ESTIMATE THE CROP YIELD USING DATA ANALYTICS

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INTRODUCTION

- ➢ Crop production in India is one of the most important sources of income and India is one of the top countries to produce crops. As per this project we will be analyzing some important visualization, creating a dashboard and by going through these we will get most of the insights of Crop production in India.
- ➢ Agriculture is important for human survival because it serves the basic need. A well-known fact that the majority of population (≥55%) in India is into agriculture.
- ➢ Due to variations in climatic conditions, there exist bottlenecks for increasing the crop production in India. It has become challenging task to achieve desired targets in Agri based crop yield. Various factors are to be considered which have direct impact on the production, productivity of the crops.
- ➢ The use of technology in agriculture has increased in recent year and data analytics is one such trend that has penetrated into the agriculture field.

LITERATURE SURVEY

1. **TITLE**: Crop Production using Predictive Analysis

AUTHOR: P S Vijaya Baskar, R Sreemathi, E Keertanaa

DESCRIPTION: This work is to construct a model for testing the soil fertility. It also suggests the crop which has to be planted depending upon the value obtained from the sensor. It also provides the regional wise information about the crop in the form of graph. We have farmer chat where the farmers can share and get idea from the expert by registering in this application. It also suggests the fertilizer which has to be added to the soil in order to increase the crop productivity. It helps the farmer to analyse the fertility of their yard and plant the better crop to increase their productivity and profit. It also provides the information about the fertilizer to be added in the soil and also provide the information about the nearby fertilizer shop.

2. **TITLE:** Data analytics platforms for agricultural systems: A systematic literature review

AUTHOR: NgakanNyoman Kutha Krisnawijaya, BedirTekinerdogan, CagatayCatal, Rik van derTol

DESCRIPTION: Agriculture is important for human survival because it serves the basic need. A known fact that the majority of population (55%) in India are into the agriculture for their cost of living. Due to changes in climatic conditions, there is a slowdown in progress for increasing the crop production in India. It has become challenging task to achieve desired targets in agriculture-based crop yield. With the reduction of availability cultivable land around the globe and the decreased cultivable water resources, it is becoming impossible to achieve higher crop yield. Not only water resources but also Various seasonal, economic and environmental factors influence the crop production, drastic changes in these factors lead to a great loss to farmers. These risks can be measured using data analytics and machine learning which are applied on data related to soil, weather and previous yield. With the help of data analytics, crop yield can be predicted by deriving useful insights from these agricultural data that helps farmers to decide the crop they would like to plant for the forthcoming year leading to maximum profit. data analytics is one approach to have a important role and positive impact on the increase of crop yield by providing the optimum condition for the plant growth and decreasing the yield gaps and the crop damage and wastage.

3. **TITLE**: Soil Based Prediction for Crop Yield using Predictive

AUTHOR: M. Chandraprabha; Rajesh Kumar Dhanaraj

DESCRIPTION: Analytics Soil is the main component and plays a significant role in agriculture. Based on the nutrients and pH value of the soil, crop yielding is determined. Farmers are still using traditional approach to analysis the soil quality. The techniques like Data Mining, Artificial Intelligence, Machine Learning, Deep learning and Predictive Analytics are the emerging technologies in research to improve the agricultural field. Predictive analysis is a technique of machine learning that predicts the future outcomes and analysis is based on the historical or past data. In agriculture, predictive analytics helps to predict or identify the soil nutrients level required for the crops like Paddy, Raagi, Cumbu etc., In this paper, the soil-based dataset is collected from TNAU website and it has 32 districts of Tamil Nādu. The algorithms such as Naïve bayes, Bayes Net, and IbK have been deployed to predict the crop variety suitable for the soil based on the total production and area sown district wise. Also, its accuracy levels are compared. The accuracy is determined using true positive value, false positive value, precision, recall, f-measure and MCC.

4. **TITLE:** Crop Recommendation and Yield Production using SVM Algorithm

AUTHOR: M. Sai Teja; T. Sai Preetham; L. Sujihelen; Christy; S. Jancy;

DESCRIPTION: Different soil parameters affect agriculture growth, namely Nitrogen, Phosphorous, Potassium, Crop Rotation, Soil Moisture, pH, surface temperature, and weather factors such as temperature, rainfall, etc. With the help of technology, farm yields will improve due to increased crop productivity. Smart Agriculture is provided by the proposed

work via the monitoring of the agricultural field. As a result, it can greatly increase farmers' output. This research work present a website to employ Machine Learning [ML] algorithms combined with historical weather information to determine the most profitable crop under the current weather conditions. Using weather parameters, soil parameters and historic yields, this system can also predict crop yields. The proposed work aims at creating a system that integrates data from multiple sources, data analytics, and forecast analysis that can enhance crop yield productivity and make farmers more profitable in the long run.

5. TITLE: Crop Yield Prediction Using Data Analytics and Hybrid Approach

AUTHOR: Shreya V. Bhosale; Ruchita A. Thombare; Prasanna G. Dhemey;

DESCRIPTION: Indian Economy has Agriculture as its backbone. In India, agricultural yield is primarily depends on weather conditions. Rice cultivation is majorly depends on rainfall. In this context, timely advice to predict the future crop productivity and an analysis is to be made in order to help the farmers to maximize the crop production of crops [3]. Yield prediction is an important agricultural problem. Earlier Farmers used to predict their yield from past yield experiences. Thus, for such kind of data analytics in crop prediction, there are different techniques or algorithms, and with the help of those algorithms we can predict crop yield [3]. Agricultural data is being produced constantly and enormously. As a result, agricultural data has come in the era of big data. Smart technologies contribute in data collection using electronic devices. In our project we are going to analyse and mine this 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.

REFERENCES

[1] Ledig, C. (2017). href {https://ieeexplore. ieee. org/abstract/document/8099502}{Photo-Realistic Single Image Super-Resolution Using a Generative Adversarial Network}. In Cvpr (Vol. 2, No. 3, p. 4).

[2] Krisnawijaya, N. N. K., Tekinerdogan, B., Catal, C., & van der Tol, R. (2022). Data analytics platforms for agricultural systems: A systematic literature review. Computers and Electronics in Agriculture, 195, 106813.

[3] M. Chandraprabha and R. K. Dhanaraj, "Soil Based Prediction for Crop Yield using Predictive Analytics," 2021 3rd International Conference on Advances in Computing, Communication Control and Networking (ICAC3N), 2021, pp. 265-270, doi: 10.1109/ICAC3N53548.2021.9725758.

[4] M. S. Teja, T. S. Preetham, L. Sujihelen, Christy, S. Jancy and M. P. Selvan, "Crop Recommendation and Yield Production using SVM Algorithm," 2022 6th International Conference on Intelligent Computing and Control Systems (ICICCS), 2022, pp. 1768-1771, doi: 10.1109/ICICCS53718.2022.9788274

[5] S. V. Bhosale, R. A. Thombare, P. G. Dhemey and A. N. Chaudhari, "Crop Yield Prediction Using Data Analytics and Hybrid Approach," 2018 Fourth International