

CONSTRAINTS FACED BY FARM WOMEN IN ACCESSING AND UTILISATION OF DIGITAL EXTENSION SERVICES

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ABSTRACT

Over the years, the role of farm women is prominent in Indian Agriculture. Myriad numbers of digital based extension services are operating in the domain of agriculture to hasten the on-time delivery and disseminate the customized information to the farming community. The present study was conducted during 2021, aimed at understanding the profile characteristics of farm women accessing the digital extension services and constraints faced by the same in three Zones of Telangana state. Majority of the respondents were middle aged (66.70%) who can read and write (59.00%), possessed marginal landholding (81.70%) with medium farming experience (52.50%), belonged to under lower-middle annual income category (56.70%), less e-ready (46.70%), medium level of access to Information and Communication Technologies (ICT) services(38.30%), higher level of frequency of use of ICT services(46.70%),while low internet in the rural areas (81.67%),low level of literacy among women farmers (80.00%), dual role of farm women(76.67%),lack of training and skill in handling(70.83%) and difficulty in utilizing the ICT based gadgets and services (66.67%)were the major constraints identified and are the bottlenecks for the effective utilisation of the digital extension services by farm women. The study highlights the efforts at various levels to address the constrains in order to effectively reach out to maximum extent of women farmers so that, women farmers can reap the benefits of the Digital Extension Services and agriculture development can be possible.

Keywords: *constraints, digital extension services, farm women, information and communication technologies, literacy, women empowerment.*

INTRODUCTION

Over the years, it was observed that, woman plays a major role in various activities associated with farming and has registered nearly 80% in self-employed activities comprising 33% in agriculture labour force and 48% as self-employed (Anonymous, 2018; Das *et al.*, 2021). The women occupation in agriculture in low income countries in Asia is in between 60–80%. If women farmers in developing countries have equal access to productive resources as men, their productivity can be enhanced by 20–30% and agriculture production could be raised by 2.5–4.0% emphasises the prominence of women farmers in the recent past and also suggest that, women need to have access to technologies and quality inputs to improve the agricultural production (Anonymous, 2011; Buluku, 2013; Gebre *et al.*, 2021; Sanghera and Sharma, 2015; Pratik and Vinaya, 2021). ICT offers great potential for women and girls to end poverty, to improve education and health, to increase agricultural productivity and to create decent jobs (Mlambo- Ngcuka, 2018; Campaign, 2014). They had more favourable attitude towards ICTs as it provides timely solutions to the farmers according to their need and micro farming situation. ICT are the potential tools to reach the

needy farm women and they can get remunerative prices to their produce through ICT based market intelligence services (Jha *et al.*, 2021) and also revealed that 20.83% of the farm women showed least favourable attitude, while, 56.66 % of the farm women favourable attitude and 22.50% of the farm women showed most favourable attitude towards ICT tool based extension services and suggested that, there is a scope to use ICTs in disseminating the agriculture related information among the farm women. It was reported that (Anonymous, 2012; Pratik and Vinaya, 2022) women's empowerment helps to enable control their lives. On an average, women in developing countries comprise 43% of the agricultural labour force and account for an estimated two-thirds of the world's 600 million poor livestock keepers. Only 15% of the world's extension agents are women and only 5% of the farm women benefit from various extension services. Access to resources, inputs and technologies are the additional gaps which negatively affects farm women ability to create their sustainable livelihoods from their farms. Long standing obstacles faced by rural women in terms of limited access to agricultural resources (land, credit, transport, extension, storage, and technical assistance preventing them from new technologies.) should be taken care for

empowering them (Behera and Behera, 2013; Keller and Mbeve, 1991; Munyua, 2000; Obayelu and Ogunlade, 2006). The increasing growth and spread of new ICT initiatives in rural India in recent times provides an important alternative to overcome the physical barriers in face to face interpersonal communication. Remote and inaccessible places might use a wide variety of ICTs. In order to engage with and educate millions of farm families, new ICTs should be carefully chosen and applied in rural communities of all sizes. This will aid in overcoming agriculture’s issues in the new millennium. By granting equitable access to and use of ICT tools and services, these are paving the road for the empowerment of women (Anonymous, 2012; Bariya et al., 2023).

Even though, the use of Digital extension services has accelerated over the years by the farming community and various studies have been conducted systematically to understand the contribution of DES on the farming community as a whole without touching the women farmers. However, in the present context of increasing women participation in agriculture, there is a dire need to study the problems and constraints faced by the farm women in the use of Digital Extension Services as the future of agriculture depends upon the women and their active participation in agriculture.

OBJECTIVE

To access the constraints faced by the farm women in accessing and utilisation of the digital extension services

METHODOLOGY

In order to understand the constraints faced by the farm women in the use of digital extension services, the present study was conducted purposively in the erstwhile districts of Southern, Central and Northern Telangana zones viz., Karimnagar, Medak and Mahbubnagar respectively during April and May of 2021. The districts operating with highest number of digital extension services were chosen for the study from each zone of Telangana. This work was the part of research on “Impact of Digital Extension Services on Farm Women Empowerment in relation to Sustainable Development Goals” of Department of Extension, Professor Jayashankar Telangana State Agricultural University, Rajendranagar. As part of this research, eight villages were selected randomly from each Mandal (having predominantly large number of farm women accessing digital extension services) of Karimnagar, Mahbubnagar and Karimnagar respectively. From each selected village five farmwomen were selected randomly, thus making total sample of 120 respondents who are accessing the digital extension services.

The data was collected through a questionnaire and open-ended interview schedule. The data collected was recorded and analysed by using Garrett ranking. These ranks were converted into score values with the help of the formula suggested by Henry Garrett (1969).

The Percentage score computed was as given below

$$\text{Percentage score} = \frac{100(R_{ij}-0.5)}{N_j}$$

Where,

R_{ij} = Rank, i^{th} item, j^{th} individual

N_j = Number of items ranked by j^{th} individual

With the help of Garrett’s table, the percentage score estimated was converted into Garrett score. Then for each factor, the total scores and mean scores were calculated. The process was delineated below. Here is the table given below showcasing the ranks and their conversion into Garret Score using percentage score Formula. Based on this table Garret Score and frequency of farmwomen responses received, the total Score was calculated by multiplying each other. To obtain the mean score, the total score has to be divided by the total respondents. The highest mean score was considered as the most important vis- a- vis.

Table 1: Percentage positions and their corresponding garett table values

Rank	Percentage Score Formula Calculation		Garret Score/ Garret table values
1	100(1-0.5)/12	4.166	83
2	100(2-0.5)/12	12.50	73
3	100(3-0.5)/12	20.83	66
4	100(4-0.5)/12	29.16	60
5	100(5-0.5)/12	37.50	56
6	100(6-0.5)/12	45.83	52
7	100(7-0.5)/12	54.16	48
8	100(8-0.5)/12	62.50	43
9	100(9-0.5)/12	70.83	39
10	100(10-0.5)/12	79.16	34
11	100(11-0.5)/12	87.50	27
12	100(12-0.5)/12	95.83	18

RESULTS AND DISCUSSION**Table 2 : Profile characteristics of farm women accessing Digital Extension Services**

(n=120)

Sr. No.	Characteristics/ Attributes	Category	Class interval	Frequency	Per centage
1	Age	Young	25-32	34	28.30
		Middle	32-39	80	66.70
		Old	39-48	06	05.00
2	Education	Illiterate		44	36.70
		Can read and write		59	49.20
		Primary school		14	11.70
		High school		01	00.80
		Higher secondary		02	01.70
3	Land holding	Marginal	Below 0.5	98	81.70
			0.5-less than 1.0		
		Small	1.0-less than 2.0	17	14.20
		Semi-medium	2.0-less than 3.0	05	04.20
			3.0-less than 4.0		
			4.0-less than 5.0		
		Medium	5.0-less than 7.5	00	00.00
7.5-less than 10.0					
Large	10.0-less than 20.0 and above	00	00.00		
4	Farming experience	Low	5-10	50	41.70
		Medium	10-15	63	52.50
		High	15-20	07	05.80
5	Annual income	Low	Less than ₹70,069	51	42.50
		Lower- middle	₹ 70,069 - ₹ 2,73,099	68	56.70
		Upper - middle	₹ 2,73,099 - ₹ 8,45,955	01	00.80
		High	More than ₹ 8,45,955	00	00.00
6	Experience in using DES	Low	5-8	79	65.80
		Medium	8-11	39	32.50
		High	11-14	02	01.70
7	Innovativeness	Low	5-16	29	24.20
		Medium	16-27	74	61.70
		High	27-38	17	14.20
8	Social participation	No membership	1	35	29.20
		Membership in one organisation	2	81	38.30
		Membership in more than one organization	3	39	32.50
		Office bearer in one organization	4	00	00.00
		Office bearer in more than one organization	5	00	00.00
9	Self-confidence	Low	5-8	63	52.50
		Medium	8-11	41	34.20
		High	11-14	16	13.30
10	e-Readiness	Less e- ready	6-10	56	46.70
		Medium e- ready	10-14	37	30.80
		Highly e- ready	14-18	27	22.50

Sr. No.	Characteristics/ Attributes	Category	Class interval	Frequency		Per centage	
				Yes	No	Yes	No
11	Willingness to pay for DES	Willingness					
		Are you willing to use digital extension services		120	00	100	00
		Are you receiving the services from IFFCO Kisan Sanchar Limited (IKSL) at free of cost		120	00	100	00
		If DES of IKSL are increasing its benefits, are you ready to use?		120	00	100	00
		Suppose if IKSL stops its free services, are you willing to continue to use the services on charge?		48	72	40	60.00
		If another Digital Extension services comes, are you ready to shift to others?		120	00	100	00
12	Mass Media Exposure	Low	7-10	50		41.66	
		Medium	10-13	54		45.00	
		High	13-16	16		13.33	
13a	Possession of ICT gadgets	Radio		12		10.00	
		Television		120		100.00	
		Mobile phone		120		100.00	
		Personal computer		0		0	
		Laptop		0		0	
		Satellite dish/ cable		120		100.00	
		Digital video camera and player		0		0	
		Web portal		0		0	
13b	Access to ICT services	Low	1-2	14		11.70	
		Medium	2-3	59		49.20	
		High	3-4	47		39.20	
13c	Frequency of use of ICT services	Low	1-2	35		29.20	
		Medium	2-3	39		32.50	
		High	3-4	46		38.30	
13	ICT Gadgets	Low	5-8	72		25.00	
		Medium	8-11	43		46.70	
		High	11-14	05		28.30	
14	Extension contact	Low	5-8	76		63.33	
		Medium	8-11	25		20.83	
		High	11-14	19		15.84	
15	Decision Making Behaviour	Low	3-6	31		25.80	
		Medium	6-9	50		41.70	
		High	9-12	39		32.50	

It could be observed that, majority of the farm women (66.70%) belonged to middle age category of 32-39 years followed by young age (28.30%) and old (5.00%) age respectively. It could be concluded from the results that, majority of farm women accessing the Digital Extension Services (DES) belonged to middle age group. The reason

might be due the fact that, age is one of the important factors to achieve any objective. Most of the middle aged women have family responsibilities and were members in Self-Help Groups (SHGs) and Non-Governmental Agencies (NGA). So, they might have showed interest to take up farming in order to sustain their family needs. Besides this, during the

time of data collection, it was observed that, young women are interested in non-farming activities in addition to farming activities and most of the old aged women were not involved in any earning activities *i.e.*, either in farm or non-farm activities.

Majority of the farm women accessing DES can read and write (59.00%) followed by illiterate (44.00%), primary school (14.00%), higher secondary (2.00%) and high school (1.00%). It could be concluded from the above results that, majority of the farm woman can read and write. As majority of farm women are members in non-governmental organizations, these NGOs empower them by providing functional literacy and hence farm women who are accessing DES can read and write. However, even the illiterate farm women were accessing the services (44.00%) indicate that, DES are user friendly. These results are in contradiction to Drewry et al. (2019), Pahuja (2019), Verma (2016), Ali and Kumar (2011) as they revealed that educated women was significantly associated with internet access and its usage.

Majority (81.70%) of the farm woman had marginal land holdings of below 1.00 ha followed by small land holdings (14.20%) between 1.0 to 2.0ha and small-medium (4.20%) land holdings between 2.0 to 4.0 ha. During the data collection it was observed that, the ownership of the land holdings was in the name of their husbands. None of the farm women had medium and large operational holdings. The reason might due to the fact that, potential societal stigma against ownership of land holding by the women themselves. Further, the population explosion and transfer of landholdings from generations to generations as ancestral property has led to further fragmentation of land holdings.

It could be observed that, majority of the respondent said medium farming experience (52.50%) of about 10–15 years followed by lower (41.70%) farming experience of 5–10 years and higher (5.80%) farming experience of about 15–20 years. It could be concluded that, majority of the farm women belonged to middle age group hence, and had taken up farming during since about 10 to 15 years. Those who started farming in recent times have more access to the DES than those who were highly experienced. Age might have played an important role for this outcome.

It could be observed that majority of the farm women belonged to lower-middle annual income category (56.70%) of less than ₹ 70,070– ₹ 2,73,099 followed by low income category of, less than ₹ 70,069 (42.50%) and very meagre respondents belonged to upper-middle income group (0.80%) who falls in the category of ₹ 2,73,099–8,45,955. Hence, it can be concluded that, majority of the farm women income belonged to lower-middle income category. The low

income of the farm women can be attributed to their marginal landholdings. Due to meagre land holdings, they earn meagre income. The other reason might be due the fact that, farm women contribution to their farms is treated as unpaid labourer and although most of the work in agriculture was done by farm women their work is categorized as unskilled in majority of the activities in agriculture. The results are in contradiction with the findings of Pahuja (2019), Ali and Kumar (2011), Kansotia (2023), Sulaiman (2011).

It could be observed that, majority of the farm women (65.80%) had low experience in using DES (of about 5–8 years) followed by medium (32.50%) experience of about 8–11 years and very few (1.70%) had higher experience of about 11–14 years in using DES. The reason for this trend might be due to the fact that, majority of the farm women had low farming experience and on the other side, they are just now started using digital extension services as a platform to avail the agro advisories which is an important note taking place to further strengthen the cause of agriculture development.

It could be said that, majority of the farm women who are accessing DES possessed medium level of innovativeness (61.70%) followed by low (24.20%) and higher innovativeness (14.20%). This must be because, they belonged to marginal land holding and lower- middle category income category and are slowly started resorting to the use of digital extension services, this trend shows favourable attitude to adopt any new-things which they come across in their life to earn more income. So innovativeness does not really matters- it's about the relevance of the DES what matters.

The figures regarding the social participation of the respondents were presented in above table. The data revealed that more than one third of the farm women associated with membership at least in one organisation (38.30%) followed by membership in more than one organization (32.50%) and no membership at all (29.20%). Hence, it can be concluded that in total, about 70% of the farm women had membership in at least one organization to more than one organization. These organizations were either NGOs and/or SHGs. The reason for this outcome might be due to the fact that, the benefits like access to credit, inputs for agriculture, skill learning activities, various women development schemes and information for development of their standard of living received etc., had motivated them to participate individually or in groups in various organizations. Some of the young women farmers might not be the part of organizations because of the psychological feeling, shy or introvert characteristic.

It was observed that, more than half of the farm women (52.50%) had low level of self-confidence followed

by medium (34.20%) and higher self confidence levels (13.30%). The reason behind the result in the study area might be due to the fact that, most of the farm women belonged to marginal land holding and limited outside exposure. As a result, they were showing low self-confidence. Some of the farm women who belonged to lower-middle category might be some-what economically benefited compared and shows some attitudinal changes which might be a reason for self-confidence.

It was revealed that nearly half of the farm women (46.70%) were less e-ready followed by medium (30.80%) and high e-ready (22.50%). The reason might be due the fact that, the majority of the farm women in the study area can only read and write, and are recently exposed to the digital extension services. Hence, they might be shy in using technology. About 30.80% of the farm women were medium e-ready as they were actively involved in using digital extension services for their information needs. The farm women who belonged to three categories i.e., can be member of more than three organizations, having medium self-confidence and having medium- innovativeness might have medium e-readiness. They were more e-ready to use DES and are capable of managing their time in order to use DES.

It was indicated that, all the respondents were willing to use the DES, from IKSL at free of cost. If IKSL were increasing the benefits, the respondents were ready to use the services and ready to shift to another DES if they offer the best services. Nearly half of the respondents (48%) were willing to continue if the services of IKSL was on prepaid basis i.e., hundred rupees per year. As the services are benefiting on real-time basis the respondents were having a positive opinion and are ready to use the services from IKSL.

The findings regarding mass media exposure of respondents are presented in the Table, the result showed that majority (45.00%) of the respondents had medium level of mass media exposure followed by low level of mass media exposure (41.66%) and high level of mass media exposure (13.33%). This trend might be due to the fact that majority of the respondents with majority of them exposed to organization so they have touch in accessing the mobile phone for agricultural services. Majority of the respondents were not interested in reading news-papers but interested to listen agricultural information. The results were in line with Safavian (2021).

It could be concluded that, majority (100 %) of the respondents possessed television, mobile phone and cable connection or dish connection. About 16.66% of farm women had VCD/DVD player. Ten percent of the farm

women possessed radio. The trend might be due the fact that, as most of the farm women belonged to marginal and small class members and having lower-medium income category they only possessed television along with cable connection and mobile phone. They are not capable to afford high end expensive ICT gadgets. The possessed gadgets were also family possession and not farm women alone. This implies that, any digital extension effort should keep these in view while planning for execution for its successful implementation. The results are in agreement with the findings of Pahuja (2019).

It could be concluded that, nearly half of the respondents (49.20%) belonged to medium accessibility to services followed by high (39.20%) and low (11.70%). The trend might be due the fact that, all the farm women were having mobile phone, Television so that they were accessing the short services message, recorded calls of recent information from IKSL and shows like annadata are helping them to update of recent agri-information.

It could be concluded that more than one third of the farm women (38.30%) had high frequency of use of Information and Communication (ICT) services of different ICT gadgets they possess followed by medium (32.50%) and low (29.20%) frequency of use of Information and Communication (ICT) services of different ICT gadgets they possess respectively. The trend might be due the fact that, all the farm women who possessed mobile phone, Television that, they were accustomed with the short services message, recorded calls of recent information from IKSL and Television shows like annadata were helping them to update of recent agri-information. Motivation helps them to access the services. This is a positive trend to engender the farm women for increasing use of digital extension services.

It could be concluded that the majority (46.70%) of the farm women had medium level of possession of ICT gadgets, access to services and frequency of use of ICT services followed by low (25.00%) and high (28.30%). The trend might be due the fact that the prevalence of patriarchy, due to which most of the farm women had low ICT gadgets.

It can be concluded that, majority of the farm women (63.33 %) had low extension contact, followed by medium (20.83 %) level of extension contact and high (11.20%) level of extension contact. This trend might be due to the psychological attitude, shy nature of the farm women and considering them as less potential as men. Regular visiting of extension department in villages is a common phenomenon but due to social stigma, women are not recognised and vice-versa. Due to which most of the farm women had less contact with the extension agencies.

It could be concluded that, majority of the farm women (41.7%) expressed medium level of decision making in farming while, nearly one third were found to have higher decision making in farming (32.5%), while low level of decision making was expressed by about one fourth of the respondents (25.80%). This trend indicates farm women accessing the information through social organizations, institutions helps them to take decision in their cultivation practices and increase their adoption rate. The training programs, skill development programs, being a part of

entrepreneurship or women welfare schemes helped them to make decision making in their life, it is influenced by their family members and they are the key members in finalizing the decision. The results are in agreement with the findings of Ali and Kumar (2011) as decision making behaviour is influenced by IKSL. The results are in agreement with the findings of Lecoutere (2020), Pahuja (2019), Bariya et al. (2023), Vaishnavi and Ramesh (2023), Tankodara et al. (2019), Malik (2024), Kharmudai (2018).

Table 3 : Constraints faced by farm women in access and use of digital extension services

(n=120)

Sr. No.	Constraints faced by farmwomen	Frequency*	Garret Score/ Garret table values	Total Score	Mean Score	Rank
1	Busy household works coupled with farming activities(i.e., Dual role)	92	83	7636	63.63	1
2	Lack of time	90	73	6570	54.75	2
3	Lack of skills in using app/Difficulty in utilizing the ICTs	80	66	5280	44.00	3
4	Lack of confidence while using ICT	72	60	4320	36.00	4
5	Low internet access	98	56	5488	45.73	5
6	Lack of training and skill development	85	52	4420	36.83	6
7	Poor contact with extension agent	66	48	3168	26.40	7
8	Male dominance	75	43	3225	26.88	8
9	Lack of Independence	60	39	2340	19.50	9
10	Low level of literacy among women farmers	96	34	3264	27.20	10

* Multiple responses

It was revealed that, major constraints elicited by the farm women in access and use of DES were found to be personal constraints and they were arranged according to the their descending hierarchy and they were; low internet access(81.67%) which was bring forth as the first among the other constraints as majority of the women farmers belongs to low and lower-middle class income category and were unable to access internet on paid scale in addition to that training is essential to access internet services and, these findings were in line with Seena and Pillai (2014) followed by the second constraint of low level of literacy (80.00%) as most of them were illiterate and can read and write and some information is being delivered in the form of written message and in local dialect which cannot be comprehended by the respondents. The above finding were similar to that of the findings of Ramakrishan (2012). Heavy household works including farming activities i.e., dual role of farm women was the third major constraint (76.67%), lack of time in utilizing the DES was the fourth constraint (75.00%) as most of the time was spend in dual activities. The above findings were alike with Ramakrishan (2012) As majority of them are not acquainted with the proper usage of Digital Extension Services due to lack of training and skill development and difficulty in utilizing the ICTs was in the order of fifth (70.83%) and sixth constraint (66.67%) respectively. These findings were similar with that of Seena and Pillai (2014). Prevalence of male

dominance occurs in the society, lack of confidence in using ICT, poor contact with extension agent, lack of independence were recorded eight (62.50%), ninth (55.00%) and tenth (50.00%) place respectively in the obtained descending order of constraints percentage.

CONCLUSION

Lack of internet accessibility was perceived as the major constraint faced by the farmwomen followed by low level of literacy among women farmers. They were the only members of the family that worked in the house and on the farm and considered as “round the clock employee”. Time for accessing these services was one of the limitation for decision making in farming as it hinders information delivery of current aspects in agriculture. So, women have very low to medium level of decision making.

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CONFLICT OF INTEREST

The authors declare no conflict of interest

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