



Original Research

A Comparative Analysis between Advance and Conventional ICT tools in Information Dissemination in Jaipur District of Rajasthan

Sunil Rajoria^{1*}, Sanjay Kumar Rewani², Virendra Singh¹, Harshita Bhumra³, Manisha Singodia⁴ and Brijesh Nanda⁵

¹Veterinary University Training & Research Centre, Dungarpur- 304001, Rajasthan, INDIA

²Department of Veterinary and Animal Husbandry Extension Education, Post Graduate Institute of Veterinary Education and Research, Jaipur- 302031, Rajasthan, INDIA

³Department of Veterinary and Animal Husbandry Extension Education, Apollo College of Veterinary Medicine, Jaipur- 302031, Rajasthan, INDIA

⁴Department of Veterinary and Animal Husbandry Extension Education, MJF Veterinary College, Jaipur- 302031, Rajasthan, INDIA

⁵Department of Livestock Production Management, Apollo College of Veterinary Medicine, Jaipur- 302031, Rajasthan, INDIA

*Corresponding author: rajorasunil22@gmail.com

Rec. Date:	Feb 16, 2019 11:25
Accept Date:	Mar 20, 2019 17:41
DOI	10.5455/ijlr.20190216112511

Abstract

The study was carried out on 120 randomly selected livestock farmers in Jaipur district of Rajasthan for comparative analysis between advance and conventional ICT tools in their accessibility, availability and usage. Data were collected through structured interview schedule. The study revealed that mobile phone was very frequently used ICT tool that is accessed and availed by all the livestock farmers of study area. Besides this internet and television were also available and accessible to the majority of the livestock farmers but radio had limited accessibility and availability (18.33% each). Usage of ICTs for market price of inputs and marketing of produce was mainly through advance tool viz. mobile phone (65.00% each) followed by internet (11.67% each). The study also revealed that advance ICT tool viz. mobile phone and internet were most used in comparison to conventional ICT tool for various purposes in livestock sector.

Key words: Accessibility, Advance ICTs, Availability, Conventional ICTs, Information

How to cite: Rajoria, S., Rewani, S., Singh, V., Bhumra, H., Singodia, M., & Nanda, B. (2019). A Comparative Analysis between Advance and Conventional ICT Tools in Information Dissemination in Jaipur District of Rajasthan. International Journal of Livestock Research, 9(5), 206-213. doi: 10.5455/ijlr.20190216112511

Introduction

India's public extension system accounts for only a small percentage of farmer's information sources. Farmer to farmer informal exchanges remains the main channel for accessing information and new technologies in India (Anonymous, 2005). Apart from this, Information and Communication Technology



(ICT) tools have vast potential of altering livestock sector in a better and much productive way and can contribute to its overall development. However, it was felt that due to the insufficient cognition and selective information towards these tools, farmers are not getting benefits. Low productivity of animals owing to the low level of the ICT exposure to livestock owners remains an unresolved issue and a major challenge for the future. Agricultural knowledge and related information is the basic criteria for increased productivity and development in India (Das, 2012). The main purpose of animal husbandry information sources is to reach farmers who cannot be contacted personally by extension workers, in the shortest possible time because adequate access to knowledge and information is the least expensive input to amend livestock sector.

According to Elijah and Ogunlade (2006), there are three categories of ICTs 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). Information delivered through ICT can be timelier and can reach a greater number of farmers directly (Richardson, 1996). Access to ICTs could reduce transaction costs related to information searching and reduce knowledge and information asymmetries, particularly related to market price information (De Silva and Ratnadiwakara, 2008). Use of ICT tools has potential to change the economy of livestock, agriculture and rural artisans in India (Sasidhar and Sharma, 2006) because ICT based information delivery system played very effective role in the agriculture development and in the decision making of farmer's communities in different countries (Cash, 2001; Galloway and Mochrie, 2005; Opara, 2008 and Taragola and Van Lierde, 2010). Availability and delivery of information and knowledge to the farmers on the right time and in right way leads to more productivity and more profitability and makes the process of extension rapid and more effective. ICTs enable the exchange of information about weather forecasting, best production practices, innovations in housing and feeding management of livestock, disease control, species and breed details, dairy herd management, vaccination & immunization, livestock production and marketing of livestock and livestock products and prices etc. Extension should be able to access this kind of information and shift from purely disseminating information to assessing and brokering relevant information.

In recent years, ICTs have been introduced in livestock projects which have furnished fruitful results in livestock development. Information, rewarded with success stories, can motivate human to adopt healthy livestock technologies. For instance, information on immunization, calf mortality, maternal mortality, sanitation, nutritional awareness and causes, prevention and treatment of disease can be disseminated far and wide via ICTs. The enhanced and smooth communication results in the overall development of the livestock sector of the country (Saravanan, 2010). The traditional methods of extension approaches have less accountability and effectiveness in comparison to ICT in terms of time management, larger audience coverage and greater impression on people where ICT tools can be used to impart information and

knowledge, and that in turn will lead to motivation, mobilization and action to do something better in livestock sector. Thus, the information delivery system should include technology to impart the information and knowledge to the livestock farmers. So, these ICT tools are the demand of hour.

Materials and Methods

An exploratory research design was conducted in the state of Rajasthan, North-East India on accessibility, availability and usage of different ICT tools by livestock farmers. State was purposively selected through criterion sampling due to the Rajasthan is rich in livestock wealth and peoples of the state are using various ICT tools in their day to day life to adopt better life style. Further, Jaipur district was selected purposively on the basis of prospective rate of information accessibility, availability, usage, good informative network and livestock wealth status as compared to other districts of Rajasthan.

A total of 120 respondents who were using ICT tools were selected randomly from two tehsils of Jaipur district namely Sanganer and Shahpura. In the next stage of sampling, six villages were selected randomly from each selected tehsils. Total twelve villages were selected for the study. From each village, an exhaustive list of livestock farmers using ICT tools for livestock information was prepared. Out of these, 10 respondents were selected randomly. Thus, total 120 respondents were selected for the study. Different statistical tools like frequency, percentage and chi square test were used to draw the inferences.

Accessibility of ICTs

It is operationalised as the degree to which an individual respondent is able to use ICTs or its applications for the purpose of livestock farming. A scoring of 1 and 0 was given to the respondents accessing ICTs and not accessing ICTs respectively.

Availability of ICTs

It is operationally defined as the degree to which an individual respondent possess ICTs or its applications for the purpose of livestock farming. A scoring of 1 and 0 was given to the respondents possessing ICTs and not possessing ICTs respectively.

Usage of ICTs

It is operationally defined as the degree of frequency and purpose of use of ICTs by the individual respondents for livestock farming at the time of investigation. The various dimensions to study the usage of ICTs among the individual respondents under livestock sector were availability and quality of inputs, general care and management, scheme and services on animal husbandry and marketing of produce etc. For frequency of usage, very frequently is defined in terms of its usage of ICTs 'daily', frequently in terms of its usage of ICTs 'once a week', occasionally in terms of its usage of ICTs 'once a month' and rarely in

terms of usage of ICTs 'once in three months'. The responses were measured with a scoring pattern of 4, 3, 2 and 1 for very frequently, frequently, occasionally and rarely, respectively.

Results and Discussion

Accessibility of ICTs to Livestock Farmers

Table 1 for the level of accessibility of ICTs reveals that all the livestock farmers (100%) had accessibility to mobile phones. The reason for higher accessibility of mobile phones compared to other ICT tools might be due to fact that it is affordable, portable as well as useful during emergencies. This is in accordance with the findings of Angello (2015), Chikaire *et al.* (2015) and Rebekka and Saravanan (2015). Further, in the study it was found that internet was also accessible for 72.50 per cent livestock farmers in the study area. Besides these two advance ICT tools, television as conventional ICT tool was also accessed by a great majority of the livestock farmers included in the study of selected district which was 92.50 per cent. The results are in agreement with the findings of Ramaraju *et al.* (2011) and Singh *et al.* (2014). The reason for higher accessibility of these ICT tools might be due to the fact that most of the livestock farmers were from young and middle age category and were literate. The data in Table further reveals that other conventional ICT tool viz. radio was accessed by few respondents which were 18.33 per cent. Now a days radio is going to be abolish from most of the houses this may be due to the advancement in the technology.

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

S. No.	ICT Tools	Accessible		Not Accessible	
		<i>f</i>	%	<i>f</i>	%
1.	Mobile	120	100	0	0
2.	Internet	87	72.5	33	27.5
3.	Television	111	92.5	9	7.5
4.	Radio	22	18.33	98	81.67

Availability of ICTs among the Respondents

Table 2 presents the level of availability of different ICTs tools among the livestock farmers. It is clear from the Table that all the livestock farmers (100.00%) had mobile phones.

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

S. No.	ICT Tools	Available		Not Available	
		<i>f</i>	%	<i>f</i>	%
1.	Mobile	120	100	0	0
2.	Internet	76	63.33	44	36.67
3.	Television	112	93.33	8	6.67
4.	Radio	22	18.33	98	81.67

This may be due to the reason that mobile phones are easily affordable and can be used by illiterate livestock farmers also. Internet was also available to 63.33 per cent livestock farmers. Further in the study, it was

reported that great majority of livestock farmers (93.33%) had availability of television at their places. Similar finding were reported by Angello (2015). A small per cent of livestock farmers (18.33%) had availability of radio.

Usage and Purpose of Utilization of ICTs

It can be observed from Table 3 that mobile phone was most frequently used ICT tool among the livestock farmers using it very frequently by 97.50 per cent respondents. Similar finding was reported by Angello (2015). This indicates that the usage of mobile phones is increasing at an alarming rate. This may be due to the reason that mobile phones are easily affordable and could be used by even illiterate farmers. The usage trend in mobile phones also indicates that it can offer huge scope in the future if appropriately used for the purpose of livestock farming. Internet was also used by some of the respondents in which 10.00 per cent was frequent users, 16.67 was occasionally users and 40.00 per cent was rare users.

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

List of ICTs	Frequency of usage							
	Very Frequently		Frequently		Occasionally		Rarely	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
Mobile	117	97.5	2	1.67	1	0.83	0	0
Internet	7	5.83	12	10	20	16.67	48	40
Television	6	5	32	26.67	51	42.5	22	18.33
Radio	0	0	6	5	9	7.5	7	5.83

Next to mobile phones and internet, television was used occasionally by 42.50 per cent, frequently by 26.67 per cent and rarely by 18.33 per cent livestock farmers, respectively. This finding is in line with that of Ramaraju *et al.* (2011). It is also clear from Table 3 that the use of radio was lower as compared to mobile phones, internet and television since the level of availability and accessibility of this ICT tool was also lower as compared to other ICTs.

The distribution of respondents on the basis of purpose of utilization of ICTs in livestock sector has been presented in Table 4. It is clear from the table that usage of ICTs for availability and quality of inputs was mainly through internet (5.00% each). The usage of ICTs for market price of inputs and marketing of produce was mainly through mobile phone (65.00% each) followed by internet (11.67% each). The findings shows that livestock farmers mainly used mobile phone to communicate with the middlemen in the markets to communicate efficiently and to prevent the middlemen from cheating them as through the use of mobile phones they could track in which market and at what price they are selling from time to time. This is also in line with the findings of Oyeyinka and Bello (2013). This table further reveals that mobile phone was the most widely used ICT tool used for the purpose of general care and management (61.67%), health management (60.83%), sanitation (57.50%), treatment (52.50%), vaccination (45.83%), details about

trainings, animal fairs/livestock show and kisan mela (44.17% each) and information about schemes & services on animal husbandry (33.33%).

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

Purpose	Mobile		Internet		T.V.		Radio	
	f	%	f	%	f	%	f	%
Availability of inputs	2	1.67	6	5	0	0	0	0
Quality of inputs	1	0.83	6	5	0	0	0	0
Market price of inputs	78	65	14	11.67	7	5.83	0	0
Marketing of produce	78	65	14	11.67	0	0	0	0
General care and management	74	61.67	10	8.33	18	15	5	4.16
Sanitation	69	57.5	10	8.33	17	14.17	0	0
Health management	73	60.83	10	8.33	18	15	3	2.5
Treatment	63	52.5	6	5	6	5	0	0
Vaccination	55	45.83	9	7.5	9	7.5	0	0
Feed and fodders	15	12.5	6	5	9	7.5	3	2.5
Availability of breeds	4	3.33	7	5.83	2	1.67	0	0
Clean milk production	4	3.33	7	5.83	5	4.17	5	4.16
Value addition of products	0	0	0	0	0	0	0	0
Schemes and services on animal husbandry	40	33.33	8	6.67	1	0.83	2	1.67
Trainings	53	44.17	4	3.33	0	0	0	0
Animal fairs/ Livestock show	53	44.17	4	3.33	0	0	0	0
Kisan mela	53	44.17	4	3.33	0	0	0	0
Insurance	0	0	0	0	0	0	0	0
Online loan/Banking	0	0	0	0	0	0	0	0

It can be concluded from the results that mobile phone was reported to be used by the livestock farmers to contact experts, extension personnel, veterinary officers, livestock assistants and progressive farmers to enquire about the recommended health management, treatment, vaccination, scheme and services on animal husbandry, trainings, animal fairs/livestock show and Kisan mela etc. The result is in agreement with the findings of Angello (2015) who revealed that mobile phones were used more than any other ICTs.

A perusal of Table 4 reveals that many respondents were also using television for getting information on general care and management & health management (15.00% each), sanitation (14.17%) and vaccination and feed and fodders (7.50% each) livestock farmers preferred to watch the television programmes broadcasted through Doordarshan Kendra, Jaipur to gather information on these aspects. Radio was also used by few livestock farmers for getting information about general care and management, clean milk production (4.16% each), information on health managements or feed and fodder (2.50% each) and scheme and services on animal husbandry (1.67%). A great majority of the livestock farmers were unaware about usage of ICTs for getting information on availability of breeds, clean milk production, availability of inputs, quality of inputs, value addition of products, insurance and online loan/banking.

Conclusion

All livestock farmers had availability and access to mobile phones because it is affordable, portable as well as very useful during emergencies. Besides mobile phones, internet and television were also reported to be available and accessible by majority of the livestock farmers. Mobile phone was the most frequently and widely used while radio was least used ICT tool among the livestock farmers being used for the purpose of getting information and knowledge on different aspects of livestock farming. At last it was concluded that advance ICT tools viz. mobile and internet has marked impression in livestock sector in comparison to conventional ICT tools viz. television and radio.

References

1. Angello C. 2015. Exploring the use of ICTs in learning and disseminating livestock husbandry knowledge to urban and peri-urban communities in Tanzania. *International Journal of Education and Development using Information and Communication Technology*. 11(2): 5-22.
2. Anonymous. 2005. Access to modern technology for farming, situation assessment survey of farmers, 59th Round, Report No. 499, National Sample Survey Organisation (NSSO), Ministry of Statistics and Programme Implementation, Government of India, New Delhi.
3. Cash DW. 2001. In order to aid in diffusing useful and practical information: Agricultural extension and boundary organizations. *Science Technology and Human Values*. 26: 431-453.
4. Chikaire JU Ani AO Nnadi FN and Godson-Ibeji CC. 2015. Analysis of Information and Communication Technology Roles in Poverty Reduction among Small and Medium Scale Farmers in Imo State, Nigeria. *Library Philosophy and Practice (e-journal)*. 1284. Downloaded from <http://digitalcommons.unl.edu/libphilprac/1284>.
5. Das D. 2012. Sources of agricultural information among rural women: a village level study in Assam. *International Journal of Economics and Research*. 3(5): 1-12.
6. De Silva H and Ratnadiwakara D. 2008. Using ICT to Reduce Transaction Costs in Agriculture Through Better Communication: A Case-Study from Sri Lanka. LIRNEasia, <http://www.lirneasia.net/wpcontent/uploads/2008/11/transactioncosts.pdf>.
7. Elijah AO and Ogunlade I. 2006. Analysis of the uses of information and communication technology for gender empowerment and sustainable poverty alleviation in Nigeria. *International Journal of Education and Development*. 2(3): 45-69.
8. Galloway L and Mochrie R. 2005. The use of ICT in rural firms: A policy orientated literature review. *The Journal of Policy, Regulation and Strategy for Telecommunications*. 7: 33-46.
9. Opara UN. 2008. Agricultural information sources used by farmers in Imo State, Nigeria. *Information Development*. 24(4): 289-295.
10. Oyeyinka RA and Bello RO. 2013. Farmers Use of ICTs for Marketing Information Outlets in Oyo State, Nigeria. *Journal of Agricultural Science*. 5(11): 150-158.
11. Ramaraju GV Anurag TS Singh HK and Kumar S. 2011. ICT in Agriculture: Gaps and Way Forward, Information Technology in Developing Countries, A Newsletter of the IFIP Working Group 9.4 and Centre for Electronic Governance. Indian Institute of Management, Ahmedabad. 21(2).
12. Rebekka S and Saravanan R. 2015. Access and Usage of ICTs for Agriculture and Rural Development by the tribal farmers in Meghalaya State of North-East India. *Journal of Agricultural Informatics*. 6(3): 24-41.
13. Richardson D. 1996. The Internet and rural development: recommendations for strategy and activity-final report. Rome: Sustainable Development, Department of the Food and Agriculture Organization of the United Nations. <http://www.fao.org/sd-dimensions>.



14. Saravanan R. 2010. ICTs for Agricultural Extension: Global Experiments, Innovations and Experiences. New India Publishing Agency, New Delhi.
15. Sasidhar PVK and Sharma VP. 2006. Cyber livestock outreach services in India: a model framework. *Livestock Research for Rural Development*. 18. <http://www.lrrd.org/lrrd18/1/sasi18002.html>.
16. Singh P Tripathi SC and Bardhan D. 2014. Utilization pattern and perceived benefits of information and Communication technology (ICT) tools used by dairy farmers in Nainital district of Uttarakhand-India. *Animal Science Reporter*. 8(4): 130-139.
17. Taragola NM and Van Lierde DF. 2010. Factors affecting the internet behaviour of horticultural growers in Flanders, Belgium. *Computers and Electronics in Agriculture*. (70): 369–379.

