

STUDY OF AGRICULTURE MARKETING INFORMATION SYSTEMS MODELS AND THEIR IMPLICATIONS

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Abstract: The main purpose of marketing information system (MIS) is to support in marketing decision making and marketing efforts of entrepreneurs and farmers. Nevertheless, the information is also useful for various types of organizations, such as government, development organizations, academicians, and researchers. The availability of timely and accurate information to all interested parties is therefore essential, whether it be provided by the government itself or by the private sector. This paper looks into the various types of agricultural marketing information systems prevalent and attempts to provide a broad perspective on marketing information system. Using a descriptive approach, it attempts to describe relevant agriculture marketing information systems, and analyze them to generate ideas and insights which may be useful for developing and strengthening MIS in agriculture sector.

Keywords: Marketing Information System, Agriculture Marketing, Arbitrage, AGMARKET

Introduction

Efficient market information provision can be shown to have positive benefits for farmers, traders and policymakers. It is important to develop a market intelligence systems which attempts to provide information on prices, arrivals, availability, trends, analysis, laws, etc. it requires a reliable programme which collects and disseminates accurate and useful information in farmer friendly manner. Just providing information alone is of no use and the exercise needs to be supported by enabling farmers to market his produce. FAO has developed a working definition of a Market Information Service, as follows: "A service, usually operated by the public sector, which involves the collection on a regular basis of information on prices and, in some cases, quantities of widely traded agricultural products, from rural assembly markets, wholesale and retail markets, as appropriate, and dissemination of this information on a timely and regular basis through various media to farmers, traders, government officials, policymakers and others, including consumers." It is essential to differentiate "market" information from "marketing" information, the latter being a much wider concept which is likely to include details on potential market channels, payment requirements, packaging, quality and a whole host of information required by a producer to make a successful sale, including market information. Market information can be regarded as a public good, particularly where there are numerous small farmers who are unable to pay for information. The availability of timely and accurate information to all interested parties is therefore essential, whether it be provided by the government itself or by the private sector. A large number of countries do operate some type of MIS, the vast majority of services cannot be considered to provide commercially useful information for farmers and traders.

This paper looks into the various types of agricultural marketing information systems prevalent and attempts to provide a broad perspective on marketing information system. Using a descriptive approach, it attempts to describe relevant agriculture marketing information systems, and analyze them to generate ideas and insights which may be useful for developing and strengthening MIS in agriculture sector.

Methodology

The information required to prepare this material principally come from various reports, documents and web site resources. The information has been analyzed to illustrate the use of market information, describe the underlying concepts and generate lessons, ideas, and insights useful for developing and strengthening agriculture marketing information system in our country. it revisits some of the themes identified from the general literature and relates the case study experiences to them.

It is important that the farmer should be able to sell his or her produce at a convenient stage of the marketing channel. For example, some farmers have the option of selling at farm gate, of delivering to a local assembly market, of supplying a wholesale market direct or of selling directly to retailers or even to consumers. Availability of information on market conditions at different locations or different points in the marketing chain is necessary for choosing where to market.

Market Information and Arbitrage

Market performance is related to the functioning of arbitrage. Arbitrage is the process of exchange of commodities with the objective of taking advantage of price differences that exceed transaction costs. Transaction costs refer to the costs of doing business or making the transaction, i.e. costs of obtaining information, financing trade and organising necessary documentation.

Availability of market information will also encourage spatial arbitrage between two markets, especially in cases where information and transport costs are relatively low. If no trade exists between two markets, both will clear supply and demand at their respective equilibrium prices. When price differences between the two are larger than the transaction costs, trade relations will be developed if there are no controls to inhibit exchange. A new equilibrium price will be determined for the combined market for the two regions. The availability of correct price information will lower the traders' cost of information gathering, as well as the risk of sudden unfavorable price changes.

Market Information and Farmers

Farmers often have limited outlets for their produce and are often bound by traditional trading relationships therefore opportunities for farmers to take advantage of spatial arbitrage possibilities are restricted. Such opportunities are further hindered by the small quantities produced by most. While there may be few spatial arbitrage opportunities for small farmers, it cannot be concluded that market information is of little value to them. The practical benefits to farmers are often much greater than the theoretical arbitrage possibilities for traders. At the simplest level, the availability of market information can enable farmers to check on the prices they receive, vis-à-vis the prevailing market prices. If farmers receive prices lower than those broadcast they may conclude that they should seek out other traders in future, negotiate more

forcefully or try to improve the quality and presentation of their produce. Information on market conditions may also change farmers' marketing strategies. While, individually, farmers may be unable to take advantage of spatial arbitrage possibilities, collectively they may be able to organise transport to more distant and profitable markets.

Market Information and Storage

Storage plays a central role in expanding the availability of different foods to consumers over a longer period. Storage costs, such as labour for maintenance, chemicals, depreciation of storage facilities and costs of invested capital, can be considerable. However, price changes over time depend not so much on storage costs as on how much of a product is stored for subsequent release onto the market and on seasonal production levels. The question "when to produce" is thereby limited to a fixed period. However, this makes the question "when to sell" more important. Availability of information about seasonal price movements should, in time, facilitate decisions about when to sell the crop and also mean that urban consumers will not be faced with alternating gluts and shortages.

Market Information and Policymakers

Traders are often accused by policymakers of exploitative behaviour because large differences between farm-gate and urban retail prices are observed. It is assumed that the unbalanced relationship between farmers and traders, or between traders and consumers, based on better market and price knowledge of traders, together with imperfect competition, results in abnormally high profits for traders. Often, it is very difficult to substantiate these accusations because of the lack of clear information. Reliable price information is absent and estimates about the costs and risks traders have to bear are difficult to obtain. Market information offers the opportunity to judge the performance of markets for agricultural products and to determine micro-economic constraints, although additional information on marketing costs will be necessary to form a reliable opinion regarding the efficiency of the market.

Types of Agriculture MIS

Structured marketing information systems have various ways of collecting, analyzing and disseminating information. Some systems heavily use internal records and reports while others make use of market research. Market intelligence systems and marketing information models are designed to provide marketing insights and support the decision makers (Kotler 1988). To support collection, analysis and dissemination, responsibility centres (different individuals, departments/sections, or organizations) are identified and elaborate procedures can also be put in place. Nevertheless, the roles of informal networking and sharing can be optimized with careful design and creating supportive environment.

With variation on the mix of the ingredients (use of technologies and communication media; structure and design components for information collection, analysis, and dissemination; markets and content coverage; types of users; and their information needs and their locality), marketing information systems used by different organizations are invariably different. However, they have components for collecting, analyzing and disseminating information, the main purpose is to empower the information users for marketing decision making. The information needs of the target

users (on markets and products range, content coverage, data and analyses, timing) and available budget for information system primarily govern the design of marketing information systems. Based on the MIS purpose and organization managing it, the marketing information systems can be broadly categorized as follows.

a) MIS supported by development projects- MIS systems managed under development projects have generally a focus of supporting grassroots communities and entrepreneurs. The direct information users can be other development projects, development organizations, government agencies, enterprises, and other participants in the product value chain, but the implied assumption is that these users' activities contribute to improve the situation of the target grassroots communities. Such marketing information systems customarily begin with explicitly mentioned objectives, target users, and mechanisms for managing the system. Such systems are found to be introduced at the local to the national levels. Often, having targets of significantly contributing to marketing efforts and income generations of the beneficiaries, these are often questioned for their sustainability.

b) MIS of agri-enterprises- The main users of such an MIS are the internal clients of the organization, and the MIS supports the marketing efforts and marketing decision making of the concerned company and its network. Agri-business houses have their MIS, and can involve their business partners as the users of the MIS. Controlled information is shared with various layers of decision makers and various departments within the company; and the externals to the company can receive the information that the company believes supports the company's business objectives (supply chain management, product positioning in the market, sales facilitation, and public relation). The e-Choupal system of ITC is a important case.

MIS business model of ITC

In the selected villages, ITC sets up internet kiosks and transforms them into e-Choupals. For those places, which face shortage of phone lines and electricity, ITC provides VSAT satellite links and solar batteries. Selected farmers are trained on use of the system. Educated, entrepreneur type of local farmer or trader is carefully chosen to be an e-Choupal manger (called sanchalak). The e-Choupal is connected to the websites which ITC cautiously creates in local languages for the farmers targeted. A website for each of the crops, such as soya, wheat, coffee and aquaculture (shrimp) is setup. ITC updates the information and makes sure that the content is relevant. *Sanchalaks* help the farmers access the different agricultural crop-specific websites. For their services, they earn commissions for the transactions facilitated by them through the system to ITC or the third party affiliated to the system.

c) MIS services of member based organizations and business service providers-

As one of the services to their members, member based organizations like trade association, producers groups, and cooperatives groups provide marketing information services. MIS services managed by service providers are often in tune to the needs of their clients who are mostly the business communities and can pay price for the information and services. MIS services include frequent updates on product demand and prices, market research and analysis on specific products and issues, general market news, and customized services for feasibility study, business planning, marketing research, and product positioning. The MIS services of National News

Service (NNS), Indian Agribusiness Systems Private Limited (IASL), are such models.

MIS services of Indian Agribusiness Systems Private Limited, India

Indian Agribusiness Systems Private Limited (IASL), which was started in 2000, is an information service provider in agriculture and food processing sector. IASL provides services in commodity research, trading, publishing, consulting, and manpower recruitment. It also extends its services to enhance the marketing understanding and capacity of not-for-profit sector in India. The trade research report for a commodity covers the following information- a) prices at major national and international markets, b) demand supply analysis, c) price trend forecasting, d) export/import trade flows and port statistics, e) crop forecasting, f) news analysis, g) freight market information, h) weather news and its impact, and i) expert opinion.

It also provides reports from major agricultural markets in India, which cover daily details on prices, arrivals, and stocks. The reports are published daily/weekly/fortnightly. The provider supplies some of the information in the above areas to all web users on its Agriwatch website at free of cost. The yellow pages of Agriwatch provide users a huge database of companies, firms, and agencies in the Indian agribusiness sector at a fee.

MIS of Spices Board of India

The Spices Board India, which is under the Ministry of Commerce, India, supports the Indian spices industry by providing services, such as marketing information, technology, product development, and policy support. The board helps Indian exporters establish linkages with importers abroad, and undertakes various activities, such as formulation and implementation of quality improvement systems, research and development programs, marketing information services, education and training to farmers, processors, exporters on post harvest handling and registration and licensing of traders and exporters. It also undertakes promotional activities on Indian spices and acts as a data bank and communication channel for importers and exporters. To help promote international trade on Indian spices, the board has introduced Indian Spices Logo and the Spice House Certificate, which assure the buyers on the quality aspects of the spices.

Agriculture MIS of Indian government- AGMARKNET

Government of India tried out a number of measures, such regulation of markets, grading of agricultural produce, cooperative marketing, etc to ensuring fair returns to the farmers, However, farmers were found not benefiting much owing to the fact that they were unable to make good marketing strategies for their products and were not getting remunerative prices because of the absence of correct and timely market information regarding the agricultural products. The market information provided by the states, union territories, and their concerned offices was not sufficient and timely. To address this void, the government of India started a Central Sector Scheme "Agricultural Marketing Information System Network" with the following objectives. Directorate of Marketing and Inspection (DMI) under Department of Agriculture and Cooperation implements the scheme and manages MIS network.

- establish a nation-wide information network for speedy collection and dissemination of market information and data for its efficient utilization;
- facilitate collection and dissemination of information to support to realize better prices of their products, which would cover:
 - a) market related information, such as market fee, market charges, costs, method of sale, payment, handling, market functionaries, development programs, market laws, dispute settlement mechanism, composition of market committees, and income and expenditure;
 - b) price-related information, such as minimum, maximum and model prices of varieties and qualities transacted, total arrivals and dispatches with destination, and marketing costs and margins;
 - c) infrastructure related information comprising facilities and services available to the farmers with regard to storage and warehousing, cold storage, direct markets, grading, and re-handling and repacking; and
 - d) promotion related information covering accepted standards and grades, labeling, sanitary and phyto-sanitary requirements, pledge finance, marketing credit, and new opportunities available in respect of better marketing;
- Sensitize and orient farmers to respond to new challenges in agricultural marketing by using information and communication technologies (ICT) as a vehicle of extension;
- Improve efficiency in agricultural marketing through regular training and extension for region-specific farmers in their own language;
- Provide assistance for marketing research to generate marketing information for its dissemination to farmers and other marketing functionaries at grassroots level to create an ambience of good marketing practices in the country.

Major issues and concerns

1. Setting up a Market Information Service

Developing an efficient, relevant and sustainable MIS is far from easy. Attention needs to be paid to the capacity of the counterpart organization to operate a service, both in terms of technical capacity and in terms of ability to meet recurrent costs. The greater the level of research at the beginning, the more likely is the MIS to prove valuable to its target users. Tailoring the size and scope of the service to available budgetary resources is likely to result in greater sustainability. Ensuring that all operatives are fully trained should result in a more accurate MIS.

In theory, no MIS should be planned without a detailed understanding of how the marketing system works. A detailed survey of the marketing system should be undertaken in order to assess information requirements of each category of participant in the system. These include farmers, traders and commission agents, exporters, retailers, consumers, extension services and government departments. The survey should try to identify the type of information each category requires, the form in which the information should be presented, the frequency the information is required and the times of the day when dissemination should take place.

Every marketing information system should have clearly identified key target audience(s) for the information. The information needs are the basis of marketing

information design in every case. As its key objective is to assist the target users to make appropriate marketing decisions and facilitate the marketing activities, the marketing information needs range from regular price and demand information to new markets and product development opportunities. Though most of marketing information systems monitor and disseminate market prices for target products, the roles of other information, such as post harvest and processing technologies, new markets and buyers, requirements of the buyers and quality control, best practices in production, and policy issues, are found immense in contributing to the enterprise development and improved marketing of agriculture products.

Large scale marketing information systems should develop sophisticated database and information and communication technologies to collect, analyze and disseminate the information..The case of e-Choupals shows, with careful planning, the marketing information system can even change the information use behaviour of the farmers. MIS can also help develop different type of marketing channels with increased market transparency.

There is a growing trend of using information and communication technologies (ICT) to strengthen the marketing information systems hosted by many organizations, such as government, agriculture companies, and service providers. The email and web based dissemination is found appropriate and cost effective, if communication infrastructure is strong, a large number of users distributed in many places, and users are connected to internet.

Collecting Information

In some circumstances it may be possible for the trade itself to take responsibility for price collection. It has already been noted that some markets make available information on daily transactions. Such information can either form the basis of an MIS operated by the market itself or used by a governmental, semi-governmental or commercial MIS. It is also feasible for information to be provided by market traders through, e.g., traders' associations or chambers of commerce or agriculture. However, any MIS using such information from the private sector would need to build in checks for accuracy, given the possibility that some traders would wish to bias information to their perceived advantage.

Data should ideally be collected during the peak trading period for each market. If the best time for disseminating information is early in the morning it may be preferable to broadcast the previous evening's market prices rather than the previous mornings. It should be noted that farmers are interested, not only in current price information, but also in marketing issues like waste generating problems and demand forecasts. An MIS needs, at an early stage, to decide on the crops to be covered. It also needs to decide on the varieties which are to be reported on because in many cases there will be significant differences between prices for different varieties. If resource and other considerations limit the number of crops that can be reported on, then it is essential to select the most important varieties of each product, to the exclusion of the others, and name those varieties when the prices are disseminated. To address the information needs, the marketing information systems should have regular market monitoring mechanisms for price and demand as well as should have systems to collect and

disseminate more descriptive types of value chain improvement and marketing capacity building information.

Products and Markets

The golden rule should be to start on a small scale and work up as resources permit. For instance, depending on the analysis of the marketing system, it may be desirable to initiate a service with information on prices in a few important wholesale markets, gradually expanding to include other wholesale centres and some assembly markets. The more markets covered, the more likely it is that an MIS has an unmanageable amount of data to handle, staff whose salaries cannot be paid and whose training cannot be afforded. Crops to be included in an MIS should be those which are commercially important. In some cases this will include more than one variety (e.g. red and white onions). The tendency to want to maximise the number of crops in order to build up a strong statistical database should be resisted. As the number of crops covered increases costs rise, with minimal extra utility, data collection becomes more complex, data transmission and processing becomes slower and information dissemination takes longer.

Disseminating Information

The media must be relevant to the user of the information. For example, confining information to newspapers is pointless if many farmers are illiterate. It is insufficient just to arrange for radio or television broadcasts or newspaper columns and then sit back and think dissemination is taken care of. Considerable attention needs to be paid to the way in which the data is presented. Price broadcasts should be interspersed with some analysis of market conditions and opportunities. Generally speaking, farmers benefit more from simple technology which communicates information in a lucid and relevant way. The collaboration with the organizations, associations, government agencies working with farmers has been found one of the important strategies of disseminating marketing information to a large number of farmers from a large scale marketing information system.

Conclusion

Market information is an important facilitating function in a marketing system. An efficient marketing information system can manage timely delivery of product, reduce marketing costs and increase production and productivity and make the market healthy. The existing practices of Marketing information systems generally emphasize only the collection of selling price of different agricultural commodities, volume of arrival and source of origin. It should be noted that farmers are interested, not only in current price information, but also in marketing issues like waste generating problems and demand forecasts. Many institutions have attempted to provide market information but these efforts are often not coordinated. As the socio-economic environments continue to change and the private sector actors are becoming the major providers of services previously managed by the public sector, a properly established and well-coordinated agricultural information system has the potential of promoting free trade based on an open, transparent and competitive agricultural marketing system and could serve as a decision support tool for farmers, traders, and policy makers.

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