

International Journal of Statistics and Applied Mathematics

ISSN: 2456-1452
Maths 2023; SP-8(6): 1323-1328
© 2023 Stats & Maths
<https://www.mathsjournal.com>
Received: 09-10-2023
Accepted: 13-11-2023

Komal Shinde
PG Student, Department of
Agriculture Extension
Education, Dr. PDKV, Akola,
Maharashtra, India

YB Shambharkar
Assistant Professor, Department
of Agriculture Extension
Education, Dr. PDKV, Akola,
Maharashtra, India

PK Wakle
Professor and Head, Department
of Agriculture Extension
Education, Dr. PDKV, Akola,
Maharashtra, India

RT Katole
Associate Professor, Department
of Agriculture Extension
Education, Dr. PDKV, Akola,
Maharashtra, India

Corresponding Author:
Komal Shinde
PG Student, Department of
Agriculture Extension
Education, Dr. PDKV, Akola,
Maharashtra, India

Correlates of socio-economic impact of shade-net house owners

Komal Shinde, YB Shambharkar, PK Wakle and RT Katole

DOI: <https://doi.org/10.22271/math.2023.v8.i6Sr.1557>

Abstract

The present study entitled Socio-economic Impact of Shade net House on Its Owners was conducted in Deulgaon Raja and Sindhakhed Raja of Buldana district of Vidarbha region to ascertain the socio-economic impact of shadenet on its owners after cultivation of vegetable crops in shade net house. Exploratory research design of social research was used for the present investigation. Five villages from each selected tahsil were selected purposively based on more number of shade net and from each selected village 12 respondents were selected purposively in which four (4) respondents who were growing capsicum, tomato and cucumber each, having experience of more than 3 years were selected.

Findings of the relational analysis revealed that, out of fourteen characteristics, Ten characteristics namely family size, experience in shade net house, area under shade net house, occupation, source of irrigation, annual income, economic motivation, scientific orientation, knowledge and adoption found to have positive and highly significant correlation with the socio-economic impact of shade net house owners at 0.01 level of significant at probability. Whereas, education and land holding found to have positive and significant correlation with the socio economic impact of shade net house owners at 0.05 level of significant at probability.

Age and source of information found to have no significant correlation with the socio-economic Impact of shade net house owners.

Keywords: Socio-economic, impact, shade net, exploratory, capsicum, cucumber, tomato

Introduction

Indian horticulture goods and products will need to become competitive in both the home and global market in order to comply with the WTO's time-bound elimination of quantitative import restrictions and other barriers to reach the domestic market. India is a signatory to the WTO. It is true that India's advancement is heavily dependent on the growth of agriculture because the country has historically been predominately agrarian and still relies on it for about 65% of its people. In India, the agriculture industry plays a significant role in the national economy. Despite a decline in its contribution to national revenue, agriculture still accounts for a sizeable portion of GDP. India's first exposure to truly hi-tech protected farming of vegetables and other high-value horticultural produce came through the Indo-Israel project on greenhouse cultivation, initiated at the New Delhi-based Indian Agricultural Research Institute (IARI) in 1998, shortly after the establishment of diplomatic ties with that country. The Israeli experts left India in 2003 at the end of this five-year project and IARI continued to maintain the facility, calling it the Centre for Protected Cultivation Technology (CPCT). It has, in the past 10 years, managed to refine and upscale the system to reduce costs, besides designing greenhouse structures to suit local conditions. The area under greenhouse cultivation, reported by the end of 20th century was about 110 ha in India and in the world over 2, 75, 000 hectare (Mishra *et al.*, 2010) [12]. The introduction of protected cultivation technologies in India has a time lag in relation to many countries. Incidentally, China began to use the protected cultivation technologies almost at the same time when India made beginning. However, China has surpassed almost all the countries in the world in the use of these technologies, while India is moving steadily to expand the area under protected cultivation.

The pace of progress could be increased several folds if the Government of India (GOI) extends support to protected cultivation efforts in the country. Among the various advanced technologies used to achieve breakthrough in the yield potential and quality of horticultural crops, cultivation of these crops in the protected environment has proved their potential, beyond doubt in increasing the yield manifold with high quality of produce. All kinds of protected structure or technologies may not be economical and useful to the farmers in India, because of their very high initial and running cost, but some structures or technologies are very simple and highly cost effective which can be adopted by Indian farmers for production of several vegetable and flowers crops.

The researcher is motivated to learn more about the socio economic circumstances of vegetable producers in the Buldhana region as a result of the growth in the area and production of horticulture crops cultivated under protected conditions. The results of this study may help us understand the socio economic impact of shade net house owners and the challenges they encounter when growing this crop, as well as the psychological, communicational, and socio economic characteristics of shade net house owners who grow vegetables under shade net houses for seed and commercial purposes. Therefore, the purpose of the current study is to determine the degree of socio economic change experienced by owners who grow vegetables beneath shade net houses.

Methodology: The present study aims to ascertain socio-economic impact of shade net house owners after cultivation

of crops under shade net. Hence, exploratory research design of social research was used for the study. The study was conducted in two tahsil of Buldhana district namely Deulgaon Raja and Sindhkhed Raja in vidharbha region of Maharashtra based on large area under shade net house during the year 2022-23. The list of villages having more number of shade net growers cultivating vegetables crops was obtained from Taluka Agriculture officer of Deulgaon Raja and Sindhkhed Raja respectively. 05 villages from each tahsil were selected. Thus, from 02 tahsil 10 villages were selected based on growing capsicum, tomato and cucumber in shade net house. From each selected village, 12 respondents were selected randomly in which four (4) respondents who were growing capsicum, tomato and cucumber each, having experience of more than 3 years were selected purposively. Thus from 10 villages total 120 respondents were selected as sample for the present study.

The socio-economic impact in the present study defined as the effect of Shade net house on the respondents in terms of economic aspects. To measure this variable, scale developed by Thakare (2008) ^[10] was used with some modification by considering the before use and after use of shade by using possible indicators such as Occupation, annual income, cropping pattern, participation social and political organization.

Results and Discussion Profile

Table 1: Distribution of the respondents according to their selected profile

Sr. No.	Profile	Respondents (N=120)	
		Frequency	Percentage
A	Age		
1.	Young (Up to 35)	26	21.67
2.	Middle (36 to 50)	69	57.50
3.	Old (Above 50)	25	20.83
B	Education (Standard)		
1	Illiteracy (no schooling)	20	16.67
2	Primary school (1 st to 4 th standard)	09	07.50
3	Middle school (5 th to 7 th standard)	17	14.17
4	High school (8 th to 10 th standard)	38	31.66
5	Intermediate (11 th to 12 th standard)	20	16.66
6	College (Above 12 th standard)	16	13.34
C	Family size (Members)		
1.	Small (Up to 03)	19	10.83
2.	Medium (04 to 07)	88	73.34
3.	Large (above 07)	13	10.83
D	Farming experience in shade net cultivation (Years)		
1.	Low (Up to 05)	11	09.17
2.	Medium (06 to 08)	64	53.33
3.	(Above 08)	45	37.50
E	Area under shade net house (ha).		
1.	Small (Up to 00.20)	36	30.00
2.	Medium (00.21 to 00.40)	53	44.17
3.	Large (00.40 and above)	31	25.83
F.	Land holding (ha)		
1.	Marginal (Up to 01.00)	13	10.83
2.	Small (01.01 to 02.00)	17	14.17
3.	Semi-medium (02.01 to 04.00)	53	44.17
4.	Medium (04.01 to 10.00)	23	19.16
5.	Large (10.00 and above)	14	11.67
G.	Occupation		
1.	Agriculture + Labour	00	00.00
2.	Agriculture	87	72.50
3.	Agriculture + Allied Occupation	18	15.00
4.	Agriculture + Business	8	06.67

5.	Agriculture + Service	7	05.83
H	Sources of irrigation		
1.	River	10	08.34
2.	Well/Tube well	105	87.50
3.	Farm Pond	05	04.16
I	Annual income (Rs.)		
1	Up to 100000 Rs	4	03.34
2	100001 to 200000 Rs	11	09.17
3	200001 to 300000 Rs	25	20.83
4	300001 to 400000 Rs	30	25.00
5	Above 400000 Rs	50	41.67
J	Source of information levels		
1.	Low (Up to 21.13)	15	12.50
2.	Medium (21.14 to 27.09)	64	53.33
3.	High (Above 27.06)	41	34.17
K	Economic motivation levels		
1.	Low (Up to 18.39)	17	14.16
2.	Medium (18.40 to 24.67)	80	66.67
3.	High (Above 24.67)	23	19.17
L	Scientific orientation levels		
1.	Low (Up to 22.45)	20	16.67
2.	Medium (22.46 to 29.69)	64	53.33
3.	High (Above 29.69)	36	30.00
M	Knowledge levels		
1.	Low (Up to 27.6)	10	08.34
2.	Medium (27.7 to 32)	82	68.33
3.	High (Above 32)	28	23.33
N	Adoption		
1.	Low (Up 39)	24	20.00
2.	Medium (40 to 52)	70	58.34
3.	High (Above 52)	26	21.66

The data depicted in Table 1 shows that more than half of shade net house owners 57.50 per cent of the respondents were found in the 'middle' age group of 36 to 50 years followed by little more than one fifth (21.67%) of the respondents in 'young' age group of below 35 years and 20.83 per cent of the shade net house owners were found in 'old' age group of above 50 years. Thus, it was concluded that, little more than half of the respondents were in the middle to old age category. This finding was supported by the findings of Borhade (2011) ^[2] and Kiranmayi (2013) ^[15].

Among the overall shade net house owners 31.66 per cent of owners were educated up to high school level (8th to 10th std.) followed by 16.67 per cent of respondents were found illiterate, 16.66 per cent of respondents were educated up to intermediate level (11th to 12th std.) and 14.17 per cent of owners were educated up to middle school (5th to 7th std.). Whereas 20.84 per cent were educated up to college (above 12th std.) and primary school (1st to 4th std.) level. It could be concluded that higher proportion of shade net house owners were educated up to high school level (8th to 10th std.) of education.

These findings were supported by the findings of Tekale (2015) ^[9] and Seema Chate (2018) ^[7].

The data depicted in Table 1 revealed that, 73.34 per cent of shade net owners were concentrated in medium size family with 4 to 7 family members, followed by equal proportion of the respondents possessed in medium and small family size.

It is inferred that, majority of the respondents were concentrated in medium family size which helps them in good management in shade net house. These findings were supported by the findings of Solanki (2009) ^[8] and Kiranmayi (2013) ^[15].

These results are found contradiction with the results of Prajakta Telange (2019) ^[6].

It is revealed from Table 1 that, more than one half (53.33%) of the shade net owners having experience of vegetable cultivation under shade net house between 06 to 08 years. Nearly one fourth (37.50%) of respondents has high (Above 08) experience of vegetable cultivation under shade net house cultivation. Remaining 9.17 per cent of the respondents had low (Up to 05 years) experience of vegetable cultivation under shade net house.

It is inferred from above findings that, major group of shade net owners had farming experience in the range of 05 to 08 years in vegetable cultivation under shade net. Secondly, it was noticed that, the farming experience enhanced the adaptive capacity of shade net owners in the study area. Through this experience, they might have acquired knowledge and mastered the skills required for cultivation of vegetable which, in turn might have helped them in better management of the crop.

These result are found contradiction to the result of Bare (2017) ^[11] and Seema Chate (2018) ^[7].

The data presented in Table 1 shows that, the higher proportion (44.17%) of the shade net owners adopted shade net house in medium size of area under shade net house between 00.21 to 00.40 ha, followed by 30.00 per cent with small size of shade net possessing area about up to 00.20 ha and remaining 25.83 per cent of them had large sized shade net having size 0.40 ha and above ha.

It is inferred that, majority of the respondents were concentrated in between medium and small area under shade net house cultivation.

These findings were supported by the findings of Seema Chate (2018) ^[7].

The data depicted in Table 1 shows that, higher proportion of shade net house owners (44.17%) were having semi- medium land holding (02.01 to 04.00) followed by 19.16 per cent of shade net house owners having medium land holding (4.01 to

10.00 ha) and 14.17 per cent respondents had small (01.01 to 02.00), 11.67 per cent having large land holding (above 10.00 ha), and 10.83 per cent of respondents had marginal land holding.

The higher proportion of the shade net house owners were found having semi-medium to medium land holdings. These findings were supported by the findings of Kolte (2002) ^[13] and Tekale (2015) ^[9].

The data depicted in Table 1 shows that, majority of the respondents (72.50%) were having only agriculture as an occupation followed 15.00 per cent having allied occupation with agriculture. Only 06.66 and 05.83 per cent of shade net house owners were having business and service with agriculture occupation respectively. It can be concluded from table 15 that no any owners was found having agriculture and labour as an occupation.

It is inferred that, majority of the respondents were having agriculture and labour. This finding was supported by Seema Chate (2018) ^[7] and Prajakta Telange (2019) ^[6].

Among the overall shade net house owners majority (87.50%) of growers had well/tube well as source of irrigation for vegetable cultivation under shade net house, followed by 08.34 per cent of growers having river as a source of irrigation. While 04.16 per cent of shade net house owners had other source of irrigation were having farm ponds for vegetable cultivation under shade net house.

It is inferred that, majority of the respondents were having well/ Tube well as sources of irrigation. These findings were supported by the findings of Seema chate (2018) ^[7] and Prajakta Telange (2019) ^[6].

The bird eye of the Table 1 shows that, In case of overall shade net house owners 41.67 per cent of owners were found having annual income above of Rs.400000 followed by 25.00 per cent of the owners having Rs.300001 to 400000 annual income and 20.83 per cent of the owners having Rs.200001 to 300000 annual income whereas only 9.17 per cent and 3.33 per cent of the shade net house owners were found to having annual income in the range of Rs.100001 to 200000 and up to Rs. 100000 respectively.

The data depicted in Table 1 shows that, in case of overall shade net house owners maximum number (53.33%) of the vegetable growers uses medium (21.14 to 27.09) source of information followed by 34.17 per cent using high (above 27.09) source of information whereas, only 12.50 per cent of the respondents had low sources of information. Thus, it is inferred from above Table 19 that majority of the shade net house growers were having 'medium' level of use of sources

of information. These findings were supported by the findings of Sharma, *et al.* (2014) ^[14] Induri (2017) ^[3].

The data depicted in Table 1 shows that, in case of overall shade net house owners majority (66.67%) of the vegetable growers had medium (18.40 to 24.67) economic motivation, followed by 19.17 per cent having high (above 24.67) economic motivation, whereas only 14.16 per cent of the respondents were having low (Up to 18.39) economic motivation. These findings were supported by the findings of Wadekar (2016) ^[11], Induri (2017) ^[3] and Seema Chate (2018) ^[7].

In case of overall shade net house owners' higher proportion (53.33%) of the vegetable growers had medium scientific orientation level followed by 30.00 per cent were having high scientific orientation, whereas only 16.66 per cent of the respondents were having low scientific orientation. These findings was supported by the findings of Thakare (2008) ^[10] and Seema Chate (2018) ^[7].

In case of overall knowledge level of shade net house owners it was found that, majority (68.33%) of vegetable growers were found having medium level (27.7 to 32) of knowledge about improved cultivation practices of vegetable under shade net house, whereas, 23.33 and 08.34 per cent of the vegetable growers were found having high (above 32) and low (up to 27.60) knowledge level about recommended cultivation practices respectively.

It could be inferred that, majority of the shade net house owners were found having medium level of knowledge about improved cultivation practices of vegetable under shade net house. These findings were supported by the findings of Induri (2017) ^[3] and Seema Chate (2018) ^[7]. Whereas in case of overall adoption level, shade net house owners (58.34%) of the shade net house owners were found having medium level (Medium (40 to 52) of adoption of improved cultivation practices of vegetable under shade net house, followed by little more than one fifth (21.66%) of the respondents were having high level (Above 52) of adoption and 20.00 per cent of shade net house owners were found having low level (up to 39) of adoption of improved cultivation practices of vegetable cultivation under shade net house.

It could be inferred that, majority of the shade net house owners are found having medium level (40 to 52) of adoption level. These findings are supported by the findings of Induri (2017) ^[3] and Seema Chate (2018) ^[7].

Dependent variable Socio-economic impact

Table 2: Distribution of respondents according to socio-economic impact based on before and after use of shade net house

Sr. No	Socio economic impact	Respondents (N=120)			
		Before use of shade net		After use of shade net	
		Frequency	%	Frequency	%
A	Occupation				
1	Agriculture + Wage earner (Labours)	29	24.17	00	00.00
2	Agriculture (Farming)	81	67.50	87	72.50
3	Agriculture + Allied occupation (Goat farm/ Poultry/ Apiculture/ Sericulture/ Fishing)	05	04.17	18	15.00
4	Agriculture + Business	05	04.16	08	06.67
5	Agriculture + Service (Job with monthly salary)	00	00.00	07	05.83

The data depicted in Table 2 shows that, before cultivation of shade net house majority (67.50%) of the respondents were found in agriculture as occupation followed by 24.17 per cent respondents found in agriculture+ labour. However, after cultivation of shade net house majority (72.50%) of the respondent found in agriculture as occupation, followed by

15.00 percent respondents found in Agriculture +allied occupation in case of agriculture + business 04.16 percent of the respondents were found before use of shade net whereas 06.67 per cent of them observed after cultivation of shade net house. It is surprise to note that 05.83 where having agriculture +service occupation after use of shade net.

Thus, it is concluded that majority of the respondents occupation were found change in agriculture and agriculture +allied occupation.

Table 3: Dimension-wise socio economic impact of shade net house owners

Sr. No.	Dimensions of Socio economic impact	Before	After	% Change
1	Occupation	21.05	25.69	22.02
2	Cropping pattern	10.07	13.82	37.119
3	Annual income	14.20	21.42	52.78
4	Socio-political participation	01.116	01.37	22.75
	Socio economic impact	02.05	02.755	34.12

A cursory look at Table 3 reveals that the means of occupation (25.69), cropping pattern (13.82), annual income (21.42) and socio-political participation (01.37) and socio economic impact (02.75) of the shade net house owners after cultivation of vegetable crops under shade net house were higher than the means of occupation (21.05), cropping pattern (10.07), annual income (14.20), socio-political participation (1.116) and socio economic impact (02.05) of the growers before cultivation of vegetable crops under shade net house.

It was also found that change in occupation, cropping pattern, annual income and socio-political participation were 22.02, 37.119, 52.78 and 22.75 per cent change respectively after cultivation of vegetable crops under shade net house over before cultivation of vegetable crops under shade net house.

When socio economic impact as a whole in terms of change in socio economic impact of growers before and after cultivation of vegetable crops under shade net house was considered, it is evident from Table 3 that there was overall change in socio economic impact i.e. 34.12 per cent after the cultivation of vegetable crops under shade net house over the before cultivation of it.

Thus, it could be stated that cultivation of vegetable crops under shade net house created a definite socio economic impact in the owners. This finding was supported by Khiratkar (2009) ^[4].

Correlation

Relationship of selected characteristics of shade net house owners with their socio economic impact

Table 4: Coefficient of correlation of selected independent variable of the shade net house owners with the dependent variable socio-economic impact

Sr. No.	Variables	'r' value
1	Age	0.104 ^{NS}
2	Education	0.221*
3	Family size	0.227**
4	Experience in Shade net house cultivation	0.229**
5	Area under Shade net house cultivation	0.690**
6	Land holding	0.203*
7	Occupation	0.334**
8	Source of irrigation	0.259**
9	Annual income	0.294**
10	Source of information	0.024 ^{NS}
11	Economic motivation	0.241**
12	Scientific orientation	0.248**
13	Knowledge	0.330**
14	Adoption	0.287**

* - Significant at 0.05 level of probability

** - Significant at 0.01 level of probability NS- Non significant

It is evident from Table 4 that, among the selected characteristics namely family size, occupation, area under shade net house, experience in shade net house cultivation, sources of irrigations annual income, economic motivation, scientific orientation knowledge and adoption found to have positive and highly significant correlation with the socio economic impact of shade net house owners at 0.01 level of probability. Whereas, education and land holding, were found to have positive significant correlation with the socio economic impact at 0.05 level of probability. The null hypothesis was therefore rejected for these variables.

The variables namely as age and source of information did not show any significant association with the socio economic impact of shade net house owners. Therefore the null hypothesis for these variables was accepted.

It is therefore, from this result, it may be concluded that shade net house owners with higher education, more family size, higher land holding, higher occupation, more area under shade net house, more experience in shade net house cultivation, higher source of irrigation, more annual income, higher economic motivation level, higher scientific orientation level, more knowledge level and more adoption level of recommended cultivation practices of vegetable cultivation under shade net house had higher the socio economic impact of shade net house owners.

References

1. Bare AM. Production and marketing behavior of onion growers. M. Sc. (Agri.) Thesis (Unpub.) Dr. PDKV, Akola; c2017.
2. Borshade SM. Knowledge and adoption of organic manures by the farmers in Akola district, M. Sc. (Agri.) Thesis (Unpub.) Dr. PDKV, Akola; c2011.
3. Induri VR. Adoption gap in chilli production technology. M. Sc. (Agri.) Thesis (Unpub.) Dr. PDKV, Akola; c2017.
4. Khiratkar AG. Socio-economic transformation due to Pan-Pimpri cultivation in Akola and Amravati district. M. Sc. (Agri.) Thesis (Unpub.) Dr. PDKV, Akola; c2009.
5. Omar MEDM, Sharaf A. Microtopography change of agricultural lands during leaching by establishing internal field canal and drain network for soil salinity control in Sahl El-tina area, Egypt. Int. J Agric. Nutr. 2022;4(2):07-16. DOI: 10.33545/26646064.2022.v4.i2a.56
6. Telange P. Socio-Economic development and technological need of the shadenet owners. Ph. D. (Agri.) Thesis (Unpub.) Dr. PDKV, Akola; c2019.
7. Chate S. 'Socio-economic transformation of shade net house farmers in Buldana district'. M. Sc. (Agri.), Thesis (Unpublished), Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola (MS); c2018.
8. Solanki DL. 'A study on Adoption behavior of vegetable growers in relation to their socio-economic and psycho attributes in Khandwa district of M. P'. M. Sc. (Agri.), Thesis (Unpublished), RNK college of Agriculture, Sehore (M.P); c2009.
9. Tekale VS. Entrepreneurial behaviour of vegetable growers. Research Review Committee Report, Dept. of Extn. Educ., Dr. PDKV, Akola; c2015. p. 153-171.
10. Thakare SB. Adoption of recommended cultivation practices by grape growers. M. Sc. (Agri.) Thesis (Unpub.) Dr. PDKV, Akola; c2008.
11. Wadekar AR. Entrepreneurial attributes of nursery growers, M. Sc. (Agri.) Thesis (Unpub.) Dr. PDKV, Akola; c2016.

12. Mishra S, Lalumière ML, Williams RJ. Gambling as a form of risk-taking: Individual differences in personality, risk-accepting attitudes, and behavioral preferences for risk. *Personality and Individual Differences*. 2010 Oct 1;49(6):616-21.
13. Kolte L, Dreves AM, Ersbøll AK, Strandberg C, Jeppesen DL, Nielsen JO, *et al.* Association between larger thymic size and higher thymic output in human immunodeficiency virus-infected patients receiving highly active antiretroviral therapy. *Journal of Infectious Diseases*. 2002 Jun 1;185(11):1578-85.
14. Sharma K, Kaith BS, Kumar V, Kalia S, Kumar V, Swart HC. Water retention and dye adsorption behavior of Gg-cl-poly (Acrylic acid-aniline) based conductive hydrogels. *Geoderma*. 2014 Nov 1;232:45-55.
15. Kiranmayi K. 'Adoption behaviour of chilli farmer in Guntur District of Andhra Pradesh'. M. Sc. (Agri.) Thesis (Unpublished), Acharya N. G. Ranga Agricultural University, Hyderabad, India; c2013.