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Profile characteristics of Mandarin growers in Vidarbha region of Nagpur district, Maharashtra state

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Abstract
The present study was conducted in the Vidarbha region of Nagpur district, Maharashtra state in the year 2023-24. The study focuses on the profile characteristic of mandarin growers. An exploratory research design of social research was used for the present study. The study was carried out in three tahsils namely Kalmeshwar, Narkhed and Katol. The tahsils were selected purposively due to highest mandarin cultivation. From each selected tahsils four villages were selected randomly and from each selected village 10 mandarin growers were selected randomly thus contributing to total 120 respondents. Collected data were classified, tabulated, and analyzed by using statistical methods such as percentage, frequency, mean and standard deviation. From the data of 120 respondents it was revealed that, over half of the respondents (53.33%) belonged to middle age group,(30.00%) of the respondents were educated upto secondary school, Majority (78.33%) farmers did not received any training, Upto (40.00%) farmers have marginal size of orchard, over half of the respondents (57.50%) farmers have medium age of orchard, higher proportion of the respondents were having medium size of family, majority (41.66%) of the farmers have semi-medium size of land holding, majority (26.67%) of the farmers had mandarin income in range of 1.01 to 2.00 lakhs rupees, most of the respondents (25.83%) had annual income above 4.00 lakh rupees, majority of them (62.50%) had medium level of economic motivation, (64.16%) had medium level of market orientation and (52.50%) had medium level of risk orientation, respectively.

Keywords: Mandarin growers, profile characteristic

Introduction
Nagpur mandarin, scientifically known as *Citrus reticulata*, boasts a storied history in central India, especially within the Vidarbha region of Maharashtra. This region, often referred to as the "Orange City," is celebrated for its exceptional mandarin oranges. Other areas such as Akola, Amravati, and Wardha also play significant roles in mandarin production. Beyond mandarins, Maharashtra's citrus industry encompasses sweet lime cultivation in Aurangabad, Jalgaon, Pune, Amravati, and Ahmednagar, as well as lemon production in Pune, Beed, Aurangabad, Nagpur, and Solapur.

Nagpur mandarin thrives in humid tropical climate of Maharashtra's Vidarbha region, known for its intensely high summer temperatures, which can soar between 45 °C and 46 °C. Despite the extreme heat and challenging conditions, the Nagpur mandarin not only survives but prospers, demonstrating remarkable durability and adaptability

Materials and Methods
The present study was undertaken in Nagpur district of Vidarbha region. The district was purposively selected due to highest mandarin cultivation. In Nagpur district there are fourteen tahsils out of which three tahsils namely; Kalmeshwar, Narkhed and Katol were purposively selected due to highest mandarin cultivation than other tahsils. From these tahsils, four villages from each tahsils were selected randomly. Thus, total twelve villages were selected. From each selected village ten respondents were selected randomly, totalling to total 120 respondents. The interview schedule was pre-tested with 10 samples to rectify any errors or deficiencies, ensuring clarity, validity and practicality.

Data for the study were gathered through personal interviews conducted with the respondents, utilizing the pre-tested schedule. All the respondents were approached at their residences, farms, and workplaces and their responses were utilized for the present study. Collected data were analyzed, classified and tabulated by using statistical tools such as percentage, frequency, mean and standard deviation to draw the results and conclusion.

Results and Discussion

The results of the study are presented as under:

1. Age

Table 1: Distribution of respondents according to their age

Sl. No.	Age (years)	Respondents (n=120)	
		Frequency	Percentage
1	Young (Up to 35)	29	24.17
2	Middle (36-50)	64	53.33
3	Old (Above 50)	27	22.50
	Total	120	100.00

It is inferred from table 1 that, majority of the respondents were categorized into middle age group (53.33%), followed by young age group (24.17%) and rest of them (22.50%) were old age group. Since majority of farmers belonged to middle age group and have much experience, they can easily understand and implement latest technologies in mandarin cultivation in their fields. This is in accordance with the findings of Neema (2015), Mano (2016) [11], Meena (2017) [12] and Ghadge and Bhople (2022) [3].

2. Education

Table 2: Distribution of respondents according to their education

Sl. No	Education	Respondents (n=120)	
		Frequency	Percentage
1	Illiterate	05	04.16
2	Primary (1st to 4th)	08	06.66
3	Middle School (5th to 7th)	06	05.00
4	Secondary School (8th to 10th)	36	30.00
5	Higher secondary (11th to 12th)	31	25.83
6	College (Above 12th)	34	28.33
	Total	120	100.00

It could be indicated from the table 2 that majority of mandarin growers were educated up to secondary school (30.00%) followed by college (28.33%), higher secondary (25.83%), primary (06.66%), middle school (05.00%) and (04.16%) were illiterate. From results it could be concluded that higher proportion of the mandarin growers were educated up to secondary school. Similar findings were reported by Todmal (2011) [16], Mankar *et al*. (2014) [10] and Dhumale (2017) [2].

3. Trainings received

Table 3: Distribution of respondents according to their training received

Sl. No	Trainings received	Respondents (n=120)	
		Frequency	Percentage
1	No Training	94	78.33
2	One day	00	00.00
3	Two days	26	21.66
4	Three days	00	00.00
	Total	120	100.00

From table 3 it is revealed that, majority of the respondents (78.33%) did not receive any training whereas, (21.66%) of the mandarin growers received two-days training. Thus, it could be concluded that government should focus more on training related activities. These findings are in accordance with Kattel (2011) [8], Mano (2016) [11] and Jayshree (2018) [6].

4. Size of orchard

Table 4: Distribution of respondents according to their Size of orchard

Sl. No	Size of orchard (ha)	Respondents (n=120)	
		Frequency	Percentage
1	Marginal (up to 1.00 ha)	48	40.00
2	Small (1.01 to 2.00 ha)	39	32.50
3	Semi medium (2.01 to 4.00 ha)	29	24.17
4	Medium (4.01 to 10.00 ha)	04	03.33
5	Large (above 10.00 ha)	00	00.00
	Total	120	100.00
Mean = 1.92			

Findings in table 4 revealed that; majority of the respondents were marginal farmers (40.00%), followed by small farmers (32.50%), semi medium farmers (24.17%), medium farmers (03.33%) and large farmers (0.00%) under cultivation of mandarin. From the above result it could be concluded that majority of respondents belonged to marginal group. The findings were nearly matched with findings of Bankar (2017) [1], Hiwarale (2023) [5].

5. Age of orchard

Table 5: Distribution of respondents according to their Age of orchard

Sl. No	Age of orchard (Years)	Respondents (n=120)	
		Frequency	Percentage
1	Small (up to 9 years)	44	36.67
2	Medium (10-17 years)	69	57.50
3	Large (above 17 years)	07	05.83
	Total	120	100.00
Mean = 13.00			

Table 5 revealed that majority (57.50%) of mandarin growers having age of mandarin trees between 10 to 17 years old followed by (36.67%) each mandarin growers having up to 9 years old orchards and (5.83%) each mandarin growers having above 17 years old orchards. Hence, it was concluded that majority (57.50%) of the mandarin growers having productive mandarin plants in his orchards. These findings were supported by Gomase (1997) [4], Dhumale (2017) [2].

6. Family size

Table 6: Distribution of respondents according to their Family size

Sl. No	Family size (Members)	Respondents (n=120)	
		Frequency	Percentage
1	Small (Up to 4)	47	39.16
2	Medium (5 to 6)	55	45.83
3	Large (Above 6)	18	15.00
	Total	120	100.00

It could be indicated from the table 6 that, larger part of mandarin growers (45.83%) had medium family size, having 5 to 6 members, while (39.16%) mandarin growers had a place with small family size, having. The greater number of up to 4 members in the family and (15.00%) with large family size. It

could be concluded that majority of the members in family are in range of 5 to 6. The findings are in line with findings of Mandal and Jirli (2018) [9] and Kausadikar (2019) [7].

7. Land holding

Table 7: Distribution of respondents according to their Land holding

Sl. No	Land holding (ha)	Respondents (n=120)	
		Frequency	Percentage
1	Marginal (up to 1.00 ha)	20	16.66
2	Small (1.01 to 2.00 ha)	38	31.66
3	Semi medium (2.01 to 4.00 ha)	50	41.66
4	Medium (4.01 to 10.00 ha)	11	09.16
5	Large (above 10.00 ha)	01	00.83
	Total	120	100.00
Mean = 2.82			

From table 7 it is observed that majority of the total land holding of the farmers were semi medium (41.66%), followed by small farmers (31.66%), marginal farmers (16.66%), medium farmers (09.16%) and large farmers (0.83%). From the above result it can be concluded that majority of the farmers have 2.01 to 4 ha of land. The finding was in accordance with the findings of Dhumale (2017) [2], Hiwarale (2023) [5].

8. Income from mandarin

Table 8: Distribution of respondents according to their income from mandarin

Sl. No.	Mandarin income (Rs.)	Respondents (n=120)	
		Frequency	Percentage
1	Very low (up to 1.00 lakh)	30	25.00
2	Low (1.01 to 2.00 lakh)	32	26.67
3	Medium (2.01 to 3.00 lakh)	19	15.83
4	High (3.01 to 4.00 lakh)	15	12.50
5	Very high (above 4.00 lakh)	24	20.00
	Total	120	100.00
Mean = 296066.67			

Table 8 reveals that majority of the farmers (26.67%) income was in between Rs 1.01 to 2.00 lakh, followed by (25.00%) up to 1.00 lakh, (20.00%) above 4.00 lakh, (15.83%) 2.01 to 3.00 lakh and (12.50%) 3.01 to 4.00 lakh. These results are in conformity with findings of Vijay (2019) [17] and Rede (2021) [14].

9. Annual income

Table 9: Distribution of respondents according to their annual income

Sl. No	Annual income (Rs.)	Respondents (n=120)	
		Frequency	Percentage
1	Very low (up to 1.00 lakh)	24	20.00
2	Low (1.01 to 2.00 lakh)	30	25.00
3	Medium (2.01 to 3.00 lakh)	21	17.50
4	High (3.01 to 4.00 lakh)	15	12.50
5	Very high (above 4.00 lakh)	31	25.83
	Total	120	100.00
Mean = 378983.33			

It is observed from the table 9 that majority (25.83%) of the farmers belong to above Rs 4.00 lakhs, followed by (25.00%) farmers belonged to 1.01 to 2.00 lakh group, (20.00%) up to 1.00 lakh, (17.50%) 2.01 to 3.00 lakh and (12.50%) 3.01 to 4.00 lakhs. The result is in accordance with Ghadge and Bhople (2022) [3] and Hiwarale *et al.* (2023) [5].

10. Economic motivation

Table 10: Distribution of respondents according to Economic motivation

Sl. No	Economic motivation	Respondents (n=120)	
		Frequency	Percentage
1	Low	19	15.83
2	Medium	75	62.50
3	High	26	21.66
	Total	120	100.00
Mean = 21.70			

It could be seen from the Table 10 that, more than half (62.50%) of mandarin growers belonged to medium level of economic motivation, followed by high level of economic motivation to the extent of (21.66%). The (18.33%) of mandarin growers belonged to low level of economic motivation. It could be concluded that the majority of mandarin growers had medium level of economic motivation. The finding of present study is similar with findings of Ghadge and Bhople (2022) [3] who reported that majority of respondents had medium level of economic motivation.

11. Market orientation

Table 11: Distribution of respondents according to Market orientation

Sl. No	Market orientation	Respondents (n=120)	
		Frequency	Percentage
1	Low	20	16.66
2	Medium	77	64.16
3	High	23	19.16
	Total	120	100.00
Mean = 17.28			

From the table 11 it can be concluded that majority of the mandarin growers (64.16%) had medium level of market orientation followed by (19.16%) in high market orientation category followed by (16.66%) had low market orientation of the mandarin growers. Similar results were observed by Shende (2019) and Hiwarale (2023) [5].

12. Risk orientation

Table 12: Distribution of respondents according to risk orientation

Sl. No	Risk orientation	Respondents (n=120)	
		Frequency	Percentage
1	Low	22	18.33
2	Medium	63	52.50
3	High	35	29.16
	Total	120	100.00
Mean = 19.52			

An observation of results of the table 14 indicated that, majority of mandarin growers (52.50%) having medium level of risk orientation while (18.33%) who were under low category of risk orientation whereas, (29.16%) mandarin growers were under high category. The results of the table shows that majority of the respondents agreed to take medium to higher risk in making big profit than to be content with small profits. The similar results were found by Ghadge and Bhople (2022) [3] and Hiwarale (2023) [5].

Conclusion

The study on profile characteristic on mandarin growers result conclude that; majority of the respondents (53.33%) belonged to middle age group, high proportion of the respondents were educated up to secondary school (30.00%), majority (78.33%) of the respondents did not receive any training in mandarin cultivation, higher proportion of respondents were having marginal size of orchard (40.00%), over half of the respondents (57.50%) belonged to medium (10-17 years) age of orchard, majority of the respondents (45.83%) were having medium family size (5 to 6 members), higher proportion of respondents were semi-medium farmers (41.66%), majority (26.67%) of the respondents were having mandarin income in range of 1.01-2 lakh rupees, most of the respondents (25.83%) were having annual income above 4.00 lakh rupees, over half of the respondents (62.50%) had medium level of economic motivation, about (64.16%) respondents have medium category of market orientation, great majority of respondents (52.50%) have medium category of risk orientation.

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