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A detailed study of profile of farmers using mobile phone services

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Abstract

This study was taken up to go through the profile of farmers using mobile phone services. Simple random sampling technique was employed to select 120 respondents among the registered farmers to mobile service of KVK, Dharwad, APMC, Hubli and weather based mobile services of UAS, Dharwad. The primary data required for the study was obtained using structured interview schedule prepared for the purpose. The results showed majority of the farmers (37.50%) belonged to middle age, 25.83 per cent of them had received high school education, big land holding farmers were maximum (40.00%), 47.50 per cent of the respondents belonged to high annual income category, majority (63.33%) of the respondents belonged to medium family, majority (59.16%) of the respondents possessed smart phones while 40.83 per cent of them possessed basic set and only 4.16 per cent of the respondents possessed PC and tablet, majority of the farmers (45.00%) had low experience in using mobile followed by 35.83 per cent and 19.16 per cent of the farmers who had high and medium experience in using mobile, respectively. Also the study showed that 43.33 per cent of the farmers were having high innovativeness, contacted regularly agriculture/ horticulture department staff (19.16%), KVK (22.50%), agricultural university (32.50%), agricultural extension education units (15.83%), family members (24.16%), friends (55.00%), neighbours (20.00%), progressive farmers (40.00%), gram panchyat (17.50%), television (52.50%), radio (32.50%), mobile (61.66%) and print media (25.00%), participated regularly in training programme (11.66%), meetings (16.66%), krishimela (45.00%), demonstrations (1.66%), and group discussion (16.66%). While none participated regularly in field days and field visits.

Keywords: Age, education, extension services, mobile phone

1. Introduction

The Indian agricultural sector has been characterised by low productivity growth despite periods of strong growth in the past. Serious challenges must be addressed in order to achieve faster productivity growth. These include infrastructure constraints, supply chain inefficiencies and significant problems in the diffusion of and access to information. The challenge for the government and policy makers is to regain agricultural dynamism. To achieve a higher agricultural growth rate, the next generation green revolution in India must be preceded by the next generation of technology and infrastructure development. Small and marginal farmers, who are the vast majority of Indian farmers, are often unable to access information that could increase yields and lead to better prices for their crops. The sector also faces problems arising from a shortage of investments in rural infrastructure, which adversely affects farm productivity growth. A push towards higher agricultural productivity will require an information-based, decision-making agricultural system (precision agriculture). This is often described as the next great evolutionary step in agriculture. Precision agriculture, in turn, is heavily dependent on an efficient information dissemination system – GPS and mobile mapping technologies offer the means to set up such a system (Bhatnagar and Subhash, 2008)^[3]. Although the use of mobile phones is essential for the acquisition of agricultural information which would aid agricultural activities to have formidable impact in countries, the use of mobile phone is often influenced by socio-economic factors such as educational background, age, gender, income, farm experience, family size and farm size among others. Age is one of the essential factors that determine the adequate use of mobile phones. A study by Jain and Hundal (2007)^[5] in India revealed that the majority of phone users (62.00%) are within the age group of 20 to 40. In a study on Grameen Telecom's Village Phone Program in Bangladesh, Richardson, Ramirez, and Haq (2000)^[13] explained that people aged 20 to 30, is an age group of farmers that would more likely be receptive to a wider range of phone services, including card phones. Gender has also been noted to influence farmers' use of mobile phones as female farmers have been noted to adopt the use of mobile phones recently than male farmers. This is as a result of government and nongovernment organizations focusing more attention on women than men in their resources allocation and grant of credit facilities.

Kalba (2008)^[7] argues that the adoption of certain technology attributes or alternatives depends on the level of farmers' income over time. Also, in relations to income, farmers' earnings would determine the type of mobile phones to buy and how it will be utilized in terms of the amount of call card to buy which could result in the rate of agricultural information acquired. The rate of income depends on how farmers gain access to information through adequate use of mobile phones. Educational qualification on the other hand, may also contribute to mobile phone usage as farmers need to have a certain level of educational background or literacy to guide them before they can access some functions on mobile phones appropriately. In other words, educated farmers easily learn how to use mobile phones than uneducated ones. Hence, they are more likely to be innovative in their use of mobile phones. While the people are blessed with access to various mobile networks, it is not certain how they use mobile phones for Agricultural information, or how socio-economic factors affect their use of mobile phones for agricultural information. The dearth of literature on the farmers' use of mobile phones for Agricultural information necessitates the need for this study. With this background the research was conducted to study of profile of farmers using mobile phone services. The standardized structure schedule was used to collect the data through personal interview technique.

2. Methodology

2.1 Study area: The study was conducted in Dharwad district which was purposively selected as it comes under the jurisdiction of UAS, Dharwad and from the point of researcher convenience.

2.2 Selection of respondents: Registered farmers to mobile service of KVK, Dharwad, APMC, Hubli and weather based mobile services of UAS, Dharwad were selected for the study. List of farmers from KVK, APMC and UASD were collected for the purpose. From the list, 120 farmers were selected randomly. Thus the total sample size constituted 120 respondents for the study.

The required information was obtained from sample respondents by personal interview method with the help of structured interview schedule. The tabular analysis was made to document the awareness of farmers about agriculture information provided through mobile phone service by computing averages and percentages.

3. Results

3.1 Age

The results of the Table 1 indicated that higher percentage of farmers (37.50%) belonged to middle age category followed by young (33.33%) and old (29.17%) age category. The probable reason for majority of the farmers belonged to middle age category might be that, middle aged people are enthusiastic in using of mobile phones for getting information related to agriculture and allied activities. Moreover, these people have more family responsibility and sensibility. They also work with a sense of commitment and involvement. This finding is confirmative with the findings of Aneeja and Shenoy (2004)^[1].

3.2 Education

The data presented in Table 1 revealed that a considerably high percentage (25.83%) of the respondents had high school education followed by pre university education (24.16%),

primary school (19.16%), middle school (16.66%), degree and above (10.38%) and few (3.33%) were illiterate. This might be due to that farmers have easy access to schools and realization of importance of formal education in the present situation. As they had education, they were able to gather knowledge on recent technologies disseminated through SMS. Generally, in the present scenario, almost everybody is found to be literate due to the awareness brought by the government on the importance of education and the efforts of the government and non – governmental agencies. This finding is confirmative with the findings of Bachhav (2012)^[2].

3.3 Land holding

From the Table 1 it could be noticed that, highest percentage (40.00%) of farmers belonged to big land holding category, followed by 34.16, 16.66 and 9.16 per cent were medium, small and marginal farmers, respectively. The possible reason could be that the main occupation of the farmers is only agriculture and they must have inherited the land holding from their ancestors. Moreover, it might be easier to employ latest technology in big and medium farms rather than small farms. The above findings were in accordance with the findings of study conducted by Patil *et al.* (2000)^[11].

3.4 Annual income

The data in Table 1 indicated that 47.50 per cent of the respondents belong to high annual income category followed by 35.00 and 17.50 per cent belonged to medium and low income category, respectively. The probable reasons for varied income categories of farmers might be due to the size of the land holding, adopting new technologies, asset possession and practicing of subsidiary occupations by the farmers. The above findings were in accordance with the findings of study conducted by Pendse and Rajguru (2009)^[12].

3.5 Family size

The results in the Table 1 revealed that majority (63.33%) of the respondents belonged to medium family followed by 20.84 per cent of them belonged to large family and 15.83 per cent of the respondents belong to small family. The reasons might be that joint family system prevailed in rural areas, where as medium and big family helps to assist in agriculture and allied activities. This finding is confirmative with the findings of Bachhav (2012)^[2].

3.6 Possession of mobile phone sets

The results in the Table 1 revealed that majority (59.16%) of the respondents possessed smart phones while 40.83 per cent of them possessed basic set and only 4.16 per cent of the respondents possessed PC and tablet. The reason could be that all the farmers were registered to SMS based services, hence all of them possess mobile phone and most of them possessed smart phones because, majority of the farmers were young and middle aged and were advanced. This finding is in conformity with the findings of Masuka *et al.* (2016)^[9].

3.7 Experience in using mobile

The data in Table 1 showed that majority of the farmers (45.00%) had low experience in using mobile followed by 35.83 per cent and 19.16 per cent of the farmers who had high and medium experience in using mobile, respectively. The reason might be that mobile has been recently introduced in our country and majority of farmers are using mobile from last few years.

3.8 Farming experience

With respect to farming experience of the farmers the data in Table 1 showed that majority (35.83%) of the farmers had medium farming experience in agriculture followed by 34.16 per cent and 30.00 per cent of the farmers who had low and high farming experience, respectively. This situation may be due to relationship between variables 'age' 'education' and 'farming experience', majority of the farmers were middle and young aged and might have started farming after completion of their education. Generally farming is a hereditary occupation and some of the farmers started farming at a very young age. This finding is confirmative with the findings of Samatha (2011) [14].

3.9 Innovativeness

The data in Table 1 indicated that majority (43.33%) of the farmers were having high innovativeness, while 29.16 per cent and 27.50 per cent were in the 'low' and 'medium' categories of innovativeness, respectively. The farmers were receptive to any of the technological breakthrough in terms of crop cultivation for higher returns. In addition, the medium level of education of the farmers which helped them to try new technologies which are disseminated through mobile phone services on their fields. Hence, farmers normally inclined towards the technologies disseminated through mobile phone services which fetch them higher income which might have prompted them to have high level of innovative proneness This finding is confirmative with the findings of Hagemanty (2011) [4].

3.10 Source of agriculture information

It was observed in Table 2 that majority (61.66%) of the farmers used mobile phones regularly as major source of agriculture information followed by contacting friends (55.00%). It was revealed that neighbours (63.33%) and progressive farmers (50.83%) were occasionally consulted as a source of agricultural information. As all of them are registered farmers to mobile services, they get regular messages regarding agriculture which forms a major source of agriculture information. Good relation with the friends and also neighbours was the reason to consult them regularly. To seek technical information progressive farmers are next best important source of information so they might have consulted progressive farmers frequently for seeking technical information

Among formal sources, Agriculture Department, KVK, agricultural university, agricultural extension education units occasionally consulted as the source of agricultural information, which shows the good relationship between Agriculture Department, KVK, agricultural university, agricultural extension education units and farmers. This finding is confirmative with the findings of Kailash (2016) [6].

3.11 Mass media exposure

With respect to mass media exposure of the farmers the data in Table 3 revealed that, majority (80.00%) of respondents had regular exposure to TV, followed by 70.83 and 40.83 per cent of respondents had regular exposure to mobile and newspaper, respectively. Also, occasional mass media participation was observed as viz., newspaper (52.50%), farm magazine (33.33%), radio (57.50%), TV (15.00%), mobile (29.16%) and internet (35.83%). Reason for high level of mass media utilization of farmers may be due to high cosmopolitanism and high economic motivation as revealed by this study and also more interest in current issues and new technology. Farmers were very much dependent on mass media not only as a source of news and information, but also as a source of entertainment and leisure. In general it raises the awareness level among the agricultural population and help to update latest developments which are a good sign and speak about the interest of farmers to view the things. These findings are confirmative with the findings of Moulasab (2004) [10].

3.12 Extension participation

It was evident from the table 4 that, high majority of the respondents had not participated in extension activities like educational tour (100.00%), training programme (46.66%), meetings (50.00%), field days (80.33%), demonstrations (79.16%), field visits (91.66%) and group discussion (30.00%). The possible reasons could be conducting such activities by the concerned departments either less frequently or with less popularity. The lack of initiation or interest on the part of the respondents could also be the reason for the present finding. Most of the respondents participated in Krishimela (45.00%), as it is conducted every year during the month of September or October at UAS, Dharwad that enables the farmers' to plan their activities and participate in it. The above findings were in accordance with the findings of study conducted by Shashidhara (2004) [15].

Table 1: Personal and socio-economic characteristics of farmers (n = 120)

Sl. No.	Characteristics	Category	Farmers	
			F	%
1	Age	Young (Up to 35 years)	40	33.33
		Middle (36 to 50 years)	45	37.50
		Old (Above 50 years)	35	29.17
2	Education level	Illiterate (Cannot read & write)	04	3.33
		Primary school (1-4 th standard)	23	19.16
		Middle school (5-7 th standard)	20	16.66
		High school (8-10 th standard)	31	25.83
		Pre-university (11- 12 th)	29	24.16
		Degree and above	13	10.83
3	Land holding	Marginal farmers (up to 2.50 acres)	11	9.16
		Small farmers (2.51 to 5.00 acres)	20	16.66
		Medium farmers (5.01 to 10 acres)	41	34.16
		Big farmers (more than 10.00 acres)	48	40.00
4	Annual income	Low income (up to Rs. 60,000)	21	17.50
		Medium income (Rs. 60,001- Rs. 1,20,000)	42	35.00
		High income (More than Rs. 1,20,000)	57	47.50
5	Family size	Small (up to 4 members)	19	15.83

		Medium (5 to 8 members)	76	63.33
		Big (More than 8 members)	25	20.84
6	Possession of mobile phone sets	Basic set	49	40.83
		Smart phones	71	59.16
		Tablet, PC <i>etc.</i>	5	4.16
7	Experience in using mobile	Low (< 8.11)	54	45.00
		Medium (8.11 to 9.93)	23	19.16
		High (> 9.93)	43	35.83
		Mean= 9.03	SD= 2.15	
8	Farming experience	Low (< 12.27)	41	34.16
		Medium (12.27 to 18.78)	43	35.83
		High (> 18.78)	36	30.00
		Mean= 15.53	SD= 7.65	
9	Innovativeness	Low (< 4.71)	36	29.16
		Medium (4.71 to 6.53)	33	27.50
		High (> 6.53)	52	43.33
		Mean= 5.62	SD = 2.14	

F = Frequency, % = Percentage

Table 2: Source of agriculture information of the farmers (n = 120)

Sl. No.	Sources	Extent of contact					
		Regularly		Occasionally		Never	
		F	%	F	%	F	%
1	Agriculture and Horticulture Department Staff	23	19.16	67	55.83	30	25.00
2	Krishi Vigyan Kendra (KVK)	27	22.50	48	40.00	45	37.50
3	Agriculture University	39	32.50	16	13.33	65	54.16
4	Agriculture Extension Education Units	19	15.83	24	20.00	77	64.16
5	Family members	29	24.16	38	31.66	53	44.16
6	Friends	66	55.00	54	45.00	0	0.00
7	Neighbours	24	20.00	76	63.33	20	16.66
8	Progressive farmers	38	40.00	61	50.83	11	9.16
9	Grama panchayat	21	17.50	15	12.50	84	70.00
10	Television	63	52.50	55	45.83	2	1.66
11	Radio	39	32.50	69	57.50	12	10.00
12	Mobile	74	61.66	46	38.33	0	0.00
13	Print media	30	25.00	52	43.33	38	31.67

F = Frequency, % = Percentage

Table 3: Mass media exposure of farmers (n = 120)

Sl. No.	Mass media	Frequency of exposure					
		Regular		Occasional		Never	
		F	%	F	%	F	%
1	News paper	49	40.83	63	52.50	8	6.66
2	Farm magazine	3	2.50	40	33.33	77	64.16
3	Radio	19	15.83	69	57.50	32	26.66
4	TV	96	80.00	18	15.00	6	5.00
5	Mobile	85	70.83	35	29.16	0	0.00
6	Internet	07	5.83	43	35.83	70	58.33

F = Frequency, % = Percentage

Table 4: Extension participation of the farmers (n = 120)

Sl. No.	Extension activities	Extent of participation					
		Regular		Occasional		Never	
		F	%	F	%	F	%
1	Training programme	14	11.66	50	41.66	56	46.66
2	Meeting	20	16.66	40	33.33	60	50.00
3	Field days	0	0.00	23	19.66	97	80.83
4	Krishimela	54	45.00	48	40.00	18	15.00
5	Demonstrations	02	1.66	23	19.16	95	79.16
6	Field visit	0	0.00	10	8.33	110	91.66
7	Group discussion	20	16.66	64	53.33	36	30.00

F = Frequency, % = Percentage

4. Conclusion

Mobile phone serves as an important tool in the hand of farmers generally. It offers timely and reliable information as it has brought changes in the way farmers do their business

especially in the rural communities. Some of the benefits of using mobile phone as outlined by Khalil *et al.* (2009) [8] include mobility, ease of use, flexible deployment and relatively low and declining costs of purchase/ownership.

Mobile phones are used by farmers in various parts of the world as a means of communication and to implement their daily activities. When farmers have access to mobile phones, they get more information on agricultural news, update and report of market information among others. Farmer's access to mobile phones has brought drastic improvement into agricultural sector in developing countries. The development of an agricultural mobile application in the telecommunication industry will bring rural development, better access to market, disease control, adequate access to climate information, improved access to agricultural extension services, better distribution channels, improved financial access to loans like insurance, credit facilities and easy repayment methods would all be harnessed.

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