

**RESEARCH ARTICLE :**

Action taken on received agricultural information using mobile phones by the farmers in Lakhnaur block of Madhubani district, Bihar

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ARTICLE CHRONICLE :

Received :
09.08.2017;

Revised :
01.09.2017;

Accepted :
18.09.2017

SUMMARY : Mobile telephony has hasty growth as compared to fixed line telephony and the recent introduction of mobile-based agriculture information services are prospective to provide solutions to the existing information asymmetry in agriculture sector. A study was conducted in Madhubani district of Bihar to find out action taken on agriculture information received by mobile using farmers. The study sample comprised of 100 farmers selected randomly from Lakhnaur Block of Madhubani district in Bihar. This paper through focus in-depth interviews with farmers, has tried to find out action taken on received agricultural information by mobile phone like coordinating information, market information, financial information and agriculture consultation information. The study findings indicate that majority of respondents (29%) received financial information. Action taken on received agriculture information results show that majority of respondents (36%) had contacted for seeds planting and livestock coordinate meeting, hired transport for agriculture products to market (38%), gained loan from local businessmen (49%) and contacted local farmers for advice on how to deal affected crops (40%). The primary data in this study were attempting to undertake a micro level analysis of collected data from the farmer with the help of structured schedule through personal interview methods.

KEY WORDS :

Agriculture, Farmer, Information, Market, Mobile

How to cite this article : Mandal, Pankaj Kumar, De, Dipak and Kirti(2017). Action taken on received agricultural information using mobile phones by the farmers in Lakhnaur block of Madhubani district, Bihar. *Agric. Update*, 12(4): 587-592; DOI : 10.15740/HAS/AU/12.4/587-592.

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BACKGROUND AND OBJECTIVES

In developing countries agriculture is the backbone of the economic growth and poverty reduction mainly in the rural area. The bulk of population in a developing country is depending their living on agriculture sector like India where agriculture continues to be one of the most important sector of the Indian economy. Research, extension and farmers'

efforts have all contributed significantly in increasing food production from 50 million tonnes in 1950-51 to a land mark achievement of an estimated 259.32 million tonnes in 2011-12 (MoA, 2013). The total demand for food grains is projected to reach 280 million tonnes by the year 2020-21. Meeting his demand will necessitate a growth rate of nearly two per cent per annum in food grain production (Singh, 2011). Among ICTs, impressive

penetration of mobile phones in many of the developing countries changing the agricultural communication process and mobile phones have made personal communications readily accessible, for the first time, to rural and urban peoples in developing as well as in industrial countries (Colle, 2011).

In recent years, Mobile phones are widely recognized as a potentially transformative technology platform for developing nations. Mobile phones are transforming the lives of many users in developing countries and are widely recognized as an important current and future technology platform for developing nations (Lehr, 2007).

Strategic reforms in telecommunications sector since 1990's have facilitated strong ICT infrastructure in India. As on May, 2013, the number of telephone subscribers was 900.05 million (870.20 million wireless and 29.85 million fixed land line telephones) and 15.05 million broadband subscribers were estimated by the Telecom Regulatory Authority of India (TRAI, 2013). The tele-density has reached 73.33 per cent as of May, 2013 (number of telephone subscribers per 100 individuals). However, there is huge gap between urban and rural tele-density, 145.54 per cent and 41.60 per cent, respectively. Despite several policy initiatives to promote rural ICT penetration, growth in tele-density continues to be skewed in favour of urban India. Total internet users are 164.81 million (12.97 % of population) as per TRAI (TRAI, 2013). In India, there are 15.13 million broadband subscribers as on March, 2013 (TRAI, 2013). The comparative growth of telephone is increased from 9.3 to 63.3 per cent in the country has been phenomenal during the last one decade (Census of India, 2011). Mobile phone technology has rapidly expended all over the world. Mobile phone services should be in use to access agriculture market information and knowledge, increase the agriculture commerce by improving the productivity. Mobile phones which are normally in use to communicate with family and friends could be used for agriculture commerce stakeholders (Anjum, 2015). Presently mobile telephony is the prime mode of communication. Mobile phone use on information asymmetry proposing that better access to information (via phones) allows farmers to strike better price deals within their existing trading relationships, and to make better choices about where to sell their produce (Katengeza *et al.*, 2011). Mobile phones were also thought to have reduced operational costs,

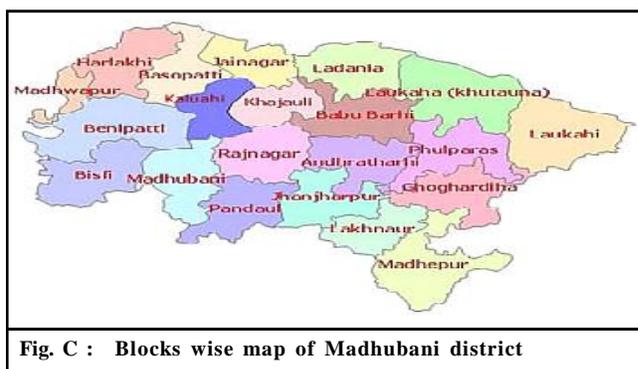
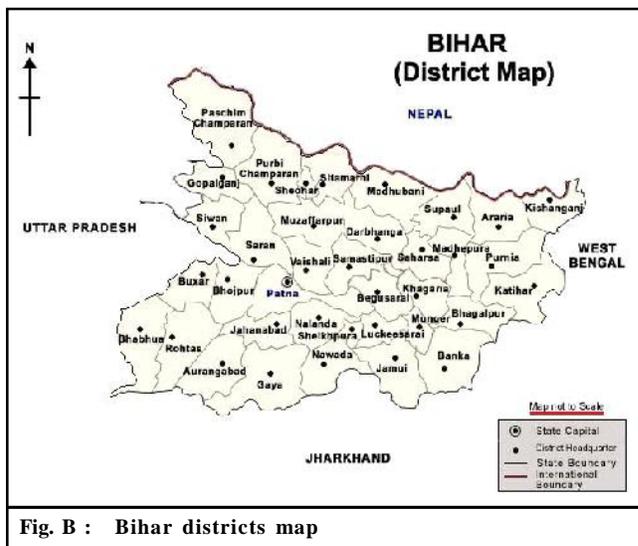
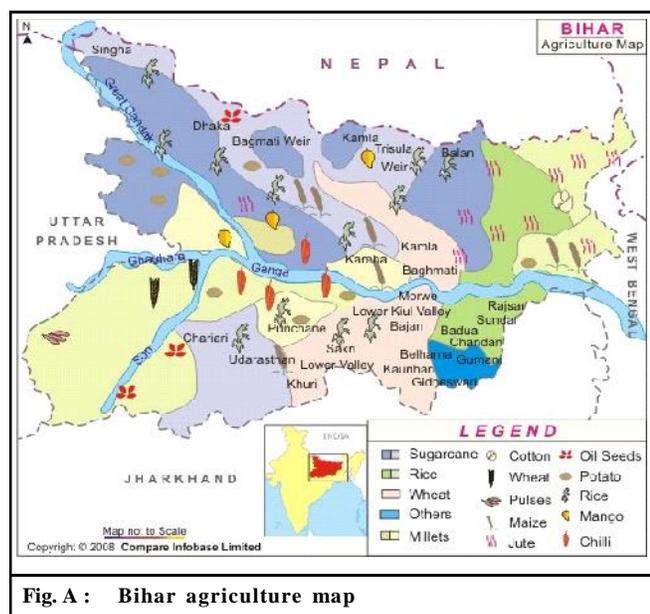
increased the profitability of rural businesses and contributed to revenue generation and labour productivity of both formal and informal small and medium size enterprises (Esselaar *et al.*, 2010). Several studies have sought to outline the utility of mobile phones and m-services to support agricultural production and promote rural development (World Bank, 2011) Better access to information, markets and financial services are among the most commonly cited uses of mobile phones in this sector. Several of the studies also summarised the great potential for employing mobile phones in the delivery of extension and other public services (Aker, 2011) and in supply chain management (Qiang *et al.*, 2011). Many initiatives have been taken in this regard to utilize mobile phones by private sector (Indian Farmers Fertilizer Cooperative Limited, Nokia, Airtel, Tata Consultancy Services, *etc.*) and public sector (Ministry of Agriculture, Universities like Tamil Nadu Agricultural University, research institutions like Indian Council of Agricultural Research, State Governments of Haryana and Kerala, Indian Meteorological Department and others) in agricultural advisory service for agronomic practices, weather forecasts and market price . With increased dependency, the mobile phone is becoming a common communication platform of the world, especially for agriculture (Saravanan and Bhattacharjee, 2014). Use of the mobile phone for coordinating access to agricultural inputs information, market information, financial management, and consult with agricultural experts. According to a study conducted by Martin (2011) approximately (87%) of respondents use mobile phones for coordinating access to agricultural inputs, including agricultural training, seeds, livestock, and pesticides from local dealers, governmental and non-governmental agriculture extension agents, and community members. Now, the farmer is able to call ahead, determine availability and coordinate a meeting time. The second most frequently cited agricultural use of the mobile phone, indicated by 70% of respondents was accessing market information. Accessing market information includes using the mobile phone to contact local farmer associations and buyers. Use of the mobile phone for monitoring financial transactions was mentioned by nearly 54% of the respondents. Monitoring financial transactions includes consulting with lenders on availability and guidelines of financial loans, reminding farm group members to repay loans accountable to the group as a

whole, and monitoring domestic and business remittances. Approximately 52% of respondents cited at least one use of the mobile phone for consulting with expert advice from non-governmental and governmental agriculture extension agents.

RESOURCES AND METHODS

Description of study area :

The study was conducted in District Madhubani of Bihar. The State has cultivable land in the Indo-Genetic Plain and Agriculture is the key to the overall development of the State economy. Agriculture is the backbone of Bihar's economy 77% of workforce and generating nearly 24.84% of the State Domestic Product. The percentage of population employed in agriculture production system in Bihar is estimated to 77%, which is much higher than the national average (Dept of Agriculture Bihar, 2015). Rice, wheat, sugarcane and lentils consider as main crops and supplementary crops include oilseeds, pulses, barely, gram and maize and a variety of vegetables (Economic Survey Bihar, 2012). The state of Bihar comprising 38 districts, Madhubani district one of them. The district has very rich and fertile land and is surrounded by three rivers *i.e.* Koshi, Kamala and Baghmati. All the three rivers originate from Nepal and cause severe damages of human lives, wealth and livestock during the flood in rainy season (NIC District unit Madhubani, 2012).



Sampling technique :

Madhubani district comprises of 21 blocks. Out of these 21 blocks, Lakhnaur was selected purposely for study due to larger population of area. Lakhnaur block consists of 44 villages; out of which two villages were selected from Lakhnaur block randomly for this study. From Lakhnaur village 60 and Behat village 40 respondents were selected randomly. A total of 100 respondents constituted the sample size. A structured interview schedule was developed for collecting data from the respondents according to the objective of the study. Data were collected from the respondents through conducting personal interview method.

OBSERVATIONS AND ANALYSIS

Table 1 and Fig. 1 indicate that majority of respondents (29 %) received financial information followed by market information (27%), Coordinating

access to agriculture input information (23 %) and agriculture consultation (21%). Thus, it can be concluded that majority of the respondents received financial information on mobile phone.

Table 1 Agricultural information received on mobile

Sr. No.	Categories	Frequency	Percentage
1.	Coordinating access to agri. Input information	23	23
2.	Market information	27	27
3.	Financial information	29	29
4.	Agriculture consultation information	21	21
	Total	100	100

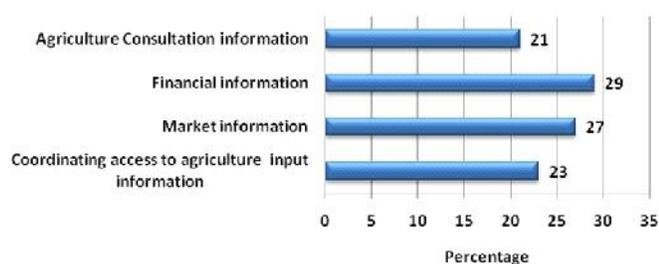


Fig. 1 : Distribution of respondents according to Agricultural information received on mobile

Table 2 indicate that majority of respondents (36%) had co-ordinate meeting with input dealer for seeds, fertilizer and livestock followed by coordinate meeting with agriculture expert for new technologies (28%), coordinate meeting with other farmers for new information (25 %) co-ordinate meeting with local entrepreneur for new enterprise (11%). Thus, it can be concluded that majority of the respondents taken action on receiving agriculture coordinating access to agriculture input information for coordinate meeting with input dealer for seeds, fertilizer and livestock. The similar findings were reported by Martin (2011).

Table 3 indicates that majority of respondents (38%) had hired transport for of agriculture products to market followed by contact with local buyer and seller for better price (27%). Further, contact with experts for knowing the current market price (18%) and only respondents (17%) had contact group members to be matched with buyer or seller. Thus, it can be concluded that majority of the respondents taken action on receiving agriculture market information on mobile to hire transport for transport of agriculture products to market.

Table 4 indicate that the majority of respondents (49%) had gained loan from local businessmen, (36%), had coordinated picking to up payment of group loan. To

Table 2 : Action taken on receiving agriculture coordinating access to agriculture input information

Sr. No.	Categories	Frequency	Percentage
1.	To coordinate meeting with agriculture expert for new technologies	28	28
2.	To coordinate meeting with other farmers for new information	25	25
3.	To coordinate meeting with input dealer for seeds, fertilizer and livestock	36	36
4.	To coordinate meeting with local entrepreneur for new enterprise	11	11
	Total	100	100

Table 3 : Action taken on receiving agriculture market information

Sr. No.	Categories	Frequency	Percentage
1.	To contact with local buyer and seller for better price	27	27
2.	To contact with experts for knowing the current market price	18	18
3.	To hire transport for transport of agriculture products to market	38	38
4.	To contact group members to be matched with buyer or seller	17	17
	Total	100	100

Table 4 : Action taken on receiving agriculture financial information

Sr. No.	Categories	Frequency	Percentage
1.	To gain loan from local businessmen	49	49
2.	To coordinate picking to up payment of group loan	36	36
3.	To gain loan from bank	15	15
	Total	100	100

Table 5 : Action taken on receiving agriculture consultation information

Sr. No.	Categories	Frequency	Percentage
1.	To consult with experts on how to handle pest affect crops	27	27
2.	To contact with meteorologist	19	19
3.	To contact with organization	14	14
4.	To contact local farmers for advice on how to deal affected crops	40	40
	Total	100	100

gain loan from bank were only 15%. Thus, it can be concluded that majority of the respondents taken action on receiving agriculture financial information on mobile phone to get loan from local businessmen and only 15 per cent respondents were getting loan from banks due to high complexity of procedure of the banks for getting loans as compared to getting from local businessmen.

Table 5 indicates that majority of respondents (40%) had contact local farmers for advice on how to deal affected crops followed by to consultant with experts on how to handle pest affect crops (27%). Further, 19% contacted with meteorologist and only 14% respondents had contact with organization. Thus, it can be concluded that majority of the respondents taken action on receiving agriculture consultation information on mobile to contact local farmers for advice on how to deal affected crops due to reason that majority of farmers easily understand other local farmers languages.

Conclusion :

Mobile phones are tools that will permit for more efficient response to trade opportunities. Presently mobile phone is the leading mode of communication. Mobile phones to help farmers to access agriculture market information, financial management, and consult with agricultural experts etc. This study concluded that the majority of respondents received financial information, they mostly being used for increase savings and earnings of money. This finding further shows that action taken by farmers received agricultural information like coordinating access to agricultural inputs information, market information, financial information, and consult with agricultural experts information on mobile phone. Majority of farmers had coordinated meeting with input dealer for seeds, fertilizer and livestock, hired transport for of agriculture products to market, gained loan from local businessmen due to highly complexity process of bank for getting loan, contacted local farmers for advice on how to deal affected crops due to reason that maximum

number of farmers easily understand other local farmers languages.

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