Review on Urea Prediction System using Fuzzy Logic

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Abstract- *Now a days People want to use advance technology in farming but they have less knowledge in technology. Its very difficult to people for understand the technology or proper way to do E-farming. Choosing an organic fertilizer can be difficult, as nutrient ratios, nitrogen availability, ease of use, and cost can vary widely among materials. This Urea prediction system can help farmers to save time and money and avoid excessive or deficient fertilizers. Farmer can easily compare the cost, nutrient value, and nitrogen availability of organic materials and plan the most balanced and cost-effective fertilizer program for farm. The main objective of this project is to build an application, which will help farmers to decide the required amount of fertilizers for their farm. Fertilizers contain different amounts of nutrients, affecting the amount of the fertilizer you need. The nutrients are often written on the bag or packing slip as percentages, or as N:P:K:S (nitrogen:phosphorus:potassium:sulfur). In this application we are using MATLAB (matrix laboratory). MATLAB is multi-paradigm numerical computing environment and fourth generation programming language. The projects are implementing using fuzzy logic. Fuzzy logic is a sort of computer logic that is different from boolean algebra. It is different in the way that it allows values to be more accurate than on or off. While boolean logic only allows true or false, fuzzy logic al- lows all things in between. Fuzzy logic is a form of many valued logic in which truth values of variables may be any real number between 0 and 1, considered to be "fuzzy". Fuzzy logic has been employed to handle the concept of partial truth, where the truth-value may range between completely true and completely false. Application generates a description for farmers to buy required quantity of fertilizers.*

Keywords- Nitrogen, phosphorous, potassium (NPK), Urea (Fertilizers), Soil, Farm.

1. INTRODUCTION

The traditional farming is the very big problem in today's farming success. All farmers can try to survive in the town of Latest farming methodology. All farmer's can try to use the latest technology in traditional Farming but due to less knowledge in advance farming methods, it's going more difficult to get success. As per the advance technology evolve in farming, farmer's can do research in their field and also take their decisions Using given Information Tools. As per the need of IT in this field is concern, we are going to implement such software, which help farmer to take their fertilizer requirement for particular crop. Farmer can use the soil report details in the application proposed, and it will react the requirement of fertilizers. This is Decision making software, helps farmer to understand the appropriate need of fertilizer's for particular crop. The given working is tested by using research laboratories of Agricultural Institutes.

The Urea Prediction is an application which is developed for Quantity and Cost Generation of fertilizer's, the overall Calculations are dependent on the fixed values which use for quantity generation. As per the information Provided by Mahatma Phule Krishi Vidyapitha's Research persons, Any Crop is dependent on fixed value Nitrus, Phosphate and Potassium and as per the conditions of Indian farm, their issue to traditional farming In previous years, it was very harmful which cases the loss of quality of Farm; this loss is in the form Of variation in Nitrus, Phosphate and Potassium .As per the scientific Farming methodology, Science proves That any Crop required a constraint Ni- trus, Phosphate and Potassium. The fertilizer's we use to balance the Requirement of Nutrients. Urea Predictor Application is developed for Agricultural Department which is located At local places in Villages under the Government ablated once where the farmers can Test the Soil for Nitrus, Phosphate and Potassium. As per the available Nutrients in farmer's farm, Urea prediction application can Generate the requirement of Nitrus, Phosphate and Potassium as per the Crop wanted to take by farmer in His farm. This Application can generate the Fertilizer's Requirement to fullfilled the Required Nutrients to take crop in farm. Using this application, Experience persons or Soil Testing occurs can suggest or Guide Farmers about Crop is beneficial or not. Also if farmer wish to take crops farming application can generate The Nutrient requirement as per the organic or chemical Fertilizers. Using the generated Fertilizer's quantity Application can generate the approximate cost of fertilizers which help to decide farmer to use a type of Fertilizers.

2. LITERATURE SURVEY

Fertilizer Calculator A tool for comparing the cost, nutrient value, And nitrogen availability of organic materials.

Authors: - Andrews and Prof. J. Foster Choosing an organic fertilizer can be difficult, as nutrient ratios, nitrogen availability, ease of use, and cost can vary widely among materials [3]. This Urea prediction system can help farmers to save time and money and avoid excessive or deficient fertilizers. Farmer can easily compare the cost, nutrient value, and nitrogen availability of organic materials and plan the most balanced and cost-effective fertilizer program for farm [3]

Fertilizer Types and Calculating Application Rates. Author: - Prof.Rory Maguire, Prof.Mark Alley, Prof. W. G. Wiser. Crop production has increased dramatically over the last few decades, much of which has been due to the widespread introduction of chemical fertilizers starting in the mid-1900s. Matching fertilizer application rates to crop needs is an essential component of optimizing crop production [4]. How- ever, different crops in separate fields will require varying rates of the major nutrients nitrogen (N), phosphate (P2O5), and potassium (potash, K2O) due to variations in soil types, soil test phosphorus and potassium levels, and nutrient ranges of different crops. This publication covers the use of inorganic fertilizers sometimes referred to as commercial or chemical fertilizer, to supply the major crop nutrients N, P2O5, and K2O. These nutrients can also be provided from organic sources such as manures. Phosphate and K2O can be land-applied at any time, but normally it is more cost-effective to apply at the same time as N. How- ever, N is more mobile than P2O5 and K2O in the soil and should be applied as closely as possible to the time of crop uptake. Nitrogen in the form of nitrate can be lost from soils via leaching and can be denitrified to N gas in reducing conditions, such as soils saturated with water [1].

Fertilizer Calculator A tool for comparing the cost, nutrient value, And nitrogen availability of organic materials. Authors-Andrews and Prof. J. Foster Phosphate and K2O can be land-applied at any time, but normally it is more cost-effective to apply at the same time as N. However, N is more mobile than P2O5 and K2O in the soil and should be applied as closely as possible to the time of crop uptake. Nitrogen in the form of nitrate can be lost from soils via leaching and can be denitrified to N gas in reducing conditions, such as soils saturated with water. [2]
Fertilizer Calculations. Authors- Prof. Carol Rose Fertilizers contain different amounts of nutrients, affecting the amount of the fertilizer you need. The nutrients are often written on the bag or packing slip as percentages, or as N:P:K:S(nitrogen:phosphorus:potassium:sulfur) [4]. Application generates a description for farmers to buy required quantity of fertilizers. Most of the values provided in the calculator are estimates from generic materials avail- able in Oregon. Many organic materials, especially manures and compost, have highly variable nutrient contents, so we recommend using analyses for the materials you are considering [3].

3. PROPOSED SYSTEM

It helps the user to choose better crop as per Nutrient availability in soil. Fertilizer's requirement is generated By the application, which is very important for cost estimation in farming? Due to this use of application, Farmer can use advance technology in farming. Farmer can use this tool as an advance farming technology, Which is tested by agricultural research centres.The scope of this software is to provide a farm management, Fertilizer information, crop planning, cost estimation etc

People want to use advance technology but they have less knowledge in Technology. Its very difficult to understand the technology or proper way to Do E-farming. Now a days government also come to forward to give help to Farmers to show proper way to get success in this field. For this technology using ad- vance computing methods, we are simplifying the role of Help desk Centers by approaching the software like Urea Prediction, which are very easy to Understand, and gives the directions to user for appropriate decision making. Using these application farmers can easily know with its required amount of Urea (Fertilizer).

The main area of work for our software product is in securing the sensitive data of the user on his Laptop. Our Software product will reduce some burden as job of re-authentication repeatedly for the user and will provide the assurance that data is safe in absence of the user.

3.1 GOALS AND OBJECTIVES

Use of Urea prediction application, farmers can be use advance technology in farming. Farmers can use this tool as an advance farming technology, which is estimated by agricultural research Centers. The scope of this software is to provide a farm management, urea management. Information, crop planning, cost estimation etc.

1. Authentication of user.
2. Taking all the details of farmer.
3. Calculate all calculations like required nutrients and crop and fertilizer, required for that crop.
4. Select particular fertilizers (organic or chemical).
5. Calculate cost of fertilizers and generate the prescription of that result.

3.2 PROPOSED ARCHITECTURE

In system architecture have four modules there are Farmer, Administrator, System, Result as predicted Urea quantity. First farmer perform registration activity by fill his details and then successfully account creation. User fills his farm details as type of land, NPK ratio present in his farm after soil testing and which crop he want to take in his farm. With the help of this application admin manage all farmer

database given by farmer and then admin give input as analyzed NPK ratio, and type of land to application. Then on the basis of these details application generate result as quantity of Urea (fertilizer) required to suggested crop by farmer and provide this result as in text file to farmer. Using this application farmer can take good crop in his farm. This application support to e Farming.

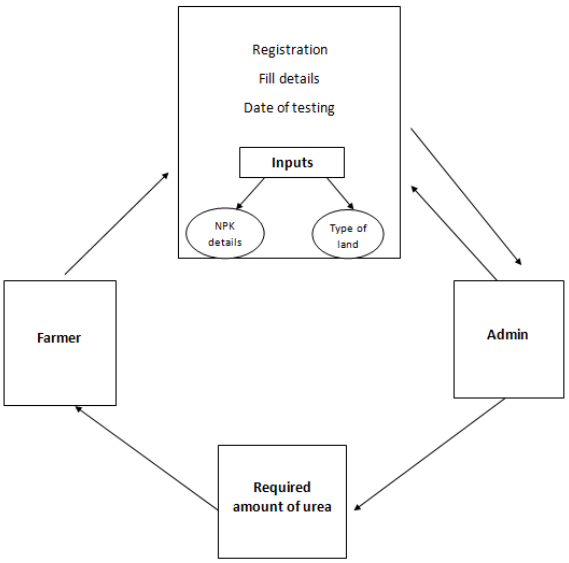

Fig 1: System Architecture

4. RESULTS

Fig 1: Admin Home Dataset

Fig 2: Login Page

Fig 3: Prediction

5. CONCLUSION

Now a day, the fertilizer seller sells their product to farmer, which is not Helpful for farmer, and the cost of their product is much more than the cost of the government cost. This application is helpful to farmer to use for unnecessary fertilizers and farmer paid appropriate cost of fertilizer. And this application helps the farmer to increase the production of crop in limited Fertilizer and limited cost. The development of farming field is the great challenge. IT can help to improve the agricultural field by providing a support for cost control and to decide a proper quantity of fertilizers. IT makes soil report more understandable to farmer.

REFERENCES

[1] Fertilizer Types and Calculating Application Rates /Prof.Rory Maguire,Prof.Mark Alley, Prof. W. G. Wiser /Publication 424-035

[2] Selecting Fertilizer Type, Timing, and Method of Applica- tions In order to calculate a fertilizer application rate

[3] Fertilizer Calculator A tool for comparing the cost, nutrient value, And nitrogen availability of organic materials. Andrews and Prof. J. Foster/ publication: E M 8936-E September 2007

[4] Fertilizer Calculations /Prof.Carol Rose, Prof. Extension/ Publication DPI 496-012