



Socioeconomic Characteristics of Farmers Who Use of Mobile Phone for Farming in Lakhnaur Block of Madhubani District of Bihar

Pankaj Kumar Mandal^{1*}, Dipak De², Kirti¹ and Anupam Dakua¹

¹Department of Extension Education, Institute of Agricultural Sciences, BHU, India.

²Department of Extension Education, IAS, BHU, Varanasi-221005, India.

Authors' contributions

This work was carried out in collaboration between all authors. Author PKM designed the study and wrote the protocol. Author DD supervised the work and performed the statistical analysis. Author PKM managed the analyses of the study and wrote the first draft of the manuscript. Authors AD and Kirti managed the literature searches and edited the manuscript. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/AJAEES/2016/27986

Editor(s):

- (1) Jurislav Babic, Faculty of Food technology, University of Osijek, Croatia.
(2) Jamal Alrusheidat, Assistant and Consultant to Director general for Extension Education, Director of Extension Education Department, National Centre for Agricultural Research and Extension (NCARE), Amman, Jordan.

Reviewers:

- (1) Anonymous, Chinhoyi University of Technology, Zimbabwe.
(2) Kalpana L. Chaudhari, Shah and Anchor kutchhi Polytechnic, Mumbai, India.
(3) O. W. Olowa, Federal College of Education (Technical), Akoka, Lagos, Nigeria.
(4) Teddy Triza Nakanwagi, Makerere University, Uganda.

Complete Peer review History: <http://www.sciencedomain.org/review-history/16320>

Original Research Article

Received 28th June 2016
Accepted 18th September 2016
Published 24th September 2016

ABSTRACT

Modern agriculture has become highly knowledge intensive and requires appropriate, consistent, precise and timely information on various aspects like crop management, markets, weather information etc. The nature of information always depends on a number of factors such as the farm activity, land holding, climatic conditions, marketing opportunities etc. Using the available information further depends on various factors like literacy, and economic status etc. This study is attempting to undertake a micro level analysis of collected data to assess characteristics of the respondents using mobile phone through study of Independent variables in Madhubani District of Bihar. Total of 100 farmers were randomly selected from Block Lakhnaur in Madhubani district of

*Corresponding author: E-mail: Pankajabhi007@gmail.com;

Bihar. Lakhnaur block consists of 44 villages, out of which 2 villages were selected randomly for this study. The data was collected through personal interview with the help of structured interview schedule.

Keywords: Mobile; farmer; agriculture information; socio-economic; farming.

1. INTRODUCTION

Agriculture continues to be the most important sector of the Indian economy. It is a more or less a compulsion for livelihood of millions of farmers. Land and water resources have almost reached their limits, price of commodities are fluctuating almost every day. Profits are negligible for most of the marginal and small farmers and most of all getting information is cumbersome. In present day agriculture, soft resources like knowledge and skills are as important as hard resources like inputs, and sometimes more important, [1].

The dissemination of information and communication technologies (ICTs) in developing countries provides much opportunity to transfer knowledge and information by private companies and government department. Last many years mobile phone coverage has been spread fast in Asian, African and Latin American countries, [2]. Mobile phone effectively reduces the distance between individuals and institutions, making the sharing of information and knowledge easier and more effective [3]. Social networks can be strengthened and individuals are empowered through use of mobile. It is providing a direct global communication channel to rural communities. It also helps in making local content, rural services more efficient, cost-effective, reliable and timely communication channel in the context of markets, extension advice, monitoring, finances, health, etc [4]. It provides multiple formats for information in one device and accessibility for illiterate users (i.e. voice and images).

Bihar is third populated state of India with total population of 103.8 million (54.2 million male and 49.6 million female) in 2011 census of India, [5]. It has a total literacy rate of 69.83%. Overall Male and Female literacy rate is 70.32% and 53.57% respectively. Total Rural literacy rate is 43.9% in rural areas and total urban literacy rate is 71.9 in urban areas of Bihar, [6].

Bihar has a total geographical area of about 93.60 lakh hectare, 57.12 lakh hectares is under cultivation which is around 60 per cent of the

total. About 23.58 lakh hectare areas are put to cultivation more than once in a year. Therefore the Gross cropped area is 78.82 lakh hectares. The cropping intensity is 138 per cent, [7].

Agriculture is the vital source of assets in Bihar. 76% of its population is engaged in agricultural activities. The Bihar state is gifted with rich biodiversity. Agriculture provides sufficient supply of raw materials for the establishment of Agro based industries. Bihar is the third largest producer of vegetables and fourth largest producer of fruits in the country. Bihar is largest producer of Litchi, Makhana, Guava, Lady's finger in India. Agriculture productivity of Bihar contribution in food grain, fruits, vegetables, spices and flowers can increase various with adoption of improved methods and management, [8].

1.1 Similar Study in Other Areas

Survey conducted in Kigali of Africa, reported that all the respondents owned mobile phones and (69%) users were men, with a median age of 32 years. Most of them had completed primary (26%) or secondary (54%) schooling. Further, (20%) had postsecondary or university certificate, [9]. Likewise, [10] it was found that the participants were composed of 57 (49.1%) farmers from the Muang District and from the Soongmen District 59 (50.9%) farmers. In total, the number of male participants (71.6%) were many more than female participants (28.4%). The majority of farmers in this experiment must be seen as middle-aged or elderly farmers. Most participants (76.7%) had completed only a primary school education, although 12.9 per cent of participants finished at the level of junior high school. The majority of participants from Muang District (77.2%) earned about 8001 –20000 baht (1USD= 34.93 baht) where as (69.5%) of those from Soongmen District earned 3001 – 8000 baht. Stated that people between 19 to 30 age groups were mostly using to mobile phone but people of 31-50 age groups were not far behind and in fact they were the most frequent phone owners. The majority of persons (72%) were a monthly household income of less than USD 84.

The majority of the farmers (68%) had an education level below the metric and secondary school, [11]. Survey conducted in Maharashtra of India, reported that the majority of person (36%) were belonged to age group 41-50 years followed by (33.72%) were the age groups of 31-40. Educational status showed that majority of persons (58.86%) had completed higher secondary school, 12.57 per cent had done diplomas, and polytechnic, while (10.28%) were graduate and (18.81%) person were illiterate [12]. Similar type of study reported that sex of the respondents were made up of males (50%) and females (50%) with 39% owning farms with the sizes of less than an acre, (30%) between 1-2 acres whiles (31%) had farms above 2 acres. Majority (45%) of the respondents had their highest education at the Junior High/Middle School, (29%) had up to primary school, (6%) had up to the tertiary level, and (6%) had up to SHS/Vocation / Technical education and (11%) had no formal education [13]. Related studies, found that majority (91.0%) of the farmers using cell phone were in the age bracket of 20-50 years. Most of male farmers (68.2%) were predominating in using cell Phone. Concerning farmers' educational status, majority of cell phone users (78.4%) had above secondary education. Most of the cell phone user (82%) earned higher average income of ₹81,000 – ₹90,000 per annum (1USD=₹315.25) and majority of the cell phone user (61.7%) cultivated more than 10 hectare [14]. Stated that there was active involvement of people across all the age groups in using mobile phones for agricultural purposes and particularly the younger farmers were using the most. Most of them were well educated and more than 82% of the farmers had completed at least secondary level of education. [15] in survey, Out of the 384 respondents, females were 200 (52.1%), while 184 (47.9) were males. Based on mobile phone ownership, most respondents 306 (79.7%) indicated that they owned mobile phones. Furthermore, of the 384 respondents, the young numbered 262 (68.2%) and were aged between 20-45 years. This implied that over two thirds of the young respondents owned mobile phones [16]. Other related survey, found that majority of the respondents (77.78%) belonged to middle age category and (17.22%) were from old age category. Rest of the respondents was in young age category. Educational level of the respondent showed that most of the respondents (25%) were educated up to high school and only 10 per cent of respondents were illiterates. Respondents who were involved in primary

occupation farming constituted 77.77 per cent. Analysis of income of respondents revealed that most of the respondents (44.44%) were from high income group, low income group accounted for 33.34 per cent, and middle income group constituted only 22.22 per cent of respondents. The maximum numbers (36.13%) of respondents were medium farmers whereas 30.55 per cent were small farmer, and 16.66 per cent were marginal farmer. Most of young educated respondents were using mobile for agriculture purpose [17].

2. MATERIALS AND METHODS

The study was conducted in Madhubani District of Bihar. India is vast country, comprising of 28 states and 7 union territories. Out of 28 states Bihar was selected, purposively. The State has cultivable land in the Indo-Gangetic Plain and abundant water, both surface and sub-surface for irrigation. Agriculture is the dominant economic activity. Agriculture is the dominant economic activity employing around three quarters of the work force in the State. Bihar comprising 38 districts, out of which Madhubani District was selected purposively for study. The availability of large numbers of micro & small enterprises this District. The District has very rich & fertile land and is surrounded by three rivers i.e. Koshi, Kamala & Baghmati. Madhubani District comprises of 21 blocks. Out of these 21 Blocks, Lakhnaur was selected purposively for this study. Lakhnaur block consists of 44 villages; out of which 2 villages were selected from Lakhnaur block randomly for this study. From Lakhnaur village and Behat village 60 and 40 respondents were randomly selected respectively who possessed mobile phones. Thus, total 100 number respondents were selected for this study. The obtained results were analyzed in the form of percentage.

3. RESULTS AND DISCUSSION

Majority of the respondents (42%) was belonged to the middle age category followed by young age category and old age category. Literate respondent's categories into five groups. The maximum number of respondents were in the category middle school (33%) followed by high school (21%), about 14 per cent respondents standard up to intermediate,(6%) primary school, while (11%) were graduate and only (15%) of respondents were illiterate. Majority of respondents (52%) were farming as their main occupation followed by private job (27%) and

Table 1. Distribution of the respondents in terms of socio-economic characteristics

	S. no.	Categories	Respondent (N=100)	
			Frequency	Percentage
I. Age	1	Young (up to 35)	36	36
	2	Middle (36 to 50)	42	42
	3	Old (above 50)	22	22
	Total		100	100
II. Education	1	Illiterate	15	15
	2	Primary	6	6
	3	Middle	33	33
	4	High school	21	21
	5	Intermediate	14	14
	6	Graduation	11	11
Total		100	100	
III. Occupation	1	Farming	52	52
	2	Govt. service	5	5
	3	Farming & Business	16	16
	4	Private service	27	27
Total		100	100	
IV. Family annual income	1	Low (Below Rs. 50,000)	32	32
	2	Medium (Rs.50,000 to1,00,000)	47	47
	3	high (Above Rs .1,00,000)	21	21
Total		100	100	
V. Cast	1	General	36	36
	2	OBC	48	48
	3	SC/ST	16	16
Total		100	100	
VI. Land holding	1	Marginal (below 2 acre)	61	61
	2	Middle (2-4 acre)	28	28
	3	Large (above 4 acre)	11	11
Total		100	100	

farming and business (16%). Only (5%) of respondents were in government job. It can conclude that most of the respondents were doing farming along as the main occupation. Maximum number of respondents (47%) had medium level of income category followed by low (32%) and high level (21%). Majority of respondents (48%) belonged to other backward caste followed by general (36%), and scheduled caste and scheduled tribe (16%) respectively. Majority of respondents (61%) had marginal land holding, (28%) of respondents had middle land holding and least by large land holding respondents were only (11%).

4. CONCLUSION

The result of the study says that socio-economic factors like age, education, farm size and income level have significant effect on what kind of information sources farmers are seeking the most. With increase in educational levels, farmers get attracted more towards the modern information outlets like mobile phones and

internet, [18]. With rise in assets possession farmers tend to have greater accessibility to various information sources as compared to farmers having low material resources. On the other hand the current trend shows that mobile phones play vital role in agriculture where the poor farmers to seek vital information about the agriculture that was in past were very difficult for small farmers to obtained. Access and adoption of modern ICT is limited in case of farmers with low literacy levels. These results focuses the compatibility of technology to different farmers with different education level, age group farm size , income level and other socio-economic factors. M-learning can be a best alternative to the man driven extension system in India in near future.

ACKNOWLEDGEMENTS

I specially thank to all the reviewers for their suggestions recommended by them proved to be very fruitful for my paper.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Saravanan R, Bhattacharjee S. Mobile phone applications for agricultural extension in India, Worldwide m-Agri Innovations and Promise for Future, New India Publishing Agency, New Delhi. 2014; 1-75.
2. Aker Jenny C, Isaac Mbiti. Summer mobile phones and economic development in Africa. Journal of Economic Perspectives. 2010;24(3):207-232.
3. Available:<http://www.e-agriculture.org/mobile-telephony-rural-areas>
4. Available:www.fao.org/fileadmin/templates/tci/.../MobileTelephony-PB-March09-EN.pdf
5. Available:<http://www.censusindia.gov.in/>
6. Available:<http://www.censusindia.gov.in/.Censusindia.gov.in> (Retrieved 20 November 2014)
7. Available:<http://krishi.bih.nic.in/>
8. Available:<http://krishimis.in/WebPortal/>
9. Donner J. Mobile-based livelihood services in Africa: Pilots and early deployments. In: Fernandez-Ardevol M, Ros A, Eds. Communication technologies in Latin America and Africa: A Multidisciplinary Perspective. 2009;37-58, IN3. Barcelona.
10. Tantisantisom K. Information dissemination for farming communities in Thailand. Faculty of Computing, Health and Science Edith Cowan University; 2011.
11. Islam MS. Adoption of mobile phone among the farmers: A case study from the rural Bangladesh. Orebro University, Swedish Business School, MSc in Informatics Program; 2011.
12. Bachhav NB. Information needs of the rural farmers: A study from Maharashtra, India: A Survey Library Philosophy and Practice (e-journal). 2012;866.
13. Tettey T. The use of mobile phone on a farmer's business. International Journal of Academic Research in Business and Social Sciences; 2011.
14. Bolarinwa KK, Oyeyinka RA. Use of cell phone by farmers and its implication on farmers' production capacity in Oyo State Nigeria. World Academy of Science, Engineering and Technology. 2011;51.
15. Ogbeide OA, Ele I. Smallholder farmers and mobile phone technology in sub-sahara agriculture. Mayfair Journal of Information and Technology Management in Agriculture. 2015;1(1):1-19.
16. Nyamba SW, Mlozi Malongo RS. Factors influencing the use of mobile phones in communicating agricultural information: A case of Kilolo District, Iringa, Tanzania. International Journal of Information and Communication Technology Research. 2012;(2):7.
17. Ansari MA, Pandey N. Assessing the potential and use of mobile phones in agriculture, Karnataka J. Agric. Sci. 2013; 26(3):388-392.
18. Mittal S, Mehar M. Socio-economic factors affecting adoption of modern information and communication technology by farmers in India: Analysis using multivariate probit model. Journal of Agricultural Education and Extension; 2015.

© 2016 Mandal et al.; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:
The peer review history for this paper can be accessed here:
<http://sciencedomain.org/review-history/16320>