

Enhancing Efficiency of Agri-input Marketing through ICT Applications

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Abstract—India's average farm productivity in food grains is nearly one-third of that of a comparable economy like China. Extension services of the government have been resource intensive, limited by the extent of actual coverage, competence, motivational and diligence levels of the individuals and their ability to stay updated with the latest developments. If we analyze the difference between the farming practices in developed nations like USA and a developing country like India, the biggest difference is in availability of information.

Agri-input industry is facing international competition due to the arrival of WTO regime and pressures on its profitability on account of fiscal deficits encountered by the government. Agri-input marketing, especially, pesticide, fertilizer, seed and farm equipment's marketing, has its own peculiarities like widespread customer base, multi-tier and multi-product distribution system, inaccessibility to millions of farmers. With the growing enormity and complexity of business dimensions, decision-making by hunches is replaced by data based qualitative decision-making process.

Information has acquired a strategic role in the business processes and is reckoned as power. The essence of decision-making is now speed, quality and accuracy. Marketing efficiency of agri-inputs can be improved through Information Technology applications. Data based decision-making due to its speed and capability to provide comprehensive services can help in developing a strong and loyal customer base, thus providing a competitive edge in the market place. This research paper lists various business applications and case studies that a customized ICT can be put to thus enabling an agribusiness organization to utilize its resources efficiently and productively.

Keywords: Agri-input marketing, Data based decision-making, ICT applications, Multi-product distribution system

1. INTRODUCTION

Agriculture is the core source of our food security, sustainable development and poverty alleviation. Almost 1.3 billion mouths to feed, imports are not going to help if there is severe dearth of food. This is further aggravated by climatic conditions, scarcity resources, limited availability of arable land, disease and pest infestations, food loss and waste among others. These challenges are massive for smallholder farmers and family farmers. Agriculture has undergone many

transformations over thousands of years from Green revolution to Bio technology revolution. The most recent one is Information and communication technology revolution. The exponential growth of Information and Communication Technology (ICT) over the last decade has been remarkable. ICT has become a bridge for people from all over the world. It means incorporating all modes of transmission like electronic devices, networks, mobiles, services and applications for capturing, storing and disseminating information. ICT play a crucial role in disseminating information to farmers enabling them to decide on the cropping pattern, use of high-yielding seeds, fertilizer application, pest management, marketing, etc. ICT has proved to be extremely beneficial for farmers including small land holders, marginalized and poor farmers, and helped them in marketing, precision farming and improved profits.

2. PROBLEM STATEMENT AND OBJECTIVES

All agricultural extension and farmer-outreach programs face major challenges such as cost-effective outreach, tailored solutions to individual farmer, a farmer-friendly language, timely and adequate information. All stakeholders of agriculture industry need accurate, complete and timely information in user friendly form to manage each all activities efficiently. At present, most of the farmers don't have knowledge of demand and supply of their produce in the market. Majority of the farmers still rely on receiving market information through the traditional sources like regulated markets, traders and fellow farmers visiting the market yards because of trustworthiness. ICT plays a significant role here. Gathering data, its storage, analysis, accessing and sharing has assumed large dimensions over the last decade and it has become humanly impossible to manage them manually. All these facts accentuate the need for detailed study of ICT applications with an objective to understand potential role of ICT in agri-input marketing for enhancing farmer market linkages, food security, and poverty alleviation.

3. ICT IN AGRI-INPUT MARKETING

Agricultural marketing involves the process of developing, pricing, promoting, and distributing of farm specific products & services leading to exchange between farmers and intermediaries. ICT can be used as a great facilitator in agricultural marketing by providing connectivity between the market and exporters/ growers/ traders, industry consumers. Some of the benefits of ICT for the improvement and strengthening of agriculture sector in India include timely information on weather forecast and calamities, better and spontaneous agricultural practices, better marketing exposure and pricing, reduction of agricultural risks and enhanced incomes, better awareness and information, improved networking and communication, facility of online trading and e-commerce, better representation at various forums, authorities and platform, etc.

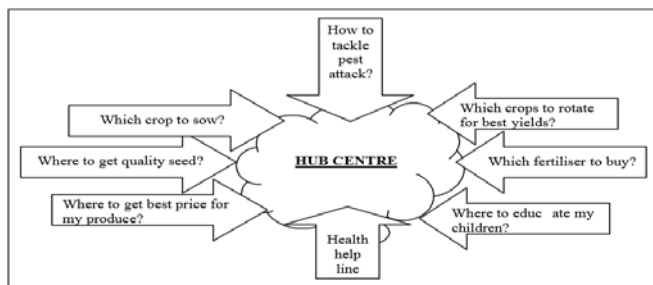


Figure 1: Agribusiness hub-centre

Information has acquired a strategic role in the business and is reckoned as power. ICT can help in bridging the gap between information rich farmers and information poor farmers and fulfil their needs. The basic needs of farmers are divided into three hierarchical levels as shown in Figure 2.

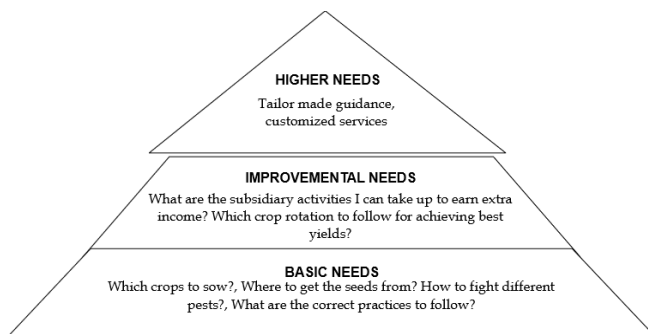


Figure 2: Hierarchy of Farmer's needs

4. CASE STUDIES

Four successful case studies are presented here to illustrate how various stakeholders developed linkage with a view to improving access of smallholder producers to existing and emerging growth markets.

4.1 aAQUA

aAQUA stands for almost All Questions Answered is a farmer-expert Q&A database supporting Indian languages. It simultaneously addresses two major challenges of geographic reach and customized delivery. It answers farmers queries based on the location, season, crop and other information provided by farmers. An aAqua question is posted either by a registered user directly or through a telecenter/ kiosk operator who has an account in aAqua. Usually the question is from a farmer whose profile information provides details such as crop, farm size, pesticides and fertilizers used, dosage etc. The prices of various commodities along with their varieties are displayed spatially over a map. The user can decide where to sell his produce to get the maximum profit, depending on the prices and the distance of the markets.

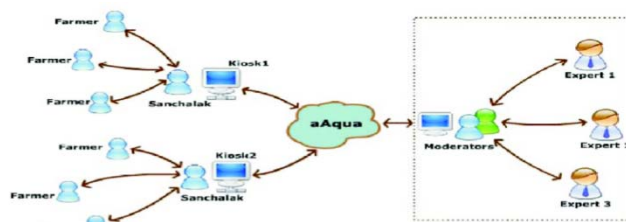


Figure 3: Model of aAQUA

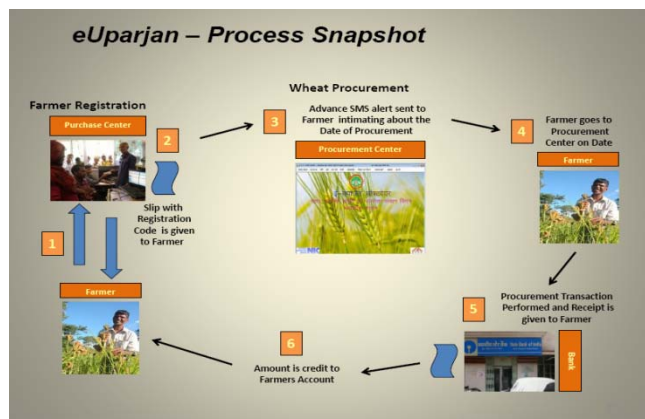
4.2 Apni Mandi: Farmers' market in Punjab

Traditional marketing system of fruits and vegetables is unfavorable for farmers as major share of consumer spending is engulfed by the traders. The farmers used to get lower price realization for their produce whereas the consumers had to pay higher price for poor quality products. The Punjab Agricultural Marketing Board started "farmer's market" in 1987 by the name "Apni Mandi" with an objective to boost small farmers around cities and to provide direct access to the consumers, by eliminating middlemen. Facilities like market yard, lighting space, water etc. are provided at the farm level. The benefits of these markets include the availability of fresh fruits and vegetables and other produce to the consumers at a reasonable price and encourages the farmers to get a better share in consumer's rupee. Apni Mandis are being organized at about 50 cities and towns of the State including Chandigarh.

4.3 Case study of Madhya Pradesh: E-uparjan

The mandis of Madhya Pradesh had poor decision support systems and made irregular or incorrect forecast of the produce and expected procurement. Once procurement started, mandis were crowded with long queues of farmers who wanted to sell their produce and this adversely impacted the functioning of the procurement centers as these were not equipped with facilities to deal with large quantities of procurement. The e-Uparjan initiative uses versatile technological innovations in implementation and shows considerable impact in streamlining operations for the speedy

and transparent transfer of Minimum Support Price (MSP) dues into the accounts of farmers directly. This initiative strengthens procurement operations, develops a near real-time reporting mechanism and a decision support system for enhancing the forecasting, monitoring and tracking capabilities of the Madhya Pradesh Government. The primary objective was to simplify of procedure, bringing transparency of operations from purchase to payment, weeding out malpractices and developing a near realtime reporting mechanism for field-level operations such as forecasting, purchase, transportation, storage and payment. The process diagram is shown in Figure 4.



Source: mpeuparjan.nic.in
Figure 4: e-Uparjan-Process

4.4e-Choupal

The 'e-Choupal' largely leverages ICT where farmers can virtually transact with a processor and can get better price realization for their agro-produce. The e-Choupal does not eliminate intermediaries completely, as intermediaries are inseparable part in developing economy like India where intermediaries are doing value addition to every step of value chain at a low cost. Intermediaries have the expertise in storage, transportation, quality assessment and risk reduction, which are difficult to duplicate. In e-Choupal intermediaries are leveraged but they are disintermediated from the market information flowing to the farmers. It provides farmers with all the desired market information and helps them to become market oriented. With a judicious blend of click and mortar capabilities, village internet kiosks managed by farmers – called sanchalaks – themselves, enable the agricultural community to access ready information in their local language on the weather and market prices, disseminate knowledge on scientific farm practices and risk management, facilitate the sale of farm inputs and purchase farm produce from the farmers' doorsteps. The success of e-Choupal has heralded a new era in the Indian agro-sector.

5. CONCLUSION

Information and Communication Technology (ICT) is the driving force for the fundamental economic and social revolution. It accelerates globalization, makes access to

knowledge and information much easier for the people. All the three case studies mentioned in the paper showed the remarkable success of ICT usage in agri-input marketing. The entire motto of ICT would get defeated if the generation and transaction of information becomes slow and remains confined to a few people only. This is more alarming situation in the Agri-input Marketing segment, which has a vast and fragmented rural spread. There is, however, hope that through the network of cable operators who are present in far distant villages, attempts can be made to achieve wider connectivity. The dealers and farmers will have to go through a major attitudinal shift wherein the computers are not perceived as something beyond their capability; the dealers and farmers should be able to befriend the computer environment which could be achieved by ensuring the presence of the ICT network and also by educating the prospective users. The introduction of computer education from the primary level is a revolutionary step for the next generation. Besides this, the government and private entrepreneurs have to come together and join hands for the creating the infrastructure which can match the aspirations of new generations.

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