

**RESEARCH ARTICLE****Factors Affecting Marketing Among Small and Marginal Vegetable Farmers of South Gujarat****Swati Sharma<sup>1</sup>, Gautam Parmar<sup>2</sup>, Ruchira Shukla<sup>3</sup> and Alpesh Leua<sup>4</sup>**

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[swatisharma\\_abm@yahoo.co.in](mailto:swatisharma_abm@yahoo.co.in)**ABSTRACT**

*Vegetables in India, being pivotal, face substantial challenges, including post-harvest losses and limited market opportunities, resulting in unfavourable price realization for small and marginal farmers. Effective marketing is important in enhancing returns for these farmers. The study's primary objective was to identify and analyze the factors affecting vegetable marketing among small and marginal farmers in South Gujarat. A purposive sample of 150 farmers across three districts in South Gujarat was surveyed using well-structured questionnaires, and the data were subjected to descriptive and regression analysis. The findings highlighted critical impediments to marketing effects, encompassing issues such as limited access to credit, grading, transportation, and storage facilities. Socio-economic variables including gender, age, family members' earnings, land holding size, access to storage, vegetable grading practices, market information availability, and proximity to markets significantly influenced monthly net farm income. Based on these findings, it is recommended that the adoption of a collective marketing approach to assist farmers in overcoming these challenges and securing better prices for their produce. Moreover, it suggests providing effective quality extension services to equip farmers with essential skills in vegetable production and marketing. Emphasizing infrastructure development, including storage facilities, transportation networks, and communication systems is essential. By implementing these recommendations, policymakers, agricultural practitioners, and stockholders can effectively address the prevailing challenges in the vegetable sector, leading to improved economic prospects for small and marginal farmers and fostering sustainable agricultural development in the region.*

**Key words:** Small and marginal vegetable farmers; Marketing.

India is a diverse country in agro-ecology, topography, altitude, and agro-biodiversity. The Green Revolution made self-sufficient in food grains which provided food security. However, nutrition security is still a question indicating a shift of focus towards fruits and vegetables (Amit et al., 2023). Vegetables that were confined to a kitchen garden, small and marginal cultivation shifting towards sustainable agriculture (Noopur et al., 2021a). The population in India is vegetarian and hence vegetables fit well in the concept of "fresh is butter" and play a significant role in the food and nutritional needs of the people. Vegetables are also considered protective food and contribute to macro and micro-nutrients and vitamins in daily food diet which includes underutilized vegetables (Noopur, 2015) and promote

human nourishment. Hence, vegetables play a pivotal role in enhancing food security, generating income, and improving nutritional well-being both at the household level (Panwar et al., 2019) as well as regional level.

The vegetables are grown in different settings, including open fields, and controlled environments (Singh et al., 2017) irrespective of some nematode problems being encountered (Chikkeri et al., 2023). There has been a transition from traditional agricultural practices to contemporary science-based methods. The advancement encompasses the adoption of novel, improved varieties, innovative cultural practices, utilization of organic and inorganic fertilizers, and the judicious application of pesticides (Panwar et al., 2021a). India's favourable climatic and geographical conditions create an ideal environment for the cultivation of a

number of vegetables. Within the realm of agricultural business, the marketing of vegetables stands out as a critical aspect (Shankar *et al.*, 2017). While vegetable production continues to grow annually to meet rising demand, farmers often grapple with a lack of awareness regarding the appropriate quantity to produce and supply to the market (Noopur *et al.*, 2021b). This shortcoming in understanding market trends and forecasting future demand contributes to volatile price fluctuations in the vegetable market, stemming from surplus or shortages (Reddy *et al.*, 2018).

The inherent seasonal nature of vegetables further exacerbates market dynamics, resulting in periodic fluctuations in both market arrivals and prices. Such uncertain patterns, coupled with a dearth of market intelligence, can lead to frustration among growers (Kundu *et al.*, 2019). Additionally, various challenges compound the complexities of vegetable and fruit marketing in the farmers market, including damage cost, exploitive practices by intermediaries, product perishability, transportation expenses, and high storage costs (Kumar, 2012). It is therefore evident that the timely and appropriate arrival of vegetables in the market, in terms of quality and quantity, significantly influences the economic prospects of farmers and their marketing behaviour (Marbaniang *et al.*, 2020) well-being of consumers. In the light of considerations, the present study was undertaken to examine the factors impacting vegetable farming in the marketing of their produce, with the following objectives:

- To identify and analyse socio-economic characteristics of the small and marginal vegetable farmers;
- To study the factors affecting marketing among small and marginal vegetable farmers;
- To study the effect of socio-economic and personal characteristics on the farmers' monthly farm income.

## METHODOLOGY

With the formulated objectives, the study was conducted in three major vegetable-producing districts of South Gujarat, namely Navsari, Surat, and Tapi. These districts were selected based on their highest area and production of vegetables. The sampling method employed was Purposive Sampling, which resulted in a sample of 50 farmers being drawn from each district, making a total sample size of 150 farmers who primarily grew vegetable crops. The primary data was collected using a structured interview schedule

through personal interviews with the selected farmers. Tabular analysis and appropriate statistical tools were utilized to analyze the data obtained from the survey. Descriptive statistics, such as frequencies and percentages, were employed to determine the factors influencing vegetable grower. Furthermore, the study utilized multiple regression analysis to assess the effects of socio-economic characteristics on the monthly farm incomes of small and marginal vegetable farmers derived from vegetable sales. This analysis aimed to explore the relationships and correlations between various variables and their impact on the farmers' incomes. The multiple regression model is specified as shown below.

$$Y_i = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + \dots + b_nX_n + e_i$$

Where:

$Y_i$  = Monthly incomes of the respondents in Rs. (dependent variable); and the independent variables are:-  $X_1$  = Gender;  $X_2$  = Age;  $X_3$  = Education;  $X_4$  = Marital Status;  $X_5$  = Earning member in the family;  $X_6$  = Number of dependents;  $X_7$  = Landholding;  $X_8$  = Hired labours in farming;  $X_9$  = Income from non-farming activities;  $X_{10}$  = Access to credit;  $X_{11}$  = Grading of vegetables;  $X_{12}$  = Access to market information;  $X_{13}$  = Access of storage facilities;  $X_{14}$  = Distance from market and  $e_i$  = Error term.

## RESULTS AND DISCUSSION

The demographic characteristics of the respondents in the study depicted in Table 1 revealed that the majority of the farmers, especially 92 percent, were male, while the remaining 8 per cent were female, all actively engaged in the cultivation of vegetables. Additionally, a noteworthy observation is that a substantial portion, comprising 98 per cent of the respondents, were married indicating that married farmers often benefit from crucial family labour support, enhancing their overall capacity to manage agricultural activities more effectively (Walia *et al.*, 2022). Turning to the educational background of the respondents, it was evident that 46 per cent of the farmers had achieved education up to the higher secondary certificate level, suggesting that literate farmers are more inclined to embrace novel innovations and are potentially better positioned to enhance productivity in their farming practices.

The data highlighted that a significant majority, comprising 88 per cent of the farmers, possessed farming experience of up to fifteen years This underscores the paramount importance of experience

**Table 1. Socio-economic characteristics of the vegetable farmers (N=150)**

Particulars	No.	%
<i>Gender</i>		
Male	138	92.00
Female	12	08.00
<i>Education</i>		
Illiterate	03	02.00
Primary school	54	36.00
HSC	69	46.00
Graduation	24	16.00
<i>Marital Status</i>		
Married	147	98.00
Unmarried	03	02.00
<i>Farming experience (Years)</i>		
0 to 5	03	02.00
5 to 10	15	10.00
10 to 15	60	40.00
Above 15	72	48.00
<i>Types of farmers</i>		
Marginal (below 2.47)	48	32.00
Small (2.47-4.94)	102	68.00
<i>Hired labours for farming</i>		
With hired labours	144	96.00
Without hired labours	06	04.00
<i>Annual income</i>		
1L-2L	03	02.00
2L-3L	30	20
3L-4L	84	56
4L-5L	33	22

in the realm of agriculture, as it can significantly contribute to the refinement of their skills, knowledge base, and decision-making capabilities in farming practices (Dwivedi et al., 2003). In terms of land holding, it was revealed that 32 per cent of the farmers fell into the marginal category, owing land holdings of less than 2.47 acres. In contrast, the remaining 68 per cent were small-scale farmers, with land holdings ranging from 2.47 – 4.94 acres. This distribution underscores the prevalence of small and marginal land holdings among vegetable farmers in the study areas.

Vegetable cultivation is highly demanding. It was observed that 96 per cent of the farmers relied on hired labour for their vegetable production activities, indicating the pivotal role of the additional workforce in efficiently managing the vegetable cultivation and harvesting process. Turning to income level, it was observed that about 56 per cent of the farmers reported an annual income ranging from 3-4 lakhs. These findings align, at least partially, with the observations of Gayathri and Sahana. (2022).

**Table 2. Socio-economic characteristics of the vegetable farmers (Average)**

Av. Age (years)	51
Av. earning members in family	1.34
Av. dependent members in family	2.18
Av.no. of people engaged in farming	1.10
Av. land (In Acre)	3.08
Av. land under vegetable production (in acre)	1.1
Other income sources	Job, Livestock
Annual income (Rs.)	350000/year
Total annual farm income (Rs.)	1.93 lakh/year
Monthly farm income (Rs.)	13500/month
Av. yearly production of vegetable crop	6.95 ton/year

The snapshot of the average value of key statistics regarding the farmers in the study area is depicted in Table 2. The average age of the study farmers was 51 years with a mean land holding of 3.08 acres, of which 1.10 acres was allotted to vegetable cultivation. The average production of vegetables was 6.95 tonnes/ farmer. The average annual income amounted to Rs. 1.93 lakhs, equivalent to 13.5 thousand per month. It was observed that. On average, there were 1.34 earning members within the family, while 2.18 members were dependent on these earnings. Additionally, an average of 1.10 members were actively engaged in farming activities. Besides farming, vegetable farmers also earned income from jobs/wages and livestock rearing/ dairying activities as a component of the vegetable-based farming system (Panwar et al., 2021b).

The factors influencing vegetable marketing, as expressed by small-scale vegetable farmers in the study area (Table 3). It was observed that nearly 98 per cent of the farmers faced challenges in accessing credit, and 96 per cent considered the grading system to be a primary factor affecting vegetable marketing in the region. Moreover, 94 per cent of the farmers

**Table 3. Factors affecting the vegetable farmers in marketing vegetables**

Factors	No.	%	No.	%
Access to Credit	147	98	3	2
Grading of vegetables	144	96	6	4
Access to Marketing Information	135	90	15	10
Access of Labour	114	76	36	24
Access of Storage	138	92	12	8
Access to transportation	141	94	9	6
Packaging	93	62	57	38
Insurance against theft, drought, flood etc.	45	30	105	70
Keeping of marketing records	39	26	111	74

**Table 4. Other factors affecting the vegetable farmers in marketing of vegetables**

Sub-factors	No.	%
<i>Product market place</i>		
Farm gate	32	21
Local village markets	22	15
Organized retailer	15	10
Farm gate and Local village market	64	43
Local village markets and Organized retailer	17	11
<i>Distance from farm to marketplace</i>		
1-2km	6	4
3-4km	48	32
>4km	96	64
<i>Marketing system adopted</i>		
Individual marketing	106	71
Contract marketing	8	5
Group / cooperative marketing	21	14
Individual & contract marketing	15	10
<i>The ownership of transport to transfer produce to market points</i>		
Own Transport	26	17
Hired transport (Individual)	106	71
Hired transport (Group)	18	12
To whom do you sell your product?		
Commission agents	18	12
Wholesaler	10	7
Retailer	12	8
Village Traders	106	70
Own	4	3
<i>Mode of selling</i>		
Cash	107	71
Credit	43	29

emphasized the importance of having reliable transportation access, while 92 per cent highlighted the significance of having access to proper storage facilities.

The limited transportation options available to these farmers may impede their ability to reach a more lucrative market resulting in delays in marketing and distribution of their produce after harvesting leading to spoilage and losses. *Noopur et al. (2023)* stated that small and marginal farmers cannot afford the high cost of transportation charges and the non-availability of storage facilities was also a constraint in vegetable marketing. Furthermore, the findings in Table 3 indicated that around 90 per cent of farmers

identified access to marketing information as a crucial factor influencing vegetable marketing. The lack of this information could impact their decision-making and marketing strategies. These results were partially in line with the findings of *Raplant et al. (2021)*. These farmers can be transformed into entrepreneurs (*Chauhan and Saikia, 2022*) to increase their production and income in the village itself.

Table 4 depicts that 43 percent of farmers sold their produce both at the farm gate and local village markets, with the majority (21 percent) focusing on farm gate sales. This trend might be due to factors such as small quantities produced, and a lack of contract marketing encouraging them to sell their produce at farm gate only. Moreover, the majority (64%) of farmers were located more than four kilometers away from marketplaces. This can be attributed to many small-scale farmers residing near their farmlands, which are often distant from commercial markets. Furthermore, the results indicate that about 71 percent of the farmers adopted an individual marketing system, potentially resulting from a lack of knowledge or awareness about forming groups or cooperative marketing among the farmers. Regarding transportation, a considerable majority (71 %) of the farmers hired transport to distribute their farm produce to local market points. However, they faced challenges due to issues such as small transport size, high transport costs, and a lack of suitable transport options. In terms of selling arrangements, approximately 69 per cent of farmers sold their vegetable produce to village traders, while 71 per cent engaged in cash-based transactions. These findings were consistent with the results of *Raplant et al. (2021)*.

The findings of the multiple regression analysis presented in Table 5 examined the impact of socio-economic characteristics on the monthly net farm income of farmers. A deterministic regression function was used to determine the relationship between the dependent variable (farmers' monthly net farm income) and independent variables (socio-economic characteristics). The results show that the independent variables significantly influenced the farmers' monthly net farm income, with an F value of 8.678 at  $p < 0.001$ , indicating a strong correlation (R-value = 0.881). Moreover, the regression model accounted for 77.6 percent ( $R^2 = 0.776$ ) of the variation in the dependent variable. Out of the fourteen independent variables tested, eight were found to have a statistically

**Table 5. Parameter estimates of the multiple regression analysis of the effects of socio-economic factors and personal characteristics on the monthly net farm income of the small and marginal Vegetable Farmers**

Variables	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t-test	Sig.
(Constant)	2931.945	2359.097	.353	.794	.548
Gender	3765.517	953.103	-.168	3.654	.000*
Age	48.517	22.279	.076	2.178	.031*
Education	-70.820	99.777	-.022	-.710	.479
Marital Status	1041.318	1247.059	.029	.835	.405
Earning members in the family	5905.204	751.789	.278	7.855	.000*
Number of dependents in the family	413.741	258.500	.076	1.601	.112
Landholding	3878.777	1060.283	.328	3.658	.000
Hired labours for farming	1076.294	1123.686	.042	.958	.340
Income from Non farming activities	-273.622	517.890	-.019	-.528	.598
Access to Credit	455.994	340.601	.045	1.339	.183
Grading of vegetables	3871.905	1085.285	-.006	3.924	.000*
Access to Marketing Information	1338.534	613.358	.080	2.182	.031*
Access of Storage	3257.705	1267.616	.224	2.570	.011*
Distance from farm to marketplace	2617.005	1171.553	.190	2.234	.027*
R			.881		
R <sup>2</sup>			.776		
Adjusted R <sup>2</sup>			.687		
Durbin-Watson			2.313		
F			8.678		
P			.000**		

Figures in parentheses are significant: \* significant at 5% and \*\* significant at 10%

significant effect on the farmers' monthly net farm income. These significant variables include gender, age, earning member in the family, landholding, access to storage, grading of vegetables, access to market information (Bansal *et al.*, 2001), and distance from the farm to the marketplace. These findings highlight the importance of these factors in influencing the monthly net farm income of small and marginal farmers in the study area.

## CONCLUSION

The marketing of vegetables holds profound significance in the context of sustainable agricultural development, food security, and poverty alleviation, particularly within rural areas inhabited by small and marginal farmers. These farmers face critical challenges that hinder their marketing efforts, including limited access to credit, grading systems, transportation, and storage facilities, among others. Furthermore, a myriad of determinants, such as gender, age, earnings of family members, land holding size, access to storage facilities, vegetable grading practices, availability of marketing information, and proximity to the marketplace, exert substantial influence on the monthly income of small and marginal farmers. To address these challenges, the recommendation is to adopt a collective marketing approach that enables farmers to overcome constraints

and secure better prices for their produce. Additionally, providing effective quality extension services can equip farmers with crucial skills in vegetable production and marketing. Infrastructure development, including storage facilities, transportation roads, and communication systems, should also be emphasized to enhance overall marketing efficiency and benefit the livelihoods of the vegetable farmers.

## CONFLICTS OF INTEREST

The authors have no conflicts of interest.

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