



# SYSTEM FOR AGRICULTURE RECOMMENDATION USING DATA MINING

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## ABSTRACT

Agriculture in today's life is not like as our forefather done. The strong Climatic changes due to many reasons like global warming cause difficulty to understand climatic conditions. So the farmers unable to understand which crop to select by which the production will improve. By understanding soil and climate conditions by using these data mining system farmers will be able to take right crop at right place which will improve yields. So it is easy for farmers to decide which crop to take in unpredictable climate conditions.

This project will help to solve these agriculture problems using data mining algorithms. Algorithms like Genetic Algorithm (GA), Association Rule Mapping (ARM). Knowledge Discovery in Databases (KDD) is the centroid of this project from which we can really understand the concept of data mining.

**KEYWORDS-** Data Mining, Genetic Algorithm, Association Rule Mapping, Knowledge Discovery in Databases.

## I. INTRODUCTION

Agriculture field is the backbone of any country. Agriculture supplies the food and raw materials to the people in country. It is the only income source of many peoples. Peoples who belongs with agriculture field faces many problems such as decreasing production due to unsuitable climatic changes, flood, dearth and many other natural reasons and rarely factors. They are unable to do agriculture due to this reasons. We can use Information Technology (IT) to overcome this problems. In today's life Information Technology is used in every field worldwide. The Data Mining is a part of IT which we can use to solve agriculture problems mentioned above. The basic idea of the Data Mining is that it generates useful information by extracting from large datasets. To be more accurate, it is a technique of extracting useful information from large amount of data. It is the practice of automatically searching large stores of data to discover associations and trends that go beyond simple analysis. Data mining can answer questions that cannot be addressed through simple query and reporting techniques.

In this project, we present a system that can be used to decide the suitable crop for sowing. We are using the web based system to extract the required result from web. We are using Weather Forecast Report, Soil and Land use survey of India, Soil Report survey, crop survey as databases.

System for Agriculture Recommendation using Data Mining is based on the following steps:

1. Registration of a customer to the system. This registration contains his username, password, name, address, land details like Altitude, Latitude and Longitude, contact information such as phone number and mailing address.
2. Whenever customer requires the crop details then user will extract the required crop suitable for his farm to sowing.
3. Using message system user always sends the data for customers.

## II. PREVIOUSWORK

[1] Each and every sector in this digital world is undergoing a dramatic change due to the influence of IT field. But, till date not much work has been done in the agricultural sector. The use of various data mining techniques in agricultural sector will be a continuing area of research. The ultimate goal is to increase the yield of the agricultural sector. Mr. Omkar B. Bhalerao and Prof. L. M. R. J. Lobo, have proposed to get an optimized result from various agricultural databases by applying the data mining and optimizing techniques and understanding the soil condition and give the proper recommendation of crop on the basis of soil condition and other factors. It also recommends use of fertilizers and pesticides for a specific recommended crop. With respect to this recommendation, they also suggest side business for formers which will be helpful to improve his economic life. They proposed methodology is a two stage model. In first stage they apply association rule mining on the agriculture historical data and generate rules from frequent item sets by applying the proper support and confidence for each rule. The user then gives a minimum support and confidence and based on this initial best rules that form the initial population for GA are extracted. In the second stage, we apply Genetic algorithm to optimize the initial population rules which we get from association rule mining. So that, they will get best rules that predict output as an optimized agriculture crop.

## III. PROPOSED SYSTEM ARCHITECTURE

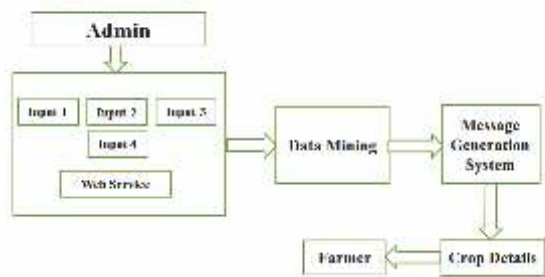
The objective of System for Agriculture Recommendation System using Data Mining is to improve the production of crops as well as improve the economic conditions of farmers. At the same time using the available resources optimally and efficiently in today's critical situation of natural resources like lack of availability of sufficient water, electricity and degrading quality of fertile land.

The system will extracting databases for crop selection when farmer required and sends that data firstly to the user's computer and then the message to farmer. The system will mining the suitable crop for particular farm of a farmer and generates results in user compatible format.

**SMS ALERTS to FARMER:**

The system will send SMS ALERTS alerts to the farmer about the crops suitable for farm based on the mining result. It may contain one or more crop for selection but the priority is given to only that crop which is more suitable. So he can sow or plant these crop without worrying about production of crops in field or climatic changes.

**Proposed System Architecture**



**IV. MATHEMATICAL MODEL**

Let us consider a set S

Where,  
 $S = \{WD, SD, CRD, CLD, INPUT, OUTPUT, SUCCESS, FAILURE\}$

Here,  
**WD** - Weather Database  
**SD** - Soil fertility database  
**CRD** - Crop Database  
**CLD** - Client Data (Address or Altitude, Longitude & Latitude)

$$INPUT = WD + SD + CRD + CLD$$

**OUTPUT** = Suitable Crop Details for Farm.

**Success:**

- 1) Authentication successful.
- 2) Application started.
- 3) Message deliver to customer.
- 4) Positive feedback from customer.

**Failure:**

- 1) Authentication failed.
- 2) Application not started.
- 3) Message not deliver to customer.
- 4) Negative feedback from customer.

**V. CONCLUSION**

In this digital world each and every sector is undergoing a dramatic change due to IT field. But, in agriculture field, till date not much work has been done. Various data mining technique's use in agricultural field will be a large area of research. The ultimate goal is to increase the crop yield of the agricultural field. We have proposed a system with the help of Data mining techniques like Genetic Algorithm and Association rule mapping, which helps to find out the perfectly suitable crop suggestion for a farmer based on soil condition, weather conditions and crop details.

In conclusion we can say that if perfect crop recommendations are given to farmers it will definitely help to increase the crop yield and also in building the economic status of agricultural dependent countries.

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