



## Research Article

# ATTITUDE OF VEGETABLE GROWERS OF HILLY AREAS TOWARDS EXTENSION SERVICES

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Received: April 02, 2020; Revised: April 24, 2020; Accepted: April 26, 2020; Published: April 30, 2020

**Abstract:** Agriculture extension plays a pivotal role in disseminating information about the latest agriculture technology for sustainable agriculture development. However, the attitude of the farmers towards extension services determines the extent to which the technology recommendations are adopted by farmers. The present study was undertaken in two hill districts of the state of Uttarakhand to determine the attitude of vegetable growers towards extension services and find out the factors which affect their attitude towards extension services. The study sample comprised 160 farmers selected randomly from four villages spread across two districts with the highest vegetable production in the state. The findings revealed that the majority of vegetable growers (61.25%) displayed an unfavourable attitude towards extension services. Further, vegetable growers' age, gender, education, income level, farming experience, mass media exposure, information-seeking behaviour were found to be positively correlated whereas caste and gender were negatively correlated with their attitude towards extension services. The study findings will help policymakers and extension administrators to improve the efficiency of the present extension services delivery systems so that they can improve the technology adoption thereby enhancing vegetable production in the state.

**Keywords:** Attitude towards extension, Agriculture Extension system, Hill Agriculture, Vegetable growers, Farmer's attitude towards extension

**Citation:** Rawal J. and Ansari M.A. (2020) Attitude of Vegetable Growers of Hilly Areas Towards Extension Services. International Journal of Agriculture Sciences, ISSN: 0975-3710 & E-ISSN: 0975-9107, Volume 12, Issue 8, pp.- 9748-9752.

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**Academic Editor / Reviewer:** Dr Prabhu Narayan Meena

## Introduction

Agriculture sector, despite wide ranging advancements and progress in India, still remains the principle engine of economic growth. Enhancing agriculture productivity, production efficiency and farm profitability are still considered as critical components of India's agriculture development agenda. No government can therefore afford to ignore agriculture sector as it contributes around 15% to nation's GDP and employs the largest number of human resources [1]. Agriculture extension system plays a pivotal role in communicating the latest and best agriculture technologies to the farming community. Extension services providers are considered as critical factors in catalysing the adoption process [2-4]. According to Aphunu and Otoikhian (2008)[5], an agriculture extension service operates under the belief that if information about the latest agriculture technology is made available to the farming community, they will adopt them leading to increased agriculture productivity. Consequently, extension services have been structured/ organised in many developing countries and a variety of extension approaches and techniques have been used to help the farming community in decision making about which technology option best suits them [6-8].

The effectiveness of extension services is highly dependent on the ability of extension workers to motivate and persuade the farmers for technology adoption. The entire process of extension education is therefore dependent on the catalytic role played by these workers to disseminate the technical information from agricultural extension organisations to clients like farmers. To this extent, attitude of farmers towards extension service and services providers plays a critical role in adoption of latest agriculture technology. According to Likert (1932) [9], attitude is the degree of positive or negative disposition / association towards an innovation, object, programme, enterprise etc. People develop their attitude towards an individual, object or organisation depending upon their needs, exposure and experience. Attitude of farmers towards extension service therefore determines the extent to which these services are perceived to be useful, credible and worthy

of adoption. According to Qtaishat and Sharafat (2012) [10], attitude of farmers is considered as the main constraints to the adoption rates of vegetable technology and consequently, production suffers from such attitudes.

India, having attained food security through green revolution, has now shifted its focus from enhancing agriculture productivity to ensuring nutritional security for its billion-plus population. Increased public awareness about the need for consumption of vegetables for good health, balanced diet and nutritional security has led to significant increase in vegetable consumption in the country. Vegetables are tasty, healthy and supply both proteins and carbohydrates. According to FAO (2009) [11], vegetables play a vital role in providing the essential nutrients, vitamins, minerals and fibre, which is not present in good quantities in starchy staple foods.

These days people have become more health conscious and therefore started consuming more quantity of vegetables than before (support it with data and reference if available). Responding to this change in lifestyle perceptions, more farmers have taken to vegetable production. Consequently, India has emerged as the second largest producer of vegetables in the world, next only to China. In India, fruits and vegetables account for nearly 90 percent of the total horticulture production in the country which stands at 311.7 million tonnes (Indian Horticulture, 2017-18) [12], 3.7 % higher than last year's, and more than 10 % increase in the last five years. Moreover, vegetable cultivation, as compared to foodgrains, can be a major attractive option for small and marginal farmers. Besides, vegetables can also be grown in small fields, plots or in the small kitchen garden of the houses. Vegetable cultivation has therefore been identified as the financially rewarding practice and could replace subsistence farming in the rainfed, hills, arid, dry land and coastal agro-ecosystem. However, vegetable cultivation in India is still an unorganized sector with farmers following traditional practices. Besides, the vegetable growers are not as well served by the extension system as the farmers growing foodgrains.

Moreover, most of the vegetable growers are small and marginal farmers, and they have their peculiar concerns and problems which need to be studied urgently and earnestly. Vegetable growers need information, advice, inputs and resources to grow more produce and get maximum profit.

In view of the aforesaid discussion, the study entitled "Attitude of Vegetable Growers towards Extension Services" was undertaken with the following objectives:

(i). To find the vegetable growers' socio-personal, psychological and communication characteristics, (ii). To determine vegetable grower's attitude towards extension services, and (iii) To ascertain the relationship between vegetable growers' Socio-personal, psychological and communication characteristics and their Attitude towards extension services.

## Materials and Methods

The study was conducted in the Kumaon region of Uttarakhand, a North Himalayan state of India. The economy of the state largely depends on horticulture besides tourism, especially religious tourism. The major crops grown in Uttarakhand are Fruits and Vegetables in hilly areas although in plains, Rice and Wheat cultivation is quite common which feeds the population of the state. The study locale chosen were two purposively selected hilly districts - Nainital and Pithoragarh - the highest vegetable producing districts in the state. Further, two blocks were selected purposively from each selected district; and from each block, two villages were selected purposively, having highest number of vegetable growers. The study sample comprised of 160 farmers selected randomly (40 from each selected village), who were engaged in vegetable cultivation. The analytical research design was adopted for the study. A pre-tested comprehensive and structured interview schedule was used for data collection from selected respondents, i.e. vegetable growers. Data thus collected was coded, classified, tabulated, and was analysed using SPSS (ver. 17). Descriptive and inferential techniques were used to achieve the study objectives.

## Results and Discussion

### Socio- personal, Psychological and Communication characteristics of vegetable growers

Findings about Socio- economic characteristics of vegetable growers were one of the study objectives and the results obtained are given in [Table-1].

It is evident from the above table that majority of the respondents (64.38%) belonged to middle age group followed by 18.75 percent who belonged to old age category and 16.87 percent were in young category. Caste-wise composition of the study sample reveals that majority of the respondents belonged to the General caste (67.50%) followed by OBC (18.12%) and SC/ST (14.38%). Jantwal (2015) [13] also reported that in Kumaon region of Uttarakhand, majority of the respondents belonged to the General caste (89.16%) followed by SC (10.8%).

Further, as regards education level of the respondents, majority of them were (33.75 %) educated up to high school followed by 23.13 percent who had studied up to intermediate; 20 percent educated up to primary level, 14.37 percent illiterate and only 8.75 percent had studied up to graduation & above. As regards family type, majority of the respondents (62.5 %) were from joint family, 30 percent belonged to nuclear family whereas only 7.5 percent of them were from extended families. About 68.75 percent of the respondents had medium family size whereas 14.38 percent respondents had small family and remaining 16.87 percent were having large sized families. Chayal and Dhaka (2010) [14] stated that majority (65%) of respondents were illiterate whereas 35 percent were literate, majority of respondents (42.5%) had medium size of land holding followed by 37.5 percent having small and 20 percent with large land holding. As regards farming experience of the respondents, majority (65.63%) of them had medium farming experience whereas 20 percent had low farming experience and remaining 14.37 percent had high farming experience.

### Communication behaviour of vegetable growers

Communication behaviour refers to how people seek or share information for different purposes from a variety of information sources. It plays a crucial role in technology transfer activities. In the present study, it included five components viz.

1) Information seeking behaviour 2) Information sharing behaviour 3) Media ownership 4) Extent of media use and 5) Extension agency contact. Results obtained in each of these components are described below.

Table-1 Distribution of vegetable growers based on Socio- economic characteristics

SN	Variables	Frequency (n=160)	Percentage
1	Age		
	Young(<34 years)	27	16.87
	Middle (34-50 years)	103	64.38
	Old (>50 years)	30	18.75
2	Gender		
	Male	78	48.75
	Female	82	51.25
3	Caste		
	General	108	67.50
	Other Backward Castes (OBC)	29	18.12
	Scheduled Castes/ Scheduled Tribes (SC/ST)	23	14.38
4	Education		
	Illiterate	23	14.37
	Primary school	32	20.00
	High school	54	33.75
	Intermediate	37	23.13
	Graduation and above	14	8.75
5	Family type		
	Nuclear	48	30.00
	Joint	100	62.50
	Extended	12	7.50
6	Family size		
	Small (<4 members)	23	14.38
	Middle (4-8 members)	110	68.75
	Large (>8 members)	27	16.87
7	Land holding		
	Less than 1 Acre	114	71.25
	1 to 5 Acre	37	23.13
	5 to 10 Acre	9	5.62
	More than 10 acres	0	0.00
8	Farming experience		
	Low (<10 years)	32	20.00
	Medium (10-32 years)	105	65.63
	High (>32 years)	23	14.37

### Information seeking behaviour

Information seeking behaviour pattern gives a view of how the respondents, i.e., vegetable growers seek information related to agriculture and allied activities. Result obtained regarding information seeking behaviour is presented in the [Table-2].

### Information sharing behaviour

It refers to the pattern of sharing of information by vegetable growers among the members of society. Findings in respect of information sharing behaviour of vegetable growers have been presented in [Table-3].

### Media ownership

It refers to number of media possessed by the respondent. Results regarding media ownership are presented in the [Table-4].

Table-4 Distribution of vegetable growers on the basis of Media ownership (N=160)

SN	Category	Frequency	Percentage
1	Low (less than 3)	04	2.50
2	Medium (3-5)	152	95.00
3	High (more than 5)	04	2.50

### Extent of Mass media Use

It refers to actual use of media owned and how frequently it is used to seek information. Results obtained are presented in the [Table-5].

### Extension Agency Contact

It refers to frequency of contact with extension personnel or agency. The Information related to the frequency of contact with extension personnel is presented in [Table-6].

Table-2 Distribution of vegetable growers on the basis of Information seeking behaviour (N=160)

SN	Sources	Frequently		Occasionally		Never	
		No. of respondents	%	No. of respondents	%	No. of respondents	%
1	Personal-Localite	120	75.00	18	11.25	22	13.75
2	Personal-Cosmopolite	0	0.00	129	80.63	31	19.37
3	Panchayat Member	68	42.50	68	42.50	24	15.00
4	Mass media	35	21.88	100	62.50	25	15.62

Table-3 Distribution of vegetable growers on the basis of Information sharing behaviour (N=160)

SN	Information sharing with	Always		Sometimes		Never	
		No. of respondents	%	No. of respondents	%	No. of respondents	%
1	Friends And Relatives	127	79.37	28	17.50	05	3.13
2	Progressive/Fellow farmer	15	9.37	129	80.63	16	10.00
3	Neighbours	31	19.37	118	73.75	11	6.88
4	Needy people	137	85.63	23	14.37	0	0.00

Table-5 Distribution of vegetable growers on the basis of extent of mass media use (N=160)

SN	Media source	Always		Sometime		Never	
		No. of respondents	%	No. of respondents	%	No. of respondents	%
1	Radio	26	16.25	56	35.00	78	48.75
2	Television	152	95.00	8	5.00	0	0.00
3	Newspaper	103	64.37	12	7.50	45	28.13
4	Farm magazines	02	1.25	09	5.63	149	93.12
5	Mobile phone	141	88.13	19	11.87	0	0.00
6	Computer	0	0.00	149	93.13	11	6.87
7	Internet	25	15.63	16	10.00	119	74.37
8	Video player	0	0.00	21	13.13	139	86.87

Table-6 Distribution of vegetable growers on the basis of Extension agency contact (N=160)

SN	Category	Frequency	Percentage
1	Low (less than 8)	53	33.12
2	Medium (8-14)	99	61.88
3	High (more than 14)	8	5.00

A careful perusal of the results presented in table- 2 to 6 reveals that majority of vegetable growers (75%) "regularly" seek information from friends and relatives followed by 'Panchayat members' (42.5%) and mass media (21.88 %). Similarly, Agricultural Assistants and Supervisors were 'occasionally' contacted by vegetable growers for agriculture related information. Singh *et al.* (2014) [15] found that about 33.75 percent and 23.75 percent of the respondents had 'medium' and 'high' level of information seeking behaviour, respectively.

Further, majority of the vegetable growers (85.63 %) "always" shared information with needy person, followed by friends and relatives (79.37 %) and with neighbours (19.37 %). As regards information sharing behaviour of the respondents, 73.75 percent of vegetable growers share information "sometime" with neighbours whereas 17.5 percent with friends and relatives. In respect of media ownership, majority of vegetable growers (95%) belonged to 'medium' category followed by 2.5 percent that had low and the remaining 2.5 percent of the vegetable growers had high media ownership. Further, about 62% of the vegetable growers reported 'medium' extension agency contact followed by 33% with 'low' and only 5% with high extension agency contact. Mittal & Mehar (2011) [16] reported that 99 percent of the farmers had access to mobile phones, 79 percent had televisions while 32 percent had radio in their house.

As regards media exposure, all vegetable growers (95%) watched television regularly, whereas 88.13 percent of them used mobile phones regularly. None of the vegetable growers used computer and video player regularly and 93.12 percent never really read farm magazines. About 61.88 percent of the respondent had medium level of contact with extension agency or extension agents whereas 33.12 percent showed lower level of contact with extension agencies.

### Attitude of Vegetable Growers towards Extension Services

Measuring farmer's attitude can help in designing appropriate agricultural programmatic interventions and their implementation. Knowing attitude is more important when we have to make programme attempting to "target" a specific subpopulation such as vegetable growers. Attitude of vegetable growers towards extension services was measured on a five-point continuum, viz. very unfavourable, unfavourable, neutral, favourable and very favourable. The findings regarding the attitude of vegetable growers towards present extension service are

presented in [Fig-1] below.

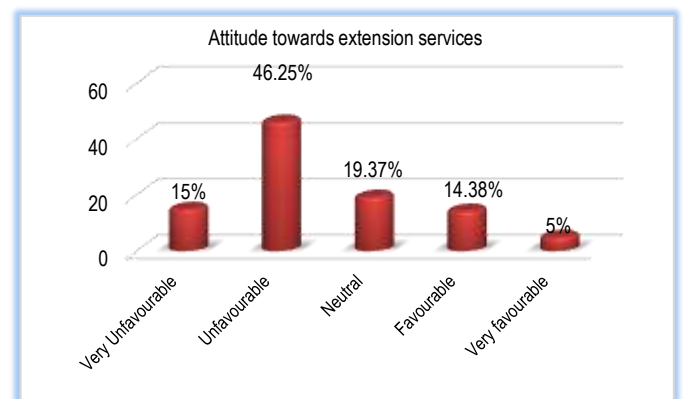


Fig-1 Distribution of respondents on the basis of Attitude towards extension services

It is evident from [Fig-1] that majority of respondent's 61.25 percent (15% very unfavourable and 46.25% unfavourable) displayed negative attitude towards the present extension services. Further, only 19.38 percent (14.38 % favourable and 5% very favourable) of vegetable growers were found to be having positive attitude towards extension services; and 19.37 percent of the respondents had neutral attitude towards extension services. Thus, we can conclude that most of the vegetable growers displayed an unfavourable attitude towards the present extension services. The probable reason for this could be that the frequency of contact with the vegetable growers is very limited as the villages of hilly areas are remotely located and has limited local transportation facilities.

The findings of the study are supported by Qtaishat and AL-Sharafat (2012) [10] who observed that the farmers 'attitude towards the public agricultural extension activities was negative. However, the findings of the study also contradict the study of Pant, Rath and Rath (2012) [17] who found that 23.3 percent respondents rated advisory services "good" and 51.1 percent rated "fair" as it helped in reducing the cost of cultivation by utilization of better techniques. However, Ram *et al* (2010) [18] in a study on attitude of vegetable growers in the state of Uttar Pradesh reported that majority of the respondents (67%) displayed favourable attitude towards privatisation of agriculture extension services followed by most favourable (20%) and least favourable attitude (13%).

The negative attitude of vegetable growers towards extension services is a worrisome fact.

Table-8 Multiple regression analysis of attitude of vegetable growers towards extension services with selected independent variables

SN	Independent variable	Regression coefficient values ( $\beta$ )	Standard Error	"t" Value
1	Age	-0.047	0.073	-0.599
2	Gender	1.396	0.758	1.907
3	Caste	-0.256	0.502	-0.500
4	Income	0.032	0.388	0.045
5	Education	0.136	0.424	0.257
6	Farming experience	-0.124	0.085	1.379
7	Media exposure	0.597	0.427	1.354
8	Contact with extension agency	0.124	0.181	0.180
9	Family size	0.129	0.200	0.645
10	Information seeking behaviour	0.263	0.519	0.507
11	Information sharing behaviour	0.318	0.572	0.531

$\beta_0 = 61.109$ ;  $R^2 = 0.452$ ;  $f_{cal} = 0.825$ ; Dependent Variable: Attitude of vegetable growers towards extension services

It indicates that immediate steps should be taken to change the mindset of vegetable growers in hilly areas as well as in plains. The probable reason might be that the villages in hilly areas are situated in interior/remote place which are difficult to reach and they are not easily accessible due to high altitude. Besides, the vegetable growers living in these villages face the challenge of irregular extension services as the villages in hills are sparsely populated and scattered across the difficult terrain. The extension personnel find it difficult to contact them due to poor transport connectivity.

Also, the land holdings in the area are small and scattered because of which the productivity in the area is low and modern farm implements are rarely used in the field because of high input cost and unsuitability of its use in small fields. Most of such farmers have limited marketable surplus and thus ignored by extension agents. Further, a large number of farmers in the hilly areas have yet not commercialized their farming; they produce for their own consumption and rarely sell their produce in the market. Consequently, they do not practice the scientific ways of production in their field. Besides, the vegetable growers in the hilly areas hardly have spare time in a day, from morning till evening as their work include managing cattles, milking, collecting fuel and fodder, cooking, taking care of their children and doing agricultural activities. So, they don't have enough time to participate in extension activities. It is therefore necessary to design the extension services according to the routine of vegetable growers so that they can participate maximally in these activities.

The variations in the attitude of vegetable growers might be due to the difficulty in accessibility of extension services. Those who don't have access to the extension services have unfavourable attitude towards extension services whereas those who have access to these services might have favourable attitude towards extension services [19].

#### Relationship between selected Socio-personal characteristics of Vegetable Growers and their Attitude towards Extension Services

The study also examined the relationship between selected socio personal characteristics of vegetable growers and their attitude towards extension services. The variables included were: Age, Education, Caste, Income, Gender, Farming experience, Media exposure, Extension agency contact, Information seeking behaviour and information sharing behaviour. The findings are presented in [Table-7].

Table-7 Relationship between selected Socio personal characteristics of vegetable growers and their attitude towards extension services

SN	Characteristics of vegetable growers (Independent variables)	r-value
1	Age	0.191*
2	Gender	-0.064
3	Caste	-0.038
4	Land holding	0.267**
4	Education	0.270**
5	Farming experience	0.302**
6	Contact with extension agency	-0.046
7	Information seeking behaviour	0.183*
8	Information sharing behaviour	0.026
9	Media Exposure	0.274**
10	Income	0.297**

(\* means significant at 5% and \*\* means 1% probability level)

It is evident from the above table that relationship between selected independent variables of vegetable growers (such as Age, Land holding, education, farming experience, information seeking behaviour, media exposure and income) and their attitude towards extension service was found to be significant. Further, vegetable grower's Gender, caste and Extension agency contact were found to be negatively correlated with their attitude towards extension services.

Adedeji *et al.* (2013) [20] stated that there was no significant relationship between age, religion marital status, educational status, farming experience and their attitudes towards extension services. Rebecca (2012) [21] also reported that age and farming experience had negative and non-significant relationship with attitude of farm women towards extension service. Ansari and Jantwal (2019) [22] found that age and farming experience were found to have a negative (but non-significant) relationship with attitude of farm women towards extension services.

#### Multiple regression analysis of the Attitude of the Vegetable Growers towards Extension Services

Multiple regression analysis was done to determine the contribution of profile characteristics of the vegetable growers which contributed in their attitudes towards extension services. Results obtained are presented in the [Table-8].

From the table-8, it can be inferred that Age, Caste, and farming experience were negatively related with attitude towards extension service. Further, all the selected attributes of vegetable growers contributed significantly in farmer's attitude towards extension services. However, the value of Coefficient of determination ( $R^2$ ) was 0.452 which indicates that the selected independent variables collectively contributed only 35.2 percent variation in their attitude towards extension service. The remaining unexplained contribution maybe due to other intervening or extraneous variables not included in the study. Oluwasusi (2014) [23] reported that farm size, farming experience, household size, membership of organisation and sources of information were strong predictors of farmers' attitude towards extension services.

#### Conclusion

Increased public awareness about the need for consumption of vegetables for good health, balanced diet and nutritional security has led to increase in vegetable consumption in the country. Responding to this change, more farmers in Uttarakhand have taken to vegetable production. But the extension service providers are not adequately skilled in advising the farmers about different vegetable crops being grown by them. As a result, vegetable growers have increasingly shown a tendency not to approach public extension service providers although they consult Agri-input dealers and other as when possible [24]; and they also frequently contact University extension scientists/ Field extension workers for guidance regarding problems related to vegetable cultivation. The present study was undertaken to find out the attitude of vegetable growers towards extension service and find out the factors which affect their attitude towards extension services. The study findings revealed that majority of vegetable growers (61.25%) displayed unfavourable attitude towards extension services. Further, vegetable growers' age, education, income level, land holding, farming experience, mass media exposure, and information seeking behaviour were found to be positively correlated whereas caste, gender and information seeking behaviour were negatively correlated with their attitude towards extension services.



Multiple correlation analyses reiterated that the selected attributes do have an impact on their attitude towards extension service; however, the Coefficient of determination ( $R^2$ ) reveals that all the selected attributes of vegetable growers contributed towards 45.2 percent variation in vegetable growers' attitude towards extension service. This means that there are 'other attributes' which may be contributing in vegetable growers' attitude towards extension services, and this needs to be studied further. The study findings will be helpful for policy makers and extension administrators to improve the efficiency of the present extension services delivery systems so that they can improve the technology adoption thereby enhancing vegetable production in the state.

**Applications of research:** The study will help extension scientists, managers and administrators to understand the reasons behind the negative attitude of vegetable growers. This will afford an opportunity for the policy makers to scale-up the knowledge and skill-set of extension workers in order to meet the expectations of vegetable growers and undertake appropriate information campaign to improve farmer's perception, thinking and image of extension workers.

**Research Category:** Agriculture Extension and Communication

**Acknowledgement / Funding:** Authors are thankful to Department of Agriculture Communication, College of Agriculture, G. B. Pant University of Agriculture & Technology, Pantnagar, 263153, Uttarakhand, India

**\*\* Research Guide or Chairperson of research: Dr Mohammad Aslam Ansari**  
University: G. B. Pant University of Agriculture & Technology, Pantnagar, 263153, Uttarakhand, India  
Research project name or number: MSc Thesis

**Author Contributions:** All authors equally contributed

**Author statement:** All authors read, reviewed, agreed and approved the final manuscript. Note-All authors agreed that- Written informed consent was obtained from all participants prior to publish / enrolment

**Study Area / Sample Collection:** Kumaon region of Uttarakhand, a North Himalayan state of India

**Cultivar / Variety / Breed name:** Nil

**Conflict of Interest:** None declared

**Ethical approval:** This article does not contain any studies with human participants or animals performed by any of the authors.  
Ethical Committee Approval Number: Nil

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