ONLINE AGRO PREDICTIOPN BY USING DATAMINING TECHNIQUES

R.Dhivyabharathi[1] , M.Sowntharya[2] ,R.Srimathi[3], K.Ashok kumar [4]

[1,2,3] *Computer Science and Engineering, Sengunthar Engineering College(India)*

[4] *Associate professor,Computer Science and Engineering, Sengunthar Engineering college(India)*

ABSTRACT

India is an agricultural country and its economy is largely based upon crop productivity. Crop yield prediction is an important area of research which helps in ensuring food security all around the country. The proposed system helps us to predict the better crop yield and also suggest the best crop in different type of weather condition based on different parameter related to climates. This prediction will help the farmer to choose, whether the particular crop is suitable for that area and in the particular season. In addition this website provides information such as irrigation, and rate of productivity details for each crop. Thus by using the various features the project helps the farmers in increasing crop production and quality of crop.

Keywords-*Naïve Beyes algorithm, Data mining , crop productivity.*

I.INTRODUCTION

Yield prediction is an important agricultural problem. Every farmer is interested in knowing, how much yield he is about expect. In the past, yield prediction was performed by considering farmer's previous experience on a particular crop. The volume of data is enormous in tea industry. The challenge has been to extract knowledge from this raw data which has lead to new methods and techniques such as data mining that can bridge the knowledge of the data to the crop yield estimation. Data Mining is widely applied to agricultural problems. Data Mining is used to analyze large data sets and establish useful classifications and patterns in the data sets. The overall goal of the Data Mining process is to extract the information from a data set and transform it into understandable structure for further use. The effect of observed seasonal climatic conditions such as rainfall, temperature and soil details. Crop yield prediction is an important area of research which helps in ensuring food security all around the country. This proposed system helps us to predict the better crop yield and also suggest the best crop in different type of weather condition based on different parameter related to climates. We collect crop dataset from publicly available Indian Government records for the crop yield prediction. The parameters that are included in the dataset are location, year, season, production, minimum temperature, average temperature, maximum temperature and mean rainfall over the country for certain period of time. This prediction will help the farmer to choose, whether the particular crop is suitable for that area and in the particular season. In addition this website provides information such as irrigation, pesticide details and insecticide details for each crop. Thus by using all the above features this project helps the farmers in increasing crop production and quality of crop.

II. DATA MINING TECHNIQUES

Data Mining is the discovery for knowledge of analyzing enormous set of data by extracting the meaningful data and thereby predicting the future trends with them. The available data needs to be turned into useful information in the field of Information Technology. The useful information is further used for various applications. Data Mining deals with what kind of patterns can be minedBased on the kind of data to be mined, there are two kinds of functions involved in Data Mining: Descriptive model and Predictive model. The Descriptive model identifies patterns or relationships in data and deals with general properties of data in the database. The predictive model is the process of finding a model which describes the data classes or concepts, the purpose being to be able to use this model to predict the class of objects whose class label is unknown. Data mining techniques are mainly divided into two groups, viz. classification and clustering techniques. Classification techniques are designed for classifying unknown samples using information provided by a set of classified samples. This set is usually referred to as a training set, because, it is generally used, to train the classification technique i.e. how to perform its classification. If a training set is not available, there is no previous knowledge about the data to classify. In this case, clustering techniques were used to split a set of unknown samples.

2.1. Objectives

The method concentrates on better results of crop prediction. It also considers parameters such as area, production rate, mean temperature, mean rainfall details. Hence, multiple parameters are considered. So the prediction for rice crop yield will give suitable results for the farmers who depend on agriculture. It is a web application so it is easily accessible by all kinds of users. It increase the crop productivity rate .It is a reliable web application.

2.2. Existing System

Crop prediction is a complex phenomenon that is influenced by agro-climatic input parameters. Agriculture input parameters varies from field to field and farmer to farmer. Collecting such information on a larger area is a daunting task. The huge such data sets can be used for predicting their influence on major crops of that particular district or place. Manual prediction technique is not suitable for large dataset because it does not produce accurate result. In existing system there is no reliable prediction technique. It does not give accurate prediction result. It takes more time to predict the crop plantation details. Average yield in India is just 30%to 50% of the highest average yield in the world. Agriculture in India is not technologically developed. Irrigation facilities are inadequate. Illiteracy and socio-economic backwardness.
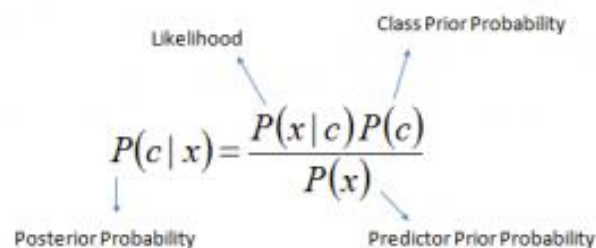
2.3. Proposed System

In proposed method is a web application. The crop data set is analyzed and determined the optimal parameters for the crop production. And also the proposed system is considered with the soil and other factors for the crop and to increase the crop production under the different climatic conditions. It is faster and more efficient than manual prediction especially over large datasets. The mean, average rainfall and temperature for the crop are considered. It increases the crop production under the different climatic conditions. It provides much better

result than existing system. Assisting with farm inputs and weather patterns to increase a crop yield production, networks are more powerful tools. IT is a tool for direct contribution to the agricultural productivity. IT is an indirect tool for empowering farmers to take quality decisions. Through the method, prediction of crop yield is accurate model for crop yield estimation.

III. NAIVE BAYES ALGORITHM

It is a classification technique based on Bayes' Theorem with an assumption of independence among predictors. In simple terms, a Naive Bayes classifier assumes that the presence of a particular feature in a class is unrelated to the presence of any other feature. For example, a fruit may be considered to be an apple if it is red, round, and about 3 inches in diameter. Even if these features depend on each other or upon the existence of the other features, all of these properties independently contribute to the probability that this fruit is an apple and that is why it is known as 'Naive'. Naive Bayes model is easy to build and particularly useful for very large data sets. Along with simplicity, Naive Bayes is known to outperform even highly sophisticated classification methods. Bayes theorem provides a way of calculating posterior probability $P(c|x)$ from $P(c)$, $P(x)$ and $P(x|c)$. Look at the equation below:

$$P(c \mid x) = \frac{P(x \mid c)P(c)}{P(x)}$$

Likelihood — $P(x|c)$

Class Prior Probability — $P(c)$

Posterior Probability — $P(c|x)$

Predictor Prior Probability — $P(x)$

$$P(c \mid X) = P(x_1 \mid c) \times P(x_2 \mid c) \times \cdots \times P(x_n \mid c) \times P(c)$$

Above, $P(c|x)$ is the posterior probability of class (c, target) given predictor (x, attributes). $P(c)$ is the prior probability of class. $P(x|c)$ is the likelihood which is the probability of predictor given class.

$P(x)$ is the prior probability of predictor. A Naive Bayes model consists of a large cube that includes the following dimensions:Input field name.Input field value for discrete fields, or input field value range for continuous fields. Continuous fields are divided into discrete bins by the Naive Bayes algorithm.

Target field value.

IV. Figure
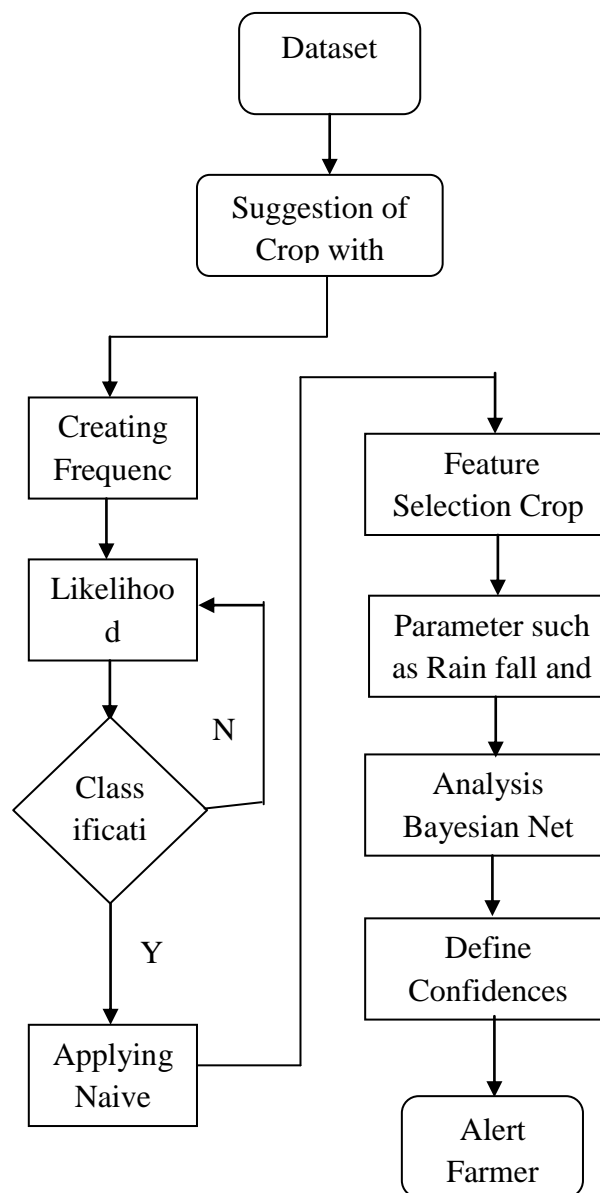
V.CONCLUSION

There is a growing number of applications of data mining techniques in agriculture and a growing amount of data that are currently available from many resources. This is relatively a novel research field and it is expected to grow in the future. There is a lot of work to be done on this emerging and interesting research field. The multidisciplinary approach of integrating computer science with agriculture will help in forecasting/ managing agricultural crops effectively. In this project, the prediction of crop yield is predicted by applying one of the machines learning technique such as Naive Bayes Algorithm. Through this project, prediction of crop yield is accurate model for crop yield estimation using information and communication technologies that could help the farmers.

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