P-ISSN: 2618-0723
E-ISSN: 2618-0731

NAAS Rating (2025): 5.04
www.extensionjournal.com

International Journal of Agriculture Extension and Social Development

Volume 8; Issue 9; September 2025; Page No. 705-710

Received: 11-07-2025
Accepted: 20-08-2025

Indexed Journal
Peer Reviewed Journal

Personal and socio-economic characteristics of GI registered mango growers in South Konkan

[1]Sumedh Swanand Joshi, [2]Dr. SC Warwadekar, [3]Dr. MM Kulkarni and [4]Tejashri Pandurang Dahiphle

[1]M.Sc. Scholar, Department of Agricultural Extension Education, College of Agriculture, DBSKKV, Dapoli, Maharashtra, India

[2]Head, Department of Agricultural Extension Education, DBSKKV, Dapoli, Maharashtra, India

[3]Associate Professor (CAS), Department of Horticulture, DBSKKV, Dapoli, Maharashtra, India

[4]Ph.D. Scholar, Department of Agricultural Extension Education, College of Agriculture, DBSKKV, Dapoli, Maharashtra, India

DOI: https://www.doi.org/10.33545/26180723.2025.v8.i9j.2500

Corresponding Author: Sumedh Swanand Joshi

Abstract

The study was conducted in Ratnagiri and Sindhudurg districts of South Konkan region of Maharashtra. Four tehsils were selected randomly from Ratnagiri and Sindhudurg districts. The respondents were GI registered mango growers. 30 respondents were selected randomly from each tehsil. Thus total 120 respondents were selected for present study. The study indicated that majority of the respondents were in middle age category with graduation and above level of education having family size of 4-6 members, business (agri-business) as their major occupation, semi-medium size of land holding, low range of annual income, medium level of income generated from mango, low mango yield, low area under mango cultivation, medium level of market orientation, fair level of market accessibility, medium level of use of social media having most of them using WhatsApp. Nearly half of the respondents had membership in one organization, with medium level sources of information.

Keywords: Geographical indications, mango, post-harvest management, knowledge, adoption

1. Introduction

Post harvest management practices are one of the important factors when it comes to export and import of mango. Post-harvest management is essential in preserving the quality and value of harvested crops. It involves a series of processes that ensure crops remain fresh, safe, and of high quality from harvest to consumption. The process begins with sorting, where damaged, diseased, or unripe produce is removed to ensure only high-quality crops are handled further. The GI tag plays an important role in improving conditions for high quality mango sale and export in the national and international market.

Geographical Indications (GIs) are a relatively new concept in intellectual property law. They refer to products that come from a specific area, city, town, or country, and have unique qualities due to their location. These products often become famous because of the area's climate, soil, local knowledge, and human skills, which all contribute to the product's distinct characteristics. GIs are important because they protect these products from being misused in a globalized world, helping preserve local heritage and knowledge. The first product in India to get a GI tag was Darjeeling tea, and today, many products are registered under the Geographical Indications of Goods (Registration and Protection) Act of 1999.

Recently there has been a rise in the importance of GI as intellectual property in global economic development because of its manifold benefits. First, these identify the source of the products. Furthermore, they suggest the quality and credibility of products by reminding customers that the items come from a particular place, territory or locality where quality, reputation or other characteristics are due in essence to their geographical roots. Third, they represent economic interests as they only approve products that come from a specific geographical location, territory, or locality.

2. Methodology

In this study multistage sampling technique was used. In the first stage Ratnagiri and Sindhudurg districts from the South Konkan region were selected. In the second stage four tehsils namely Rajapur, Ratnagiri, Dapoli from Ratnagiri and Devgad from Sindhudurg were selected for the present study. The tehsils were selected based on number of GI registered mango growers. Thus, 120 respondents from 4 tehsils were selected for the collection of required information. The selection of Ratnagiri and Sindhudurg districts was purposive based on the number of GI registered mango growers.

2.1 Research Design
The ex-post-facto research design was adopted for this study since the phenomenon has already started and is continuing. Ex-post-facto research is the most systematic empirical inquiry, in which the researcher does not have direct control over the independent variables as their manifestation has already occurred or as they are inherent and not manipulatable. Thus, inferences about relations among variables were made without direct intervention from concomitant variation of independent and dependent variables.

3. Results and Discussion
The findings of the study as well as relevant discussion given below.

3.1 Personal and socio-economic characteristics of GI registered mango growers
The data in respect of the selected personal and socio-economic profiles of the respondents are presented and discussed in this part.

3.1.1 Age
The data pertaining to the age of the respondents are studied and data were presented in Table 1. It could be revealed from table 1, that a majority (68.33 per cent) of the respondents belonged to 'middle' age category i.e. 44 to 66 years. This is followed by 16.67 per cent in the old age group and 15.00 per cent in the young age group respectively. The predominance of middle-aged participants may be attributed to the fact that individuals in this age range generally possess a blend of work experience, financial stability, and a strong drive to secure a reliable income source and hence, this category of respondents might have opted for GI. The probable reason for less involvement of young age respondents in mango cultivation might be their migration to cities for their jobs and business. The reason for the low involvement of old-age respondents might likely be less knowledge about GI and new technology in post-harvest management of mango. The results are in agreement with Aruna Farkate (2017) [1].

Table 1: Distribution of the respondents according to their age

Sl. No.	Age (Year)	Respondents (N=120)	
		Frequency	Percentage
1.	Young (Up to 43)	18	15.00
2.	Middle (44 to 66)	82	68.33
3.	Old (67and above)	20	16.67
Total		120	100.00
Mean = 55, S.D =12			

3.1.2 Education
The information regarding distribution of the respondents according to their education is given in Table 2.

Table 2: Distribution of the respondents according to their education

Sl. No.	Education (standards)	Respondents (N=120)	
		Frequency	Percentage
1.	Primary (5^{th} to 7^{th})	03	02.50
2.	Secondary (8^{th} to 10^{th})	27	22.50
3.	Higher secondary (11^{th} to 12^{th})	18	15.00
4	Graduation and above	72	60.00
Total		120	100.00

It could be observed from table 2 that majority of the respondents (60 per cent) had completed their graduation, followed by 22.50 per cent who had finished secondary education. Additionally, 15 per cent had higher secondary education. Only 2.50 per cent of the respondents had education up to primary levels.
The probable reason for literacy among the respondents were due to sufficient education facilities available in rural areas and realization about the significance of education for the overall development of the life, which in turn, might have helped them to have contacts with different research institutes and extension agencies to collect information about post-harvest management of mango, use and benefits of GI. It clearly indicates that majority of the respondent have graduation as their highest education. This is a positive factor, as it helps them to understand the post-harvest management practices of mango, good export policies, keep financial records, access financial support, subsidies and schemes, and mango management practices and production, processing and marketing of produce efficiently.
The results are similar with Sneha Godse (2010) [2], Waghmode (2015) [9].

3.1.3 Family size
The data pertaining to family size of the respondents are studied and data were presented in Table 3.

Table 3: Distribution of the respondents according to their family size

Sl. No.	Family size	Respondents (N=120)	
		Frequency	Percentage
1.	Up to 3 members	29	24.16
2.	4 to 6 members	76	63.34
3.	7 and above	15	12.50
Total		120	100.00

The data revealed that, most of the respondents (63.34 per cent) belonged to families with 4 to 6 members. Around 24.16 per cent had small families with up to 3 members. A smaller portion (12.50 per cent) reported had 7 and above family members.
This suggests that most of the respondents come from medium-sized families (4 to 6 members), which may offer a good balance between earning members and dependents. Such families may also provide enough support for mango cultivation and production. Also, this means that these families have more members to manage issues related to GI.
The data indicated that great majority (87.50 per cent) of the respondents belong to "medium to small" family size. The probable reason may be majority of people in Konkan region are migrated to cities for employment and elderly person are living in villages.
This finding is in concurrence with Yadav (2003) [10].

3.1.4 Major Occupation
The data regarding distribution of the respondents according to their major occupation is given in table 4. With regard to major occupation, it could be observed from Table 5 that, majority (50.00 per cent) of the respondents had 'business (agri-business)' as their major occupation, while 30.00 per cent and 20.00 per cent of the respondents had 'farming' and 'service' as their major occupation, respectively.

It can be summarized that majority (50.00 per cent) of the respondents had 'business (Agri-business)' as their major occupation. Agri-business involves various businesses like mango value addition, mango fruit processing, dairy and milk related products and Agri-input related stores. The probable reason may be that majority of those respondents who were entirely dependent upon business, might have been able to reap good amount of profit from it and hence paid more attention to it. The respondents involved in service were employed across various sectors like government agencies, commercial banks, transportation, e-commerce companies, fertilizer industry and chemical factories.

The results are similar to Mandavkar *et al.* (2004) [3].

Table 4: Distribution of the respondents according to their major occupation

Sl. No.	Major occupation	Respondents (N=120)	
		Frequency	Percentage
1.	Farming	36	30.00
2.	Business (Agri-business)	60	50.00
3.	Service	24	20.00
Total		120	100.00

3.1.5 Land holding

It refers to total land possessed by the respondent. The observation regarding the total land owned by the respondents is shown in table 5.

Table 5: Distribution of the respondents according to their size of land holding

Sl. No.	Land holding (ha)	Respondents (N=120)	
		Frequency	Percentage
1.	Marginal (0.01 to 1.00)	15	12.50
2.	Small (1.01 to 2.00)	20	16.67
3.	Semi-medium (2.01 to 4.00)	38	31.66
4	Medium (4.01 to 10.00)	30	25.00
5	Large (10.01 and above)	17	14.17
Total		120	100.00

The data revealed that, most of the respondents (31.66 per cent) had semi-medium level of land holding. It is followed by 25.00, 16.67, 14.17 and 12.50 per cent of them who had medium, small, large and marginal size of land holding respectively. It can be said that respondents were having relatively medium land holdings than the average farmers of the Konkan region.

Majority of respondents fall in semi-medium category of land holding. The probable reason might be that the ancestor land was fragmented into smaller sized land holdings.

The finding is in agreement with Nemade (2007) [4]. The findings are dissimilar with Godse (2010) [2].

3.1.6 Annual Income

The data regarding the annual income of the respondents is shown in Table 6.

Table 7 depicts the distribution of respondents based on the income generated from mango.

Table 8 shows the distribution of the respondents according to their mango yield (ton/ha).

Table 6: Distribution of the respondents according to their annual income

Sl. No.	Annual income (in lakhs)	Respondents (N=120)	
		Frequency	Percentage
1.	Low (upto 10,59,416.00)	45	37.50
2.	Medium (10,59,417 to 20,55,416)	33	27.50
3.	High (20,55,417 and above)	42	35.00
Total		120	100.00
Mean = 20,55,416 ½ SD =9,96,000			

The data from the above table revealed that most of the respondents (37.50 per cent) have low level of annual income. It is followed by 35.00 and 27.50 per cent having high and medium annual incomes respectively.

The results show that most respondents have low levels of annual income. This might be due to possession of 'semi-medium' sized land holding and cultivation of this land was the only source of their income. Also, it might be a possibility that the respondents may not receive enough rate from the APMC market.

The result is similar to Chougule. The result is dissimilar with Mandavkar *et al.* (2004) [3], Sneha Godse (2010) [2].

Table 7: Distribution of respondents according to the income generated from mango

Sl. No.	Income (in lakhs)	Respondents (N=120)	
		Frequency	Percentage
1.	Low (upto 3,17,043.66)	37	30.84
2.	Medium (3,17,044 to 2,188,238.66)	69	57.50
3.	High (2,188,239 and above)	14	11.66
Total		120	100.00
Mean = 12.52 lakhs, ½ SD =9,35,598			

The data shows that most of the respondents (57.50 per cent) have medium levels of income generated from mango. It is followed by 30.84 and 11.66 per cent having low and high levels of income generated from mango.

The results show that majority of respondents have medium level of income generated from mango. The reason is likely the good use of all information sources by the respondents for sale of mangoes at a profitable price. Also, many respondents might have used social media in the right way for marketing of their produce.

Table 8: Distribution of the respondents according to their mango yield. (Ton/ha)

Sl. No.	Yield (Ton/ha)	Respondents (N=120)	
		Frequency	Percentage
1.	Low (upto 6.15)	51	42.50
2.	Medium (6.16 to 17.1)	45	37.50
3.	High (28.05 and above)	24	20.00
Total		120	100.00
Average = 17.1 ton/ha, S.D =10.95			

The data signifies that most of the respondents (42.50 per cent) fall in low category, followed by 37.50 and 20.00 per cent of them falling in medium and high categories respectively.

The result shows that most respondents have low mango yield (Ton/ha). The possible reason for this might be the

changing climate and its effects like off-season rainfall, uneven temperature changes, excessive heat etc.
The result is similar to Borate (2002). The result is dissimilar to Sneha Godse (2010) [2] and ArunaFarakte (2017) [1].

3.1.7 Area under mango cultivation
The data in table 9 shows the distribution of respondents according to their area under mango cultivation.

Table 9: Distribution of the respondents according to their area under mango cultivation

Sl. No.	Area (ha)	Respondents (N=120)	
		Frequency	Percentage
1.	Low (upto 1.6)	62	51.66
2.	Medium (1.7 to 7.16)	32	26.67
3.	High (7.17 and above)	26	21.67
Total		120	100.00
Mean = 4.41 ha, S.D =2.76			

The data shows that most of the respondents 51.66 per cent belong to the low category, followed by 26.67 and 21.67 per cent of them belonging to the medium and high categories respectively.
Thus, the results reveal that most of the respondents (51.66 per cent) have low area under mango cultivation. The possible reason may be due to division of the land between the siblings of the respondents. The respondents might have used partial part of the land for mango cultivation and remaining for other purposes.
The results are different from Sneha Godse (2010) [2].

3.1.8 Market orientation
The data in table 10 shows the distribution of the respondents according to their market orientation categories.

Table 10: Distribution of respondents according to their market orientation

Sl. No.	Category	Respondents (N=120)	
		Frequency	Percentage
1.	Low (Up to 2.43)	16	13.33
2.	Medium (2.44 to 4.12)	100	83.34
3.	High (4.13 and above)	04	03.33
Total		120.00	100.00
Mean = 3.28, SD= 0.85			

The data shows that most of the respondents (83.34 per cent) fall in the medium category, followed by 13.33 and 03.33 per cent falling in low and high category respectively. The result is similar to Nemade (2007) [4], Ovhar (2013) [5], Rao (2016) [8]. The results are dissimilar with Waghmode (2015) [9].
The Mumbai market for export of Alphonso mango is most suited to the respondents. Besides this, the organizations like APEDA and MAHAMANGO and mango festivals might have helped them to get good market value for their fruits. These factors might have contributed positively to the market orientation of the respondents.

3.1.9 Market accessibility
The data in the table 11 reflects the distribution of the respondents according to their accessibility to the market.

Table 11: Distribution of the respondents according to their access to the market

Sl. No.	Category	Respondents (N=120)	
		Frequency	Percentage
1.	Poor (up to 4.6)	09	07.50
2.	Fair (4.7 to 7.3)	97	80.83
3.	Good (7.4 and above)	14	11.67
Total		120.00	100.00
Mean= 6, SD = 1.4			

The data reflects that most of the respondents (80.83 per cent) have fair accessibility to the market, followed by 11.67 and 07.50 per cent good and poor accessibility to the market. This result shows that the respondents had fair to good market accessibility.
The results are similar to Kadam (2006), Dhenge (2019). The results are dissimilar with Basha (2011).
Thus, the result shows that most of the respondents (80.83 per cent) have fair accessibility to the market. This might be due to availability of proper and smooth roads. Also, the respondents may have access to cheaper and safer transportation facilities further helping them in accessing the market.

3.1.10 Use of social media
The table 12 reveals the distribution of respondents according to their use of social media.

Table 12: Distribution of respondents according to their use of social media

Sl. No.	Extent of use of social media	Respondents (N=120)	
		Frequency	Percentage
1.	Low (Up to 8)	27	22.50
2.	Medium (9 to 11)	84	70.00
3.	High (12 and above)	09	07.50
Total		120	100.00
Mean= 9.63, SD=1.91			

The data reveals that majority of the respondents (70.00 per cent) belong to the medium category, followed by 22.50 and 07.50 per cent belonging to the low and high category respectively. Thus, it may be revealed that despite of having network issues in rural areas of Kokan region the majority (70.00 per cent) of respondents had 'medium' use of social media. They use social media platforms to stay connected with each other. Because of this the respondents stay updated with the latest information on GI, post-harvest management practices in mango and different aspects of the changing world. Most of the respondents are updating their knowledge by joining WhatsApp groups which provides information related to post-harvest management practices in mango, weather updates, export opportunities, mango price etc. Respondents are preferring YouTube to get solutions to their problems and issues related to mango cultivation and post-harvest practices. But as the social media platform contains vast information and varied solutions they are concerned about its validity, so they wish to get correct and updated information from State Agricultural Universities (SAUs) through YouTube channels of other authentic sources as well as WhatsApp groups. It is revealed that majority of the respondents (78.34 per cent) used WhatsApp for getting regular updates on information related to

agriculture, while (21.66 per cent) of the respondents used WhatsApp sometimes. Most of the respondents 60.84 per cent used YouTube for getting various information related to agriculture, while 36.67 per cent and 20.84 per cent of the respondents used Google and Facebook respectively for finding solutions on various problems.
The results are similar to Patil Pooja (2021) [6]. The results are dissimilar with Patil *et al*. (2015) [7].

3.1.11 Social Participation
The data in table 13 reveals the distribution of the respondents according to their social participation.

Table 13: Distribution of respondents according to their social participation

Sl. No.	Extent of participation	Respondents (N=120)	
		Frequency	Percentage
1.	Membership in one organization	42	35.00
2.	Membership in two organizations	39	32.50
3.	Membership in more than two organizations	39	32.50
Total		120	100.00

The data reveals that most of the respondents (35.00 per cent) have membership in one organization, followed by 32.50 per cent in both two and two or more organizations.
The probable reason for this might be less participation by the respondents in group activities organized by the respective organizations of the respective areas. Also, the respondents may have lesser interaction with respondents from other provinces.
The results are in line with, the results are dissimilar with Nemade (2007) [4].

3.1.12 Sources of Information
The data in table 14 reveals the distribution of respondents according to their sources of information.

Table 14: Distribution of respondents according to their sources of information

Sl. No.	Category	Respondents (N=120)	
		Frequency	Percentage
1.	Low (Up to 52	17	14.17
2.	Medium (53 to 61)	86	71.66
3.	High (62 and above)	17	14.17
Total		120	100.00
Mean = 57, SD= 5			

The data reveals that most of the respondents (71.66 per cent) fall in the medium category followed by an equal number 14.17 per cent falling in high and low categories respectively.
It means that most of the respondents had medium exposure to various information sources. This must have helped them to develop their knowledge and adoption regarding post-harvest management practices for mango and the benefits of using a GI tag for sale of the produce. Some respondents had low level of sources of information, which may be due to their less participation in group activities. Also, they might have less knowledge on use of internet and other relevant web sources. The respondents falling in high category of sources of information, might have good connections across their groups of various mango growers. These respondents also must have taken prior guidance and help from staff of Department of Agriculture and various extension agencies regarding the latest updates on post-harvest management practices for mango.
The result is in agreement with Ovhar (2013) [5]. The result is in disagreement with Thakur.

4. Conclusion
The majority (68.33 per cent) of the respondents belonged to ‘middle’ age category with average age of respondents was 55 years. The maximum number (60.00 per cent) of the respondents had ‘graduation’ as their highest education. Majority (63.34 per cent) of the respondents belonged to families with 4 to 6 members, average size of family being upto 5 members. The half of respondents (50.00 per cent) had ‘business-agri-business' as their major occupation. It was found that (31.66 per cent) of the respondents had semi-medium level of land holdings. It was revealed that (37.50 per cent) of the respondents had low level of annual income (upto Rs 10,59,416.00/-). It was reported that maximum number of the respondents had (57.50 per cent) medium level of income generated from mango (Rs. 3,17,044 to 2,188,238.66). It was found out that (42.50 per cent) of the respondents had low mango yield (T/ha), with the average being 17.1 T/ha. Maximum number of the respondents (51.66 per cent) had low area under mango cultivation, with the average being 4.41 ha. Great majority of the respondents (83.34 per cent) had medium level of market orientation with an average score of 3.28 indicating medium levels of market orientation. Great majority of respondents (80.83 per cent) had fair accessibility to the market with the average score of 6 indicating fair level of access to the market. Majority of the respondents (70.00 per cent) had medium level of social media use, with average score of 9.63, indicating medium level of social media use. One third of the respondents (35.00 per cent) had membership in one organization. Majority of the respondents (71.66 per cent) had medium level of sources of information, with average of 57, indicating medium level of information sources being used.

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