

## **Adoption Behaviour of Commercial Vegetable Growers in District Ghaziabad (UP)**

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### **ABSTRACT**

*The cultivation of vegetables, which is done mainly for economic gain or for marketing purpose, is known as Commercial Vegetable Cultivation. India is one of the largest producer of raw materials for the food processing industries in the world (only 2%). The value addition in food sector is as low as 7 percent and will go up to 35 percent. There is need for increasing food processing from 2 percent to 10 percent by 2010 which will be reflected, in the corresponding increase in Gross National Product. Vegetable cultivation has great potentiality and scope for improving socio-economic condition of small and marginal farmers since it provides higher yield and high economic return in short time as compared to food grains. It is an indispensable part of balanced diet and according to Indian Council of Medical Research recommendation; average person should consume nearly 300g of vegetable daily. Growing of vegetables is 4 to 8 times more remunerative than cereals and it also generate employment in the rural areas. Commercial vegetable cultivation is not getting as popular as it should be among growers because of high input costs, lack of irrigation facilities and difficulties in their marketing and storage. It is estimated that by 2010 country's vegetable demand would be around 135 million tonnes. There is an urgent need to increase the productivity of vegetable in order to provide nutritional security to increasing population of India. Uttar Pradesh is second largest producer state of vegetable. Due to its proximity to National Capital Territory of Delhi, Ghaziabad has a great potential for commercial vegetable cultivation. Hence, the study was carried out in eight blocks of this district. In this study adoption level refers to the level of adoption of recommended cultivation practices of cabbage by the respondents. Fifteen recommended practices included in the package of practices in vegetable cultivation were used for measuring this adoption. The findings of this study highlighted that about 85 percent of the vegetable growers had low or medium adoption of commercial cabbage cultivation practices meaning there by medium adopters were more energetic, knowledgeable, dynamic and having more interest in adopting modern vegetable technologies.*

**Key words:** *Commercial vegetable cultivation; Gross national product; Adopting modern vegetable technologies;*

**T**he cultivation of vegetables, which is done mainly for economic gain or for marketing purpose, is known as commercial vegetable cultivation. India is one of the largest producer of raw materials for the food processing industries in the world, the industry itself, is under developed in India. Less than 2 per cent of fruit and vegetable production is processed, compared with 30 per cent in Thailand, 70 per cent in Brazil, 78 per cent in Philippines and 80 per cent in Malaysia. The value addition in food sector is as low as 7 per cent. There is need for increasing food processing from 2 per cent to 10 per cent by 2010. This will require an investment of Rs. 1,40,000 crore in food processing sector. The

investment will generate direct employment for 77 lakh persons and indirect employment for three crore. This will also reduce wastages by Rs 8000 crores. Apart from these advantages the value addition of food product will go up from 7 per cent to 35 per cent, which will be reflected, in the corresponding increase in Gross National Product. Vegetable cultivation has great potentiality and scope for improving socio-economic condition of small and marginal farmers since it provides higher yield and high economic return in short time as compared to food grains. It is an indispensable part of balanced diet and according to Indian Council of Medical Research recommendations that average person should consume

nearly 300g of vegetable daily. Growing of vegetables is 4 to 8 times more remunerative than cereals and it also generate employment in the rural areas. Commercial vegetable cultivation is not getting as popular as it should be among growers because of high input costs, lack of irrigation facilities and difficulties in their marketing and storage.

India is the second largest producer of vegetable in world next only to China. Currently per capita consumption of vegetable is 175g per capita per day, which is far below recommended dose of 300g (ICMR). It is estimated that by 2010 country's vegetable demand would be around 135 million tonnes. There is an urgent need to increase the productivity of vegetable in order to provide nutritional security to increasing population of India. Uttar Pradesh is second largest producer of vegetable after West Bengal. It has an area of 0.84 million ha under vegetable which account for 15.8 million tonnes production. Ghaziabad is basically an industrial city of Uttar Pradesh. But it has a great potential for vegetable cultivation due to its proximity to metropolitan city Delhi, since it provides an international market for vegetables. Demand is always high due to higher population density in urban area and high income of the people residing in these areas. Keeping this in mind, a study was conducted to find out the adoption behaviour of cabbage growers in Ghaziabad district for commercial cultivation of cabbage.

## METHODOLOGY

The study was carried out in eight blocks of district Ghaziabad namely, Bhojpur, Muradnagar, Razapur, Loni, Dhaulana, Hapur, Simbhawali and Garhmukteshwar. Out of these eight blocks only two blocks viz. Razapur and Hapur were selected purposively for the study as these were having more than 60 -cent area under commercial vegetable cultivation and accounted for major amount of production of vegetables. Two villages namely, Shyampur and Simbhawali from Hapur block and two villages viz. Bhoorgarhi and Pipleda from Razapur blocks were selected randomly for the study. Thus, four villages formed the sample of the study. From each village 25 farmers, who were cultivating vegetables from last five years, were selected randomly. Thus, total sample size was 100 vegetable growing farmers.

Ghaziabad district of Uttar Pradesh was selected purposively for the study as it is near to Delhi, and provides international market for commercial vegetable cultivation. Also it is one of the leading vegetables producing district of Uttar Pradesh. Considering the mentioned objective for the study, adoption of improved cultivation practices of cabbage was considered as dependent variable. Socio- personal-economic variables such as age, education, caste, family size, occupation, social participation, land holding and annual income; and communication variables like extension contact and mass media exposure; and psychological variables viz; risk orientation, attitude towards vegetable cultivation and knowledge level of vegetable production technology were as independent variables.

In this study adoption level refers to the level of adoption of recommended cultivation practices of cabbage by the respondents. The scale developed by *Sengupta (1967)* was used to measure adoption behaviour of the vegetable growers in respect of the recommended cultivation practices for cabbage. Fifteen recommended practices included in the package of practices in vegetable cultivation were used for measuring this adoption. Against each of the practice, there were two columns representing adoption, and not adoption with weightage of 1 and 0 respectively. The minimum and maximum score a respondent could get on this scale were 15 and 0 respectively.

## RESULTS AND DISCUSSION

*Adoption behaviour* : The distribution of the vegetable growers according to their overall adoption behavior of recommended cabbage cultivation practices is given in Table 1.

Table 1. Distribution of the cabbage growers according to their adoption behaviour (N = 100)

Adoption behaviour	No./%
Low (< 25.62 %)	19
Medium (25.62to54.56%)	66
High (> 54.56%)	15
Total	100

The distribution of the vegetable growers according to their overall adoption behaviour of recommended cabbage cultivation practices are given in Table 1. The result shows that 66 per cent of respondents had medium adoption behavior, 19 per cent had low adoption

behaviour and 15 per cent of them had high level of adoption behavior. It reveals that majority of the respondents (85%) were found to possess low to medium adoption behaviour.

*Package of practices wise adoption:* Practice wise adoption of improved cabbage cultivation practices is presented in the Table 2. Total fifteen practices were taken for the present study and adoption was seen for each practices.

Table 2. Recommended package and practice wise adoption of improved vegetable production technology of cabbage.(N=100)

Practices	Adoption	Non adoption
	%	%
1. Land Preparation	46	54
2. Improved varieties	33	66
3. Time of Sowing	76	24
4. Method of sowing	53	47
5. Seed Treatment	13	87
6. Seed rate	37	63
7. Spacing	24	76
8. Quantity of Fertilizer	26	74
9. Time of fertilizer application	19	81
10. Irrigation	35	65
11. Intercultural operation	48	52
12. Disease management	14	86
13. Pest management	18	82
14. Time of Harvesting	77	23
15. Proper method of harvesting	82	18

Practice wise adoption of improved cultivation practices for cabbage is presented in the Table 2. From the analysis of total respondents, it can be observed that most of the respondents adopted the recommended practices like proper method of harvesting (82%), time of harvesting (77%) and time of sowing (76%). Nearly 50 per cent of the total respondents had adopted the recommended practices like method of sowing (53%), intercultural operations (48%) and land preparation (46%). The practices like seed treatment (13%), disease management (14%), pest management (18%), time of fertilizer application (19%), spacing (24%) were found to have lower adoption. This may be attributed to less observability of results since benefits from adoption cannot be observed from outside. During data collection it was found that due to price fluctuation in the market,

sometimes vegetable growers got a very low price for cabbage and they could not even recover their own cost of cultivation. This may be the reason for lower adoption of various improved vegetable production technology. The results of the study are in line with the findings given by *Birthal and Kumar (2004)*, *Nagar (2002)* and *Jirli (1996)*.

*Relational analysis of the selected dependent and independent variables of the vegetable growers:* The Correlation of adoption behaviour with socio-personal-economic, psychological and communication characteristics of vegetable growers was studied using multiple correlation co-efficient and presented in Table 3.

Table 3. Correlation between adoption of commercial cabbage cultivation practices and selected variables of the cabbage growers. (N = 100)

S.. No	Variables	Value of correlation coefficient (r)
1	Age	- 0.796**
2	Education	0.739**
3	Caste	0.051
4	Family size	0.022
5	Occupation	0.157
6	Social participation	0.167
7	Land holding	0.206*
8	Annual income from vegetables	0.240*
9	Risk orientation	0.095
10	Knowledge about improved vegetable cultivation practices	0.725**
11	Attitude towards vegetable growing	0.485**
12	Extension contact	0.077
13	Mass media exposure	0.015

\*\*Significant at 0.01 level of probability

\*Significant at 0.05 level of probability

The results given in Table 3 revealed that the adoption of commercial cabbage cultivation technology was found to be positively and significantly correlated with their education, knowledge about improved vegetable cultivation practices and attitude towards vegetable growing at one per cent level of significance. Land holding and annual incomes from vegetables were found to have positive and significant correlation at five percent level of significance. The variable age was found to have negative and significant correlation with adoption

at one percent level of significance. However, the rest of the variables, namely, caste, family size, occupation, social participation, risk orientation, extension contact and mass-media exposure of the vegetable growers were found to be positive but non-significantly correlated with the adoption of vegetable cultivation technology. Education was found highly significantly correlated with adoption of vegetable growers ( $r = 0.739, p > .01$ ). This means that more educated vegetable growers had greater adoption of cabbage cultivation technology. Similar is the case in knowledge of vegetable production technology ( $r = 0.725, p > .01$ ) and attitude towards vegetable farming ( $r = 0.485, p > 0.01$ ) as these also had positive correlation with adoption. It implies that vegetable growers having more land holding adopted more recommended package of practices for cabbage as compared to those having less land holding.

Table 4. Multiple regression analysis of selected independent variables of the vegetable growers with dependent variable (N=100)

S. No.	Socio-personal-economic	Coefficient partial regression	
		(b) value	't' value
1	Age	-0.337	-2.814**
2	Education	0.215	2.101*
3	Caste	0.073	1.243
4	Family size	-0.057	-0.897
5	Occupation	0.068	1.101
6	Social participation	0.024	0.312
7	Land holding	0.191	1.907
8	Annual income from vegetables	0.045	0.478
<i>Psychological Variables</i>			
9	Risk orientation	-0.119	-1.498
10	Knowledge about improved vegetable cultivation	0.229	2.206*
11	Attitude towards vegetable growing	0.181	2.783**
<i>Communication variables</i>			
12	Extension contact	-0.082	-0.838
13	Mass media contact	-0.020	-0.264

\*\* Significant at 0.01 level of probability.  $R^2 - 0.731$   
 \* Significant at 0.05 level of probability. F value- 17.7\*\*

*Multiple regression of the socio-personal-economic, psychological and communication variables on the dependent variable* : The multiple regression analysis was performed to find out the extent of contribution of

each variable towards adoption behavior. The results are presented in Table 4. It can be seen from the given table variables like education and knowledge about improved vegetable cultivation were positive and had significant contribution to the adoption behaviour of respondents at 0.05 level of probability. Attitude towards vegetable growing had a positive and significant contribution to adoption behavior at one per cent level of probability. But the variable age was negative and had significant contribution to the adoption behavior of respondents at 0.01 level of probability.

The results of the multiple regression analysis in table 4 depicted that the contribution of the 13 socio-personal-economic, psychological and communication independent variables on the dependent variable was 73.10 per cent as the value of  $R^2$  was found to be 0.731, which was significant at 0.01 level as evident from the corresponding F value. However it can be observed from the t values given in Table 4 that out of the 13 independent variables only 4, namely, age, education, knowledge of improved vegetable production technology had significant influence on the adoption of commercial vegetable cultivation technology of the vegetable growers. Thus, it means that these variables had contributed significantly in the adoption of vegetable cultivation technology. The strength of contribution of these variables could be explained as one unit increase in educational status and knowledge about improved vegetable cultivation practices would bring an increase of 0.215 and 0.229 units in adoption behavior respectively. While one unit increases in favorable attitude towards vegetable cultivation would increase adoption by 0.181. Also one unit decrease in age would bring an increase of 0.337 in adoption behavior of the vegetable growers since age is negatively contributing in adoption behavior. The results of this study are inline with the observations carried out by *Singh (2000) and Venkataramulu (2003)*.

**CONCLUSION**

About eighty five percent of the vegetable growers had low or medium adoption of commercial cabbage cultivation practices. It means medium adopters were more energetic, knowledgeable, dynamic and having more interest in adopting modern vegetable technologies. Middle-aged respondents preferred vegetable cultivation.

Higher the education, greater the adoption of commercial vegetable cultivation practices. Those vegetable growers who earned more were better adopters of modern production technology and the farmers who had favourable attitude towards vegetable cultivation were

better adopters. Land holding yielded positive and significant correlation at 0.05 level of probability with adoption of improved cabbage cultivation practices. Regression coefficient of age was found to be negative and significant for the total sample under study.

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