LITERATURE SURVEY ON ESTIMATE THE CROP YIELS USING DATA ANALYTICS

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[1] **Crop Yield Prediction Using Data Analytics and Hybrid Approach** by Shreya V. Bhosale; Ruchita A. Thombare; Prasanna G. Dhemey; Anagha N. Chaudhari.

In this project they made analysis and mined the agricultural data to get useful results using technologies like data analytics and machine learning and this result will be given to farmers for better crop yield in terms of efficiency and productivity.

Published in: 2018 Fourth International Conference on Computing Communication Control and Automation (ICCUBEA)

Date of Conference: 16-18 August 2018

Publisher: IEEE

[2] **Use Of Data Mining In Crop Yield Prediction** by Shruti Mishra; Priyanka Paygude; Snehal Chaudhary; Sonali Idate.

This paper focuses on implementing crop yield prediction system by using Data Mining techniques by doing analysis on agriculture dataset.

Published in: 2018 2nd International Conference on Inventive Systems and Control (ICISC)

Date of Conference: 19-20 January 2018

Publisher: IEEE

[3] **Big Data Analytics for Crop Prediction Mode Using Optimization Technique** by Shivi Sharma; Geetanjali Rathee; Hemraj Saini.

In this work, soil and environment features i.e. average temperature, average humidity, total rainfall and production yield are used in predicting two classes namely: good yield and bad yield.

Published in: 2018 Fifth International Conference on Parallel, Distributed and Grid Computing (PDGC)

Date of Conference: 20-22 December 2018

Publisher: IEEE

[4] **WB-CPI: Weather Based Crop Prediction in India Using Big Data Analytics** by Rishi Gupta; Akhilesh Kumar Sharma; Oorja Garg; Krishna Modi; Shahreen Kasim; Zirawani Baharum; Hairulnizam Mahdin; Salama A. Mostafa.

This paper aims at collecting and analysing temperature, rainfall, soil, seed, crop production, humidity and wind speed data (in a few regions), which will help the farmers improve the produce of their crops.

Published in: IEEE Access (Volume: 9)

Page(s): 137869 - 137885

Date of Publication: 04 October 2021

Publisher: IEEE

[5] **Agriculture Data Analytics in Crop Yield Estimation**: A Critical Review by B M Sagar, Cauvery N K. Crop yield prediction is one of the important factors in agriculture practices. Farmers need information regarding crop yield before sowing seeds in their fields to achieve enhanced crop yield. This study gives insights on various data analytics methods applied to crop yield prediction and also signifies the important lacunae points' in the proposed area of research.

Published in: Indonesian Journal of Electrical Engineering and Computer Science 12(3):1087-1093
Date of Publication: December 2018

[6] **Analysis Of Crop Yield Prediction Using Data Mining Techniques** by D Ramesh , B Vishnu Vardhan. This paper presents a brief analysis of crop yield prediction using Multiple Linear Regression (MLR) technique and Density based clustering technique for the selected region i.e. East Godavari district of Andhra Pradesh in India.
Published in: International Journal of Research in Engineering and Technology (IJRET).
Date of Publication: Jan-2015

SUMMARIZATION

S.NO	PAPER NAME	METHODOLOGIES	ADVANTAGES	DISADVANTAGES
1	Crop Yield Prediction Using Data Analytics and Hybrid Approach	In this project they made analysis and mined the agricultural data to get useful results using technologies like data analytics and machine learning. Algorithms like K-means clustering, Apriori algorithm and Naïve Bayes algorithm were used.	• The work will help farmers to increase the yield of their crops. • Storage of big data in clusters by using K-means clustering algorithm, reduce it valid content using the algorithm. • Apriori algorithm helped to count frequently occurring features which helped to predict crop yield for specific location. • Implemented Naive Bayes algorithm for finding out the exact crop.	• When working with K-mean clustering with the different representations of the data, the results achieved are also different. • when working with large datasets is that the Apriori algorithm is slow, inefficient, and uses a lot of resources • If your test data set has a categorical variable of a category that wasn't present in the training data set, the Naive Bayes model will assign it zero probability and won't be able to make any predictions in this regard. This phenomenon is called 'Zero Frequency,' and you'll have to use a smoothing technique to solve this problem.

2	Use Of Data Mining In Crop Yield Prediction	This paper focuses on implementing crop yield prediction system by using Data Mining techniques by doing analysis on agriculture dataset. Different classifiers are used namely J48, LWL, LAD Tree and IBK for prediction and then the performance of each is compared using WEKA tool. The classifiers are further compared with the values of Root Mean Squared Error (RMSE), Mean Absolute Error (MAE) and Relative Absolute Error (RAE). The result is based on comparison among the classifiers.	• IBK achieves highest accuracy. • The information that we acquired after analysis can be combined in a form that is useful to the farmers for early prediction and decision making process. With the help of this information the percentage of loses and unsatisfactory yield will decrease as the management of the whole process can be done with the help of real statistics.	• A level of performance which could not be achieved by single algorithm. • The nature of dataset affects the analysis.
3	Big Data Analytics for Crop Prediction Mode Using Optimization Technique	A hybrid classifier model is used in optimizing the feature and the proposed approach is divided into three phase's viz preprocessing, feature selection and SVM_GWO i.e grey wolf optimizer along with Support Vector machine (SVM) classification is used to improve the accuracy, precision, recall and F-measure. The result shows that SVM_GWO approach better.	• Increase the accuracy of prediction model by using different parameters for future precision agriculture. • This paper presents a hybrid model i.e, SVM_GWO that uses a combinational approach for improving the classification accuracy, recall, precision, f-measure by selecting the optimal parameters settings in SVM.	• There are many challenges and direction such as applying other machine learning technique like artificial neural network, random forest etc. and optimization algorithm with hybrid approach to select the best feature

4	Weather Based Crop Prediction in India Using Big Data Analytics	Methodologies used in this proposal includes big data analytics map reduce jobs and map function algorithm, regression and scenario analysis, K-means clustering and graphical visualization.	• The model focuses on a wide range of crops and their produce per area along with the soil type and seed types depending on the varieties used in a particular region. • The relation between parameters (like optimal temperature, seasonal rainfall, wind speed, humidity, soil availability, required seed types), crop and region has been studied and displayed using 2D and 3D graphs. • The system is scalable and it can be used to find the recommended crops of other states in a similar manner as described.	• The problem of disproportion in the production and requirement ratio if an aspect of humidity, wind speed was not added for all the regions and will not give more accurate recommendation. • Factors like soil moisture, irrigation, cloud cover etc. Were not been included in the system to refine its output. • There is no recommender system warning about the diseases that can occur in a crop in a particular season and suggestion of the types of fertilizers or nutrients needed in the soil for the crop to grow and give.
5	Agriculture Data Analytics in Crop Yield Estimation: A Critical Review	The present study gives insights on various data analytics methods applied to crop yield prediction and also signifies the important lacunae points in the proposed area of research.	• The innovations have led to new concepts like digital agriculture, smart farming, precision agriculture. • In this survey, the specific activity, crop yield prediction has been surveyed and the major trends have been identified.	• Insufficiency in any one of the required data results in complete collapse of the prediction.

6	Analysis Of Crop Yield Prediction Using Data Mining Techniques	This paper presents a brief analysis of crop yield prediction using Multiple Linear Regression (MLR) technique and Density based clustering technique for the selected region.	• The validity of yield prediction which are useful for the farmers of Andhra Pradesh for the prediction of a specific crop	• Proposed techniques were not that much efficient.