PRINT: ISSN 0972-0073 ONLINE: ISSN 2456-6802
Anthropologist, 38(1-3): 9-16 (2019)
DOI: 10.31901/24566802.2019/38.1-3.2048

Attitude of Farm Women towards Agriculture Extension Services: A Study in Kumaon Region of Uttarakhand

Mohammad Aslam Ansari* and Vibha Jantwal

Agriculture Communication, College of Agriculture, G. B. Pant University of Agriculture and Technology, Pantnagar 263 145, Uttarakhand, India

KEYWORDS Attitude Towards Extension Services, Extension Interventions. Extension Needs. Farm Women. Information Needs

ABSTRACT Attitude is a strong predictor of human behaviours or acceptance of new ideas or technology. The mandate of agriculture extension services is to make the farmers aware of the latest agriculture technology and practices, and motivate them for adoption. The study was undertaken to determine the attitude of farm women towards agriculture extension services. Following multi-stage sampling design, the study sample comprised of 120 farm women selected from four villages spread across four blocks in two districts. An exploratory research design was used, and a pre-tested structured interview schedule was used for data collection. The study findings indicated that majority (66%) of farm women displayed an unfavourable attitude, and only twenty-six percent had a favourable attitude. The study has implications for extension scientists, policymakers as well as field level extension agents to develop gender-sensitive extension policies and appropriate delivery mechanisms to cater to the needs of farm women.

INTRODUCTION

Agriculture is said to be the principle engine of economic growth in India as well as in many developing countries. Farming, being labour intensive, is usually perceived to be a man's profession. However, women constitute around fifty percent of the total workforce on a farm, and contribute significantly at every stage of farming, yet their contribution is largely ignored while planning extension interventions and strategies. According to Lee (1992), farm women perform a variety of tasks, which may be indirect but contribute significantly in enhancing the agriculture productivity. However, 'rural women face serious challenges across the globe especially in the developing economies due to low perceived competency. The situation has been worse in developing countries generally, despite the existence of plans and policies for integrating women into the process of development planning' (Rousan 2007).

Over the years, there has been a growing realisation of women's contribution in Indian agriculture, as they are actively engaged in almost all the farming operations. They play a crucial role at all stages of farming, from seed selection to post harvest activities, and also in other allied activities, such as dairy cattle management, poultry farming, goat or sheep rearing, etc. Aggarwal (2003) observed that 'about sixty percent of agricultural operations like sowing of seeds, transportation of sapling, winnowing, storage of grain, etc., are handled exclusively by women. Apart from participation in actual cultivation, women also contribute in various forms of processing and marketing of agricultural produce'. Various efforts have been made in the past to improve the conditions of farm women in agriculture but still a lot needs to be done. Farm women need access to agricultural extension services in order to increase their efficiency and contribution.

Agriculture Extension Services

Extension service is a term, which is open to different meanings and interpretations depending on the context. However, in agriculture, it refers to the advisory services provided to the farmers about the latest agriculture technology and practices in order to improve agriculture productivity, production efficiency and farm profitability. Ansari and Sunetha (2014) observed that information asymmetry at farm level has been recognised as a critical factor in improving agriculture productivity, production efficiency and farm profitability. Hence, timely access to latest and best agriculture technology by extension

*Address for correspondence:
E-mail: aslam1405@yahoo.com

service providers will help greatly in achieving productivity targets. To fill this information gap, extension services play a significant role in advising the farmers about the latest and best agriculture technology and motivate them for its adoption.

Several researchers (Rawal and Ansari 2019; Sebeho 2017; Rebecca 2012; FAO 2011; Ansari and Yogeshwar 2009) have pointed out that agriculture extension services often targets the male farmers while planning extension interventions and strategies, and farm women are neglected and/or excluded. Consequently, their awareness, knowledge and skill levels remain low, and they mostly depend on others, which affects their decision-making and time management. Reaching farm women and equipping them with the required knowledge and skills is therefore of paramount importance for improving the agricultural productivity and their contribution in farming. Farm women are a very important client group for agricultural extension systems, and knowing their extension needs should be one of the priorities because one needs gender mainstreaming of the present extension system to address the agriculture extension needs of farm women. This will also help in realising the goals of women empowerment and rural development.

In rural areas of Uttarakhand, women comprise majority of the workforce in agriculture, more so due to male out-migration from hills to plains in search of employment and livelihood opportunities. Women are left behind to take care of family as well as farming operations. Women need timely access and exposure to latest and best agricultural practices to make farming productive and useful. Farm women are therefore considered as the backbone of agriculture in Uttarakhand. Most of the agricultural operations are done by farm women. It is therefore necessary to equip farm women with scientific knowledge and skill so that agriculture in the state can be improved. For improving women's access to agricultural extension services it is necessary to develop extension services that are women oriented and are based on their needs.

Attitude of Farm Women towards Agriculture Extension Services

Attitude is the degree of positive or negative effect (or mental disposition) associated with psychological objects or variables, and one major approach to determine the impact of extension service is to determine the farmers' attitude towards extension services.A recent study by International Food Policy Research Institute (IFPRI) and World Bank (2010) in India, Ghana and Ethiopia revealed important gender gaps in access to agricultural extension in these regions mainly due to the limited participation of female farmers in extension-related meetings and the lack of incentives for reaching these female farmers. It is therefore necessary to find out why the farm women have less participation in the extension programmes. There is a need to study the extension services from the point of view of farm women, as this can help in understanding their situation. The success of any extension programmes depends on the attitude of extension agents and their clients (that is, farmers). Dissemination of technologies compatible with existing farm practices encourage a positive attitude towards change, improve the agent's credibility and may also encourage faster adoption of innovations. For agricultural extension services and programmes to be more successful and effective, effort should be made at creating the right attitude and mind-set both with the clientele and the change agent.

Objectives

Keeping in view the above discussion, the study entitled "Attitude of Farm Women towards Agriculture Extension Services: A Study in Kumaon Region of Uttarakhand" was undertaken with the following objectives:

1. To study the socio-economic and communication characteristics of farm women.
2. To determine the attitude of farm women towards agriculture extension services.
3. To determine the relationship between selected socio-economic and communication characteristics of farm women and their attitude towards agriculture extension services.

RESEARCH METHODOLOGY

The study universe was the state of Uttarakhand, a North Himalayan state in India. The study locale was the Kumaon region of Uttarakhand. A multistage sampling design was used

for the selection of different units of the study locale. Out of six districts in Kumaonregion, two districts were selected purposively, that is Nainital and Almora, and from each district, one block was selected. Thus, from Nainital district, Bhimtal block was selected and from Almora district, Hawalbagh block was selected. Further, from each block, two villages were selected for the purpose of study, and from each village, those farm women were selected who were actively involved in agricultural activities and were above eighteen years of age. Data was collected with the help of a pre-tested structured interview schedule. The data, thus collected, was coded, tabulated, analysed and interpreted with the help of appropriate statistical tools and techniques.

RESULTS AND DISCUSSION

Socio-personal and Communication Characteristics of Farm Women

In social science research, socio-personnel and communication characteristics of the respondents are very important, as they reveal their behavioural profile in terms of their outlook, perceptions and thinking. In the present study, some of these characteristics included in the study were age,education, caste, social participation, farming experience, land holding, communication behaviour, media ownership and extent of media use. Table 1 gives the results obtained.

Table 1: Distribution of respondents according to their socio-personal characteristics

S. No.	*Category*	*Frequency*	*Percentage*
1.	*Age*		
	Young (Up to 37 years)	17	14.16
	Middle(37 to 54 years)	74	61.66
	Old (More than 54 years)	29	24.16
2.	*Education*		
	Illiterate	29	24.16
	Upto Primary	33	27.5
	Middle School	26	21.66
	High School	23	19.16
	Intermediate and above	9	7.5
3.	*Caste*		
	SC	13	10.8
	ST	00	00.00
	OBC	00	00.00
	General	107	89.16
4.	*Social Participation*		
	Low (Upto1)	88	73.33
	Medium (1-2)	19	15.83
	High (More than 2)	7	5.83
5.	*Farming Experience*		
	Low (Up to 20 years)	39	32.5
	Medium (20 to 37)	62	51.66
	High (More than 37)	19	15.83
6.	*Land Holding*		
	Less than 1 Acre	83	69.16
	1 to 5 Acre	37	30.83
	5 to 10 Acres	00	0.0
	10 to 15 Acres	00	0.0

i. Age

It is clear from Table 1 that majority of the respondents (61.66%) belonged to middle age group followed by 24.16 percent who belonged to the old age category and 14.16 percent belonged to the young category. The findings are supported by Butt et al. (2013) who found that 51.07 percent of the respondents were aged between 26 to 50 years, followed by 35.47 percent who were below 25 years and only 13.47 percent of them were above 50 years of age. The mean age of the respondents was 33.84 years with a standard deviation of 14.03. Dwivedi (2011) revealed that of the total women surveyed, fifty-five percent were between 29-39 years, forty-one percent between 40-59 years and four percent were more than 60 years of age. These results point out to the fact that farm women of all the age groups are involved in agriculture. However, the young farm women engaged in farming are less as compared to middle aged and old age farm women. The probable reason of this might be that the younger generation is seeking career opportunities in fields other than agriculture. It can thus be concluded that middle-aged women were more involved in agriculture.

ii. Caste

It is evident from Table 1 that majority of the respondents belonged to the General caste (89.16%) followed by SC (10.8%). However, none of the farm women belonged to ST and OBC categories. Ansari and Sunetha (2014) while studying the agriculture information needs of farm women in Uttarakhand reported that caste does play a role in respect of access to information about latest agriculture technology and practices. This might be due to the reason that the

villages in the study area are inhabited by the people of one caste only. Most of the people in the study area still believe in caste hierarchy. In Uttarakhand there are many villages that are based on caste. Also, in Uttarakhand hills, majority of the population falls in the General category and the proportion of SC/ST is moderate.

iii. Education

It is revealed from Table 1 that most of the respondents (27.5%) were educated up to primary level, followed by 24.16 percent who were illiterate. Further, 21.66 percent of farm women were educated up to middle school, 19.16 percent had passed high school and only 7.5 percent had studied up to the intermediate level. These findings are in line with Khati (2013) who also reported that majority of the farmers, that is, 36.67 percent were illiterate followed by 12.5 percent of respondents who were educated up to primary level. Luqman et al. (2011) studied the self-perceived needs of rural women for agricultural extension service and reported that a large majority (76.8%) of the farm women were illiterate followed by 23.2 percent who were literate or educated.

iv. Social Participation

A careful perusal of Table 1 reveals that most of the respondents (73.33%) had low social participation, whereas 15.83 percent had medium participation and only 5.83 percent of farm women had high social participation. The probable reason for low social participation of the farm women may be that they do not have enough spare time to participate in any organisation, as they are overburdened with domestic work, childcare and other activities in addition to farming activities. Also, the social taboos and the lack of interest among farm women may have restricted their participation in these organisations.

v. Farming Experience

More than half (51.66%) of the farm women belonged to the medium category whereas 32.5 percent had low farming experience and remaining 15.83 percent had high farming experience. The respondents in the study area are generally involved in agriculture since their marriage or even before. Agriculture is basically a part of their living and day to day activity. Agriculture is deeply integrated with the rural livelihood.

vi. Landholding

A perusal of the Table 1 reveals that 69.16 percent of respondents have landholding of up to one acre, whereas only 30.83 percent of respondents have less than 5 acres of land. Further, none of the respondents had land more than 5 acres.

Communication Behaviour of Farm Women

Communication behaviour refers to how people communicate or receive information from a variety of communication sources. It plays a crucial role in technology transfer activities. In the present study it included four components, that is, information seeking behaviour, information sharing behaviour, media ownership, and pattern of media use. Table 2 presents the results obtained with respect to these four components.

(i) Information Seeking Behaviour

It can be inferred from the Table 2 that majority of farm women (69.16%) "Always" seek information from friends and relatives followed by elderly persons (37.50%) and extension functionaries (5%).

Further, elderly persons, friends and relatives, extension functionaries, local leaders and progressive farmers also served as a source of information for 53.33 percent, 30.83 percent, 27.50 percent, 19.16 percent and 6.66 percent of farm women, respectively. However, it is surprising to note that all the farm women (100%) never sought agriculture related information from mass media. Similarly, progressive farmers (93.3%) and local leaders (80.83%) were 'Never' contacted by farm women for agriculture related information. The findings are supported by Ayanwuyi and Zaka (2011), who revealed that the major source of information for the farm women was family, relations and friends (95.8%).

(ii) Information Sharing Behaviour

It can be inferred from the Table 2 that all the farm women (100%) "Always" shared informa-

Table 2: Distribution of respondents according to their communication behaviour

S. No.	*Sources*	*Always*		*Sometimes*		*Never*	
		Number of respondents	*%*	*Number of respondents*	*%*	*Number of respondents*	*%*
1.	*Information Seeking Behaviour*						
a.	Friends and relatives	83	69.16	37	30.83	0	0
b.	Progressive farmer	00	00	8	6.66	112	93.33
c.	Local leaders	00	00	23	19.16	97	80.83
d.	Elderly person	45	37.5	64	53.33	11	9.16
e.	Extension functionaries	6	5	33	27.5	81	67.5
f.	Mass media	00	00	00	00	120	100.00
2.	*Information Sharing Behaviour*						
a.	Friends and relatives	102	85	18	15	0	0
b.	Neighbours	89	74.16	31	25.83	00	0
c.	Progressive farmer	00	00	00	00	120	100
d.	Needy persons	120	100	00	00	00	0

tion with needy persons, followed by friends and relatives (85.00%) and with neighbours (74.16%). Further, 25.83 percent of farm women shared information "Sometimes" with neighbours whereas 15.00 percent with friends and relatives.

The pattern of information seeking and sharing behaviour of farm women reveals that they basically rely on friends and relatives for information regarding farming. Information is circulated through the informal network in the villages. However, all the farm women reportedly never shared the information with progressive farmers, or maybe they did not have any information to share with them. Further, pattern of information seeking and sharing behaviour of farm women reveals that they basically rely on 'friends and relatives' for information related to agriculture. Information is circulated through their informal network in the farming community.

(iii) Media Ownership and Pattern of Use

Mass media is undoubtedly an important tool to bring desirable changes in social perception, outlook and thinking, which leads to modernisation and development in the society. In the contemporary society, it has assumed vital importance in the development of nation. Keeping this in mind, mass media ownership and its pattern of use was studied. The results are given in Table 3(a and b).

Table 3(a): Distribution of respondents according to mass media ownership

S. No.	*Category*	*Frequency*	*Percentage*
1	Low (Less than 2)	4	3.33
2	Medium (2 to 3)	116	96.66
3	High (More than 3)	00	00

(a) Mass media Ownership

The findings given in Table 3(a) reveals that majority of farm women (96.66%) belonged to 'medium' category of mass media ownership (that is, owning 2-3 media) followed by 3.33 percent that had low media ownership. It is clear from the above Table 3(a) that none of the farm women had high media ownership (that is, owning

Table 3(b): Distribution of respondents according to media use pattern

S. No.	*Sources*	*Regular*		*Occasionally*		*Never*	
		Number of respondents	*%*	*Number of respondents*	*%*	*Number of respondents*	*%*
1	Television	74	61.66	42	35	4	3.33
2	Radio	00	00	17	14.16	103	85.83
3	Mobile Phone	95	79.16	25	20.83	00	00

more than 3 media). This may be due to the fact that the newspaper, magazines and other online media still have not been able to reach the farm women living in rural areas. Verma et al. (2016) in a study of farmers' attitude towards e-choupal also reported that a large majority of farmers (78%) had 'medium' mass media ownership.

(b) Pattern of Media Use

A careful perusal of the Table 3(b) revealed that majority of farm women (95%) used mobile phone whereas seventy-four percent watched television regularly. None of the farm women however used the radio regularly. The findings are supported by Kakade and Kolar (2013) who reported that only one third of the farm women listen to the radio and 99.18 percent watch television daily. Among them majority of women spend more than three hours a day watching television. Television and mobile emerged as most utilised media among women as compared to other media.

It can therefore be concluded that television and mobile phone have emerged as most potent mass media in the rural areas. Use of newspapers and magazines by the farm women is still lacking. The probable reason of this might be prevailing illiteracy among farm women, and also that these media are not easily available in the hilly areas.

Attitude of Farm Women towards Agriculture Extension Services

Measuring a farmer's attitude can help in designing appropriate agricultural extension programmes and help with their implementation. Knowing their attitude is more important when making programmes that attempt to "target" a specific subpopulation such as women farmers. Attitude of farm women towards extension services was measured on a five-point continuum, namely, very unfavourable, unfavourable, neutral, favourable and very favourable. The findings regarding the attitude of farm women towards the present extension services are presented in Table 4.

It is evident from Table 4 that majority of respondents 66.66 percent (24.16% very unfavourable and 42.5% unfavourable) had a negative attitude towards the present extension services. Further, only 21.66 percent of farm women were found to be having favourable (14.16% favourable and 7.5% very favourable) attitude towards the extension services, and only 11.16 percent of the respondents had a neutral attitude towards extension services. Thus, it can be concluded that most of the farm women displayed an unfavourable attitude towards the present extension services. The probable reason for this could be that there are not many female extension workers, and also that male extension workers normally interact with male farmers only. Moreover, farm women from hill regions may be different from their counterparts in plain regions.

Table 4: Distribution of farm women on the basis of their attitude towards extension services

S. No.	*Source*	*Frequency*	*Percentage*
1	Very unfavourable	29	24.16
2	Unfavourable	51	42.50
3	Neutral	14	11.66
4	Favourable	17	14.16
5	Very favourable	9	7.50

The findings of the study are supported by Qtaishat and Sharafat (2012**)** who revealed that the farmers' attitude towards the public agricultural extension activities was negative. However, this is in contrast to the findings of the study by Pant et al. (2012) who found that 23.3 percent respondents rated advisory services "good" and 51.1 percent rated them "fair", as it helped in reducing the cost of cultivation by utilisation of better techniques. The findings of the study also contradicted the findings of Adesiji et al. (2013) where most of the farm women agreed that extension services rendered always meet their needs.

Relationship between Characteristics of Farm Women and Their Attitude towards Agriculture Extension Services

The study also examined the relationship between selected socio-personal and communication characteristics of farm women and their attitude towards extension services. The variables included were age, education, farming experience, landholding, social participation and

communication behaviour. The findings are presented in Table 5.

Table 5: Relationship between selected characteristics of farm women and their attitude towards extension services

S. No.	*Independent variable*	*r value*	*t value*
1	Age	-0.00974 ^{NS}	-0.1058
2	Education	0.06645 ^{NS}	0.7234
3	Caste	-0.08032 ^{NS}	0.8752
4	Land holding	0.65303**	9.3644
5	Farming experience	-0.01054 ^{NS}	-0.1144
6	Social participation	0.58987**	7.9339
7	Communication behaviour	0.77219**	12.9936

(NS=Non Significant; **Significant at 1% probability level)

As it is evident from the findings in Table 5 that age, caste and farming experience were found to be negatively correlated, whereas education, landholding, social participation and communication behaviour of farm women were positively correlated with attitude of farm women towards extension services. Further, the relationship between farm women and their attitude towards extension services for three independent variables (landholding, social participation and communication behaviour) was found to be highly significant (P=0.01). Thus, one can conclude that these three variables had a greater impact on farm women's attitude towards extension services.

Rebecca (2012) also reported that age and farming experience had a negative and non-significant relationship with attitude of farm women towards extension service. Further, total landholding has a positive and significant relationship with attitude of farm women. Adesiji et al. (2013) also found that farm size had a positive and significant relationship with attitude of farm women whereas age, education and farming experience were not significantly related to attitude of farm women towards extension services.

CONCLUSION

The study findings show that a large majority of farm women have an unfavourable attitude towards extension services, which is a worrisome fact. Extension administrators and policymakers need to take immediate steps to change the mind-set of farm women in hilly areas by engaging them in capacity building activities. The probable reason for negative attitude might be that the villages in hilly areas are situated in remote areas and lack approachability, as they are not easily accessible due to height and difficult terrain. Besides, the farm women living in these villages face the challenge of irregular extension contacts. Besides, the farm women in the hilly areas hardly have spare time in a day, as from morning till evening they are engaged in multiple tasks, which include managing livestock, milking, collecting fuel and fodder, cooking, taking care of their children and doing agricultural activities. So they do not have enough time to participate in extension training activities. It is therefore necessary to design the extension interventions including trainings according to their daily life, so that they can participate wholeheartedly in these activities. Besides, they need to be persuaded to participate in trainings as and when organised in their areas.

RECOMMENDATIONS

In order to overcome the unfavourable attitude of farm women towards extension services, the farm women need to be engaged in a dialogue process with different stakeholders in the extension system. The study findings will help the extension scientists, administrators and policymakers to develop a gender-sensitive extension system and services delivery mechanism that effectively addresses the needs and expectations of farm women. Further, the study will act as a reference point for improving the efficiency of extension services in hilly areas that have women farmers in majority. The findings of the study can be utilised in developing a better enabling extension framework and understanding the reasons of the negative attitude and low awareness among farm women related to utilisation of extension services.

ACKNOWLEDGEMENTS

The authors would like to express their sincere gratitude to all the respondents and field workers who helped during data collection.

REFERENCES

Adesiji GB, Kehinde FB, Omotesho KF 2013. Women farmers' attitudes towards agricultural extension services in Southwest Nigeria. *Nigerian Journal of Rural Extension and Development*, 7: 23-28.

Aggarwal M 2003. Economic participation of rural women in agriculture. In: Gopal Singh (Ed.): *Economic Empowerment of Rural Women in India*. Jaipur: RBSA Publications, P. 358.

Ansari MA, Sunetha S 2014.Agriculture information needs of farm women: A study in State of North India. *African Journal of Agriculture Research*, 9(19): 1454-1460.

Ansari MA, Yogeshwar AK 2009. Empowering and enabling farmers: A case study of e-Choupal in Uttarakhand. *Journal of Agriculture Extension Management*, 10(2): 9-25.

Ayanwuyi E, Zaka OK 2011. Analysis of extension service needs of women cassava farmers in Akinyele local government area of Oyo state, Nigeria. *Continental Journal of Agricultural Economics*, 5(1): 1-6.

Butt TM, Zhenguob H, Hassan ZY 2013.Need assessment of agricultural extension education for the rural subsistence poultry women in the Punjab, Pakistan. *International Journal of Agricultural Extension*, 1(1): 8-14.

Dwivedi SN 2011. Gender participation in crop production and animal husbandry and related activities in the rural area of Sikkim in North-East India. *International Journal of Social Science Tomorrow*, 1(6): 34-39.

Food and Agriculture Organisation (FAO) 2011. The Role of Women in Agriculture. ESA Working Paper No. 11-02, Agricultural Development Economics Division, FAO. From <http://www.fao.org/3/am307e/am307e00.pdf> (Retrieved on 25 January 2020).

IFPRI-World Bank 2010. *Gender and Governance in Rural Services: Insights from India, Ghana, and Ethiopia.* Agriculture and Rural Development. Washington, DC, USA: The World Bank.

Jantwal Vibha 2015. *A Study on Extension Needs of Farm Women and their Attitude towards Extension Services in Kumaon Region of Uttarakhand.* MSc Thesis, Unpublished. Pantnagar: G.B. Pant University of Agriculture and Technology.

Kakade O, Kolar T 2013. Media habits among women organic farmers in Karnataka. *International Journal of Humanities and Social Science Invention*, 2(8): 5-10.

Khati K 2013. *Traditional Knowledge and Intellectual Property Rights Related to Medicinal Herbs- A Study of Hill Farmers in Pithoragarh.* MSc Thesis, Unpublished. Pantnagar: G.B. Pant University of Agriculture and Technology.

Lee B 1992. Women on family farms: Roles, responsibilities, and injury patterns. *Marshfield Clinic Bulletin*, 26: 13-28.

Luqman M, Shahbaz B, Khan IA, Safdar U 2013. Training Assessment of rural women in livestock management- a case of southern Punjab, Pakistan. *Journal of Agricultural Research*, 51(1): 99-108.

Pant A, Rathi A, Rathi A 2012. Effectiveness of crop advisory services in Aurangabad District of Maharashtra in India. *International Journal of Agricultural Management and Development*, 2(4): 263-269.

Qtaishat T, Sharafat AA 2012. Attitudes of vegetable farmers towards public agricultural extension services. *American Journal of Agricultural and Biological Sciences*, 7(3): 370-377.

Rawal J, Ansari MA 2019. Extension needs of vegetable growers: A study in Kumaon region of Uttarakhand. *Asian Journal of Agriculture Extension Economics and Sociology*, 36(4): 1-10

Rebecca AA 2012. Attitude of women farmers towards agricultural extension services in Ifelodun local government area, Osun State. *American Journal of Social and Management Sciences*, 3(4): 125-131.

Rousan LM 2007. Factors influencing adoption of improved farm practices among women farmers in Northern Jordan. *American-Eurasian Journal of Agricultural and Environmental Science*, 2(3): 220-226.

Sebeho MA 2017. Perceptions and Attitude of Farmers and Extensionists Towards Extension Service Delivery in the Free State Province, South Africa. UP-Space Institutional Repository, Department of Library Services, University of Pretoria. From <https://repository.up.ac.za/handle/2263/63352> (Retrieved on 25 January 2020).

Verma AP, Ansari MA, Ranjan R, Bhatt A, Raghuvanshi R, Patel D 2016. Farmers' attitude towards e-choupal: A critical investigation in Gonda district of Uttar Pradesh. *International Journal of Agriculture Sciences*, 8(49): 2076-2078.

Paper received for publication in September, 2019
Paper accepted for publication in December, 2019