**LITERATURE SURVEY**

**1) CRY—an improved crop yield prediction model using bee hive clustering approach for agricultural data sets**

**AUTHORS:**  Ananthara, M. G., Arunkumar, T., & Hemavathy, R.

Agricultural researchers over the world insist on the need for an efficient mechanism to predict and improve the crop growth. The need for an integrated crop growth control with accurate predictive yield management methodology is highly felt among farming community. The complexity of predicting the crop yield is highly due to multi dimensional variable metrics and unavailability of predictive modeling approach, which leads to loss in crop yield. This research paper suggests a crop yield prediction model (CRY) which works on an adaptive cluster approach over dynamically updated historical crop data set to predict the crop yield and improve the decision making in precision agriculture. CRY uses bee hive modeling approach to analyze and classify the crop based on crop growth pattern, yield. CRY classified dataset had been tested using Clementine over existing crop domain knowledge. The results and performance shows comparison of CRY over with other cluster approaches.

**2) An intelligent system based on kernel methods for crop yield prediction**

**AUTHORS:** Awan, A. M., & Sap, M. N. M.

This paper presents work on developing a software system for predicting crop yield from climate and plantation data. At the core of this system is a method for unsupervised partitioning of data for finding spatio-temporal patterns in climate data using kernel methods which offer strength to deal with complex data. For this purpose, a robust weighted kernel k-means algorithm incorporating spatial constraints is presented. The algorithm can effectively handle noise, outliers and auto-correlation in the spatial data, for effective and efficient data analysis, and thus can be used for predicting oil-palm yield by analyzing various factors affecting the yield.

**3) Fuzzy Logic based Crop Yield Prediction using Temperature and Rainfall parameters predicted through ARMA, SARIMA, and ARMAX models**

**AUTHORS:** Bang, S., Bishnoi, R., Chauhan, A. S., Dixit, A. K., & Chawla, I.

Agriculture plays a significant role in the economy of India. This makes crop yield prediction an important task to help boost India's growth. Crops are sensitive to various weather phenomena such as temperature and rainfall. Therefore, it becomes crucial to include these features when predicting the yield of a crop. Weather forecasting is a complicated process. In this work, three methods are used to forecast- ARMA (Auto Regressive Moving Average), SARIMA (Seasonal Auto Regressive Integrated Moving Average) and ARMAX (ARMA with exogenous variables). The performance of the three is compared and the best model is used to predict rainfall and temperature which are in turn used to predict the crop yield based on a fuzzy logic model.

**4) Crop Yield Prediction Using Data Analytics and Hybrid Approach**

**AUTHORS:** Bhosale, S. V., Thombare, R. A., Dhemey, P. G., & Chaudhari, A. N.

Agricultural data is being produced constantly and enourmosly. 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.

**5) A study on various data mining techniques for crop yield prediction**

**AUTHORS:** Gandge, Y

India is a country where agriculture and agriculture related industries are the major source of living for the people. Agriculture is a major source of economy of the country. It is also one of the country which suffer from major natural calamities like drought or flood which damages the crop. This leads to huge financial loss for the farmers thus leading to the suicide. Predicting the crop yield well in advance prior to its harvest can help the farmers and Government organizations to make appropriate planning like storing, selling, fixing minimum support price, importing/exporting etc. Predicting a crop well in advance requires a systematic study of huge data coming from various variables like soil quality, pH, EC, N, P, K etc. As Prediction of crop deals with large set of database thus making this prediction system a perfect candidate for application of data mining. Through data mining we extract the knowledge from the huge size of data. This paper presents the study about the various data mining techniques used for predicting the crop yield. The success of any crop yield prediction system heavily relies on how accurately the features have been extracted and how appropriately classifiers have been employed. This paper summarizes the results obtained by various algorithms which are being used by various authors for crop yield prediction, with their accuracy and recommendation.