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Direct Food Commodity e-Trade Centre for Farmers

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ABSTRACT

In this paper, we propose a model for farmers and traders which results agricultural trading into an electronic exchange between the farmers and consumers in the agricultural supply chain. The number of consumers is increasing day by day whereas we could not see any commendable increase in the number of producers. Traditionally farmers have been selling their commodities through committees. There they are facing several problems in fixing the cost of their products which lead them to be in an economically poor state due to the involvement of middle persons. In order to avoid the involvement of commissioning agents (Middle-Persons) in between the farmers and the traders, we introduce a system E-FTM (Electronic Farmer Trader Mandi). Through this system farmers can sell their commodities directly with the traders without any middle person and get their right payback according to the quality of their commodities. By using this application the farmers and traders can directly contact each other and trade. It also reduces the time taken to sell their commodities and to get their payback at appropriate time. Ultimately, this project will help the farmers in uplifting their poverty situation.
Keywords: Static synchronous compensator, stability, voltage sags, control strategies.

I. INTRODUCTION

India is an agricultural country and one third population depends on the agricultural sector directly or indirectly. Agriculture remains as the main stray of the Indian economy since times immemorial. Indian agriculture contribution to the national gross domestic product (GDP) is about 25 per cent. With food being the crowning need of mankind, much emphasis has been on commercialising agricultural production. For this reason, adequate production and even distribution of food has of late become a high priority global concern. Agricultural marketing is mainly the buying and selling of agricultural products. In earlier days when the village economy was more or less self-sufficient the marketing of agricultural products presented no difficulty as the farmer sold his produce to the consumer on a cash or barter basis. Today's agricultural marketing has to undergo a series of exchanges or transfers from one person to another before it reaches the consumer. There are three marketing functions involved in this, i.e., assembling, preparation for consumption and distribution. Selling on any agricultural produce depends on some couple of factors like the demand of the product at that time, availability of storage etc.The products may be sold directly in the market or it may be stored locally for the time being. Moreover, it may be sold as it is gathered from the field or it may be cleaned, graded and processed by the farmer or the merchant of the village. Sometime processing is done because consumers want it, or sometimes to conserve the quality of that product. The task of distribution system is to match the supply with the existing demand by whole selling and retailing in various points of different markets like primary, secondary or terminal markets.

Products are sold in various ways. For example, it might be sold at a weekly village market in the farmer's village or in a neighbouring village. If these outlets are not available, then produce might be sold at irregularly held markets in a nearby village or town, or in the Mandi. The Vision of the Department of Agricultural Marketing & Agri Business is to ensure fair price to the farming community who are left behind in the competitive marketing scenario and the mission of achieving this is by enforcing the existing act and rules most effectively and also by devising, implementing new technologies aimed at reducing pre and post-harvest losses through appropriate methods and encourage value addition. In

order to educate the farmer and to develop their economic condition without any bargain while selling their harvests, this web application plays a vital role.

II. METHODS AND MATERIAL

1. Existing System

National Agriculture Market (NAM) is a pan-India electronic trading portal, which networks the existing APMC mandis to create a unified national market for agricultural commodities. The NAM Portal provides a single window service for all APMC related information and services. This includes commodity arrivals & prices, buy & sell trade offers, provision to respond to trade offers, among other services. While material flow (Agriculture produce) continues to happen through mandis, an online market reduces transaction costs and information asymmetry.Agriculture marketing is administered by the States as per their agri-marketing regulations, under which, the State is divided into several market areas, each of which is administered by a separate Agricultural Produce Marketing Committee (APMC) which imposes its own marketing regulation (including fees). This fragmentation of markets, even within the State, hinders free flow of agri-commodities from one market area to another and multiple handling of agri-produce and multiple levels of Mandi charges eNAM addresses these challenges by creating a unified market through online trading platform, both, at State and National level and promotes uniformity, streamlining of procedures across the integrated markets, removes information asymmetry between buyers and sellers and promotes real time price discovery, based on actual demand and supply, promotes transparency in auction process, and access to a nationwide market for the farmer, with prices commensurate with quality of his produce and online payment and availability of better quality produce and at more reasonable prices to the consumer.

2. Drawbacks In Existing System

The existing system eNAM contains several new methodologies to improve the trading policies but not for farmers. The major problem faced by farmer is not overcome. Existing system contains middle persons (Brokers or Commissioning agents) in it. The improvement should satisfy the farmer not the traders. Because of the existence of middle persons in the system and various fees for using the portal, Farmers won't get any benefit from this new system. The system should only focus on the development of farmers but not the traders or any other purposes. There is no provision for e-auction with price discovery and no proper dispute-settlement mechanisms to ensure elimination of disputes due to quality standards in this existing system. Single point market levy to ensure that duties are not levied at every stage is missing.

3. Proposed System

The primary goal of this new system is to increase the income of farmers via selling their commodities to right trader and get their right payback for their commodities without any middle persons and bargain. It has provision for e-auction with price discovery, Proper dispute-settlement mechanisms to ensure elimination of disputes due to quality standards, Single point market levy to ensure that duties are not levied at every stage, which will push up prices. It also has a single license (Trader/Farmer ID) for trading across states to ensure smoothness. Awareness of people and digital literacy is provided through various services.

4. Modules

A. Commodity Updates

In this module all the current National and International markets status will be updated with (24×7) support. Various details about the commodity arrivals, commodity traded, commodity availability, commodity last traded price, commodity current selling price, commodity quality parameters are available. It also has a graphical representation (Fig.5.1&Fig.5.2) of commodity arrival and commodity price in order to help the farmers to understand current scenarios easily.

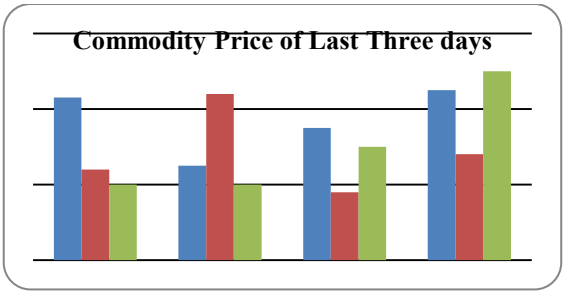

Figure 1. Commodity Price

B. Soil Fertility Evaluation

On the request of a farmer this module helps them to analyse the fertility, weather conditions and helps them to plant right crops at right time to yield more production which leads to the increment in their income. It also gives remainders to the farmer to help them to yield more through daily updates via short messaging service (SMS).

C. Appointment Fixing

In order to avoid the waiting timing and to avoid long queues in front of the mandi's this module helps to overcome waiting time by allocating particular time to particular person. It is similar to normal appointment fixing which is followed in other tasks. In this the farmer need to fix their convenient time by viewing the available time in the portal and select the appropriate time for them to transport their commodities to mandi's.

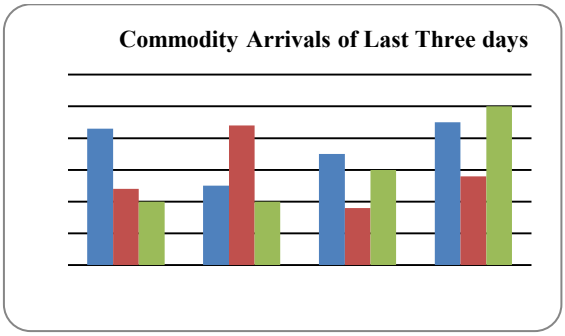

Figure 2. Commodity Arrivals

III. RESULTS AND DISCUSSION

The implementation process is very easy. At first the farmer and trader need to register themselves with their appropriate categories whether registering as a farmer or trader. For both the farmer and trader a unique ID is given to them, this ID is also called as their license to use the portal. Before going to plant the farmer need to make an entry on the portal with the details of what he/she going to plant, which quality, expected quantity and harvest. After that he/she needs to update their status after the harvest in the portal. All the portal entries are visible to all the members of the portal without any restrictions.

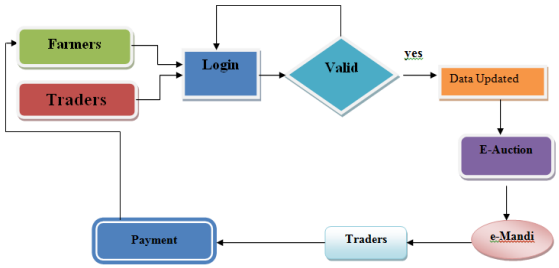

Figure 3. Architecture of E-FTM

Through auction trader can easily quote for their required commodities from the farmer directly without any middle persons. After confirming the auction the commodities needs to be transported to existing mandi's, where all the Mandi norms are done then the trader get their quoted commodities. Once the commodities reach the trader the payment will be made through online to the respected farmer's account. Through this process farmers will get their right backs at their right time without any middle persons or commissioning agents in between them. It also helps the farmers to preserve their valuable time, prevent from wastage of their commodities in storing the mandi's for long time. All the process is carried out through online only. The architecture of this system is represented in the fig 3.

A. Pseudo Code For E-FTM

1. Start
2. Login (FID, TID)
3. If success goto next step
4. Else return login
5. Updates (CN, CQL, CQT)
6. Add new product(cn_1, cn_2…..c n_n)
7. View product
8. E-auction (Prize quote, Purchase)
9. If best prize goto next step
10. Else return to updates
11. Mandi verification and fixing norms
12. Goto trader
13. Payment is processed
14. End

B. Algorithm for E-FTM

1. Enter UserId, Password, and Aadhar Number.
2. If user is valid
3. Check whether the user is either farmer or trader and proceed to Step 5.
4. Else return to Step 1.
5. Farmer adds their Product and fixes the prize according to the committee norms.

6. Trader will quote price through e-auction.
7. If the e-auction is completed the product is transferred to Mandi.
8. Else, return to Step 6.
9. On completing the process, payment will be processed.

IV. CONCLUSION

This responsive web portal will ultimately uplift the farmer's growth. Through this automated system, we increase the system efficiency, save time and better through put. Because of its dynamic web technology, it is very easy to be viewed in any type devices with no lags. In addition, several future enhancements may leads to a new way of trading policies with respect to the farmer's concerns. Using this web portal both the farmer and trader can get benefit.

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