



ISSN (E): 2277-7695  
ISSN (P): 2349-8242  
NAAS Rating: 5.23  
TPI 2022; SP-11(5): 1717-1720  
© 2022 TPI  
[www.thepharmajournal.com](http://www.thepharmajournal.com)  
Received: 07-03-2022  
Accepted: 10-04-2022

**Sunil Rajoria**  
Department of Animal  
Husbandry, Government  
Veterinary Hospital, Baroda,  
Aspur, Durgapur, Rajasthan,  
India

**Mahendra Pal Poonia**  
Department of Livestock  
Production Management, Pashu  
Vigyan Kendra, Bakaliya,  
Nagaur, Rajasthan, India

**Brijesh Nanda**  
Department of Livestock  
Production Management, Apollo  
College of Veterinary Medicine,  
Jaipur, Rajasthan, India

**Priyanka Meena**  
Department of Livestock  
Product Technology, Apollo  
College of Veterinary Medicine,  
Jaipur, Rajasthan, India

**Sanjay Kumar Rewani**  
Department of Veterinary and  
Animal Husbandry Extension  
Education, Post Graduate  
Institute of Veterinary  
Education and Research, Jaipur,  
Rajasthan, India

**Harshita Bhumra**  
Department of Veterinary and  
Animal Husbandry Extension  
Education, Apollo College of  
Veterinary Medicine, Jaipur,  
Rajasthan, India

**Parmal Singh**  
Department of Animal  
Husbandry, Government  
Veterinary Hospital, Vada  
Kundali, Aspur, Durgapur,  
Rajasthan, India

**Corresponding Author**  
**Sunil Rajoria**  
Department of Animal  
Husbandry, Government  
Veterinary Hospital, Baroda,  
Aspur, Durgapur, Rajasthan,  
India

## Limitations associated with the use of ICTS by livestock farmers in the Jaipur district of Rajasthan, India

**Sunil Rajoria, Mahendra Pal Poonia, Brijesh Nanda, Priyanka Meena, Sanjay Kumar Rewani, Harshita Bhumra and Parmal Singh**

### Abstract

In the Jaipur district of Rajasthan, an exploratory study was conducted to find out the constraints or problems livestock farmers perceived by using Information and Communication Technology (ICTs) and what possible solutions were to overcome these constraints. For the study, a set of 120 respondents were selected randomly. Data was collected through a structured interview schedule and analysed through different statistical tools. The study revealed that the high cost of repairing ICTs (66.67%), lack of training and practical exposure to ICTs (60.00%) and low ICT literacy (58.33%) were found to be the 'most serious constraints'. In contrast, it was felt that there was a lack of knowledge of the apparent benefits of ICTs (56.67%), a lack of ICT handling skills (50.83%), poor finances, and power shortages (each 44.17%) were perceived as 'serious constraints'. Low network coverage and unavailability of various ICT tools both were considered as 'less serious constraints' 44.17 & 32.50 per cent, respectively, and most of the negative attitude toward ICTs was perceived as 'not a constraint' by most livestock farmers. A study on possible solutions shows that a great majority of the livestock farmers were in agreement with the possible solutions like subsidy in the procurement of ICT equipment (98.33%), provision of finance facilities (92.50%), setting up of low-cost repairing centres in villages (90.83%) and confidence build up through training and practical exposure to ICTs (90.00%).

**Keywords:** Accessibility, advance ICTS, availability, information, social media, usage

### Introduction

The livestock sector is one of the primary sources of revenue for farmers that both assures food and nutritional security and offers income and employment opportunities (Ravikumar *et al.*, 2006; Borah and Halim, 2014) [9, 31]. However, the low production of animals brought on by the livestock owners' inadequate knowledge level continues to be a problem and a significant concern for the future. In India, informal exchanges between farmers continue to be the primary manner of collecting information and new technologies (Anonymous, 2005) [2]. The traditional methods of extension approaches have less accountability and effectiveness in terms of time management, larger audience coverage and greater impression on people. Through cutting-edge ICT tools, it is possible to deliver knowledge and information to farmers at the right time and in the right way, increasing productivity and profitability. Using ICT tools could alter India's livestock, agricultural, and rural artisan economies. (Sasidhar and Sharma, 2006) [13]. ICT is the umbrella term for all information and communication technologies, including digital formats like the internet or World Wide Web (WWW). It also includes cellular network phones, cable, television, radio, video and print media (Hazelman and Flor, 2004) [6]. ICT tools serve as a unifying force that brings people together, regardless of caste, class, race, religion, sex or political identity. The delivery of ICT-based information delivery has the potential to be more timely and directly reach more farmers (Richardson, 1996) [11]. Access to ICTs could lower the costs associated with seeking the information and knowledge and asymmetric information, particularly about market prices (De Silva and Ratnadiwakara, 2008) [4].

ICT tools are being used to disseminate information and knowledge, inspiring people to act and improve the livestock sector through mobilisation and action. Information can encourage people to adopt healthy livestock technologies when rewarded with success stories. For instance, information on nutritional awareness, sanitation, immunization, maternal mortality, calf mortality, its causes, anticipation and treatment of sickness can be circulated far afield via

ICTs. The country's livestock sector is developing overall as a result of improved and seamless communication. (Saravanan, 2010) [12]. However, it was revealed that farmers are not benefiting from these technologies at work because of a lack of understanding and knowledge about them. In addition, farmers were unable to directly interact with buyers and customers to sell their products at fair prices or keep track of the costs associated with treating their livestock and purchasing farm chemicals to get information from other stakeholders. ICT offers great hope for improving access, quality and efficiency of information dissemination in livestock sector, but there is a need to understand the key issues underlying the problems and to formulate sensible strategies. Here, an attempt has been made to analyse the constraints and their possible solutions towards use of ICTs as a source of reliable and timely information delivery in livestock sector.

### Materials and Methods

In order to better understand the challenges that livestock farmers face when using ICTs, an exploratory research methodology was used in Rajasthan's Jaipur district in North-East India. The state Rajasthan was purposefully chosen through criterion sampling because it has a large livestock population and because its residents use various ICT tools in their daily lives to pursue healthier lifestyles. Additionally, Jaipur district was purposefully chosen over other districts in Rajasthan due to its anticipated rate of access to information, availability, use, excellent information network, and livestock wealth index. Jaipur district has 16 tehsils out of these tehsils two tehsils *viz.* Sanganer and Shahpura were selected randomly. In the next stage of sampling, six villages were selected from each selected tehsils and 10 livestock farmers were selected randomly from each village. Thus, total 120 livestock farming were selected for the study who were using ICT tools for accessing information on different aspects of livestock farming. Statistical tools like frequency and percentage were used to draw the inferences.

### Constraints perceived by livestock farmers in use of ICTs

It alludes to obstacles or difficulties encountered while being on a particular path. The study's constraints have been defined as limitations that livestock farmers must overcome to access and use ICTs. After researching relevant studies, speaking with subject experts, and consulting with ICT experts, fourteen potential restrictions were listed. The constraints were also listed by direct questioning with the livestock farmers. The identified constraints were measured on a four-point continuum *i.e.*, most serious constraint, serious constraint, less serious constraint and not a constraint with a scoring system of 4, 3, 2 and 1 respectively. The maximum and minimum obtainable score was 56 and 14 respectively.

### Possible solutions of the constraints

ICT offers great hope for improving access, quality and efficiency of information dissemination in livestock sector, but there is a need to understand the key issues underlying the problems and to formulate sensible strategies. After studying pertinent literature, interacting with subject matter experts, and consulting with ICT professionals, eleven potential solutions were listed. These possible solutions were also listed by direct questioning with the livestock farmers. The identified possible solutions were measured on a three-point continuum *i.e.*, agree, neutral and disagree with a scoring system of 3, 2 and 1 respectively.

### Results and Discussion

#### Constraints perceived by livestock farmers in use of ICTs

The constraint analysis is essential for highlighting the challenges and problems of livestock farmers to make it possible for planners, administrators, development specialists, and policymakers to adopt developmental strategies and initiatives that could better serve the requirements of farmers and be beneficial to them. The constraints in the use of ICTs by livestock farmers were measured using four-point continuum scales. The results are presented in Table 1 which is discussed below: High cost of repairing ICTs, lack of training and practical exposure towards ICTs and low ICT literacy were perceived as 'most serious constraints' by 66.67, 60.00 and 58.33 per cent livestock farmers, respectively while 'serious constraints' by 26.67, 33.33 and 30.00 per cent respondents, respectively. perhaps, this reflects the livestock farmers' awful economic circumstances and low educational background. These results are consistent with the discovery of Mooventhan & Philip (2012) [8], Shankaraiah & Swamy (2012) [14] and Karunakaran (2004) [7].

Lack of awareness of benefits or advantages of ICTs, lack of skills in handling/operating ICTs, poor financial condition, erratic/unstable power supply, lack of confidence in handling/operating ICTs, lack of repairing stations, facilities & centres in village and high cost of ICT tools were perceived as 'serious constraint' by 56.67, 50.83, 44.17, 44.17, 42.50, 42.50 and 36.67 per cent livestock farmers, respectively. These findings might be due to lack of knowledge abouts different ICT tools and its benefits in information delivery and unavailability of uninterrupted power supply among livestock farmers of study area. The results concur with those of (Rebekka & Saravanan, 2015, Ghasura *et al.*, 2011 and Agwu, 2008) [10, 5, 1]. Among the 'less serious constraints' were low network connectivity (44.17%), insufficient regional specific language (38.33%) and unavailability of different ICT tools (32.50%). Eighty percent of livestock farmers believed that having a negative attitude toward ICTs was 'not a constraint.'

**Table 1:** Constraints in the use of ICTs among livestock farmers (n=120)

S. No.	Constraints	MC		C		LC		NC	
		f	%	f	%	f	%	f	%
1	Unavailability of different ICT tools	22	18.33	34	28.33	39	32.50	25	20.83
2	High cost of ICT tools	41	34.17	44	36.67	33	27.50	2	1.67
3	Lack of confidence in operating ICTs	23	19.17	51	42.50	37	30.83	9	7.50
4	Erratic power supply	9	7.50	53	44.17	26	21.67	32	26.67
5	Low Network connectivity	10	8.33	26	21.67	53	44.17	31	25.83
6	Lack of awareness of benefits of ICTs	13	10.83	68	56.67	29	24.17	10	8.33
7	Lack of skill in handling ICTs	31	25.83	61	50.83	21	17.50	7	5.83
8	Low ICT literacy	70	58.33	36	30.00	9	7.50	5	4.17

9	Lack of repairing facilities and centres in villages	41	34.17	51	42.50	18	15.00	10	8.33
10	Negative attitude towards ICTs	0	0.00	11	9.17	13	10.83	96	80.00
11	Poor finance	39	32.50	53	44.17	25	20.83	3	2.50
12	Lack of training and practical exposure towards ICTs	72	60.00	40	33.33	7	5.83	1	0.83
13	High cost of repairing ICTs	80	66.67	32	26.67	5	4.17	3	2.50
14	Insufficient regional specific language	27	22.50	38	31.67	46	38.33	9	7.50

MC: Most serious constraint, C: Serious constraint, LC: Less serious constraint, NC: Not a constraint

### Possible solution of constraints in use of ICTs

Table 2 analysis demonstrates that the vast majority of livestock farmers were in favour of potential remedies including subsidy in the procurement of ICT equipments (98.33%), provision of finance facilities (92.50%), setting up of low-cost repairing centres in villages (90.83%) and confidence build up through trainings and practical exposure to ICTs (90.00%). In contrast to these solutions government need to do something requisite steps *viz.* subsidy based scheme procurement, handiness or availability of finance and setup of various training cum repairing stations/centres at village level. This will contribute to much more turnout from livestock sector in term of production, yield and returns etc. Majority of the respondents were also in agreement with the possible solution like development of different ICT tools with regional specific languages (89.17%), creation of awareness regarding benefits of ICTs (89.17%), improvement in ICT literacy (87.50%), facility of different ICT tools and services

(79.17%), provision of continuous power supply or power backup (69.17%) and enhancement in network connectivity (69.17%). The majority of participants (77.50 per cent) did not agree with the statement "counteracting negative attitude towards ICTs through proper motivation," according to this table 2.

The livestock farmers were facing lots of constraints in using different ICT tools. Most important among them were high cost of repairing ICTs, lack of training and practical exposure towards ICTs, low ICT literacy, high cost of ICT tools and lack of repairing facilities and centres in villages. Further in the study it was found that most of the livestock farmers were in agreement with the considered possible solutions for the constraints in the use of ICTs *viz.* development of different ICT tools with regional specific languages, creation of awareness regarding benefits of ICTs and improvement in ICT literacy etc.

**Table 2:** Possible solution of constraints in the use of ICTs (n=120)

S. No.	Possible Solutions	Agree		Neutral		Disagree	
		f	%	f	%	f	%
1	Facility of different ICT tools and services	95	79.17	3	2.50	22	18.33
2	Confidence builds up through trainings and practical exposure to ICTs	108	90.00	2	1.67	10	8.33
3	Provision of continuous power supply or power backup	83	69.17	14	11.67	23	19.17
4	Enhancement in network connectivity	83	69.17	14	11.67	23	19.17
5	Creation of awareness regarding benefits of ICTs	107	89.17	4	3.33	9	7.50
6	Improvement in ICT literacy	105	87.50	10	8.33	5	4.17
7	Setting up of low-cost repairing centres in villages	109	90.83	3	2.50	8	6.67
8	Counteracting negative attitude towards ICTs through proper motivation	24	20.00	3	2.50	93	77.50
9	Provision of finance facilities	111	92.50	7	5.83	2	1.67
10	Subsidy in the procurement of ICT equipments	118	98.33	2	1.67	0	0.00
11	Development of different ICT tools with regional specific languages	107	89.17	6	5.00	7	5.83

### References

1. Agwu AE, Uche-Mba UC, Akinagbe OM. Use of Information Communication Technologies (ICTs) among Researchers, Extension Workers and Farmers in Abia and Enugu States: Implications for a National Agricultural Extension Policy on ICTs. *Journal of Agricultural Extension*. 2008;12(1):37-49.
2. Anonymous. 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, 2005.
3. Borah M, Halim RA. Dynamics and Performance of Livestock and Poultry Sector in India: A Temporal Analysis. *Journal of Academia and Industrial Research*. 2014;3(1):01-09.
4. De Silva H, Ratnadiwakara D. Using ICT to Reduce Transaction Costs in Agriculture Through Better Communication: A Case-Study from Sri Lanka. *LIRN Easia*, 2008. [http://www.lirneasia.net/wpcontent/uploads/2008/11/transaction\\_costs.pdf](http://www.lirneasia.net/wpcontent/uploads/2008/11/transaction_costs.pdf).
5. Ghasura RS, Mevada VK, Sheikh AS, Aswar BK, Chaudhry GM. ICT penetration of rural dairy farm entrepreneurs in Banaskantha district. *Journal of Progressive Agriculture*. 2011;2(3):94-98.
6. Hazelman M, Flor AG. Regional prospects and initiatives for bridging the rural digital divide. AFITA/WCCA Joint Congress on Agriculture, 2004.
7. Karunakaran. A study on the potential of modern information technology gadgets for agricultural development. M.Sc. (Ag) Thesis, TNAU, Coimbatore, 2004.
8. Mooventhan P, Philip H. Impact of Web-Education on Knowledge and Symbolic Adoption of Farmers - An Experimental Study. *Indian Research Journal of Extension Education*. 2012;12(2):43-47.
9. Ravikumar RK, Mahesh C. Extension educational efforts by State Department of Animal Husbandry (SDAH), Tamil Nadu: SWOT analysis. *Livestock Research for Rural Development*. 18, 2006. Retrieved from <http://www.lrrd.org/lrrd18/9/ravi18126.html>.
10. Rebekka S, Saravanan R. 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*. 2015;6(3):24-41.

11. Richardson D. 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, 1996. <http://www.fao.org/sd-dimensions>.
12. Saravanan R. ICTs for Agricultural Extension: Global Experiments, Innovations and Experiences. New India Publishing Agency, New Delhi, 2010.
13. Sasidhar PVK, Sharma VP. Cyber livestock outreach services in India: A model framework. Livestock Research for Rural Development.18, 2006. <http://www.lrrd.org/lrrd18/1/sasi18002.html>.
14. Shankaraiah N, Swamy BKN. Attitude of Farmers and Scientists towards Dissemination of Technologies through Mobile Message Service (MMS). Tropical Agricultural Research. 2012;24(1):31-41.