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P Anbarasan

Assistant Professor, Department of Agricultural Extension and Communication, School of Agricultural Innovations and Advanced Learning, Vellore Institute of Technology, Vellore, Tamil Nadu, India

Psychological perspectives of farmers on mobile based agriculture: Reuters' market light (RML)

P Anbarasan

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Abstract

Today a new paradigm of agricultural development is emerging at a faster pace. The old ways of delivering information and services to citizens are being challenged. Farmers need dynamic information relating to agriculture and rural development. Therefore, to satisfy the need of information and knowledge, a venture promoted and supported by Thomson Reuters, Reuters Market Light (RML) offers highly customized and localized agricultural and related information service. Using a subscription economy model, RML provides information services via mobile phone-based Short Message Service (SMS) primarily aimed at farmers. The study was carried out in the Erode district of Tamil Nadu. In Erode District of Tamil Nadu Reuters Market Light (RML) utilizes Pallavan Grama Bank (Agricultural Rural Bank which is sponsored by the Indian Bank) to distribute the messages. The results revealed that majority of the respondents had a strong positive attitude towards market and a high level of willingness to sell the produce in the market. More than half of the respondents were willing to sell their produce to the traders/ wholesalers avoiding commission agents/middle men in the channel to reach the consumer and the respondents had a high level positive perception towards mobile phone with regard to farm information and technology transfer.

Keywords: Reuters market light, short message service, gratification, constraints, mobile telephone, Pallavan grama bank

Introduction

The new paradigm of agricultural development in India necessitates incorporation of Information Technology for driving over all societal transformation. Information technology revives the social organizations and productive activity of agriculture, which if nurtured effectively, could become transformation factor. Agricultural extension, in the current scenario of rapidly changing world, is recognized as an essential mechanism for delivering information and knowledge packages as input to modern farming, harnessing ICTs in agricultural development is inevitable. The agricultural community in rural India is beset by many infrastructural constraints such as lack of roads, access to regular water for irrigation, poor tele-density (varies state to state), and other agri-technologies. (Chadha, 2009) [3]. Besides, the vulnerabilities of small and marginal farmers further increase due to lack of access to formal education and training, low levels of accumulation such as savings and other types of assets with few linkages to formal credit and insurance, unavailability of genuine and affordable agricultural inputs like seeds and fertilizers, and unfriendly public policies such as Agriculture Produce Marketing Act (APMA). The Green Revolution gains of the 1980s also have not been sustainable into the 1990s. Farmers from successful Green Revolution regions report unsustainable agricultural production and need increasing levels of inputs to maintain or increase the falling yields compared to the 1980s. (Sundaresan, 2009) [5]. While there are various factors that contributed to low productivity and growth rates in rural India, the mitigation of information asymmetry, can, to some extent, facilitate farmers in achieving agricultural productivity and wealth creation. (Agriculture Today, Yearbook 2009) [5].

Hence, a venture promoted and supported by Thomson Reuters, Reuters Market Light (RML) offers highly customized and localized agricultural and related information service. Using a subscription model, RML provides information services via mobile phone-based Short Message Service (SMS) primarily aimed at farmers. RML SMS covered localized weather forecasts, crop advisory, proximate market data and crop prices; in addition to relevant policy and national and international news. With such information, a farmer subscribing to the RML service is equipped to overcome the information asymmetry that impedes agricultural communities' growth and earnings, especially in the context of falling yields.

Corresponding Author:

P Anbarasan

Assistant Professor, Department of Agricultural Extension and Communication, School of Agricultural Innovations and Advanced Learning, Vellore Institute of Technology, Vellore, Tamil Nadu, India

Equipped with information, farmers can thus make informed decisions about their agricultural practices and sales and will be able to create wealth through a rise in agricultural productivity and income while waste and market inefficiencies are likely to be minimized. With the hope to spark the ideas to mobilize the convergence of ICT in agriculture, the present research has been carried out to investigate various researchable issues to delineate the pre-requisites of a sound strategy of ICTs in agriculture. Since RML operates in the study area for the past three years it is important to study the different perspectives like Behaviour Attitude, Perception, and preferences of market channel *etc.* by the registered RML users in utilizing the market price information provided through SMS. So as to know the give some possible suggestions to improve the services provided by RML to enable farmer as the strongest player in the market the present study entitled "Psychological perspective of farmers on Mobile based Agriculture: Reuters Market Light (RML)" was designed and executed.

Research Methodology

The study has been carried out in the Erode district of Tamil Nadu state. Among 32 districts of Tamil Nadu, Erode district was identified as the study area of this district which constituted a major group of beneficiaries of Reuters Market Light (RML) through mobile telephones. In Erode District of Tamil Nadu Reuters Market Light (RML) utilizes Pallavan Grama Bank (Agricultural Rural Bank which is sponsored by the Indian Bank) to distribute the messages. RML gets the farmers' data base from the Pallavan Grama Bank and in terms it sends the messages to farmers'. There are fourteen Pallavan Grama Banks functioning in Erode District. All the fourteen banks were selected for the study, from these fourteen banks 180 respondents were drawn by using the Stratified Random Sampling with Proportional allocation method. Then Simple Random Sampling without replacement procedure was adopted, with the help of Random number table the respondents who availed the Reuters Market Light (RML) service through the mobile phone Short Message Service (SMS) were selected for the study. The collected data was analyzed with appropriate statistical tools (SPSS) and techniques. The salient findings of the study are given below.

Result and Discussion

Market information seeking behaviour

The information seeking behaviour has been studied with regard to various categories of information sources like personal cosmopolite, personal localite, impersonal cosmopolite and official source. Information seeking behaviour of farmers influences the decision making pattern on crop production and marketing. Thus it directly supports the respondents to fetch higher price for their produce. Based on the sources obtained by the respondents they were classified as low, medium and high which are furnished in Table 1.

Table 1: Distribution of respondents according to market information seeking behaviour (n = 180)

S. No.	Category	Score	Number	Percent
1.	Low	<60	54	30
2.	Medium	60 to 70	48	26.7
3.	High	>70	78	43.3
Total			180	100

Mean = 39.04, S.D. = 4.45

From the Table 1 it could be inferred that 43.3 per cent of respondents had high level of information seeking behaviour followed by low (30 per cent) and medium (26.7 per cent) level.

More than 40 per cent of the respondents were found high on information seeking behavior. Mostly respondents sought information on which included existing market price for their produce, details of traders, market price trends, market demand for their produce *etc.*, due to the exponential increase in the yield, cluster approach of farmers in production and evolution of Farmers Company limited in Erode district could be the most significant reasons for the medium - high level of information seeking behaviour.

Most of the respondents' preferred cosmopolite information sources rather than localities sources. It is a known fact that market prices for perishable commodities were highly fluctuating in terms of time and space *i.e.* the price of a particular commodity was not stable and varies within and among markets. Hence, it is highly important for the respondents to get right information about existing prices in various markets for their produce in right time so that they could make decision on when to sell their produce and where to sell their produce so that they might get fair price for their produce.

Farmers were often exploited by middlemen in the markets who render their marketing services at the rate of 7 to 10 per cent of the total price of the commodity as commission. In order to overcome the middlemen menace in the markets, farmers sought information about potential traders and consumers to whom they could sell their produce directly without the interference of the middlemen.

Getting the above mentioned kind of wide information from localite sources like fellow farmers, friends, local agents were not possible and feasible to them. They preferred seeking market information from cosmopolite sources like Market experts, institutions like TNAU rendering marketing advisory services, traders in the city *etc.*, because the respondents felt that these sources provided information based on the farmers needs, more credible and useful to the farmers because of the well-established system of gathering, processing and disseminating the information in an authenticated way.

Market information processing behaviour

Market information processing behaviour helped the farmers to analyse the value of the information received by them. Processing of the information will influence the decision making behaviour of the respondents. Based on the cumulative frequency method the market information processing behaviour of the respondents were categorized as low, medium, high and analyzed. The results are given in Table 19.

Table 2: Distribution of respondents based on their market information processing behaviour (N = 180)

S. No.	Category	Score	Number	Percent
1.	Low	<15	11	6.1
2.	Medium	15 to 18	119	66.1
3.	High	>18	50	27.8
Total			180	100

Table 2 reveals that Most of the respondents (66.1 per cent) had medium level of market information processing behaviour followed by high (27.8 per cent) and low (6.1 per cent) levels.

The reason attributed to these results was the prevailing awareness about importance of market among the respondents. The farmers in the identified study area expressed their willingness to reap the maximum benefits out of the market information available with them. They also revealed that they frequently consulted market experts and fellow farmers before deciding upon the information. They also processed the information based on their past experiences, local recommendations and existing market trends in the study area.

The respondents indicated that they often utilized the information about traders which is available on RML webpage by browsing or through phone call to the project implementation office. Further, many respondents has established a close contact with the market analysts of the respective markets for moderating them to sell the harvested produce based on the market demand.

Attitude towards market

The attitude of the respondents towards market was analyzed by using six statements about market. Likerts scale was used to assess their attitude towards market. The attitude statements with their obtained mean score are tabulated in Table 20

Table 3: Distribution of respondents based on their attitude towards market (n = 180)

S. No.	Statement	Weighted mean score
1.	Selling the produce at market places does not necessarily mean good price.	4.23
2.	It is cumbersome to sell the produce at the market.	3.25
3.	Disposing the produce in the village is economical than selling it in the market.	3.6
4.	It is wastage of time to sell the produce in market.	3.8
5.	Good price for the produce is obtained only when marketed outside village.	3.25
6.	Only middlemen will be benefitted if the produce is sold at the market.	4.80

Table 3 reveals that the mean score obtained by the respondents for the given statements on attitude towards market namely:

1. Selling the produce at market places does not necessarily mean good price being a negative statement it obtained a mean score of 4.23 which inferred that the respondents strongly disagreed to this statement, because the respondents expressed that they would sell the produce at markets only when they felt that the offered prices were good and also they added that market was the only place where they could find various alternatives to sell the produce for a good price.
2. It is cumbersome to sell the produce at market obtained a mean score of 3.25, as it is a negative statement it revealed that farmers disagreed with this statement because they felt that a responsible farmer should not consider marketing his produce in the market as a cumbersome process because the ultimate aim of producing a commodity is to achieve some profit out of it and it could be obtained only when the farmer involved marketing of his produce at the market.
3. Disposing a produce in the village is more economical

than selling it in the market secured a mean score of 3.6 as a negative statement revealing that respondents disagreed with this statement.

4. It is wastage of time to sell the produce in market was another negative statement by which the farmers disagreed with a mean score of 3.8. For both the statements they felt that selling the produce in the market is economical. Farmers felt that if the produce was disposed at the village there might be a chance of losing the existing demand and competition for their produce which in turn provided better profit to the farmers when sold in the market and hence farmers expressed that disposing a produce in the village was not economical.
5. Good price for a produce is obtained only when marketed outside the village got a score of 3.25 and the respondents agreed to this positive statement because they felt that market was the only place with a structure that fetched maximum price for a good quality produce because of its consumer preference.
6. The last statement, only middlemen will be benefitted if the produce is sold at the market is a positive statement which was accepted by the respondents strongly, this statement secured a score of 4.80. The respondents expressed that the only major constraint experienced by them was the exploitation by the middlemen. Respondents felt that middle men were the strongest link in the process of marketing because of their well-established linkage with traders in the market. They also added that no farmer can enter a market and have a direct transaction with the traders without the intervention of middlemen. They strongly stated that middlemen only reaped the maximum benefit out of a produce which was produced by farmers and sold by traders. They also urged the researchers and policy makers to find ways to restrain the middlemen from the marketing chain so that the ultimate producer could be benefitted.

From the above discussion it is inferred clearly that the respondents selected for this study had a positive and strong attitude towards market. In spite of various constraints faced by them in the process of marketing like, packaging, transportation, storage, exploitation by middlemen, *etc.*, and the farmers still preferred to go and sell their produce in the market because of the following reasons. Bargaining and negotiations could be done only when the produce reached the market, since the produce produced by precision farmers were of superior quality; the advantage of competition could be exploited by farmers provided if there is a demand for his produce in the market.

Preference of marketing channel

A marketing channel or distribution channel is a set of practices or activities necessary to transfer the ownership of goods and to move goods from the point of production to the point of consumption and, as such, which consists of all the institutions and all the marketing activities in the marketing process. A marketing channel is a useful tool for management. In simple terms, it is the supply chain through which a produce reaches the consumer from the farmer.

A list of four predominant marketing channels were identified and given to the farmers for ranking based on their preference. The relevant data were obtained and the results are tabulated in Table 4.

Table 4: Distribution of respondents based on their preference of marketing channel (n = 180)

Rank	Channel no.	Description	Percent
Rank I	Channel 3	Producer – wholesaler/trader – retailer – consumer	61.7
Rank II	Channel 4	Producer – Agent – wholesaler – retailer – consumer	20.0
Rank III	Channel 2	Producer – retailer – consumer	13.3
Rank IV	Channel 1	Producer – consumer	5.0
Total			100

From Table 4 it is inferred that more than half (61.7 per cent) of the respondents preferred to sell their produce to the wholesaler/traders for avoiding the commission agents. The respondents expressed that marketing the produce directly to the retailers or consumers was a cumbersome process. The most preferred marketing channel by the respondents is given below:



There were 20 per cent of respondents who preferred channel 4 as the best suited marketing channel to them. In this channel the transaction was carried out through the middlemen. These respondents expressed that the interference of middlemen or commission agent in the present marketing is inevitable and a considerable part of farmers' involvement in marketing is reduced when the middlemen come in action. This channel is given below in schematic form.



Channel 2 was preferred by 13.3 per cent of the respondents who sold their produce directly to the retailers. These farmers were found to have a good linkage with popular retail chains like Reliance, More *etc.*, who dealt with retailing of perishable commodities. The channel is depicted below.



Only five per cent of the respondents preferred direct marketing of their produce to the consumers. Most of these farmers were found to be small growers producing minor quantities. They expressed that it was possible for them to directly sell it to the consumers because of a well-established linkage with potential regular consumers of their produce. The respective channel is given below.



Perception towards mobile phone in farming

Individual's perception is a result of interplays between past experience, including one's culture and the interpretation of the perceived. If the percept does not have support in any of these perceptual bases it is unlikely to rise above perceptual threshold.

Farmer's perception towards using mobile phones in learning farm related technologies, receiving all agriculture related information was an important factor to be studied in this research because it intended to study the information utilization behaviours of farmers receiving the Reuters Market Light (RML) information through mobile telephone. The

relevant data required to study this variable were collected and the results were tabulated in Table 5.

Table 5: Distribution of respondents based on their perception towards mobile phone in farming (n = 180)

S. No.	Item	Mean score
1.	Easy to learn	1.68
2.	Too expensive	2.608
3.	Absolutely essential	1.25
4.	Swift rapid information transfer	1.65
5.	Age is no bar	1.88
6.	Exclusive for literate groups	3.78
7.	Plethora of information transfer	1.25
8.	Used in contingencies	1.25
9.	Used in emergencies	1.69
10.	Portable	1.76

Table 5 reveals that the respondents obtained a mean score of 1.25 for the positive statements like mobile phone technologies are easy to learn, age is no bar for utilizing mobile phone technologies, used in contingencies, used in emergencies and are portable inferring that farmers have a positive (high level) and strong perception towards these statements followed by statements like mobile is absolutely an essential tool and plethora of information transfer can be done through mobile telephones which obtained a mean score of 1.25 which can be interpreted that farmers are in an undecided state with regard to these statements. Farmers have a negative and low perception towards statements like mobile phones are too expensive (2.068), rapid transfer of information is possible through mobile phones (1.65) and Mobile phones are exclusively intended for literate groups only (3.78). In general, most of the respondents had a high level of positive perception towards using mobile phone for farm information and technology transfer. It shows that farmers perceive mobile phone as the most essential and potential tool for exchange of information, faster learning tool, modest gadget for easy interpretation of information.

Conclusion

The value of information is universal and paramount. Providing information to those who do not have access to it and who are in critical need is an important service, independent of the specific benefits to farmers. Value additions in the Indian agriculture sector as well as value added services in the mobile phone industry are in urgent need of attention – and both hold promise for improving the situations of farmers, while creating value for several stakeholders including the mobile service companies and content aggregators like RML.

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