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Study on socio-economic profile of vegetable growers in Western Uttar Pradesh

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Abstract

This study was conducted in four blocks i.e. Daurala, Kharkhanda, Hapur and Garhmukteshwar of Meerut and Hapur district of Western Uttar Pradesh during the year 2021-22. To know the socio-economic profile of vegetable growers for this investigation data was collected from 160 vegetable respondents through personal interview. It was found that the majority of vegetable growers (53.75 percent) belongs to Lower medium age group ranging between 30 to 45 years of age, (33.75 percent) respondents were having educational status up to high school, (47.50 percent) respondents were belonging to other backward caste category, (65.62 percent) respondents were medium family ranging between (5-8 members), (84.37 percent) respondents were using Television and (81.87 percent) respondents were Progressive farmers/Neighbours Sources of information, (84.37 percent) respondents were engaged in agriculture as the main occupation, (31.37 percent) respondents were having land (02-04 ha.), 68.75 percent respondents were Private tube well (electric) sources of irrigation, (44.37 percent) vegetable growers were member of more than one organization of social participation, majority of the respondents (65.63 percent) were having medium level of home appliance resources (11-14 numbers), (90.62 percent) were having Two-wheeler (Motorcycle/Scooty/Scooter) as transportation facility, (60.63 percent) were having medium level of farm machinery (6-10 numbers) in research study area. The majority of (33.75 percent) vegetable growers having annual income were Rs. 1, 00,000- 1, 50,000.

Keywords: Vegetable growers, socio-economic profile

Introduction

Vegetables are defined as edible herbaceous plants/plant parts consumed as raw or after cooking, rich in vitamins and minerals low in calorific value." Vegetables combat under nourishment and are known to be the cheapest source of natural protective food. Organic vegetables production is a system which avoids or largely excludes the use of synthetic inputs (such as fertilizers, pesticides, hormones, feed additives etc.) and to the maximum extent feasible rely upon crop rotations, crop residues, animal manures, off-farm organic waste, mineral grade rock additives and biological system of nutrient mobilization and plant protection.

As per ICMR, recommendation per ca-pita requirements of vegetables should be 300g gm/person/day, in which 115 g leafy vegetables, 70g root vegetables and 115 g others. Vegetables are rich source of nutrients, which play the significance role in human diet. Vegetables are good source of roughages which promote digestion and helps in preventing constipation. Vegetables also consist minerals at least 10 elements are required for proper growth and development in human body, out of those 10 elements calcium, iron & phosphorus are required in large quantity and those are not present in sufficient amount in other food articles. Diets rich in potassium may help to maintain healthy blood pressure Vegetable sources of potassium include white beans, tomato products (paste, sauce, and juice), beet greens, soybeans, lima beans, spinach, lentils, and kidney beans, leafy green vegetables. Which helps in fighting malnutrition. It can also be grown in backyard of the house as a kitchen garden. The vegetables are rich and comparatively cheaper source of vitamins. Consumption of these items provides taste, palatability, increases appetite and provides fibre for digestion and to prevent constipation. They also play key role in neutralizing the acids produced during digestion of pretentious and fatty foods and also provide valuable roughage's which help in movement of food in intestine.

The total area and production of vegetables in India are 10352.88 thousand hectares and 191769.11 thousand metric tonnes. West Bengal is the first largest producer of vegetables viz;

29293.24 thousand metric tonnes from an area of 1496.07 thousand hectares followed by Uttar Pradesh with 27195.17 thousand metric tonnes in 1274.80 thousand hectares. Brinjal crops are total 8.01 thousand hectares area and 275.40 thousand metric tonnes production of Uttar Pradesh and Tomato crops are total 21.24 thousand hectares area and 841.61 thousand metric tonnes production of Uttar Pradesh (National Horticulture Board 2019-20).

India is the second largest producer of vegetables next to China in the world. In India, it contributes 14% of the total world production of vegetables. Among various states in India, West Bengal, Uttar Pradesh, Bihar, Madhya Pradesh, Odisha, Gujarat and Karnataka are the major vegetable growing states. West Bengal, Uttar Pradesh and Madhya Pradesh are the leader vegetables producer contributing nearly 40% to the total production of in the country, among which West Bengal contributing about 16% followed by Uttar Pradesh with 14% of total production of vegetables. Furthermore, Madhya Pradesh contributing about 8.6%, Bihar with 8.75%, Gujarat with 7%, Odisha with a 6%, Karnataka with 5%, Tamil Nadu and others with a 3.4% contribution in total production. Apart from the health improvements, the production of vegetables improves the economy of a country as these are very good source of income and employment. (Sources: Vegetables, State Directorates of Horticulture, 2018)

Nutritional importance of vegetables

Human body require a wide range of nutrient like carbohydrate, protein, fat, vitamin and minerals for normal growth and substances of physiological activities. Protein, carbohydrate and fat, generally referred as proximate principal are required in large quantities and are oxidized in the body to yield energy. Protein is the major growth promoting or body building nutrients. Vitamins and minerals are required in small quantities for physiological processes and metabolic activities. Vegetable are rich and comparatively cheap sources of vitamins like beta carotene, vitamin-B, folic acid, vitamin-C vitamin-E etc. and minerals like iron, calcium, magnesium, phosphorus etc. and dietary fibers. It also supplies fair amount of Carbohydrates, protein (4%) and energy (10%).

Agrochemical use in vegetables

Plant Protection focuses on keeping plants healthy from diagnosing diseases to implementing environmentally friendly pest-management practices. With an ever-expanding population and increasing pressure on food and fibre supplies, Plant Protection plays a vital role in improving our quality of life. Chemical control of pests is a common practice in agriculture. There are more than a thousand agrochemical of both chemical and biological nature used around the world to minimize crop losses. Agriculture in developing countries suffers most because of high incidence of various pests. In India, estimated annual production losses due to pests are as high as US\$ 42.66 million (Sushil, 2016) ^[14].

Highest pesticide consumption states in India

India is the 2nd largest pesticide manufacturer in the world. It is also a major exporter- accounting for 5% (valued at 3.4 billion USD) of the total exported pesticides in 2019 making it the 5th largest exporter after China, USA, Germany and France. However, India accounts only for 1% of the global pesticide consumption. Insecticides form the largest portion of pesticide consumption in India at (65%) followed by fungicide at (15%) and herbicides at (16%) and other (4%). Crop wise consumption of pesticide in India Fruits and Vegetables (14%), Plantation crops (8%), Cereals Millet s and Oil seeds (7%), Sugarcane (2%) and others (1%). The total pesticides consumption in India 62193 thousand metric tonnes in year 2020-21. The ratio for 2020-21 reveals that Maharashtra consumed the highest quantity of pesticides 13243 thousand metric tonnes followed by Uttar Pradesh (11557), Punjab (5193), Telangana (4986) and Haryana (4050) etc. (Industry reports, Analysis by Tata strategic 2020-21).

Research methodology

This study was conducted in Meerut and Hapur districts from the Meerut region of Western Zone of Uttar Pradesh. Because in these districts were having maximum area vegetable cultivation. As the investigator is from Sardar Vallabhbhai Patel University of Agriculture and Technology, Meerut, keeping the convenience and understandable language for the study in mind, the above districts were purposively selected for this study.

List of the Districts, Blocks and Villages selected for the study

Locale of study					
Unit	Particulars				Design
Zone	Western Uttar Pradesh				Purposively
District (2)	Meerut		Hapur		Purposively
Block (4)	Daurala	Kharkhauda	Hapur	Garhmukteswar	Purposively
Village (20)	1. Lawar 2. Andawali 3. Mithepur 4. Mahal 5. Jalalabad Jalalpur	1. Kharkhauda 2. Nalpur 3. Panchi 4. Setkuan 5. Kharjal	1. Sadikpur 2. Nawada 3. Ghunghrala 4. Hasanpur 5. Meerpur kalan	1. Badarkha 2. Hashupur 3. Manak Chauk 4. Muradpur Pavati 5. Athsaini	Purposively
Respondents	160				Randomly

Selection of crops

Meerut and Hapur districts were purposively selected for present research work in the part of Western Uttar Pradesh. Because in these districts were having maximum areas under brinjal, tomato, chilli, okra, potato and cauliflower crops. Under investigation only brinjal and tomato crops were under taken to know the farmers knowledge about use and application of agrochemicals in brinjal and tomato crops,

control of insect- pest, disease management, weed management, seed treatment, spraying micronutrient and storage of crops, input availability and other aspects related to communication and transportation facilities of the study area.

Selection of Respondents

Comprehensive list of brinjal and tomato growers separately for all the 20 villages with the help of village level worker and

village pradhan. Again, with the help of villegers, a group of 8 respondents from each village were selected. Thus, the total 160 respondents were chosen for the purpose of the data collection information according to objectives of the present study.

Result and Discussion

The Socio-economic profile of the vegetable growers includes the personal profile of growers in terms of their age, educational status, caste, size of family, Extension contact, occupation, size of land holding, irrigation facility, social participation, material possession and annual income of the respondents, under social and economic factors.

The findings related to different aspect of socio-economic profile were presented in Table-1.

Age

Table 1: Distribution of respondents according to their age: N = 160

Sr. No.	Age categories	Frequency	Percentage
1.	Young age group (below 30 years)	13	8.13
2.	Lower medium age group (30-45 years)	86	53.75
3.	Higher medium age group (45-60 years)	32	20.00
4.	Old age group (above 60 years)	29	18.12
Total		160	100

Mean = 45.01 SD = 12.73

The results reveals from the above Table-1 that the most of the vegetables growers were founded lower medium age group ranging between 30 to 45 years of age. Out of the total sample size 53.75 percent of the vegetable growers were belong to this age group category. Along with this 20.00 percent respondents were found higher medium age groups ranging between 45 to 60 years followed by 18.12 percent were of old age group above 60 years. Only 8.12 percent respondents were found young age group category below 30 years of age group. This showed that the lower medium age group growers had a lot of experienced in establishing the field and their management practices.

Educational status

Education is referring to the level of formal education obtained by the respondents. Education is the process of facilitating learning, or the acquisition of knowledge, skills, values, beliefs, and habits. Educational methods include teaching, training, storytelling, group discussion and directed research.

Table 2: Distribution of respondents according to their education N = 160

Sr. No.	Particulars	Frequency	Percentage
1.	Can read & write	9	5.62
2.	Primary school	22	13.75
3.	Junior High School	27	16.87
4.	High school	54	33.75
5.	Intermediate	20	12.50
6.	Graduate	17	10.62
7.	Post-graduate and above	11	6.87
Total		160	100.00

Mean = 3.931 SD= 1.550

The data presented in above table 2. shows that, the maximum numbers of respondents (33.75 percent) were educational status up to high school followed by Junior high school 16.87 percent, intermediate level 12.50 percent, primary school 13.75 percent, graduate 10.62 percent, post-graduation and above 6.87 percent and can read & write with only 5.62 percent respectively.

It may be concluded that, the majority of respondents were having educational status up to high school level in the study area.

Caste

Caste is a permanent type of social stratification of the society into higher and lower categories.

Table 3: Distribution of respondents according to their caste N = 160

Sr. No.	Caste	Frequency	Percentage
1.	General category	41	25.62
2.	Other Backward Caste (OBC)	76	47.50
3.	Scheduled caste/Scheduled Tribe (SC/ST)	19	11.87
4.	Minority caste	24	15.00
Total		160	100.00

Mean = 2.162 SD = 0.977

Table 3. Shows that the maximum numbers of respondents 47.50 percent were belonging to other backward caste, followed by general caste 25.62 percent, minority class 15.00 percent and the remaining scheduled caste and scheduled tribe were 11.87 percent respectively. The similar findings were reported by Singh *et al.* (2017) [12].

It may be concluded that the majority of the respondents were found of other backward caste.

Size of Family

Table 4: Distribution of respondents according to their family size: N = 160

Sr. No.	Particulars	Frequency	Percentage
1.	Small family (1-4 members)	17	10.62
2.	Medium family (5-8 members)	105	65.62
3.	Large family (More than 8 members)	38	23.75
Total		160	100.00

Mean = 2.131 SD = 0.573

The data presented in the above table 4. reveals that, the maximum numbers of respondents 65.62 percent were belonging to medium family size group followed by 23.75 percent respondents were belonging to large family size group (more than 8 members) and the remaining 10.62 percent respondents were belonging to small family size group (1-4 members) in the study area.

It may be concluded that the majority of the respondents were belonging to medium size of family (5-8 members) in the family and they were more interested in growing/ha the vegetable crops.

Extension Contact

It refers to the respondent's got information about vegetable crops package of practices activities from various department.

Mass Media Exposure

Table 5 (A): Distribution of the respondents according to their mass media exposure

Sr. No	Particulars	Mass Media Exposure						Total Score	Mean Score	Rank order
		Frequently		Occasionally		Never				
		F	P	F	P	F	P			
1.	Computer based	59	36.87	50	31.25	51	31.87	328	2.05	IV
2.	Television	135	84.37	16	10.00	9	5.62	446	2.787	II
3.	Radio/F.M/Tape recorder	6	3.75	9	5.62	145	90.62	181	1.131	X
4.	Agricultural related apps	6	3.75	21	13.12	133	83.12	193	1.206	IX
5.	Mobile phone	137	85.62	19	11.87	4	2.5	453	2.831	I
6.	Newspaper	84	52.50	45	28.12	31	19.37	373	2.331	III
7.	Agri. Magazines	13	8.12	26	16.25	121	75.62	212	1.325	VIII
8.	Agril. Books	15	9.37	78	48.75	67	41.87	268	1.675	VI
9.	Pump let/ folders	25	15.62	75	46.87	60	37.50	285	1.781	V
10.	YouTube	17	10.62	39	24.37	104	65.00	233	1.456	VII

"F = Frequency, P = Percentage"

The data presented in the above table 5. (A), shows that the Mobile phone got 1st rank with mean score was 2.831 as the main source of information, followed by Television got 2nd rank with mean score value was 2.787, Newspaper got 3rd rank with mean score value was 2.331, Computer based got 4th rank with mean score value was 2.05, Pump let/ folders got 5th rank with mean score value was 1.781, Agril. Books got 6th rank with mean score value was 1.675, Youtube got 7th rank with mean score value was 1.456, Agri. Magazines got 8th

rank with mean score value was 1.325, as well as Agricultural related apps got 9th rank with mean score value was 1.206 and Radio/F.M/Tape recorder got 10th rank with mean score value was 1.131 respectively.

It may be concluded that the majority of the vegetable's growers were preferred the Mobile phone as the major source of information in the study area.

Sources of information

Table 5 (B): Distribution of the respondents on the basis of Sources of information

Sr. No	Particulars	Sources of information						Total Score	Mean Score	Rank order
		Frequently		Occasionally		Never				
		F	P	F	P	F	P			
1.	Progressive farmers/Neighbours	131	81.87	24	15.00	5	3.12	446	2.787	I
2.	N Input dealers/ Govt. sale center	52	32.50	85	53.12	23	14.37	349	2.181	II
3.	Agricultural Department	45	28.12	81	50.62	34	21.25	331	2.068	IV
4.	Cooperative societies employee	49	30.62	78	48.75	33	20.62	336	2.10	III
5.	KVKs expert /SAUs	27	16.87	55	34.87	78	48.75	269	1.681	VII
6.	Farmers fair /Exhibition /Demonstration	36	22.50	89	55.62	35	21.87	321	2.006	V
7.	Farmer school /Kisan call center	3	1.87	7	4.37	150	93.75	173	1.081	VIII
8.	Farmer Producer Organization (FPOs)	11	6.87	114	71.25	35	21.87	296	1.85	VI

"F = Frequency, P = Percentage"

Table 5 (B), reveals that the Progressive farmers/ Neighbors got 1st rank with mean score was 2.787 as a main source of information, followed by Input dealers/Govt. sale center got 2nd rank with mean score value was 2.181, Cooperative societies employee got 3rd rank with mean score value was 2.10, Agricultural Department got 4th rank with mean score value was 2.068, Farmer's fair/Exhibition/Demonstration got 5th rank with mean score value was 2.006, FPOs got 6th rank with mean score value was 1.85, KVKs expert/SAUs got 7th rank with mean score value was 1.68 and Farmer school/Kisan call center got 8th rank with mean score value was 1.081 respectively.

It may be concluded that the majority of the respondents were obtained information from the Progressive farmers/ Neighbors. This shows that the respondents were more aware.

Occupation

An occupation is a work situation of a person who has a specific field of interest and distinct skills that benefit that field. The occupation refers to the income more than 50% from main occupation.

Table 6: Distribution of respondents according to their occupation N = 160

Sr. No.	Particulars	Frequency	Percentage
1.	Agriculture	135	84.37
2.	Caste based occupation	04	02.50
3.	Service	09	05.62
4.	Business	8	05.00
5.	Agro- based enterprises/ Entrepreneur	4	02.50
Total		160	100

Mean = 1.387 SD = 0.977

Table 6, shows that the maximum numbers of respondents 84.37 percent were engaged in agriculture as main occupation, followed by 5.62 percent respondents were engaged in service, 5.00 percent respondents were engaged in business, 2.50 percent respondents were engaged in caste-based occupation and only 2.50 percent respondents were engaged in agro-besed enterprises /entrepreneur.

It may be concluded that, the majority of the respondents 84.37 percent were engaged in agriculture and more interested in the vegetable cultivation in the study area due to higher returned in comparison to traditional crops.

Size of Land holding

Table 7: Distribution of respondents according to their land holding size N =160

Sr. No.	Type of holding	Frequency	Percentage
1.	Marginal farmer (less than 01 ha)	31	19.37
2.	Small farmer (01-02 ha.)	39	24.37
3.	Semi-Medium farmer (02-04 ha)	51	31.87
4.	Medium farmer (04-06 ha)	22	13.75
5.	Large farmer (More than 06 ha)	17	10.62
Total		160	100

Mean = 2.718 SD = 1.229

Table 7 indicates that the maximum numbers of respondents 31.87 percent were having (02-04 ha) of land which were belonged to semi-medium farmer category, followed by small farmer 24.37 percent were having (01-02 ha) of land marginal farmers 19.37 percent were having (less than 01 ha) of land, medium farmers 13.75 percent were having (04-06 ha) of land and the remaining 10.62 percent respondents were having (more than 06 ha) of land, which were belonged to large category of farmers.

It may be concluded that, the majority of respondents 31.87 percent were having (02-04 ha) of land and more interested in the cultivation of vegetable crops.

Irrigation facility

Table 8: Distribution of respondents according to their irrigation facilities N =160

Sr. No.	Resources	Frequency	Percentage
1.	Private tube well (electric)	110	68.75
2.	Private tube well (diesel power)	6	3.75
3.	Canal	27	16.87
4.	Rental	15	9.37
5.	Ponds	2	1.25
Total		160	100.00

The data presents in table 8, obvious that majority of the respondents were using private tube well (electric) 68.75 percent) for irrigation of vegetable crops while, (16.87 percent) respondents were using canal irrigation sources for cultivation of vegetable crop, (9.37 percent) respondents were using rental for irrigation, (3.75 percent) respondents were using private tube well (diesel power) and the remaining 1.25 percent were using ponds for irrigation of vegetable crops.

It may be concluded that, most of the respondents were having private tube well (electric) for irrigation.

Social Participation

The degree of involvement of individual in a social organization as a member or as an office bearer is called social participation.

Table 9: Distribution of respondents according to their social participation N = 160

Sr. No.	Particulars	Frequency	Percentage
1.	No. member of any organization	17	10.62
2.	Member of one organization	56	35.00
3.	Member of more than one organization	71	44.37
4.	Office Holder	13	8.12
5.	Distinctive feature	5	1.25
Total		160	100.00

The data presents in table 9, shows that the majority of the respondents (44.37 percent) were having member of more than one organization, while (35.00 percent) respondents were having member of one organization, (10.62 percent) respondents were having no member of any organization, 8.12 percent respondents were having office holder and the remaining (1.25 percent) respondents were the distinctive feature respectively.

It may be concluded that, the majority of respondents were having membership of more than one organization.

Material possession

Material possession operationally defined as the general materials possessed by the respondents including house hold materials, agricultural implements, domestic materials and sources related to communication and transportation.

Home appliance

Table 10 A): Distribution of respondents according to their home appliance N = 160

S. No.	Particulars	Frequency	Percentage
1.	Low (up to 10 numbers)	22	13.75
2.	Medium (11-14 numbers)	105	65.63
3.	High (above 14 numbers)	33	20.62
Total		160	100

Mean = 12.59 SD = 1.97

The Table 10. (A), shows that the majority of the vegetables growers 65.63 percent were having medium level of home appliance assets (11-14 numbers), followed by 20.62 percent of the vegetables growers were having high level of home appliance assets (above 14 numbers) and remaining 13.75 percent of the vegetables growers were having low level of home appliance assets (below 10 numbers), respectively. Thus, it can be concluded that the majority of the respondents were having a medium level of home appliance assets (11- 14 numbers) in the study area.

Transportation facility

Table 10 (B): Distribution of respondents according to their transportation N = 160

S. No.	Type	Frequency	Percentage
1.	Bullock cart (jhota- buggy)	115	71.87
2.	Cycle	107	66.87
3.	Two-wheeler (Motorcycle/ Scooty/ Scooter)	145	90.62
4.	Four-wheeler (Car/Jeep/Taxi)	37	23.12
5.	Tractor trolley	77	48.12
6.	Truck	14	08.75
7.	Bus	09	05.63
8.	Any other	07	04.37

The data presented in table 10.(B), indicates that the maximum numbers of respondents were having two-wheeler (90.62 percent), followed by bullock cart (71.87 percent), cycle (66.87 percent), tractor trolley (48.12 percent), four-wheeler (23.12 percent), truck (08.75 percent), bus (05.63 percent) and any other (04.37 percent) for transportation facilities. The similar findings were reported by Singh *et al.* (2017) [12].

It may be concluded that majority of respondents were using motorcycle for transportation.

Farm machinery

Table 10 (C): Distribution of respondents according to their agricultural farm machinery

S. No.	Particulars	Frequency	Percentage
1.	Low (up to 5 numbers)	29	18.12
2.	Medium (6- 10 numbers)	97	60.63
3.	High (above 10 numbers)	34	21.25
	Total	160	100

Mean = 8.15 SD = 2.61

The Table 10. (C), reveals that the majority of the respondents 60.63 percent were having medium level of farm machinery (6-10 numbers), followed by 21.25 percent of the respondents were having high level of farm machinery (above 10 numbers), and remaining 18.12 percent of the respondents were having low level of farm machinery (up to 5 numbers), respectively.

Thus, it can be concluded that the majority of the respondents were having a medium level of farm assets (6-10 numbers).

Annual Income

It refers to total income in rupees earned by the respondents from all sources in a particular year.

Table 11: Distribution of respondents according to their Annual Income N = 160

Sr. No.	Particulars	Frequency	Percentage
1.	Below Rs. 50,000	07	4.37
2.	Rs. 50,000- 1,00,000	21	13.12
3.	Rs. 1,00,000- 1,50,000	54	33.75
4.	Rs. 1,50,000-2,00,000	37	23.12
5.	Above 2,00,000	41	25.62
	Total	160	100.00

Mean = 3.525 SD = 1.137

The data presented in table 11, reveals that the maximum numbers of respondents (33.75 percent) were earning money of Rs. 1,00,000- 1,50,000/- per annum, followed by (25.62 percent) were above of Rs. 2,00,000/-, (23.12 percent) respondents were earned of Rs. 1,50,000-2,00,000/- per annum, (13.12 percent) respondents were earned Rs. 50,000-1,00,000 and the remaining (04.50 percent) respondents were annum income of Below Rs. 50,000 respectively.

It may be concluded that majority of the respondents were earning of Rs. 1, 00, 000- 1, 50, 000/- per annum.

Conclusion

It may be concluded that most of the vegetables growers were belonging to lower medium age group, having education high school, belongs to other backward caste, medium family, mobile phone are mass media/social exposure, most of them sources of information progressive farmers/neighbours and their main occupation was agriculture, semi-medium farmer (02-04 ha), most of them source of irrigation is private tube well (electric), most of them member of more than one organization, most of them home appliance are medium (11-14 numbers), most of them transport facility two-wheeler (motorcycle/ Scooty /scooter), most of them farm machinery are medium (6-10 numbers), most of the vegetables growers annual income was Rs. 1,00,000- 1,50,000.

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