parameters of agriculture in crop management is studied to improve productivity [5]. Neural networks, soft computing, big data and fuzzy logic methods are being used to examine the agricultural factors.

❖ Pritam Bose [6] developed a SNN model to have a spatiotemporal analysis with crop estimation. An automatic system to gather the information about soil nature, weather conditions was developed [7] with clustering techniques to extract the knowledge and use it by farmers in crop cultivation.

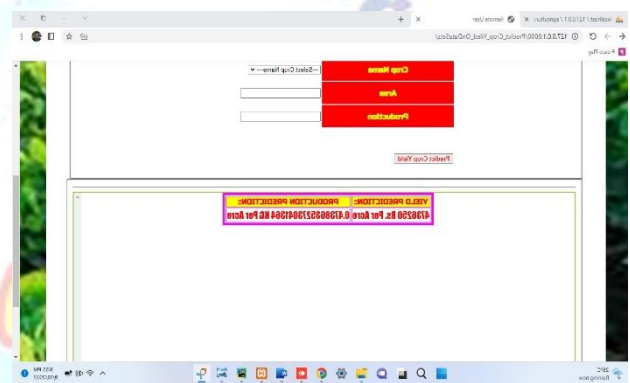
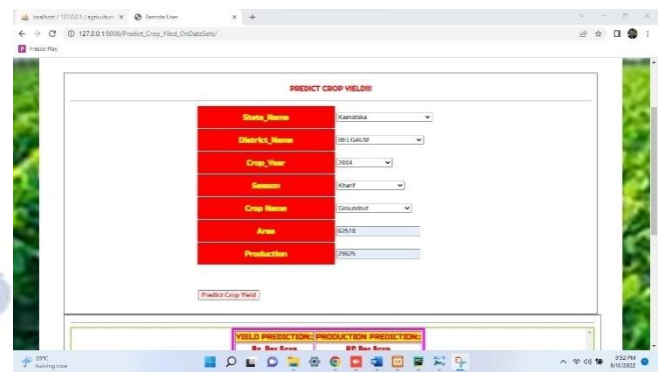
Disadvantages

- 1) An existing system's recommendation is based on soil and not based on Crop Recommendation Based on Production.
- 2) Farmers will be given recommendation by considering not the season of crop production.

4. ARCHITECTURE:



5. RESULTS



6. CONCLUSION

In this paper, significance of management of crops was studied vastly. Farmers need assistance with recent technology to grow their crops. Proper prediction of crops can be informed to agriculturists in time basis. Many Machine Learning techniques have been used to analyze the agriculture parameters. Some of the techniques in different aspects of agriculture are studied by a literature study. Blooming Neural networks, soft computing techniques plays significant part in providing recommendations. Considering the parameter like production and season, more personalized and relevant recommendations can be given to farmers which makes them to yield good volume of production

Conflict of interest statement

Authors declare that they do not have any conflict of interest.

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Authors Biography



T.Hemalatha is currently pursuing MCA in SVKP & Dr K S Raju Arts & Science College affiliated to Adikavi Nannaya University, Rajamahendravaram. Her research interests include Machine learning, Web Technologies and Artificial Intelligence.



B.N.Srinivasa Gupta is working as Associate Professor in SVKP & Dr K S Raju Arts & Science College, Penugonda, A.P. He received Masters Degree in Computer Applications from Andhra University and Computer Science & Engineering from Jawaharlal Nehru Technological University Kakinada (JNTUK), Kakinada, India. His research interests include Data Mining, Cyber Security, Artificial Intelligence