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A Survey on an Alert System for Farmers

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***Abstract*— Technological importance have been a great support for making decisions in various fields especially in agriculture. The development of agriculture has been on under development for the past few years due to lack of Agriculture knowledge and environmental changes. The main aim of this paper is to reach farmers for their awareness, usage and perception in e-Agriculture. The study used statistical survey design technique to collect data from farmers for their awareness in e-Commerce. The results obtained indicated the level of awareness is less such that there is a need for e-agriculture for their support. e-Agriculture is a platform for supporting marketing of agricultural products**

***Keywords* – agricultural products; e-Agriculture; e-Commerce; perception**

I. INTRODUCTION

Artificial intelligence (AI)[7][11] is a branch of computer science that includes study and development of intelligent machines and software. Major AI researchers and textbooks define this field as "the study and design of intelligent agents", where an intelligent agent is a system that perceives its environment and takes actions that maximize its chances of success. Clustering[8][10] is a data mining technique which includes the task of grouping a set of objects such that the objects in the same group (called cluster) are more similar to each other than to those in other groups (clusters). It is a main task of exploratory data mining, and a common technique for statistical data analysis used in many fields, including machine learning, pattern recognition, image analysis, information retrieval, and bioinformatics. The Statistical data includes farmers who were asked whether or not they have incurred unusual high rainfall events, such as a storm or heaving downpour. Some 58 percent said they did. Technically, in machine learning the likelihood of reporting a storm is correlated with treatment in the (Instrumental Variable) IV and heterogeneous effect regressions: which gives up: farmers a more likely report of incurring a storm. Farmers who had received regular weather information became more aware of unusual rainfall events, which became more likely to report them to enumerators. The reports stated whether the farmers receiving were able to reduce output loss or increase output with the storm. We find no evidence that this is the case. We also find little evidence of beneficial heterogeneous effects. Young farmers were reportedly found to have more output loss at harvest in the following storm, not less.

II. LITERATURE SURVEY

The following papers have been analyzed and studied in order to develop an alert system for farmers.

2.1 Current Status Of E-Agriculture And Global Trends: A Survey Conducted In Transnzoia County, Kenya

Peter Namisiko et al.,2013 have proposed as: A study which is conducted at majority of farmers in Kenya who are not able to sell their produce at market price due to lack of sufficient information available. Also the agricultural productivity is being lessen due to the lack of information and resistance developed by the agricultural universities. For such farmers to produce and sell their products at market based competitive prices, information communication technologies (ICT) tools have be availed to them. This is because the development of agriculture is dependent on how fast and relevant information is provided to the end users. The study concentrated in Trans Nzoia County since it is the heart of Kenya. A lot of research has been conducted in this area, but no research has been to ascertain the awareness, adoption, legislative and regulatory framework, therefore it is must to determine the current research trends in the use and adoption of e-agriculture of e-Agriculture in TransNzoia County.

2.2 Impact Of Sms-Based Agricultural Information On Indian Farmers

Marcel Fafchamps et.al.,2012 have proposed as: This paper estimates the benefits of the Indian farmers if the market and weather information is delivered to their mobile phones. And this has been conducted with a randomized experiment in 100 villages of Maharashtra. This service has

been sent in by a commercial service called Reuters Market Light (RML). The treated farmers associate RML information with a number of decisions they have made in the agriculture, and we find that the treatment affected spatial arbitrage and crop grading. But the magnitude of these effects is small. We find no statistically significant average effect of treatment on the price received by farmers, crop value-added, crop losses resulting from rainstorms, or the likelihood of changing crop varieties and cultivation practices.

2.3 Informative learning of agricultural environment : A brief survey

Nizar Grira, Michel Crucianu et.al., 2010 have stated as follows: the information[3] that are relevant of the required quality always have the potential of increasing efficiency in all spheres of activity of an Indian farmer, therefore the emerging scenario of the deregulated agriculture, has brought a 'need' and urgency to ensure it in an integral part of decision making. Subsequently, exploring IT as a strategic tool for the benefit of rural India of assumed importance. Here the information meets the Indian farmers in general which are documented extensively. The broad information inputs can be classified as: • Awareness Databases - those that facilitate proper understanding of the implications of the WTO on Indian agriculture, • Decision Support Systems - information that facilitates farmers to make a proper SWOT analysis to take appropriate decisions, • Systems that facilitate Indian farmers to forge appropriate alliances for collective benefit, • Information on new opportunities • Monitoring systems for corrective measures.

2.4 E-Agricultural Developments: Tnau 2012

Recent publications demonstrate the following : First and foremost, it is essential to provide an unambiguous interpretation and implications for ordinary people. The jargon and the language under various articles of WTO require to be distilled by experts and their implications are clearly to be spelled out for all the segments of Indian agriculture and allied activities. The implications for all the stake holders and the time frames are to be spelt out. This is a priority item which is to be addressed immediately. The mandatory changes in government policies on tariffs, imports, year wise phasing of the same, the impact on various subsidy schemes would be of concern to people. An area of immediate concern to farmers is to get an analytical input on how his/her life is going to be affected. Since removal of restrictions throw open Indian agricultural markets, the macro economic situation related to foreign exchange, inflation, the current tariff structure within and outside the country etc. and their likely impact on Indian agriculture will have a direct bearing on the decisions of segments of Indian agriculture.

2.5 Systems That Facilitate Indian Farmers To Forge Appropriate Alliances For Collective Benefit

Sylvester O. Ogutua et.al have projected the following: The size of land and its holdings play a major barrier in recognising any export potential. In order to remain competitive and to have a good price realisations, it is highly recommended for the farmers to come together up through online alliances. It should be ensured a possible for relieving farmers of geographical barriers for facilitating them to come together online and facilitate disposal of their produce at attractive prices. Online bidding can be introduced for various agricultural product categories. This will require development of complicated IT systems which are to be supported by proper bricks and motor infrastructure and post-harvest technologies, storage etc.

2.6 Challenges Faced By The Agriculture Sector In Developing Countries With Special Reference To India

Nidhi Dwivedy has proposed as: Decision Support Systems for is more important and usually avoids risk developing environments. It has been suggested that the WTO is stipulating reductions for export subsidies on farm products will make Indian exports more competitive. It has been estimated that the export potential may increase upto $ 1.5 billion by 2020. The advantage of the emerging order, is that the Indian farmer needs to be equipped with information that have been facilitated by undertaking a proper SWOT analysis and its comparison may led to conventional wisdom and satisfy himself on an appropriate course of action. The Available information does not satisfy which projects on the weaknesses of the adverse affect of WTO on any specific agricultural product will help in taking the necessary corrective measures. In the present scenario, the competitive advantage is necessarily required to be fully exploited for increasing the export potential.

2.7 Privacy Preserving Kmeans Clustering Over Vertically Partitioned Data

Jaideep Vaidya et.al have stated in as: Privacy and security mechanisms can prevent sharing of data and derailing data mining projects. Distributed knowledge discovery, when done exactly, can eliminate this problem. The major key to obtain valid results, is to provide guarantees on the (non)disclosure of data. A widely used method for k-means clustering when different areas include different attributes for a common set of entities is being presented. Each area learns the cluster of each entity, but learns nothing about the attributes at other areas.

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2.8 A New Data Clustering Algorithm & Its Applications

Tian Zhang have projected the following: Cluster analysis goals to organize a collection of data items into clusters, such that items inside a cluster are more "similar" to each other than they are to items in the other clusters. This characteristic is of similarity which can be expressed in different ways, according to the purpose of the study, to domain-specific assumptions and to prior knowledge of the problem. Clustering[4][5] is performed when no information is available concerning the membership of data items to predefined classes. For this reason, clustering is traditionally seen as part of unsupervised learning.

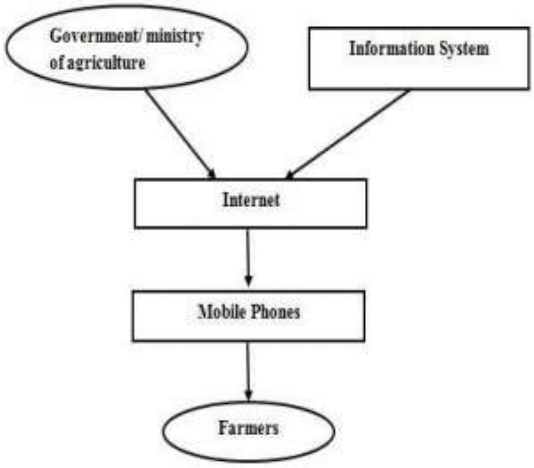
2.9 A New Privacy-Preserving Distributed K-Clustering Algorithm

Geetha Jagannathan et.al have proposed the following :Hierarchical clustering[6][3] goals to obtain a hierarchy of clusters, called dendrogram, that projects how the clusters are related to each other. These methods come up either by iteratively merging small clusters into larger ones (agglomerative algorithms, by far the most common)(Top Down Method) or by splitting large clusters (divisive algorithms)(Bottom Up Method). A partition of the data items which can be obtained by cutting the dendrogram at a needed level. The knowledge that have been acquired priority concern with the general characteristics of the clusters (e.g. expected compactness) or the relations between specific items (e.g. items A and B should belong to a same cluster and item C to a different one). Sometimes this knowledge is confirmatory but not prescriptive.

2.10 A Novel Similarity-Based Fuzzy Clustering Algorithm By Integrating Pcm And Mountain Method

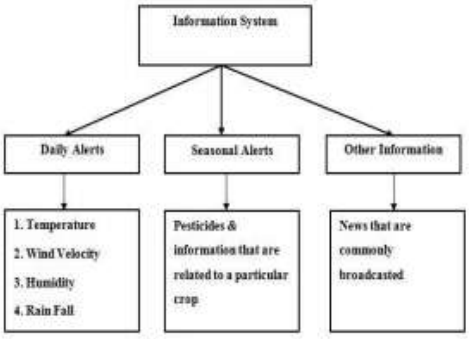
Vincent S. Tseng et.al have stated as: the fuzzy c-means (FCM) and possibilistic c-means (PCM) algorithms have been used in a wide variety of fields and applications. Although many methods are derived from the FCM and PCM for clustering various types of spatial data, relational clustering has received much less attention. Most fuzzy clustering methods can only process the spatial data (e.g., in Euclidean space) instead of the nonspatial data (e.g., where the Pearson's correlation coefficient is used as similarity measure). A novel clustering method, is similarity-based PCM (SPCM), which is fitted for clustering non - spatial data without requesting users to specify the cluster number. The main idea behind the SPCM is to extend the PCM for similarity-based clustering applications by integration with the mountain method. The SPCM has the merit that it can automatically generate clustering results without requesting users to specify the cluster number. Through performance evaluation on real and synthetic data sets, the SPCM method is shown to perform excellently for similarity-based clustering in clustering quality, even in a noisy environment with outliers. This complements the deficiency of other fuzzy clustering methods when applied to similarity-based clustering applications.

III. PROPOSED SYSTEM



For improving agricultural productivity an expert[14][15] agricultural advice is given to the farmers both in a timely and personalized situations. Here, in this system agricultural experts generate the advice by using the modern agriculture which is highly knowledge intensive which also requires timely, reliable and accurate information on natural resource endowments and their usage patterns at present and future technology available for their utilization and other information about markets, weather, insurance, subsidy, etc. The Architecture of the proposed system is as follows:

The news releases from the government does not reach the farmers in time, therefore an alert system is being built for daily releases and for seasonal releases. The Information System is classified as follows. The daily alert system, is being built using JADE environment.



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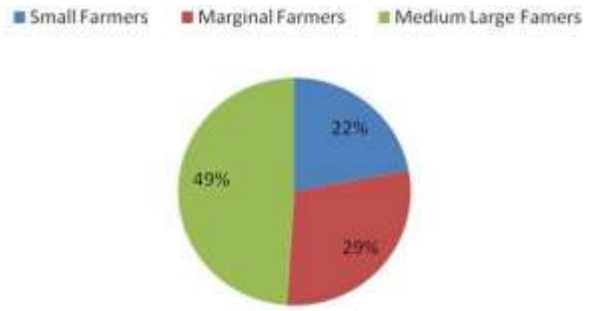
3.1 Performance Evaluation

The performance evaluation before using the alert system.



IV. IV.CONCLUSIONS

Based on the results obtained from the above, the following conclusions were made:

- Majority of farmers in the state or country are not aware that mobile phones can be used to conduct businesses and receive information. Mobile phone costs should be lowered to enable majority of farmers for having access to the current information about agribusiness within the state or country.
- e-Agriculture[1][18] has not been implemented because farmers in the country have not been sensitized about it & young farmers were in lack of information about the agriculture such that e-agriculture might provide them useful information's regarding the plantations that they have grown.
- The government should also conduct sensitization to create awareness for the farmers on how best they can use information technologies to conduct agribusiness.
- Illiteracy among farmers in reading message is also another factor that pertains the usage of technology in agriculture, to overcome this it is necessary to create awareness of learning the state language such that the message sent will be in the state language.

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