International Journal of Advance Research in Science and Engineering
Vol. No.4, Special Issue (01), August 2015
www.ijarse.com
IJARSE
ISSN 2319 - 8354

# NEW GEN SUPPORT SYSTEM FOR AGRICULTURAL CROPS FOR KANCHEEPURAM DISTRICT SOUTH INDIA

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**ABSTRACT**

*This NEW GEN support system for agricultural crops is a new approach for predicting agricultural crop productivity. This support system provides information about agricultural crop which helps the farmer in a sustainable way of farming and productivity through organic farming. The data sets and data record store large data items and provides efficient pattern recognition. The retrieved pattern provides information which fairly matches the farmer's requirements. It provides suitable datasets for different soil types, rainfall, weather and climatic conditions this support system provides all related information to a farmer without any expert consultant. It is mainly featured to tell which crop must be cultivated at right using those trained data sets and special datasets to give solution for diseased crop. Kancheepuram district is taken in account for examination.*

## I. INTRODUCTION

This support system is a user friendly and acts as an intelligent system. This system enable the user to take counsel from a computer system as they would act as an expert advisor to pinpoint what may becausing a disturbance and figure out how toresolve a problem, achieve a task and to deliver conclusion. Like a human expert, such a computer system can take out additional information from a user by requesting questions related to the problem through a consultation. The user input their queries and gets the answer which helps in proceeding further. It can make exhortation regarding the problem or decision at the end of a consultation, and it can explain the reasoning steps gone through to reach its decision when requested by a user. In Agriculture, there are many reasons accountable for low production. About one-third of land holdings are very small less than one hectare in sizes. Due to small size of land holdings we cannot use latest way of modern farming. Even today agriculturalists are using very ancient methods, tools and execution for agricultural. Activities are not consuming the artificial ways of agriculture. Inputs like-better quality of seeds, nourishments and pesticides are also not used by maximum of the agriculturalists. Use of the marginal farmers is also answerable. There is also low yield because of aggregate stress on land and the absence of bank credit. The first two review papers describe about the disease and solution for the specific crops. Third paper discuss with querying of the

agricultural explanation. This third generation support system has been designed and implemented in this research for all types of end users in Cultivation.

## II. REVIEW OF LITERATURE

A paper [1], an expert system exclusively for the integrated disease management in finger millet is being presented by incorporating fuzzy logic method to frame the rules and apply defuzzification to attach a value to the severity of the disease identified, based on which the control and remedial measures are suggested. Though there are many methodologies available to identify the disease and evaluate the severity, based on which the recommendations can be made, the most commonly used is the experience of the farmer and the knowledge of the agriculturist. The expert system that is been developed is a blend of both the above mentioned factors along with the application of technological advancements. Since the expert system has a module of acquiring new knowledge, the new breed of diseases that attack the crop can also be recorded. The system thus developed can also be extended to incorporate various other modules like integrated pest management, soil management and fertilizers management making it a total solution provider for in all aspect and hence increasing the yield.

A paper [2] designed and implemented a corn disease remote diagnostic system, which is focused on the prevention, diagnosis and control of diseases that affect China corn production. The knowledge acquisition process was conducted based on the knowledge obtained from the literature and experts. Enhanced by more than 100 photos and drawings that assist the use in the identification process, the corn disease remote diagnostic system is supported by a data base containing information for the identification of 63 diseases. The system can be used as an identification tool for farmers; this system has tried hard to unify the advanced Internet and information technology and the researches of domestic domain experts, and provides one kind of highly effective corn disease diagnosis method. By incorporating the value diagnosis to improve case retrieval, this system solved the problem that it is very difficult to find match case in case retrieval.

A paper [3] is designed and implemented on emergent expert system for querying agriculture clarification. It provides an expert system about agriculture which helps the farmer to cultivate the crops for high yield and giving awareness about the organic farming. This expert system contains three sections namely training, best combination for cultivation and awareness of organic farming. The training section gives basic needs of agriculture. The second section is about predicting the best combination for high yield in the crop cultivation. The third section gives awareness to farmers about organic farming. This system helps a new farmer to query his clarifications related to agriculture for better yield before cultivation. Decision tree technique is used here for crop production.

## III. THE PROPOSED METHODOLOGY

This proposed NEW GEN support system for agricultural crops. It is aimed at a collaborative venture with eminent Agriculture Scientists and Experts with an magnificent team of civil Engineers, computer Engineers, programmers and designers. The program is divided into two aspects: one is information system to find best crop and the second is agro docter which finds and give solution for infected plant. Hence the information about organic farming helps the farmer to get hygienic and yield high productivity. ASSOCIATIVE RULES is adopted in the present study to develop innovative approaches it is an data mining algorithm used here to predict

the best combination for cultivating crops. Association rules intended to indentify strong rules and discovery best pattern from large measures it is a new approach to find best crop for cultivation. The proposed system is described as follows:

### 3.1 Study Area

Kancheepuram district is situated on the northern East Coast of Tamil Nadu and is adjacent by Bay of Bengal and Chennai city and is bounded in the west by Vellore and Thiruvannamalai district, in the north by Thiruvallur district and Chennai district, in the south by Villuppuram district in the east by Bay of Bangal. It lies between 11° 00' to 12° 00' North latitudes and 77° 28' to 78° 50' East longitudes. The district has a total geographical area of 4393.37 Sq.Kms and coastline of 57 Kms. Kancheepuram, the temple town is the district headquarters. For administrative reasons, the district has been divided into 4 revenue divisions comprising of 11 taluks with 1137 revenue villages. For development reasons, it is divided into 13 development blocks with 648 Village Panchayats.


**FIG: 3.1 Tamilnadu Map**

**Tab: 3.1 Climate and Avg Weather of Kanchipuram District**

| Season | Maximum | Minimum |
|---|---|---|
| Summer | 36.6° C | 21.1° C |
| Winter | 28.7° C | 19.8° C |


**FIG: 3.2 Annual Rainfall IN mm.**

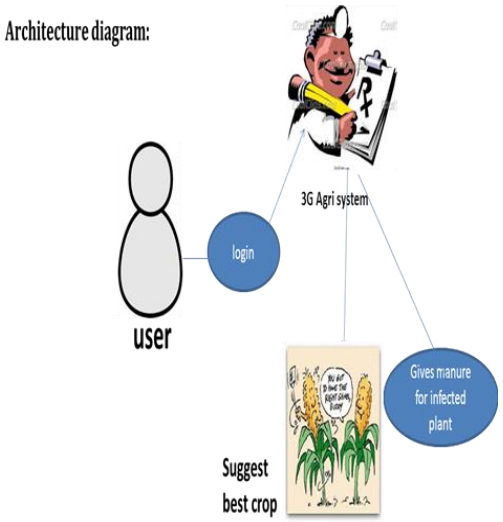
Paddy is the major crop cultivated in this district. Groundnuts, Sugarcane, Cereals & Millets and Pulses are the other major crops are cultivated. Palar River along with Tanks and wells are the main sources of irrigation in this district. Following table shows the details of agriculture in the district. Classification Area in ha Total Cropped 1,98,543 Area Net Area Sown1,60,090 are Area sown more 38,453 than once Area Under Principal Crops Rice1,45,966 Millets and 1,217 Cereals Pulses2,966 Sugarcane7,586 Groundnut28,766 Gingelly912 Cotton53 Classification Area in ha Total Cropped 1,98,543 Area Net Area Sown 1,60,090 Area sown more 38,453 than once Area Under Principal CropsRice1,45,966 Millets and 1,217 Cereals Pulses2,966 Sugarcane7,586 Groundnut28,766 Gingili 912 Cotton53.

**Tab: 3.2 Table Major Fields Where Crops Cultivated**

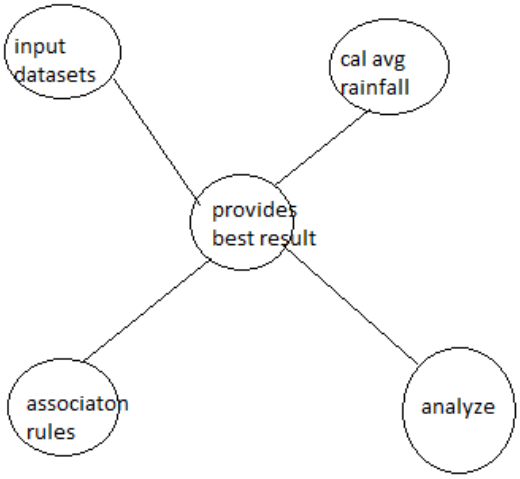
| | KHARIEF | | RABI | | | |
|---|---|---|---|---|---|---|
| CROPS | IRRIGATED | RAINFED | IRRIGATED | RAINFED | SUMMER | TOTAL |
| 1.PADDY | 18.1 | 0.4 | 59.8 | 0.7 | 12.4 | 91.4 |
| 2.GROUNDNUT | 4.6 | 1.3 | 15.3 | 0.7 | | 21.9 |
| 3.SUGARCANE | 1.5 | | 3.3 | | | 4.8 |
| BLACKGRAM | | | 0.2 | 0.4 | 0.4 | 0.6 |
| GREENGRAM | | | | | | 0.1 |
| OTHERS | | | | TOTAL AREA ('000ha) | | |
| HORTICULTURE CROPS-FRUITS | | | | 2.4 | | |
| 1.MANGO | | | | 0.3 | | |
| 2.BANNA | | | | 1.6 | | |
| 3.WATERMELON | | | | 0.2 | | |
| 4.GUAVA | | | | 0.2 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 5.CITRUS | | | | TOTAL AREA ('000ha) | | |
| HORTICULTURE CROPS-VEGITABLE | | | | 0.1 | | |
| 1.BRINJAL | | | | 0.1 | | |
| 2.BHENDI | | | | | | |
| MEDICINAL AND AROMATIC CROPS | | | | | | |
| PLANTATION CROPS | | | | | | |
| FORDDER CROPS | | | | | | |
| TOTAL FORDER CROP AREA | | | | 18.3 | | |

### 3.3 Architecture Diagram




### 3.4 Work Flow



### 3.5 Module Identification

1.) USER LOGIN

2.) 3G AGRO SYSTEM

2.1) BEST CROP

2.2.) AGRO DOCTER

3.) ADMIN SIDE

### 3.6 Methodology

Input the raw datasets/trained datasets.

- Particular location is choosen, karunguli is taken in kanchipuram district.
- Datasets inputed such as soil of that place its climatic condition, pan evaporation and rainfall data.
- This analysis different climatic condition, difference in rainfall and water scarcity in that particular area.

Finally it provides a best result out of experimental analysis.

## IV. Design and Implementation

### 4.1 Datasets

The monitoring data is a basic agriculture details with question and answers, hence good combination of crops gives high yield in organic farming. The data's stored in MYSQL database are real time dataset which gives proper sets. And we use large dataset for season, crops, soil types, weather and rainfall to give best solution.

### 4.2 User Login

Each user has their own id and password to login the website.

USER NAME: [ ]

PASSWORD: [ ]

[LOGIN]

### 4.3 3G Agro System

This 3g agro system consists of two section namely

i.)Best crop

ii.)Agri doctor

### 4.4 Agro Docter

Finds the diseases by analysis its symptoms given by the user. And the admin gives herbicides for diseased plant and it also tells way using it. This session helps the farmer or the user in preventing their crops.

## V. RESULT AND DISCUSSION

The pan evaporation and rainfall data for the year 2015 till July is taken for analysis and the evaluated bar charts are shown below. Comparison is made here between the year 2000 and 2015. You can notice that in the month of June 2015 the area had more rainfall and less evaporation, but in June 2000 the area had very less rainfall and more evaporation. So it not advisable for the farmers to cultivated based on season and month which we practiced in older days.

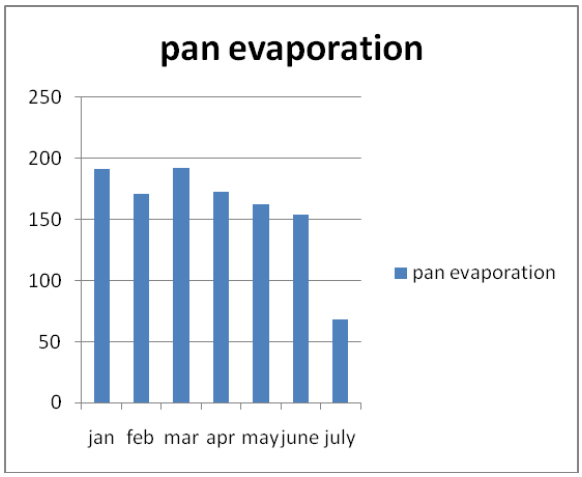



**Fig:5.1 Pan Evaporation in the Year 2015**

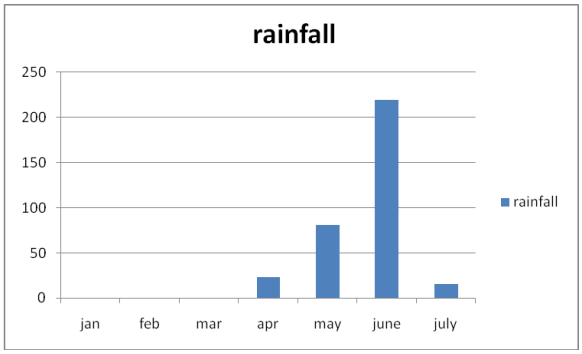



**Fig:5.2 Avg Rainfall in the Year 2015**

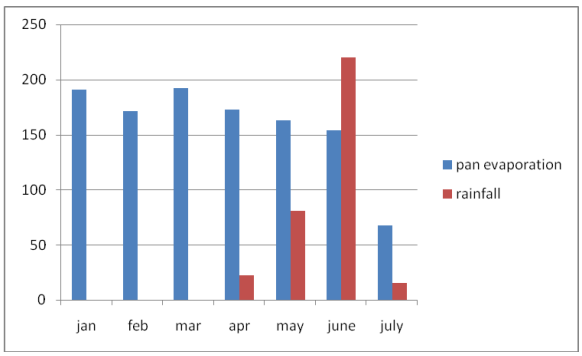



**Fig:5.3 Pan Evaporation and Rainfall Data For The Year 2015**

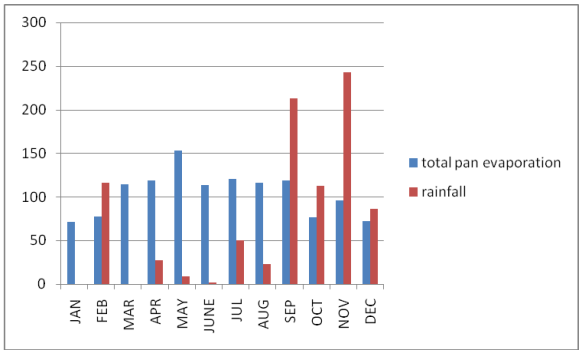



**Fig:5.4 Pan Evaporation and Rainfall Data for the Year 2000**

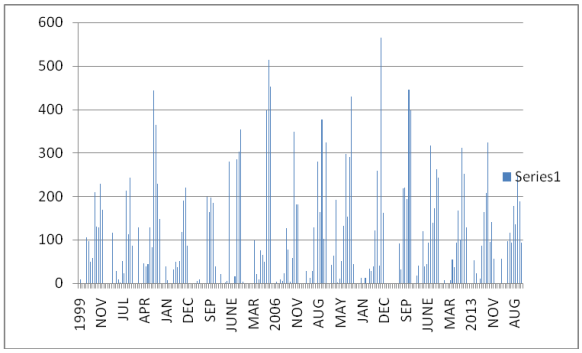



**Fig:5.5 Extimated Avg Rainfall for the Year 1999-2014**

From this fig 5.5 you notice the difference in rainfall over different year in different month. This experimental analysis will be more usefull for the farmer to yield more productivity at the right time. The major fact in crop productivity depends on water management inorder understand the process we need the estimation of pan evaporation and rainfall.

## VI. FUTURE RESEARCH

This kind of research will be useful for every one user. Farmers can with no trouble identify the ideal crop for particular monsoon season. In future it can be further developed to be approachability by the mobile phones. The mobile stage provides the advantage for person to obtain consultation practically anytime and anywhere. Audio input can be given it behaves very efficiently and the user can get the output in form of audio as well in text. It provides improved interaction. This can also be done using GIS where spatial data and digitalized data format works well with better visualization.

## VII. CONCLUSION

This paper works as an support system for agriculture. The beginners in farming get knowledge about crops and fertilizers without any consultant. The best organic crop is to be cultivated according to their soil type and season this will yield high productivity and bring more market value to the farmer. The real time dataset which is input has been experimented in southern part kanchipuram. This system is beneficial for the user and this system can be extended in future to many areas around our world.

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