Correlates of Winter Vegetable Production in North 24 Paragana District of West Bengal

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ABSTRACT

The present paper envisages the valuable adoption issues of appropriate scientific cultivation of winter vegetables in a socio-cultural milieu. The present study was conducted at the Barasat block in North 24 paragana district of West Bengal. Purposive as well as simple random sampling techniques were adopted for the study. Adoption index being the dependent variable of the study explores the adoption behaviour of the winter vegetable growers and other thirteen socio-economic, socio-personal and communication variables were considered as the independent variables to establish the relational niche with the dependent one. The data were collected with the help of structured interview schedule and were processed into frequency, percentage, mean, standard deviation, coefficient of variation, correlation analysis et c. to draw the conclusion of the study. The correlation analysis of study revealed that the selected causal variables age, education, family size, family education status, land holding, land under winter vegetables, land under other crops, economic status, social participation, herd size, vegetable yield, income from other crops, income from winter vegetable were significantly associated with the adoption index for delineating the adoption behaviour of the winter vegetable growers.

Key Words: *Adoption behaviour; Adoption index; Winter vegetable production; Correlation analysis;*

At the advent of rainbow revolution, the need of the hour is to increase the productivity of the agricultural system through adoption and socialisation of newer economic value added agricultural practices to meet the food and nutritional need of the ever increasing population and to make the population economically self sufficient too. The production of winter vegetables in Indian context fulfils the nutritional requirement of the rural poor and makes the livelihood economically sustainable. Vegetables occupy an area of 6.3 million hector with a production of 93.00 million tones. Our share in world fruit and vegetable production is 10% and 13.28 % respectively. In India, these vegetables are grown in the open field during winter season and thus the cost of production is less as compared to those grown under protective cover. There is lot of opportunity for exporting these vegetables to the European and North American countries from India. The leading winter vegetable growing states are-West Bengal, Uttar Pradesh, Orissa, Bihar, Tamil Nadu, Karnakata,

Maharastra, Andhra Pradesh. In West Bengal, Hooghly, 24 Parganas (North & South), Midnapur, Nadia, Howrah are the leading winter vegetable producing districts. The area under winter vegetables has been increasing day by day with the improved package of practices. The quality and nature of adoption of scientific package of practices for growing winter vegetables have bred on transforming lifestyle taking agricultural enterprise integral to it. Since, adoption basically goes psychological and motivational, objective indicators are types of innovations in the form of input, techniques, tools etc thus in turn characterize the resultant adoption. Thus in studying the nature and degree of adoption process measured through psychosocial and cultural ingredients, some factors have been considered that serve as measurement of the complexity of the human mind. Under such a situation, the study was framed to delineate the responsible social, economic, psychological, personnel and communication attributes in characterising the adoption behaviour of the winter vegetable growers.

METHODOLOGY

The study was conducted at the Barasat block in North 24 paragana district of West Bengal. Purposive as well as simple random techniques were adopted for the study. For selection of District and block purposive sampling techniques was adopted. The simple random sampling technique was employed for the selection of villages and respondents. The dependent variable in the context of the present study is adoption of winter vegetable cultivation. The selected independent variables were grouped on the basis of socio-psychological and extension contacts characteristics. The acceptability of an innovation to an individual depends on its permissibility to his socio-economic and psychological orientation. Thus in the present study, the selection of independent variables were made to include following attributes which were socio-economic, socio-psychological and extension communication nature. Adoption index of winter vegetable cultivation was the dependent variable for the present study. The causal variables in this study were age, education, family size, family education status, land holding, land under winter vegetables, land under other crops, economic status, social participation, herd size, vegetable yield, income from other crops, income from winter vegetable. The data were collected with the help of structured interview schedule by personal interview method. The collected data were processed into frequency, percentage, mean, standard deviation, coefficient of variation, correlation analysis to draw the conclusion of the study.

RESULTS AND DISCUSSION

Table 1 presents the distribution of the 13 independent variables in terms of their mean, standard deviation, coefficient of variation and the ranks of their consistency for small farmers (land holding<1 acre). The independent variables exhibited a more or less consistent behaviour. The variables as ranked according to their consistency were income from other crops (17.75%), family size (21.41%), land holding (23.17%), family education status (23.86%) land under winter vegetable (25.33%), Age (25.90%) , Land under other crops (25.93%) economic status (27.94%), vegetable yield (28.70%), income from winter vegetable (29.24%) education (30.80%), Herd size (115.53), social participation (223.53) respectively.

Table 1. Descriptive distribution of the variables with reference to respondent profile (total land holding less than 1 acre) N=30

S. No.	Variables	Mean	SD	Coefficient of variation	
				%	Ranks
1.	Age (X1)	35.67	9.24	25.90	VI
2.	Education (X2)	3.37	1.04	30.86	XI
3.	Family size (X3)	3.97	0.85	21.41	II
3.	Family edu.status (X4)	2.85	0.68	23.86	IV
5.	Land holding (X5)	0.82	0.19	23.17	III
6.	Land under winter vegetable (X6)	0.75	0.19	25.33	V
7.	Land under other crops (X7)	1.62	0.42	25.93	VII
8.	Economic status (X8)	4.33	1.21	27.94	VIII
9.	Social participation (X9)	0.17	0.38	223.53	XIII
10.	Herd size (X10)	1.03	1.19	115.53	XII
11.	Vegetable yield (X11)	74.00	21.24	28.70	IX
12.	Income from other crops (X12)	15.32	2.72	17.75	I
13.	Income from winter vegetable(X13)	6.60	1.93	29.24	X

Table 2. Descriptive distribution of the variables with reference to respondent profile (land holding between 1 to 2 acre) N = 15

S. No.	Variables	Mean	SD	Coefficient of variation	
				%	Ranks
1.	Age (X1)	40.29	4.98	12.36	II
2.	Education (X2)	3.79	0.72	18.99	IX
3.	Family size (X3)	5.14	0.68	13.22	III
4.	Family edu.status (X4)	3.52	0.38	10.79	I
5.	Land holding (X5)	1.65	0.29	17.58	VII
6.	Land under winter vegetable (X6)	1.60	0.29	18.12	VIII
7.	Land under other crops (X7)	3.13	0.64	20.44	X
8.	Economic status (X8)	7.57	1.05	13.87	IV
9.	Social participation (X9)	1.14	0.68	59.65	XII
10.	Herd size (X10)	4.79	3.22	67.22	XIII
11.	Vegetable yield (X11)	185.36	44.04	23.76	XI
12.	Income from other crops (X12)	28.21	4.85	17.19	V
13.	Income from winter vegetable (X13)	16.18	2.29	14.15	X

Table 3. Descriptive distribution of the variables with
reference to respondent profile
(total land holding above 2 acre) (N = 50)

S. No.	Variables	Mean	SD	Coefficient of variation	
				%	Ranks
1.	Age (X1)	46.00	6.69	14.54	III
2.	Education (X2)	4.17	0.69	16.55	IV
3.	Family size (X3)	5.5	0.50	9.09	I
4.	Family edu.status (X4)	4.18	0.43	10.29	II
5.	Land holding (X5)	3.67	1.00	27.25	IX
6.	Land under winter vegetable (X6)	3.17	0.80	25.23	VI
7.	Land under other crops (X7)	6.94	1.83	26.37	VII
8.	Economic status (X8)	10.83	2.48	22.89	V
9.	Social participation (X9)	1.83	0.69	37.70	XII
10.	Herd size (X10)	10.83	4.42	40.81	XIII
11.	Vegetable yield (X11)	503.33	133.73	26.57	VIII
12.	Income from other crops (X12)	85.83	24.14	28.13	X
13.	Income from winter vegetable (X13)	52.92	16.49	31.16	XI

Table 4. Descriptive distribution of the variables with
reference to respondent profile
(For all the farmers) (N=50)

S. No.	Variables	Mean	SD	Coefficient of variation	
				%	Ranks
1.	Age (X1)	38.20	8.64	22.62	II
2.	Education (X2)	3.58	0.95	26.54	IV
3.	Family size (X3)	4.48	0.99	22.09	I
4.	Family edu.status (X4)	3.19	0.74	23.29	III
5.	Land holding (X5)	1.39	1.01	72.66	VIII
6.	Land under winter vegetable (X6)	1.28	0.89	69.53	VI
7.	Land under other crops (X7)	2.68	1.89	70.52	VII
8.	Economic status (X8)	6.02	2.67	44.35	V
9.	Social participation (X9)	0.64	0.79	123.44	XII
10.	Herd size (X10)	3.26	4.07	124.85	XIII
11.	Vegetable yield (X11)	156.70	148.52	94.78	X
12.	Income from other crops (X12)	27.39	24.26	88.57	IX
13.	Income from winter vegetable (X13)	14.84	16.00	107.82	XI

Table 2 presents the distribution of the 13 independent variables in terms of their mean, standard deviation, the coefficient of variation and the ranks of their consistency for medium farmers (land holding between 1 to 2 acres). The independent variables exhibited a more or less consistent behaviour. The variables as ranked according to their consistency were family education status (10.79%), age (12.36%), family size (13.22%), economic status (13.87%), income from winter vegetable (14.15%), income from other crops (17.19%), land holding (17.58%), land under winter vegetable (18.12%), education (18.99%), land under other crops (20.44%), vegetable yield (23.76%), social participation (59.65%), herd size (67.22%).

Table 3 presents the distribution of the 13 independent variables in terms of their mean, standard deviation, the coefficient of variation and the ranks of their consistency for large farmers (land holding above 2 acre). The independent variables exhibited a more or less consistent behaviour. The variables as ranked according to their consistency were family size (9.09%), family education status (10.29%), Age (14.54%), education (16.55%), economic status (22.89%), land under winter vegetable (25.23%), land under other crops (26.37), vegetable yield (26.57%), land holding (27.25%), income from other crops (28.13%), income from winter vegetable (31.16%), social participation (37.70%), herd size (40.81%).

Table 4 presents the distribution of the 13 dependent variables in terms of their mean, standard deviation, the coefficient of variation and the ranks of their consistency for all the farmers. The independent variables exhibited a more or less consistent behaviour. The variables as ranked according to their consistency were family size (22.09%), age (22.62%), family education status (23.09%), education (26.54%), economic status (44.35%), land under winter vegetable (69.53%), land under other crops (70.52%), land holding (72.66%), income from other crops (88.57%), vegetable yield (94.78%), income from winter vegetable (107.82%), Social participation (123.44%), herd size (124.85%).

Table 5 represents the correlation coefficient of the dependent variable, adoption index with thirteen independent variables. The result revealed that adoption

Table 5. Coefficient of correlation with adoption index and thirteen causal variables

S. No.	Variables	Coefficient of correlation (r)
1.	Age (X1)	0.435**
2.	Education (X2)	0.280*
3.	Family size (X3)	0.650**
4.	Family education status (X4)	0.639**
5.	Land holding (X5)	0.856**
6.	Land under winter vegetable (X6)	0.875**
7.	Land under other crops (X7)	0.849**
8.	Economic status (X8)	0.866**
9.	Social participation (X9)	0.795**
10.	Herd size (X10)	0.792**
11.	Vegetable yield (X11)	0.871**
12.	Income from other crops (X12)	0.820**
13.	Income from winter vegetable (X13)	0.844**

*r > 0.279; * significant at 5% level of significance,*

*r > 0.360 ;**significant at 1% level of significance.*

index had a positive and significant co-relation with all the 13 causal variables. The positive incremental status of adoption had shown with the increase of age in years. The old aged vegetable growers had adopted more number of innovations than the younger vegetable growers. The winter vegetable growers having high school level education had shown higher adoption status. The revelation is similar with the findings of *Nagaraj et al (2000)*. Education exposes the vegetable growers to the innovative world for augmenting their economic status. Family size had also shown a positive and significant co-relation with adoption index. In case of large families family members could help in different operations during winter vegetable cultivation and share the responsibility to take risk in production system. The family having a higher education status had more adoption of winter vegetable cultivation practices because they could develop their knowledge and skill along with positive attitude from different sources of information. Larger the land holding, higher was the level of adoption of winter vegetable cultivation. Larger holding size indicates better and sound economic status of the growers; it results to adequate and timely supply of inputs and services. Winter vegetable growers who have large size of vegetable land are characterized by better economic status. So, their adoption status is also higher than the winter vegetable growers having small

land of vegetable cultivation. The observation is some what similar with the observation of *Sarkar (1997)*. Large land under other crops also indicated a better economic status and high adoption behaviour. Variable economic status of the study comprised of house type, material possession and physical status. Better economic status means growers having better type of houses, more modern valuable domestic materials and appliances and improved condition of land. The winter vegetable growers of higher economic status generally possess higher social prestige and recognition in a social system. If social participation was higher, the level of adoption of scientific winter vegetable cultivation was also higher. It was also reported by *Sarkar and Bandyopadhyay (1996), Juliana et al (1991)* in their studies. There was significant impact of herd size on adoption behaviour of growers so far as economic viability was concerned. Thus sound economic condition influenced adoption behaviour of the vegetable growers in a positive direction. The respondents having higher income from other crops had also shown more adoption of scientific winter vegetable cultivation because they invested more money in modern vegetable cultivation. Higher income from vegetable cultivation led to higher adoption of scientific vegetable cultivation. The growers who could earn more from vegetable cultivation had the tendency to invest more which increased their adoption behaviour towards the scientific vegetable cultivation.

CONCLUSION

There is a high scope for vegetable growers to make it highly profitable business. Now-a-days through improved production holding and transportation techniques, a wide variety of vegetables from distant market could be available all the great cities at all time of the year. The causal variables exhibited more or less consistent behaviour in their distribution as also did the consequent variables. The variables age, family size, education, family education status, social participation, land holding, land under winter vegetable, land under other crops, economic status, income from other sources, income from winter vegetable, herd size, winter vegetable yield was positively associated with the adoption index of the winter vegetable growers.

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