

## **Assessment of constraints encountered by the livestock owner in utilization of ICTs tools**

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### **Abstract**

*A study was conducted to assess the constraints encountered by the livestock owners in using information communication technology with special reference to enhanced livestock production, in semiarid zone in Uttar Pradesh. A total of 200 farmers were randomly selected for the study during research work. The results showed that majority of the farmers owned mobile phones as well as television and radio. Majority of respondents belongs to middle aged group have nuclear family, literate, possessed fair number of information communication technology tools. Major problems in the use of information communication technology tools by the farmers were lack of confidence in operating ICTs, erratic power supply, low network connectivity and lack of awareness of the benefits of information communication technology, trained staff, illiteracy of respondents, and language dominance of English in information communication technology contents.*

Keywords: Constraint, ICTs, Livestock, Semiarid zone

### **Introduction**

Information and communication technologies (ICTs) generally refer to an expanding assembly of technologies that are used to handle information and aid communication. These include hardware, software, media for collection, storage, processing, transmission and presentation of information in any format (i.e., voice, data, text and image), computers, the Internet, CD-ROMs, email, telephone, radio, television, video, digital cameras etc. The advent of personal computers, the Internet and mobile telephone during the last two decades has provided a much wider choice in collection, storage, processing, transmission and presentation of information in multiple formats to meet the diverse requirement and skills of people. India has vast resource of livestock and the distribution of livestock is more equitable than the ownership of land; the livestock economy has a greater poverty alleviating impact than farming of rural masses. However, the recent trend in livestock sector growth suggests that in order to meet the emerging demand for livestock

based products, both in domestic and global markets, there is a need to reorient the production system by enhancing the efficiency and importance of information and communication technology tools among livestock farmers. It has great potential to bring in the desired social transformation by enhancing access to people, services, information and other technologies (Dutton *et al.*, 2004). The importance of ICTs in development process was long recognized and access to ICTs was even made one of the targets of the Millennium Development Goal (MDG), which emphasizes the benefits of new technologies, especially ICTs in the fight against poverty. With the changing environment of food and agriculture sector including livestock based high value agriculture segment, information and knowledge has increasingly become an important factor of production for effective decision-making (Birkhaeuser *et al* 1991; Cash 2001; Galloway and Mochrie 2005; Adhiguru *et al* 2009). Communication of information plays an important role in diffusion the

innovation. One of the important problems associated with modernization of livestock in India is lack of steady flow of information to livestock farmers. Modernization of animal husbandry greatly depends on creation of livestock technology, but full use of available technology is not being made in many areas of country (Sawant *et al.*, 2007). ICT penetration is low in rural areas due to several obstacles including short supply of tools and lack of skill of the farmers (Ghasura *et al.*, 2011), although it is a potential podium for the empowerment of dairy farmers (Babu *et al.*, 2013).

With the increase in people awareness about the ICT tools and its benefit various department had launched ICT programme. These aim to increase the efforts to encourage the diffusion and adoption of ICT-centred farm management innovations among the dairy farmer shave a high probability of success. The Department of Animal Husbandry, Dairy and Fishery (GOI) had launched National Animal Disease Reporting System (NADRS)-with the help of National Informatics Centre has started an ambitious project known as National Animal Disease Reporting System (NADRS) which involves a computerized network, integrating both MIS and GIS, which would link each block, district and the State / UT headquarters in the country to the Central Disease Reporting & Monitoring Unit (CDRMU) at New Delhi. The Department of Agriculture & Cooperation, Ministry of Agriculture, Govt. of India has launched Kisan Call Centers with a view to leverage the extensive telecommunication infrastructure in the country to deliver extension services to the farming community. The purpose of these Call Centers has been mainly to respond to issues raised by farmers instantly in the local language, on continuous basis. Considering the importance of ICT use in enhancement of livestock production, a study role of ICT among livestock farmers was conducted to find out the constraints faced by respondents when they use ICT tools in semiarid zone of Uttar Pradesh.

### Research methodology

The study was purposively conducted in the state of Uttar Pradesh. Two District Gautam Buddha Nagar and Mathura were selected from semi-arid region. The two districts provide a contrast between undeveloped regions poorly served power supply and more advanced region where farmer access to extensive power supply suited to ICT tools. Four blocks

were selected from these two district and along with this two villages from each block and total 8 villages were selected randomly. From each village, twenty five livestock owners possessing at least two ICT tools and are involves in dairying were selected randomly from these villages. Thus, 200 respondents formed the sample of the study. Primary data was collected using semi-structured interview schedule. and was analyze through Mean Percentage Score obtained from the frequency distribution.

The responses on constraint among the livestock owners using ICTs was collected from respondents in their continuum viz, SC (Serious constraint), C (Constraint), LSC (Less serious Constraint) and given scores as 2, 1 and 0 respectively. Mean percentage score (MPS) was calculated and the statements were ranked accordingly. The Mean percentage score can be derived from the formula

$$\bar{x} = \frac{w_1x_1 + w_2x_2 + \dots + w_nx_n}{w_1 + w_2 + \dots + w_n}$$

Where,

**x** is the repeating value

**w** is the number of occurrences of x (weight)

**x** is the Mean percentage score

### Results and discussion

#### *Socio-personal characteristic of livestock owners*

Socio personal characteristic of livestock owners were studied and the results were presented in table 1. It is revealed that a higher proportion of the farmers i.e. is 38.00% and 34.00% fell between the middle and younger ages group. It was also seen that about 71.0% had middle to intermediate school education. Thus the livestock owner of younger age and education can be motivated to use the ICT tools and information can be easily diffused to them.

Data on the land holding capacity showed that 10.5.0% of respondents had less than 3 acres, 80.5% had between 2.5 acres to 10 acres and 12.5% had above 10 acres' land. Majority (64 % and 63%) of the livestock farmers were having a good length of years of experience in livestock rearing and are in medium category of income. Thus if the information regarding the animal husbandry was disseminated through the ICTs the farmers by virtue of their experience and income afford the ICTs tools and its utilization.

#### *Constraint encountered in utilization of ICTs tools*

Unnatural behavior that is the sometimes the result of forcing yourself to act in a particular way

known as Constraint. The farmers faced several constraints in using ICT tools and which was categorized into five categories.

Table 1: Socio-personal profile of livestock owners

n = 200

S.No	Variables	Frequency	Percentage
1.	Age		
	Young (<35 years )	68	34.00
	Middle (35-50 years )	76	38.00
	Old (>50 years)	56	28.00
2.	Gender		
	Male	173	86.50
	Female	27	13.50
3.	Educational level		
	Illiterate	5	2.50
	Primary	19	9.50
	Middle	41	20.50
	High school	49	24.50
	Intermediate	55	27.50
	Graduate & above	31	15.50
4.	land holding capacity		
	Landless	5	2.50
	Marginal	21	10.50
	Small	80	40.00
	Medium	69	39.50
	Large	25	12.50
5.	Livestock rearing experience		
	Low	48	24.00
	Medium	128	64.00
	High	24	12.00
6.	Income		
	Low	32	16.00
	Medium	127	63.50
	High	41	20.50

#### 1. Personal constraint

The major personal constraint that was indicated by the respondents was lack of educational illiteracy (35.0%) and inadequate awareness about the function and services of the ICT tools (34.0%) were ranked first and second respectively by the respondents. Study has similarity with (Jain *et al.*, 2010) many of these farmers are not completely utilizing the full potential of the ICT. Computer technically competency in using ICT tools and unfriendly approach of ICT operators were also the subsequent major constraints faced by

the farmers. Aggarwal, (2003) in hi studies also concluded that the farmers did not access any information on modern technology from any source.

#### 2. Content constraint

Among content constraint, main constraints faced by the livestock farmer was complex nature of content, language dominance of English in ICT contents and lack of location specific information ranked first, second and third rank respectively. Acquiring knowledge from information and making decisions based on that knowledge is the most effective tool for the farmers (Armstrong *et al.*, 2011). That's was efforts should be concentrated to prepare area specific and language specific content for the farmers.

#### 3. Technical constraint

Technical constraint includes the constraint like frequent fault in computer is ranked first followed by inadequate number of expert people and frequent power failure in the area were second and third ranked constraints respectively. connectivity problem of internet and were faced by the respondents along with these also suffered most important constraint were electricity availability followed by infrastructure for setting of computer and facility of broad band in study areas.

#### 4. Infra-structural constraint

The Infrastructural constraint like facility of broad band facilities, availability of the electricity in the center and proper infrastructural for setting the computer were the major constraint and ranked first, second and third respectively. These constraints can be removed by establishing proper infrastructure or establishing local computer centers in the villages. Sireesha, (2014) also focussed on infra structural constraints that respondents face in utilization of ICTs tools

#### 5. Miscellaneous constraint

Apart from all other issues the fund for running and maintaining the ICTs is another major hurdle that was listed by the respondents. The lack of trained staff training to employees for using ICTs was expressed by 37 MPS from frequency distribution this could not be provided because of lack of time and also insufficient budget for implementation of ICT.

#### Conclusion

Today in era of information technology, use of ICT tool plays a vital role in all sectors for

Table 2: Constraint in accessing ICT by the respondents

n = 200

S.No.	Particulars	F(SC)	F(LSC)	F(C)	MPS	RANK
I	Personal constraint					
1.	Educational illiteracy of respondents	32	149	19	35	I
2.	Computer illiteracy of respondents	36	117	47	33	III
3.	Lack of awareness about the function and services of the ICT	30	148	22	34	II
4.	Unfriendly approach of ICT operators	59	105	36	31	IV
5.	Higher charges to be paid in accessing ICT services	61	92	47	30	V
II	Content constraint					
1.	Language dominance of English in IC T contents	22	126	52	33	II
2.	Irrelevant information and services	62	92	46	29	V
3.	Complex nature of content	32	149	19	34	I
4.	Out dated content of ICT	56	106	38	31	IV
5.	Third rank	21	127	52	32	III
III	Technical constraints					
1.	Connectivity problem of internet	57	97	46	30	IV
2.	Frequent power failure of electricity	22	126	52	32	III
3.	Inadequate number of expert people	36	117	47	33	II
4.	Frequent fault in computer	31	150	19	34	I
IV	Infrastructural constraints					
1.	Infrastructure for setting of computer	60	92	48	32	III
2.	Facility of broad band	22	126	52	34	I
3.	Electricity availability	30	151	19	33	II
V	Miscellaneous					
1.	Fund related issues	59	105	36	29	II
2.	Trained staff	35	127	38	37	I

SC= Serious constraints, LSC=less serious constraints, C = Constraints, MPS=Mean percentage score

developments and ICTs therefore can be used as a medium in bridging the information gap. Through ICTs, for example, a doctor in a rural village can get up-to-date information regarding certain diseases and can use that information to advice and treat patients; an agricultural extension worker can learn new technologies, rainfall forecasts, commodity prices, etc and use that information to advice farmers in rural villages; etc. Although research study has been revealed that livestock farmers have many constraints in use of ICT tools which are most serious obstacles in livestock production. However there are various use of ICT in livestock development because many livestock development programmes have been started with ICT tools and most effective way in disease control, entrepreneurial development, rural governance, land administration etc. overall information service offered by ICT. So policy makers should have more accentuate on how to minimize these hindrance and

Govt. and its agencies should be followed trickle down approaches for betterment and effective implementation of ICT tools for economical sustainability of rural community.

### References

- Adhiguru, P.; Mruthyunjaya and Birthal , P. S. (2007). ICT in Indian Agriculture; Lessons of upscaling. National seminar on appropriate extension strategies for management of rural resources, Dec.18-20, 2007.
- Aggarwal, P. K., (2003). Impact of climate change on Indian agriculture. *Journal of Plant Biology*, 30, 189-198.
- Alary, T, D.; Messad, S.; Lecomte, P. and Barbier, B. (2008). Assessment of technical and socio-economically feeding practices in semiarid and arid areas in north India (Haryana).and implications for dairy rural development. *Revue D' elevage ETDE Medicine Veterinaire Des pays Tropicaux*, 61(1): 27-36.

- Ali, J. (2011). Use of quality information for decision making among livestock farmers: Role of Information and Communication Technology. *Journal Livestock Research for Rural Development* 23(3).
- Armstrong, L., Diepeveen, D. and Gandhi, N., (2011). Effective ICTs in agricultural value chains to improve food security: An international perspective. *World Congress on Information and Communication Technologies Conference (WICT)*, Issue Date: 11–14 Dec. on page(s):1217–1222 Print ISBN: 978-1-4673-0127-5 Digital Object Identifier: 10.1109/WICT.2011.
- Babu, G. P. (2013). Empowerment of dairy farmers through ICT enabled I-Kisan project in Andhra Pradesh. *International Journal of Agriculture, Environment & Biotechnology*, 6 (4), 685-690.
- Ghasura, R. S. (2011). ICT penetration of rural dairy farm entrepreneurs in Banaskantha district. *Journal of Progressive Agriculture*, 2 (3), 94-98.
- Gulati, G.A. (2012). Role of ICTs in rural development. *Kurukshetra* Jan 2012.
- Jain, R.; Alka, A., and Usha, A. (2010). Clustering approach to diagnose determinants of ICT empowerment to women farmers, in Editors: Armstrong, L.J., and Clayden, J., *Proceedings of the Knowledge Discovery for Rural Systems Workshop 2010 at the 14th Pacific-Asia Conference on Knowledge Discovery and Data Mining*, IIIT Hyderabad, Hyderabad India, 21–24 June, Hyderabad, India.
- Jain, S. (2013). Impact of e-choupal on information empowerment of rural people of Rajasthan (2013). *Journ. Indian Res. J. Ext. Edu.* 13(1), January, 2013.
- Kiran, J. N.; Ashwini A.; Nagaraja, G.N. and Hirekenchanagoudar, R. (2010). Information and communication technology in Indian International Journal of Biological Sciences and Engineering Vol.1(1):27-33.
- Kumar, A.; Chauhan, J.; Meena, B.S. and Ajrawat, B. (2014). Information sources utilized livestock owners in Muzaffarnagar, Uttar Pradesh
- Mittal, S. and Tripathi, G. (2009). Role of mobile phone technology in improving small farm productivity. *Agricultural economics research review*, 22:451-459.
- Mittal, S.; Gandhi, S. and Tripathi, G. (2010). Socio-economic impact of mobile phones on Indian agriculture. Available at: <http://WWW.commit.com/en/node/316086/306>.
- Neetu; Choudhary, S.B.; Jha. S. K. and Singh, S.R.K. (2014). Radio: An educational media to transfer agricultural information among farmers.
- Rathod, P. K.; Nikam, T. R.; Landge, S. and Hatey, A. (2012). Perceived Constraints in Livestock Service Delivery by Dairy Cooperatives: A case study of Western Maharashtra, India.
- Sawant, M. N. and Nikam, T. R. (2007). Constraints experienced by the veterinarians while communicating the information. *Jour. Indian Res. J Ext.Edu.* 7(2&3), May & Sept 2007.
- Senthilkumar S.; Ramkumar, B, D. and Jaishridhar, P. (2012). Socioeconomic analysis and its correlates with entrepreneurial behavior among dairy farmers in Tamil Nadu. *J. Dairying. Foods & Home Sci.*,31(2): 108-111.
- Sikhakolanu, R. (2007). Livestock service delivery by state department of animal husbandry in Andhra Pradesh-A critical analysis, Ph.D. Thesis, Indian Veterinary Research Institute, Izatnagar, India
- Singh. M.; Burman. R.R.; Sharma, J.P. and Iquebal, M.A. (2015). Constraints faced in mobile based agro-advisory services and strategy for enhancing the effectiveness of M KRISHI. *Ind Res. J. Ext. Edu.*15(2), May, 2015.
- Sireesha, P., B.; Sudhakar Rao and Thammi Raju, D. (2014). Constraints Encountered in the Utilization of Information and Communication Technology (ICT) Tools by Various Animal Husbandry (A.H.) Organizations in Andhra Pradesh. *International Journal of Innovative Research in Science, Engineering and Technology*. Vol 3(6).
- TRAI (2016). Telecom Regulatory Authority of India. Retrieved 12 March 2016.
- World Bank (2009). Report on, “Information and Communication for Development (IC4D) Extending Reach and Increasing Impact”. Available on line at <http://www.infodev.org/en/Article.384.html>.