



ISSN (E): 2277-7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2022; SP-11(7): 681-684
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www.thepharmajournal.com
Received: 24-05-2022
Accepted: 30-06-2022

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A comparative analysis between advance ICT tools in livestock information dissemination in Jaipur district of Rajasthan

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Abstract

The study was carried out on 120 randomly selected livestock farmers in Jaipur district of Rajasthan for comparative analysis between advance ICT tools in their accessibility, availability and usage. Data was obtained via a series of structured interview schedules. The study found that almost all of the livestock farmers in the study area access and use mobile phones as advanced ICT tools very frequently on a regular basis. The majority of livestock farmers also had access to the internet and other social media platforms like Facebook, WhatsApp and YouTube, although their use for sharing livestock-related information was rather restricted. Usage of these advance ICT tools for market price of inputs, marketing of produce, general care and management, sanitation and health management were mainly through mobile phone (>50.00% each) followed by other social media tools. The study also reveals that the livestock sector utilized advanced ICT tools namely, mobile phones and internet, more frequently than other social media tools for a variety of purposes.

Keywords: Accessibility, advance ICTs, availability, information, social media, usage

Introduction

In India, informal interactions between livestock farmers continue to be the primary way to acquire information and new technologies. Only a tiny portion of farmers' information sources in India come from the public extension system (Anonymous, 2005) [2]. In addition, information and communication technology (ICT) tools offer the greatest potential for improving the livestock sector and making a significant contribution to its overall development. However, it was assumed that farmers were not benefited from these technologies because of limited cognition and inappropriate information. Low animal production caused by livestock owners' low ICT exposure remains a major problem and a significant challenge for the future. The fundamental requirements for greater productivity and development in India are knowledge of agriculture and its related information (Das, 2012) [5]. Although maintaining enough access to knowledge and information is the least expensive input to transform the livestock sector, the prime objective of animal husbandry information sources is to quickly reach farmers who cannot be approached personally by extension workers.

Three categories of ICTs are outlined by Elijah and Ogunlade (2006) [7] viz. advance ICTs (computer, internet and mobile phone), conventional ICTs (radio, TV, land line telephone and telegraph) and really old ICTs (newspaper, books and libraries). The delivery of ICT-based information has the potential to be timelier and directly reach more farmers (Richardson, 1996) [13]. Access to ICTs may lower the costs associated with information search transaction costs and knowledge and information asymmetries, particularly about market price information (De Silva and Ratnadiwakara, 2008) [6]. ICT tools can redefine the livestock, agricultural, and rural artisan's economic systems in India. (Sasidhar and Sharma, 2006) [15] because in many different countries, agriculture development and farmer's community's decision-making were significantly aided by ICT-based information delivery systems (Cash, 2001; Galloway and Mochrie, 2005; Opara, 2008 and Taragola and Van Lierde, 2010) [3, 9, 17]. More productivity and more profitability arise from the availability and dissemination of information and knowledge to farmers at the appropriate time and in the effective manner, which further speeds up and accelerates the extension process. The exchange of information about weather forecasts, best production practises, innovations in livestock housing and feeding management,

disease control, species and breed details, dairy herd management, vaccination & immunisation, livestock production and marketing of livestock and livestock products and prices, etc. is made possible by advanced ICT tools.

ICTs have been incorporated in livestock projects recently, and this has produced significant benefits for the development of livestock. Information can encourage people to adopt healthy livestock technologies when rewarded with success stories. ICTs, for instance, can be used to spread knowledge on immunisation, calf mortality, maternal mortality, sanitation, nutritional awareness, and the causes, prevention, and treatment of disease. The country's livestock sector will develop overall due to improved and seamless communication (Saravanan, 2010) [14]. The use of ICT tools to disseminate information and knowledge can result in motivation, mobilisation, and action to improve the livestock sector, whereas traditional extension approaches are far less accountable and effective in terms of time management, audience coverage, and overall impact on people. Therefore, the technologies used throughout the information delivery system should be used to continue providing livestock farmers with information and knowledge. These ICT tools are thus in high demand right now.

Materials and Methods

Rajasthan state in North-East India undertook an exploratory research design on the accessibility, availability, and use of various ICT tools by livestock farmers. Rajasthan's wealth in livestock and its population' use of a range of ICT tools in daily life to adopt healthy lifestyles led to the state being intentionally chosen through criterion sampling. Additionally, Jaipur district was purposefully selected over all other districts in Rajasthan due to its anticipated rate of information accessibility, availability, usage, great information network, and livestock wealth status.

A total of 120 respondents who used ICT tools were chosen at random from the Sanganer and Shahpura tehsils in the Jaipur district. Six villages were randomly chosen from each tehsil in the subsequent round of sampling. Twelve villages in total were chosen for the investigation. An extensive list of livestock farmers employing ICT tools for livestock information from each village was compiled. 10 responders were chosen at random from among them. As a result, a total of 120 respondents were chosen for the study. The inferences were derived using a variety of statistical techniques, including frequency, percentage, and chi square test.

Accessibility of ICTs

Its operational definition is the extent to which a respondent can use ICTs or their applications for livestock farming. The respondents who used ICTs and those who did not were given scores of 1 and 0, respectively.

Availability of ICTs

Its operational definition is the extent to which a respondent utilizes ICTs or similar applications for livestock farming. The respondents who owned ICTs received a score of 1, whereas the respondents who did not were given a score of 0.

Usage of ICTs

It is operationally defined as the extent and purpose of ICT use for livestock farming by the individual respondents at the time of the assessment. The availability and quality of inputs, general care and management, programmes and services for

animal husbandry, marketing of produce, and other factors were some of the numerous factors used to analyse how ICTs were used by the individual respondents in the livestock sector. In terms of frequency of use, very frequently is considered as using ICTs "daily," frequently as using ICTs "once a week," occasionally as using ICTs "once a month," and rarely as using ICTs "once every three months." Very frequently, frequently, occasionally, and rarely were scored 4, 3, 2, and 1, respectively, according to the responses.

Results and Discussion

Accessibility of ICTs to Livestock Farmers

All livestock farmers (100%) had access to mobile phones, according to Table 1's assessment of ICT accessibility. Mobile phones may have a higher accessibility rate than other ICT tools because they are more portable, affordable, and useful in emergency situations. This is in agreement with the conclusions reached by Angello (2015) [1], Chikaire *et al.* (2015) [4] and Rebekka and Saravanan (2015) [12]. Additionally, the study found that 72.5 percent of the livestock farmers in the study area had access to the internet. More than half of the majority of livestock farmers included in the study of a selected district used Facebook, Whatsapp, and YouTube in addition to these social media ICT tools, with access rates of 68.33, 60.83, and 60 per cent, respectively. The outcome are congruent with those of Ramaraju *et al.* (2011) [11] and Singh *et al.* (2014) [16]. The majority of livestock farmers fell into the young and middle-aged age group and were literate, which may account for the higher accessibility of these ICT tools. The data in Table also showed that the majority of respondents made use of these advance ICT tools, such as social media, mobile and the internet. Today, social media is more widely used, which may be due to technology advancement.

Table 1: Accessibility of ICTs to livestock farmers (n=120)

S. No.	ICT tools	Accessible		Not Accessible	
		f	%	f	%
1.	Mobile	120	100	0	0
2.	Internet	87	72.5	33	27.5
3.	Facebook	82	68.33	38	31.67
4.	WhatsApp	73	60.83	47	39.17
5.	YouTube	72	60	48	40

Availability of ICTs among the Respondents

Accessibility of various ICT tools among livestock farmers is shown in Table 2. The Table clearly shows that 100 percent of livestock farmers had mobile phones.

Table 2: Availability of ICTs among livestock farmers (n=120)

S. No.	ICT tools	Available		Not Available	
		f	%	f	%
1.	Mobile	120	100	0	0
2.	Internet	76	63.33	44	36.67
3.	Facebook	71	59.17	49	40.33
4.	WhatsApp	73	60.83	47	39.17
5.	YouTube	61	50.83	59	49.17

This might be because mobile phones are widely accessible and usable by livestock farmers who have no literacy. Additionally, 63.33 percent of livestock farmers had access to the internet. Further study revealed that Facebook, WhatsApp and YouTube were available to nearly half of livestock farmers.

Usage and Purpose of Utilization of ICTs

Table 3 shows that 97.50% of respondents indicated that they were using their mobile phone very frequently, making it the ICT tool that livestock farmers used the most frequently. Similar finding was reported by Angello (2015) [1]. This shows that the rate of growth in mobile phone usage is increasing at an alarming rate. This might be because even illiterate farmers are able to use mobile phones, which are readily available and inexpensive. Mobile phone usage

patterns show that, if utilized effectively for livestock farming, they could have tremendous potential in the future. A few of the respondents also accessed the internet, with 10% of them doing so frequently, 16.7% occasionally, and 40% very rarely. In comparison to mobile and the internet, Facebook, WhatsApp, and YouTube were all used rarely (65.83, 57.50, and 50 per cent, respectively) for knowledge and information on the livestock sector.

Table 3: Frequency of usage of ICTs among livestock farmers (n=120)

ICT tools	Frequency of usage							
	Very Frequently		Frequently		Occasionally		Rarely	
	f	%	f	%	f	%	f	%
Mobile	117	97.50	2	1.67	1	0.83	0	0.00
Internet	7	5.83	12	10.00	20	16.67	48	40.00
Facebook	0	0.00	0	0.00	3	2.50	79	65.83
WhatsApp	0	0.00	0	0.00	4	3.33	69	57.50
YouTube	0	0.00	8	6.67	4	3.33	60	50.00

It is also evident from Table 3 that less people used Facebook, WhatsApp, and YouTube than they did mobile devices and the internet because these services had less availability and accessibility than mobile phones and the internet.

Table 4 shows the distribution of respondents based on the ICTs' anticipated use in the livestock sector. The table shows that the primary method for utilising ICTs for input availability and quality was the internet (5.00 percent each). Mobile phones constitute the majority of ICTs used for market price of inputs and marketing of produce (65% each), with the internet taking second (11.67% each). The analysis found that livestock farmers mostly used mobile phones to

connect with middlemen in the marketplaces in order to do so effectively and to stop the middlemen from defrauding them because they could occasionally follow where and how much they were selling for by using their phones. This also agrees with the conclusions of Oyeyinka and Bello (2013) [10]. This table 4 shows that the most popular ICT device, the mobile phone, was used primarily for general care and management (61.67%), followed by information about trainings, animal fairs/livestock shows and kisan mela (44.17% each), health management (60.83%), sanitation (57.50%), treatment (52.50%), vaccination (45.83%) and scheme and services related to animal husbandry (33.33%).

Table 4: Purpose of usage of ICTs in livestock sector (n=120)

Purpose	Mobile		Internet		Facebook		Whatsapp		Youtube	
	f	%	f	%	f	%	f	%	f	%
Availability of inputs	2	1.67	6	5.00	5	4.17	2	1.67	4	3.33
Quality of inputs	1	0.83	6	5.00	4	3.33	4	3.33	5	4.17
Market price of inputs	78	65.00	14	11.67	6	5.00	2	1.67	8	6.67
Marketing of produce	78	65.00	14	11.67	9	7.50	5	4.17	7	5.83
General care and management	74	61.67	10	8.33	3	2.50	5	4.17	5	4.17
Sanitation	69	57.50	10	8.33	2	1.67	3	2.50	3	2.50
Health management	73	60.83	10	8.33	3	2.50	2	1.67	5	4.17
Treatment	63	52.50	6	5.00	0	0.00	0	0.00	2	1.67
Vaccination	55	45.83	9	7.50	0	0.00	0	0.00	0	0.00
Feed and fodders	15	12.50	6	5.00	9	7.50	6	5.00	8	6.67
Availability of breeds	4	3.33	7	5.83	12	10.00	9	7.50	19	15.83
Clean milk production	4	3.33	7	5.83	8	6.67	5	4.17	11	9.17
Value addition of products	0	0.00	0	0.00	6	5.00	2	1.67	9	7.50
Schemes and services on animal husbandry	40	33.33	8	6.67	2	1.67	5	4.17	8	6.67
Trainings	53	44.17	4	3.33	9	7.50	8	6.67	13	10.83
Animal fairs/ Livestock show	53	44.17	4	3.33	9	7.50	3	2.50	13	10.83
Kisan mela	53	44.17	4	3.33	5	4.17	5	4.17	8	6.67
Insurance	0	0.00	0	0.00	0	0.00	3	2.50	0	0.00
Online loan/Banking	0	0.00	0	0.00	0	0.00	2	1.67	0	0.00

The findings indicate that livestock farmers reportedly use their mobile phones to get in touch with experts, extension workers, veterinarians, livestock assistants, and progressive farmers to gain knowledge about the recommended health management, treatment, vaccination, scheme and services on animal husbandry, as well as training, animal fairs/livestock shows, Kisan melas, etc. The findings are consistent with Angello's (2015) [1] research, which showed that mobile phones were utilised more frequently than any other ICTs.

According to Table 4, some respondents also used YouTube to learn about the availability of breeds (15.83%), trainings, animal fairs and livestock shows (10.83%) and clean milk production (9.17%). A small number of livestock farmers used Facebook to obtain information about breed availability (10%), training, feed and fodder, marketing of produce and animal fairs/livestock shows (7.50% each), clean milk production (6.67%), information on health management (2.50%), and scheme & services related to animal husbandry

(1.67%). The findings of the study also showed that fewer livestock farmers used WhatsApp to find out about breed availability (7.50 percent), trainings (6.67%), schemes & services for animal husbandry (4.17%) and information on health management (1.67%). The vast majority of livestock farmers were still not aware of the use of ICTs to obtain information regarding breed availability, production of clean milk, availability of input, quality of input, product value addition, insurance and online loan/banking.

Conclusion

Due to its vast availability, portability, importance and low cost in times of emergency, mobile phones are available to all livestock farmers. In addition to mobile phones, internet was said to be available and accessible by the majority of livestock farmers because they are of a younger age group. The mobile phone was the most popular and consistently used ICT tool, whereas Facebook, WhatsApp, and YouTube were the least used ICT tools among livestock farmers for the intention of knowing about or even obtaining information about various elements of livestock farming. Finally, it was established that, mobile phones and internet have made a significant impact in livestock sector in juxtaposition to other ICT tools viz. Facebook, WhatsApp, and YouTube.

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