



The Utilization Pattern of ICT Tools among the Dairy Farmers of Punjab

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ABSTRACT

The present study was conducted in Ludhiana and Chandigarh, the two high productivity regions of Punjab to assess the ICT utilization pattern among the commercial dairy farmers of Punjab. A total of 60 commercial dairy farmers were selected. Semi structured interview schedule and observation method were selected for data collection. The results revealed that majority of the respondents were using social media, SMS, websites and mobile applications while none used software. The frequency of use among users showed that majority of the respondents were using social media once a day, followed by the use of websites and mobile applications on weekly basis and use of SMS was occasional. In case of usage of mobile phones, majority of the respondents had android phone followed by iPhone and feature phones respectively while majority had 4G connectivity and many respondents had more than one network used. Hence, to make optimum utilization of various ICT tools which can be used for appropriate and timely dissemination of information we need to make our stakeholders more aware and trained for improving their competency for the use of ICT tools especially mobile applications to cater their needs effectively in the present day scenario.

KEYWORDS: Commercial dairy farmers, Punjab, ICT, Social media, Mobile Applications

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INTRODUCTION

Livestock sector is an integral part of Indian economy, contributing 4.11% of GDP and 25.6% of total agriculture GDP. Dairy sector is reckoned as an instrument in enhancing the food security by providing nutrient rich food production. Over a span of three decades, India has transformed from a country of acute milk shortage to world's leading producer [1]. The livestock production has become more dynamic with the fast changing global environment. In the present scenario people working in livestock sector are less equipped with the proper information system and transfer of technology mechanism. The biggest hurdle for the farmers in this era is to gather timely and credible information in meeting the demand of increased milk production due to urbanisation, population growth and changes in food habits. The expected demand for dairy based food products is speculated to be doubled by 2020 [7]. Also there is a loophole in information delivery because of the lack of information source availability and its accessibility among the dairy farmers. Keeping in view the growing milk demand and priority of the government to promote dairy based commercial ventures, generating employment and raising the living standards of farmers, it is important to utilize Information and Communication technology tools for making informed decisions to reap financial benefits and higher production. Dissemination of knowledge through appropriate delivery methods can be multiplied many fold by the use of ICT such as internet, mobile phones, social media etc. Among ICT tools mobile is gaining much importance because of faster information dissemination and ease of access. Gensis [3] stated that 85% of the respondents use mobile phone to get information on animal husbandry. Government and private initiatives like Digital India (2005), Bharatnet, Reliance Jio have contributed towards improving the digital literacy among the masses by providing cheap data plans, increased availability of bandwidth to bridge the gap between what is and what ought to be. To meet this pressing challenge, ICT plays a pivotal role in disseminating the required information.

MATERIAL AND METHODS

The study was conducted in Punjab state as it accounts for the highest milk productivity of 8.21 kg/day for buffalo and 12.42 kg/day for exotic and crossbred cattle in India [2]. For the purpose of study two high productivity regions were selected i.e. Ludhiana and its surrounding area as it has highest milk productivity of 13.15 Kg/day for exotic and crossbred cattle and 8.36 Kg/day for buffalo [7] and another one is Chandigarh with its surrounding areas as it ranks 2nd after Punjab in higher milk productivity of 10.38 Kg/day in India [2]. The sample of the study was commercial dairy farmers who were categorized into two groups having herd size of 25-50 animals and more than 50 animals respectively. Total of 60 respondents, 30 from each group of commercial dairy farmers were selected. Ex post facto research design was used. Snowball sampling technique was used as no list of commercial dairy farmers was available. Data was collected through pre tested semi-structured interview schedule and observation. The respondents were asked about the use and experience of the following ICT tools viz., 'Websites', 'Social media', 'Software', 'SMS' and 'Mobile Apps'.

RESULTS AND DISCUSSION

Use of ICT tools

The result shown in the table 1 revealed that majority of respondents were using social media (93.33%), followed by use of SMS, mobile apps and websites (61.66%, 61.66% and 43.3% respectively). The results are in agreement with the findings of Meena *et al.*[4] and Thakur *et al.* [11] who reported high use of social media among the farmers and agricultural professionals while Syiem [10] reported the use of social media platforms by 5 per cent of the respondents. In case of software, the use by respondents was nil (0.0%). There was not much variation among the small and large farmers group in use of ICT. The results reveal that there was high ICT use among the respondent which goes in line with the findings of Naik, [6] who conducted his research in Andhra Pradesh and reported use of ICT by majority of the respondents (64.16%), but contradict the findings of Ndag *et al.* [8] who conducted study in Nigeria and found that respondents of Southwest Nigeria had low level of ICT use. The frequency of use (Table 2) among the users revealed that maximum number of respondents were using the social media (96.43%) once a day, followed by use of websites (53.84%) and mobile apps (51.35%) on weekly basis and use of SMS (59.46%) was occasionally. Among all ICT tools social media had maximum use with average utilization score of 2.76, followed by SMS and mobile apps (1.89 and 1.09 respectively), while websites had minimum use with mean score of 0.76. With regards to use of Mobile Apps, the large farmers group had mean score of 1.26, with majority of the respondents having usage once a week (66.66%), followed by once a day (22.22%). The results were in support with the findings of Mishra [5] who reported that ICT tools were utilized for getting animal husbandry related information specially through mobile phones.

Experience in use of different ICT tools

The respondents were enquired about their experience in using the ICT tools and the results showed that majority of the respondents in small and large farmers group fell under medium experience category of 1-5 years in use of websites (73.07%), social media (67.85%) and mobile apps (72.97%), followed by high experience category of more than 5 years in use of SMS (26.92%) and social media (30.35%).

Types of mobile phones used, internet connection, network connectivity and the average expenditure on internet per month

The results revealed (Table 3) that out of the total sample, majority of the respondents (85%) possessed android phone, followed by iPhone and feature phone (23.33% and 3.33% respectively). None of the respondents possessed windows phone while some respondents were also having more than one smart phones. The results revealed that majority were using smart phones which could be used for information dissemination among farmers. This goes in concurrence with the findings of Otaala [9] who conducted study in Uganda and revealed that mobile phones had high accessibility among dairy farmers for availing dairy information. With regards to connectivity, 90.19% of the Android users and 100% of the iPhone users were having 4G connectivity, followed by 9.8 per cent Android users having 3G connectivity, while feature phone (100%) users had 2G connectivity. The type of network used revealed that Reliance Jio network was used by majority i.e, 48.00 per cent of the respondents, followed by Idea, Airtel, Vodafone and BSNL (40%, 30%, 13.33% and 10% respectively). Many respondents were using more than one networks. With respect to monthly expenditure on internet majority of the respondents (38.33%) had monthly expenditure between 150-300 rupees, followed by less than 150 and more than 300 rupees (33.33% and 28% respectively).

Table 1: Distribution of respondents according to the use of ICT tools

ICT Tool	Small Farmers n = 30		Large farmers n = 30		Pooled N= 60	
	Use	Don't use	Use	Don't use	Use	Don't use
Websites	14 (46.66)	16 (53.33)	12 (40.00)	18 (60.00)	26 (43.33)	34 (56.66)
Social media	29 (96.66)	1 (3.33)	27 (90.00)	3 (10.00)	56 (93.33)	4 (6.66)
Software	0 (0.00)	30 (100.00)	0 (0.00)	30 (100.00)	0 (0.00)	60 (100.00)
SMS	20 (66.67)	10 (33.33)	17 (56.67)	13 (43.33)	37 (61.67)	23 (38.33)
Mobile app	19 (63.33)	11 (36.66)	18 (60.00)	12 (40.00)	37 (61.66)	23 (38.33)

Table 2: Distribution of respondents according to the usage pattern of different ICT tools

Frequency of use	Small Farmers				Large farmers				Pooled			
	Web N=14	Social media n=29	SMS n=20	Mapps n=19	Web n=12	Social media n=27	SMS n=17	Mapps n=18	Web N=26	Social media N=56	SMS N=37	Mapps N=37
Daily	1 (7.14)	29 (100.00)	2 (10.00)	1 (5.26)	2 (16.66)	25 (92.59)	3 (17.65)	4 (22.22)	3 (11.53)	54 (96.43)	5 (8.47)	5 (13.51)
Weekly	7 (50.00)	0 (0.00)	7 (35.00)	7 (36.84)	7 (58.33)	2 (7.4)	3 (17.65)	12 (66.66)	14 (53.84)	2 (3.57)	10 (27.03)	19 (51.35)
Occasionally	6 (42.85)	0 (0.00)	11 (55.00)	11 (57.89)	3 (25.00)	0 (00.0)	11 (64.71)	2 (11.11)	9 (34.61)	0 (0.00)	22 (59.46)	13 (35.13)
Mean Score	0.76	2.9	1.03	0.93	0.76	2.63	0.86	1.26	0.76	2.76	1.89	1.09

Table 3: Distribution of respondents according to the type of mobile phone used*

Mobile phones	Small farmers n= 30 (32)	Large farmers n=30 (35)	Pooled N=60 (67)
Android	27 (90.00)	24 (80.00)	51 (85.00)
Windows	0 (0.00)	0 (0.00)	0 (0.00)
IPhone	4 (13.33)	10 (33.33)	14 (23.33)
Feature phone	1 (3.33)	1 (3.33)	2 (3.33)

*Table shows multiple responses

CONCLUSION

The study concludes that majority of the farmers were using social media followed by SMS and website among the various new ICT tools. Social media was accessed on daily basis, mobile apps had a weekly access while SMS services were availed occasionally by the farmers. They were using SMS services for more than 5 years and the experience in using social media and mobile applications was between 1-5 years. With the advent of 4G, Reliance Jio had a major share among the networks used by farmers followed by Idea. Majority of the respondents had a monthly expenditure between 150-300 rupees per month on the internet services. For providing dairy related information various societies like Dairy Cooperatives, Farmers Organisation can use platforms like social media and SMS as majority of the farmers have an access to it and are members of these organisations. Recent developments in information and communications technology (ICT) offer a great opportunity to facilitate the flow of information and technology services delivery. Also mobile apps can play a pivotal role as an extension services delivery tool for the farmers to access information on new scientific technologies for better farming, markets and finance which were previously unavailable to them.

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