



e-ISSN: 2319-8753 | p-ISSN: 2347-6710

IJIRSET

International Journal of Innovative Research in
SCIENCE | ENGINEERING | TECHNOLOGY



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 11, Issue 3, March 2022

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 7.569

 9940 572 462

 6381 907 438

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 www.ijirset.com



Novel Approach for Crop Yield Prediction Using Machine Learning Approaches: Review

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ABSTRACT: The biggest contribution in our country's GDP is agriculture. However, the farmers still do not get a valuable crop price. This occurs mostly because of incorrect irrigation or selection of crops or sometimes because crop yields are lower than expected. The best crops to have greater harvest rates and net crop yield can be predicted by analysing land and atmosphere in a particular area. This forecast will help farmers select suited crops based on soil type, temperature, and humidity, level of water, distance depth, soil pH, season, fertiliser and months. Also our contribution works is fertilizer recommendation, goods selling and Agricultural equipment for renting

KEYWORDS: Agriculture, Crop soil, Prediction, Machine learning.

I. INTRODUCTION

The data analysis is the cleansing and modelling process for the purpose of finding useful information and conclusions. It is a process of analysis, extraction and prediction of meaningful data from enormous data to extract patterns. This process is used by companies to useful information about the raw data of their customers. In the field of agriculture this analysis may also be used. Most farmers relied on their long-standing experiences in the field with specific crops to expect higher returns in the following harvest period. Mostly due to inappropriate irrigation or crop selection, or the crop yield sometimes is lower than expected.

Farmers insist on the need for an effective mechanism for predicting and improving crop growth and Most agricultural research focuses on biological mechanisms to detect and improve crop growth. The result of the crop yield depends primarily on parameters like crop variety, seed type and environmental parameters such as sunlight (temperature), soil (ph), water (ph), plenty of plants and moisture. The best crops to have greater harvest rates and net crop yield can be predicted by analysing land and atmosphere in a particular area. The farmers will be helped by that prediction.

For suitable soil-type, temperature, water level, space depth, pH soil, season, fertiliser and months, choose appropriate crops for your farm.

Need:

Agriculture is India's principal occupation. Approximately 70% of primary and secondary companies are agricultural. Many farmers have therefore begun using new technologies and methods for improving farming. However, people are unaware in the right time and in the right place of growing crops. An idea to detect crop fitness and yield based on different factors affecting production could in this case improve crop quality and yield, thereby increasing economic growth and achieving rentability.

II. RELATED WORK

The C4,5 algorithm uses the decision book based on data entropy and results are visualised graphically. a tool for the analysis of greenhouse data on vegetables by using data mining technology [1].

To predict agricultural output, use the hybrid supportive vector regression. For prediction [2], hybrid SVR models are used.



A data mining method: a survey estimation of the yield of crop in several climatic zones in Karnataka. The algorithm of multi-level Regression and Random Forestry to predict crop yields is classified using furrowing logic [3].

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].

Crop-Planning, Making Smarter Agriculture with Climate Data” Data management, geospatial visualization, chart generation using PostgreSQL, PostGIS and mapping libraries like Leaflet [5].

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].

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].

Improving productivity through big data tools in the agricultural sector. This article describes a yield forecast based on large data tools such as Hive, Scoop and Apache Hadoop [8].

Efficient crop yield analysis based on the Random Forestry Approach using the Hadoop Framework. This method is used to predict crop yield by means of the Random Forest approach [9].

A strong and new time series algorithm to predict the rice yield based on robust and new regression. Fuzzy Logical Relations of varying degrees and Regression Analysis Model were used [10] subsequently for partitioning on a frequency based basis.

III. PROPOSED SYSTEM

This project predicts crop yields and appropriate crops, taking into account information such as the type of soil, temperature, humidity, season, fertilizer and months. The system gives easier and faster access to All basic information on the area, the rainfall, the irrigated area, the crops, the season yield, the fertilizer that users can use to analyses the crops and the option to predict the parameters of cultivation in order to get the appropriate crop for their farm. This system offers simple visualization, allowing users to easily understand and analyses things.

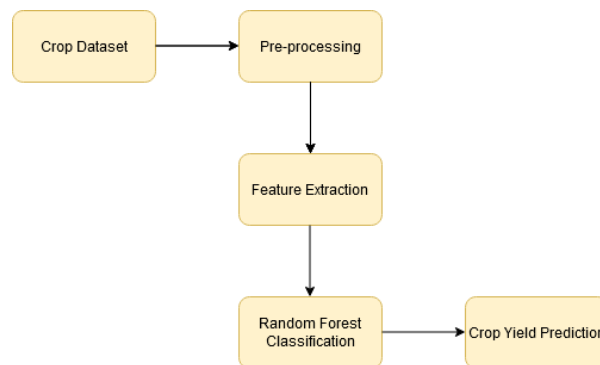


Figure 1. System Architecture

IV. CONCLUSION

This paper proposes a system that helps farmers get an idea of weather and cultivated area yield estimates Using this farmer can decide whether to cultivate this particular crop or to make predictions on the yield of alternate crops.

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