|| Volume 6 || Issue 4 || April 2021 || ISSN (Online) 2456-0774
INTERNATIONAL JOURNAL OF ADVANCE SCIENTIFIC RESEARCH
AND ENGINEERING TRENDS

SURVEY PAPER ON PREDICTION OF CROP YIELD AND SUITABLE CROP

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Abstract: - Agriculture has the largest contribution in the GDP of our country. But still the farmer's don't get worth price of the crops. It is mostly happens due to improper irrigation or inappropriate crops selection or also sometimes the crop yield is less than that of expected. By analyzing the soil and atmosphere at particular region best crop in order to have more crop yield and the net crop yield can be predict. This prediction will help the farmers to choose appropriate crops for their farm according to the soil type, temperature, humidity, water level, spacing depth, soil PH, season, fertilizer and months. This prediction can be carried out using Random Forest classification machine learning algorithm.

Keywords- *Crop yield, Prediction, Data analysis.*

I INTRODUCTION

The Data Analysis is process of inspecting cleansing, modelling data with the goal of discovering useful information and conclusions. It is a process of analysing, extracting and predicting the meaningful information from huge data to extract some pattern. This process is used by companies to turn the raw data of their customer to useful information. This analysis can also be used in the field of Agriculture. Most farmers were relied on their long-terms experiences in the field on particular crops to expect a higher yield in the next harvesting period But still the they don't get worth price of the crops. It is mostly happens due to improper irrigation or inappropriate crops selection or also sometimes the crop yield is less than that of expected.

Agricultural researchers insist on the need for an efficient mechanism to predict and improve the crop growth and Majority of research works in agriculture focus on biological mechanisms to identify crop growth and improve its yield. The outcome of crop yield primarily depends on parameters such as variety of crop, seed type and environmental parameters such as sunlight (Temperature), soil (ph), water (ph), rainfall and humidity. By analysing the soil and atmosphere at particular region best crop in order to have more crop yield and the net crop yield can be predict. This prediction will help the farmers.

To choose appropriate crops for their farm according to the soil type, temperature, humidity, water level, spacing depth, soil PH, season, fertilizer and months.

Motivation

Farming is the main occupation of India. About 70 percent of primary and secondary business is based on farming. So for the betterment of farming many farmers have started using the new technologies and methods. But people don't have awareness about the cultivation of the crops in a right time and at a right place. In this case an idea to identify the suitability of crops and yield based on various factors that affect the production can increase the quality and the yield of crops, thereby increase the economic growth and attain profitability.

II RELATED WORK

Literature survey is the most important step in any kind of research. Before start developing we need to study the previous papers of our domain which we are working and on the basis of study we can predict or generate the drawback and start working with the reference of previous papers.

In this section, we briefly review the related work on Crop Prediction and their different techniques.

K. L. Ponce Guevara1, J. Palacios Echeverra1" Green Farm-DM: A tool for analysing vegetable crops data from a greenhouse using data mining techniques." C4.5 algorithm, which uses a decision tree based on the data entropy is used and results are visualized graphically. [1].

Jheng, T.-Z., Li, T.H., & Lee, C.-P. Using hybrid support vector regression to predict agriculture tural output. Hybrid SVR models are used for prediction [2].

Manasa Manjunatha, Parkavi A Estimation of Arecanut Yield in Various Climatic Zones of Karnataka using Data Mining Technique: A Survey. Classified using fuzzy logic, decision trees, Multiple Linear Regression and Random Forest algorithm to predict the crop yield [3].

Md. Tahmid Shakoor, Karishma Rahman, Sumaiya Nasrin Rayta, Amitabha Chakrabarty "Agricultural production output prediction using Supervised Machine Learning techniques" Decision Tree Learning-ID3 (Iterative

Dichotomiser 3) and K-Nearest Neighbors Regression algorithms are used for prediction [4].

Diego Fabian Pajarito Grajales, Geidy Jhoana Asprilla Mosquera" Crop-Planning, Making Smarter Agriculture with Climate Data" Data management, geospatial visualization, chart generation using PostgreSQL, PostGIS and mapping libraries like Leaet [5].

Purnima Shah,Deepak Hiremath,Sanjay Chaudhary Towards Development of Spark Based Agricultural Information System including Geo-Spatial Data. Geo-spatial data is represented through interactive maps and Restful adhoc APIs like Sparklyr7 R interface for Apache Spark [6].

Sadia Afrin, Abu Talha Khan, Mahrin Mahia, Rahbar Ahsan Analysis of Soil Properties and Climatic Data to Predict Crop Yields and Cluster Different Agricultural Regions of Bangladesh Methods like K-means, PAM, CLARA and DBSCAN for clustering and four linear regression methods to predict crop yields are used [7].

Ch.Chandra Sekhar, Ch. Sekhar Productivity improvement in Agriculture sector using big data tools. This paper describes about yield prediction based on Big data tools like Hive, Scoop, and Apache Hadoop [8].

Shriya Sahu, Meenu Chawla An Efficient Analysis Of Crop Yield Prediction Using Hadoop Framework Based On Random Forest Approach. The method described in paper is used to predict crop yield using Random Forest approach [9].

Garg A, & Garg, B. A robust and novel regression based fuzzy time series algorithm for prediction of rice yield. Frequency based partitioning has been used subsequently, Fuzzy Logical Relationships of varying Degrees and Regression Analysis Model has been [10].

III PROPOSED SYSTEM:-

This project is used to predict the crop yield and suitable crop by considering the information such as soil type, temperature, humidity, season, fertilizer and months. The system provides easier and faster access to All the basic information regarding the District, rainfall, area under irrigation, crop, season yield, fertilizers used through which user can analysis the crop and also select the option of Prediction where he can select the crop production parameters to get the suitable crop for his farm. This system provides simple visualization so that user can understand and analysis things in easy way.

Advantages:

- This system gives easier and faster access to basic information.
- This system allows the user to customize the parameters of crop
- Easy to understand the results and prediction.
- Authentication is provided to the system.
- Better understanding of farming trends in different area.

IV CONCLUSION

This paper proposes a system which will help farmers to have an idea of yield estimates based on weather parameters and area under cultivation Using this farmer can make decisions on whether to grow that particular crop or go for alternate crop incase yield predictions are unfavorable.

Future Work: The future work on this project can be adding more options such as:

1. Crop disease detection and prevention, crop price prediction.

2. Current Market status and analysis for getting the information about market rates of crop, production cost, fertilizers.

3. Government schemes option to know new government schemes related with loans, fertilizers, and crop.

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