Journal of Agricultural Research Advances
ISSN: 2582-7227

Research Article
Open Access

Papaya growers in Nandurbar District of Maharashtra: A socio-economic profile study

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Received on: 11/08/2024 Accepted on: 17/12/2024 Published on: 23/12/2024

ABSTRACT

Aim: The aim of the study was to evaluate socio-economic impact of papaya cultivation, nutritional contributions; papaya production, economic empowerment to farmers with resources to secure household necessities.

Materials and Methods: Using interviews and observations, primary data was gathered from 60 papaya growers across two tehsils, Nandurbar and Shahada, located in the Nandurbar district.

Results: The findings indicated that 75% of the growers were in the middle age group (34–51 years), 80% had education at or above the graduate level, and 78.33% were part of joint families. Regarding their livelihood, 61.66% relied on farming alone, while 28.33% combined farming with animal husbandry. 51.67% of growers had very large land holdings, and 35% reported high annual incomes (Rs. 4,00,001 and above). Additionally, 65% cultivated papaya on up to 3 hectares of land, 45% had extensive farming experience (21 years or more), and 65% had moderate experience in papaya farming (6–10 years).

Conclusion: It was concluded that information sources, 50% of the growers relied on a medium level of personal sources, 86.67% obtained information from farmer fairs, and 85% occasionally gained knowledge from exhibitions or study tours.

Keywords: Papaya growers, primary data, socio-economic profile, Nandurbar district

How to cite this article: Suryawanshi DB, Ahire DB, Ban SH and Anand B (2024). Papaya growers in Nandurbar District of Maharashtra: A socio-economic profile study. J. Agri. Res. Adv., 06(04): 22-28.

Introduction

Papaya (*Carica papaya*) is one of the most important fruit cropsinthe tropical and subtropical regions of the world (Koul *et al.*, 2022). Papaya garden provides a good source of income and it has an important role to play in tribal nutrition (Bhardwaj and Nandlal, 2015). The papaya is a common fruit plant in kitchen gardens and is popular for its nutritional and medicinal properties as well as for its habit of barring fruits continuously throughout the year (Elfrida, Mubarak, and Suwardi, 2020). The ripe fruits are an excellent breakfast delicacy. Jams, soft drinks, and crystallized fruits are the other important products prepared from papaya (Nishimwe, 2019).

Unripe papaya is also used for cooking purposes. Papaya cultivation holds significant prominence in India, covering 1.38 lakh hectares and boasting an annual production of 59.88 lakh MT with a productivity rate of 43.40 MT/ha. Maharashtra, contributing 10,280 hectares under papaya cultivation, yields approximately 4.08 lakh MT with a productivity rate of 40.00 MT/ha (Anonymous, 2018). Notably, Nandurbar district in Maharashtra stands out as a leader in commercial-scale papaya production. However, this success has introduced challenges, as excessive production has led to market gluts, consequently impacting the profit margins of papaya growers. Remarkably, despite the pivotal role of papaya as a source of essential vitamins and minerals vital for human health, there remains a dearth of systematic studies addressing cultivation practices, post-harvest management, and effective marketing strategies in the papaya cultivation landscape of Nandurbar district. Therefore, this study aims to bridge this gap by

examining these crucial aspects. Understanding the socio-economic impact of papaya cultivation is paramount. Beyond its nutritional contributions, papaya production holds the potential for economic empowerment, providing farmers with resources to secure household necessities.

Materials and Methods

The study utilized an ex post facto research design and followed a purposive, multistage and random sampling approach. It was conducted in the Shahada and Nandurbar tehsils of the Nandurbar district, Maharashtra, during 2021-2022. These tehsils were purposively chosen based on their proportionally high areas under papaya cultivation. Subsequently, six villages with the largest areas under papaya cultivation were selected from each tehsil. From each of these villages, five respondents were randomly chosen, resulting in a total of sixty respondents from twelve villages, selected through simple random sampling.

Data collection was carried out using a detailed interview schedule through personal interviews. The data were analyzed using statistical tools such as percentages, mean, and standard deviation.

Results and Discussion

It was revealed that most of the respondents i.e. 75.00 per cent fall in the middle-aged category, followed by 16.67% into the old-aged, and 08.33% are young (Table 1). Middle-aged farmers were likely to dominate because of better work efficiency, active involvement in farming, and proper financial management that gave them scope to make their own decisions and incorporate new farming and entrepreneurial initiatives. Similar results were obtained in research conducted by Babanna (2002), Thippeswamy (2007) and Ravikumar *et al.* (2013).

It was clear that most of the respondents (80.00 %) pursued their education up to graduation and beyond, and followed by respondents having higher secondary school and secondary schools (i.e. 13.33% and 06.67% respectively), while no one belonged to the primary and illiterate category. The majority of respondents were educated up to graduation and above levels due to lack of lack of government job opportunities or interest in agriculture. The results conformed to the findings reported by Rajashekhar (2009).

It was reflected that about 78.33 percent of papaya farmers are from joint families whereas 21.67 percent belong to nuclear families, which is more likely considering their high landholding and cultivation of cash crops. Medium-sizedfamilies accounted for 58.33 percent of the farmers, 21.67 percent belonged to the small-sized families, and 20.00 percent belonged to large-sized families.

Concerning the occupation of the respondents, it can be depicted (Table 1) that 50.00 percent of the papaya growers had engaged in the farming occupation for their earnings followed by 28.33 percent in farming and animal husbandry and 13.33 percent in farming and business. Whereas, only 08.33 percent of the papaya growers engaged in farming and service occupation. This could be attributed to their adherence to traditional ancestral occupations, primarily agriculture. Consequently, the majority adopted farming and animal husbandry as their primary livelihood. These findings were aligned with the observations of Hendge et al. (2007) and Naveen Kumar (2012).

It was revealed that a majority (51.67%) of the respondents possess large landholdings exceeding 10 hectares, followed by 31.67% with semi-medium holdings (2.00 to 4.00 hectares) and 16.66% with medium holdings (4 to 10 hectares). This pattern may be attributed to the prevalence of joint families and the lack of land fragmentation. Similar findings were reported by Ravikumar et al. (2013).

The distribution of land under papaya cultivation reveals that 65.00% of growers cultivated up to 3 hectares, 30.00% managed between 3.01 and 5 hectares, and 5.00% cultivated more than 5.01 hectares. This pattern likely reflects variations in land availability and favourable climatic conditions.

Papaya growers and their income groups

It was observed that 35.00% of respondents fall into the high-income group, earning ₹4 lakh or more annually. Meanwhile, 33.33% belong to the medium-income group, earning ₹2.01 to ₹4 lakh, and 31.67% fall into the low-income group, earning up to ₹2 lakh. This income distribution can be attributed to factors such as family background, landholding size, engagement in subsidiary occupations, and the high profitability of papaya cultivation.

Table 1: Papaya growers and their personal and socio-economic characteristics

Variables	Category	No.	(n=60) %
Age	Young Up to 33 years	05	08.33
	Middle 34 to 51 years	45	75.00
	Old 51 years and above	10	16.67
Education	Illiterate	-	-
	Primary (Up to IV std.)	-	-
	Secondary (V to X std.)	04	06.67
	Higher Secondary (IX &XII)	08	13.33
	Graduate and above	48	80.00
Type of family	Joint	47	78.33
	Nuclear	13	21.67
Family size	Small (up to 5 members	13	21.67
	Medium (6 to 8 members)	12	20.00
	Large (more than 8 members)	35	58.33
Occupation	Only farming	30	50.00
	Farming and animal husbandry	17	28.34
	Farming and labour	-	-
	Farming and business	08	13.33
	Farming and service	05	08.33
Size of Land Holding	Marginal holdings (1 ha or less)	-	-
	Smallholdings (1 to 2 ha)	-	-
	Semi-medium holdings (2 to 4 ha)	19	31.67
	Medium holdings (Size 4 to 10 ha)	10	16.66
	Large holdings (Size above 10 ha)	31	51.67
Area Under Papaya Cultivation	Up to 3.00 ha	39	65.00
	3.01 to 5.00 ha	18	30.00
	5.01 ha and above	03	05.00
Family income	Low (Up to ₹ 2,00,000)	19	31.67
	Medium (₹ 2,00,001 to 4,00,000)	20	33.33
	High (₹ 4,00,001 and above)	21	35.00
Farming experience	Very low (up to 5 years)	01	01.67
	Low (6 to 10 years)	06	10.00
	Medium (11-15 years)	14	23.33
	High (16-20 years)	12	20.00
	Very high (21 years and above)	27	45.00
Experience in papaya cultivation	Low (Up to 05 years)	11	18.33
	Medium (06 to 10 years)	39	65.00
	High (11 years and above)	10	16.67

Papaya growers and their farming experience

Accordingly, 45.00% of respondents possess extensive farming experience of 21 years or more. This was followed by 23.33% with medium experience (11–20 years) and 20.00% with high experience (16–20 years). The prevalence of long farming experience was likely due to the respondents' middle or advanced age, indicating early entry into farming careers. These findings were consistent with Ravikumar et al. (2013).

Papaya growers and their experience in papaya cultivation

The highlights showed that 65.00% of respondents have medium experience in papaya cultivation (6–10 years), while 18.33% have low experience (up to 5 years), and 16.67% have high experience (11 years or more). This trend could

be attributed to papaya's recent rise as a profitable cash crop, attracting farmers to adopt it as a primary cultivation option. These observations were in alignment with Ravikumar et al. (2013).

It was observed that 50.00% of the papaya farmers accessed a medium level of personal information sources, while 30.00% had a high level and 20.00% had a low level (Table 2). This trend showed a diverse demand for personal information among the growers.

As highlighted, 71.67% of papaya farmers always contact the owners of Agro Service Centres; 85.00% contact agriculture assistants; 83.33% contact progressive farmers; 65.00% contact agriculture officers; and 63.00% sometimes contact Company representatives (Table 3). This trend probably derived from these officials being grassroots workers, thus easily accessible at the village level, hence the frequent contact.

It was further unfolded that information acquired by respondents through farmers' fairs was 86.67%, through exhibitions or study tours sometimes was 85.00%, and through group discussions sometimes was 80.83% (Table 4). These sources seemed to be quite crucial for transferring knowledge to farmers.

It was revealed that 76.67% of the papaya farmers had average contact with extension (Table 5). On the other hand, 13.33% remained in good contact while 08.33% had excellent contacts. Such figures depict the different proportions of supporting and outreach aspects faced by the growers.

It was recorded that 46.67% of papaya growers had a medium-level exposure to mass media, 36.67% had a very high exposure, and 16.67% had a low exposure to mass media (Table 6). This variation in the levels of access and dependency on mass media by the growers came across.

It was showed that 73.33% of papaya farmers always get information through television, followed by 70.00% from newspapers (Table 7). Only 25.00% of the papaya farmers always read magazines and none get information through the radio. This was an indication that the viewership and reading media were more favorable to the farmers.

It was indicates that 80% of papaya growers consistently use cell phones, 76.67% use WhatsApp, 75% use the Internet, and 28.33% engage with other social apps (Table 8). This underscores the critical role of mobile technology and digital communication platforms in their lives.

Furthermore, it was showed that there was 51.67% high mobile exposure among papaya growers; 30.00% was within the medium area, while 18.33 % had low exposure (Table 9). This subsequently showed a heavy dependence on mobile technology in information accessibility.

Table 2: Papaya growers according to their overall personal source of information (n= 60)

Sr. No.	Category	Frequency	Per cent
1	Low (Score Up to 14.45)	12	20.00
2	Medium (Score Between 14.46 to 17.59)	30	50.00
3	High (Score 17.60 & above)	18	30.00
Total		**60**	**100.00**

Table 3: Papaya growers according to their in-depth different personal sources of information used

Sr. No.	Personal sources	Nature of contact					
		Always		Sometimes		Never	
		Frequency	%	Frequency	%	Frequency	%
1	Friends and relatives	39	65.00	21	35.00	-	-
2	Progressive Farmers	10	16.67	50	83.33	-	-
3	Agro Service Centre Owners	43	71.67	17	28.33	-	-
4	Leader	6	10.00	22	36.67	32	53.33
5	Gramsevak	8	13.33	36	60.00	16	26.67
6	Agril. Assistant	8	13.33	51	85.00	1	1.67
7	Agril. Officers	1	1.67	39	65.00	20	33.33
8	Agriculture Scientists	11	18.33	33	55.00	16	26.67
9	Company representatives	16	26.67	38	63.33	6	10.00

Table 4: Papaya growers according to the kind of extension education methods used (n=60)

Sr. No.	Extension education methods	Nature of contact					
		Always		Sometimes		Never	
		Frequency	%	Frequency	%	Frequency	%
1	Group discussion	12	20.00	48	80.00	-	-
2	Exhibitions/ Study tours	8	13.33	51	85.00	1	1.67
3	Farmers fairs	6	10.00	52	86.67	2	3.33
4	Training programmes	5	8.33	48	80.00	7	11.67

Table 5: Papaya growers according to their overall extension contact (n = 60)

Sr. No.	Category	Frequency	Per cent
1	Poor (Up to 2)	1	1.67
2	Average (3 to 4)	46	76.67
3	Good (5 to 6)	8	13.33
4	Excellent (7 to 8)	5	8.33
Total		**60**	**100.00**

Table 6: Papaya growers according to their overall mass media as a source of information (n=60)

Sr. No.	Category	Frequency	Per cent
1	Low (Score Up to 5.00)	10	16.66
2	Medium (Score Between 5.01 to 6.00)	28	46.67
3	High (Score 6.01 & above)	22	36.67
	Total	**60**	**100.00**

Table 7: Papaya growers'respondents according to different mass media used (n=60)

Sr. No.	Mass media	No. of Respondents					
		Always		Sometimes		Never	
		Frequency	%	Frequency	%	Frequency	%
1	Newspaper	42	70.00	18	30.00	-	-
2	Magazines	15	25.00	40	66.67	5	8.33
3	Radio	-	-	-	-	60	100.00
4	Television	44	73.33	16	26.67	-	-

Table 8: Papaya growers according to their in-depth mobile media used (n=60)

Sr. No.	Electronic media	No. of Respondents					
		Always		Sometimes		Never	
		Frequency	%	Frequency	%	Frequency	%
1	Cell phone	48	80.00	12	20.00	-	-
2	WhatsApp	46	76.67	10	16.67	4	6.66
3	Other social apps	17	28.33	9	15.00	34	56.67
4	Internet	45	75.00	12	20.00	3	5.00

Table 9: Papaya growers according to their overall mobile exposure(n=60)

Sr. No.	Category	Frequency	Per cent
1	Low (Score Up to 8.00)	11	18.33
2	Medium (Score Between 8.01 to 10.00)	18	30.00
3	High (Score 10.01 & above)	31	51.67
	Total	**60**	**100.00**

Conclusions

It was concluded that 75.00% of papaya growers fell within the middle-age category (34–51 years), and 80.00% had attained graduation or higher levels of education. Additionally, 78.33% of the growers belonged to joint families. A significant 61.66% relied solely on farming for their income, while 28.33% combined farming with animal husbandry. Regarding land ownership, 51.67% had very large landholdings, and 35.00% reported high annual incomes (₹4,00,001 and above). In terms of cultivation practices, 65.00% cultivated papaya on up to 3 hectares of land. Furthermore, 45.00% had extensive farming experience (21 years or more), while 65.00% had medium experience (6–10 years) specifically in papaya farming. Concerning information access, 50.00% relied on a medium level of personal information sources. Notably, 86.67% obtained information from farmers' fairs, followed by 85.00% who occasionally attended exhibitions or study tours.

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