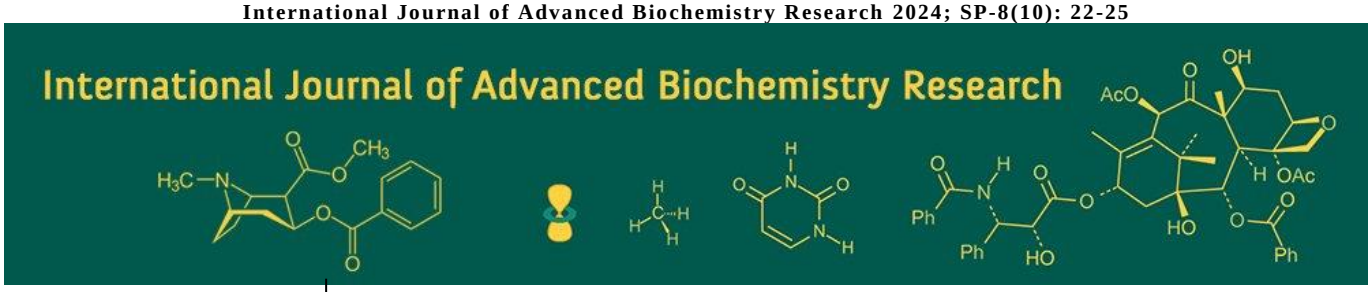

ISSN Print: 2617-4693
ISSN Online: 2617-4707
IJABR 2024; SP-8(10): 22-25
www.biochemjournal.com
Received: 24-07-2024
Accepted: 28-08-2024

PN Tayade
P.G. Scholar, Agricultural Extension Education Section, College of Agriculture, Nagpur, Maharashtra, India

Dr. SL Deotale
Assistant Professor, Agricultural Extension Education Section, College of Agriculture, Nagpur, Maharashtra, India

Dr. MK. Rathod
Professor and Head, Agricultural Extension Education Section, College of Agriculture, Nagpur, Maharashtra, India

Dr. VU Raut
Professor and Head, Horticulture Section, College of Agriculture, Nagpur, Maharashtra, India

NT Bagde
Assistant Professor and Head, Agricultural Economics and Statistics Section, College of Agriculture, Nagpur, Maharashtra, India

Yashashri R Landge
P.G. Scholar, Agricultural Botany Section, College of Agriculture, Nagpur, Maharashtra, India

Corresponding Author:
PN Tayade
P.G. Scholar, Agricultural Extension Education Section, College of Agriculture, Nagpur, Maharashtra, India

SWOT analysis of Mandarin growers in Vidarbha region of Nagpur district

PN Tayade, Dr. SL Deotale, Dr. MK. Rathod, Dr. VU Raut, NT Bagde and Yashashri R Landge

DOI: https://doi.org/10.33545/26174693.2024.v8.i10Sa.2398

Abstract
The present study was conducted in Vidarbha region of Nagpur district, Maharashtra state in the year 2023-24. The study focuses on the Strengths, Weaknesses, Opportunities and Threats 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 in these areas. From each selected tahsil, 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 analysed by using statistical tool, Rank Based Quotient. The most significant strengths of mandarin growers in mandarin cultivation were found to be having following characteristic such as; 'pre dominant variety of Vidharbh region (Rank I)', 'Preference of Nagpur mandarin due to loose juicy coat (Rank II)', 'Higher net Income (Rank III)' etc. The most important weaknesses of mandarin growers in mandarin cultivation were found to be; 'Processing industries are not available locally (Rank I)', 'followed by Severe infestation of pest and diseases (Rank II)', 'Non-availability of labour and High cost of labour (Rank III)'. The most important opportunities of mandarin growers in mandarin cultivation were listed as; 'Increasing demand in domestic market (Rank I)', 'Creating value-added products such as Mandarin juice, jams, dried Mandarin snacks etc. at mandarin belt (Rank II)',' Establishment of processing industries at production area (Rank III)'. The most important threats of mandarin growers in mandarin cultivation were found to be 'Non-adoption of climate resilient technology (Rank I)', followed by 'Fluctuation in market prices (Rank II)', 'Decrease in yield to due *Phytopthora* (Rank III)' etc.

Keywords: Mandarin growers, strengths, weaknesses, opportunities, threats

Introduction
The cultivation of Nagpur mandarin has been a cornerstone of local agriculture and cultural heritage for over three centuries. Renowned for its distinctive flavour, juicy pulp, and vibrant colour, the Nagpur mandarin is a highly prized citrus variety both locally and beyond. Its enduring presence in the region underscores its adaptability to local climate and soil conditions, which has supported its continuous cultivation through the generations.

India's citrus industry is a major component of the nation's agricultural sector, ranking as the third-largest fruit industry after mangoes and bananas. Globally, India is the ninth-largest producer of mandarins, contributing about 3% of the world's total mandarin production. Yet, the export figures paint a different picture, with only approximately 1.72% of the total production being exported.

This disparity highlights the strong domestic demand for mandarins in India, emphasizing the fruit's popularity and significant consumption within the country. The robust domestic market reflects the mandarin's cultural importance, versatility in culinary uses, and nutritional benefits, making it a staple fruit in households across India.

Materials and Methods
The Present study on SWOT analysis was undertaken in Vidarbha region of Nagpur district. 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 selected three tahsils, four villages from each tahsils were selected randomly, thus totaling to

twelve villages. From each selected village ten respondents were selected randomly, totaling to total 120 respondents. The interview schedule was pre-tested with 10 samples to rectify the 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 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 tool Rank Based Quotient to draw the results and conclusion.

Results and Discussion

The results of the study are presented below –

1. Strengths

Table 1: The data regarding strengths in mandarin cultivation as perceived by mandarin growers

(n=120)

Sr. No.	Strengths	Rank											
		I	II	III	IV	V	VI	VII	VIII	IX	X	RBQ	Rank
1	Pre-dominant variety of Vidharbha region	54	27	23	10	6	-	-	-	-	-	89.42	I
2	Preference of Nagpur mandarin due to loose-juicy coat	18	29	20	36	17	-	-	-	-	-	79.58	II
3	Higher Net Income	13	25	29	30	23	-	-	-	-	-	77.92	III
4	Superior taste and quality than other available varieties	15	24	26	25	30	-	-	-	-	-	77.42	IV
5	Significant yield increases due to use of disease-free rootstock	20	15	22	19	44	-	-	-	-	-	75.67	V
6	Wider adaptability to agro-climatic conditions	-	-	-	-	-	56	39	25	-	-	42.58	VI
7	Wide use of drip irrigation in mandarin	-	-	-	-	-	33	13	25	26	23	30.58	VII
8	Correct Choice of selection of bahar	-	-	-	-	-	22	23	22	27	26	29.00	VIII
9	Better extension strategy for nursery management	-	-	-	-	-	7	20	29	32	32	24.83	IX
10	High density plantation or plantation by Isreal method	-	-	-	-	-	2	25	19	35	39	23.00	X

2. Weaknesses

Table 2: The data regarding to weaknesses in mandarin cultivation as perceived by mandarin growers

(n=120)

Sl. No.	Weaknesses	Rank													
		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	RBQ	Rank
1	Processing industries are not available locally	12	40	30	13	25	-	-	-	-	-	-	-	86.50	I
2	Severe infestation of pest and diseases	34	29	20	20	17	-	-	-	-	-	-	-	86.32	II
3	Non availability and high cost of labour	27	15	32	31	15	-	-	-	-	-	-	-	83.89	III
4	Non availability of cold storage facility	22	21	22	23	32	-	-	-	-	-	-	-	81.81	IV
5	Pre harvest fruit drop	25	15	16	33	31	-	-	-	-	-	-	-	81.25	V
6	Deep black cotton soil (ill drainage)	-	-	-	-	-	38	41	41	-	-	-	-	49.79	VI
7	Export facilities are not properly established	-	-	-	-	-	52	26	28	8	3	1	2	48.96	VII
8	More commission charged by commission agent	-	-	-	-	-	29	49	32	6	2	1	1	47.92	VIII
9	Rind colour is non-uniform	-	-	-	-	-	1	1	16	32	46	18	6	27.85	IX
10	Non preferred for export due to low TSS	-	-	-	-	-	-	3	3	44	33	16	21	25.07	X
11	Non adoption of latest/recommended technologies	-	-	-	-	-	-	-	-	11	20	55	34	17.22	XI
12	Unavailability of tractor operated pruning machine on hire basis	-	-	-	-	-	-	-	-	19	16	29	56	16.53	XII

3. Opportunities

Table 3: The data regarding to opportunities in mandarin cultivation as perceived by mandarin growers

(n=120)

Sl. No.	Opportunities	Rank													
		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	RBQ	Rank
1	Increasing demand in domestic market	33	33	22	32	-	-	-	-	-	-	-	-	89.99	I
2	Creating value-added products such as Mandarin juice, jams, dried Mandarin snacks etc. at mandarin belt	37	33	35	15	-	-	-	-	-	-	-	-	89.72	II
3	Establishment of processing industries at production area	24	33	26	36	1	-	-	-	-	-	-	-	86.32	III
4	To increase mechanization and automation	26	21	37	22	6	8	-	-	-	-	-	-	84.38	IV
5	To establish partnerships with local food and beverage industries for incorporating Nagpur Mandarins into various culinary products	-	-	-	10	26	45	35	4	-	-	-	-	58.54	V
6	Exporting Nagpur Mandarins to international markets	-	-	-	5	39	36	30	10	-	-	-	-	58.26	VI
7	Collaboration with Retailers	-	-	-	-	25	20	32	43	-	-	-	-	51.88	VII
8	Need to strengthen Research, Extension and Farmers linkage	-	-	-	-	23	11	23	36	16	11	-	-	46.94	VIII
9	Need to improve the export quality of fruit	-	-	-	-	-	-	-	8	46	14	28	24	24.03	IX
10	Availability of disease-free rootstock for healthy growth	-	-	-	-	-	-	-	1	32	19	24	44	19.58	X

4. Threats

Table 4: The data regarding to threats in mandarin cultivation as perceived by mandarin growers

(n=120)

Sl. No.	Threats	Rank												
		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	RBQ	Rank
1	Non adoption of climate resilient technology	40	29	40	11	-	-	-	-	-	-	-	89.24	I
2	Fluctuation in market prices	36	37	11	36	-	-	-	-	-	-	-	87.35	II
3	Decrease in yield to due Phytopthora	14	45	25	36	-	-	-	-	-	-	-	84.62	III
4	Damage to fruits by Parrot and other birds	30	9	44	12	25	-	-	-	-	-	-	82.35	IV
5	Improper formulation of relevant government policies for mandarin growers	-	-	-	25	51	23	21	-	-	-	-	60.61	V
6	Delay in payment by middleman/ brokers to the farmer	-	-	-	-	23	54	24	19	-	-	-	51.59	VI
7	Disease and pest outbreak	-	-	-	-	21	24	50	25	-	-	-	48.56	VII
8	Post-Harvest Handling and Storage Issues	-	-	-	-	-	19	25	25	26	25	-	35.38	VIII
9	Damage due to wild animals	-	-	-	-	-	-	-	25	37	25	33	22.27	IX
10	Natural calamities like hailstorm, Cyclone etc	-	-	-	-	-	-	-	26	24	40	30	21.67	X
11	Inadequate market facilities	-	-	-	-	-	-	-	-	33	30	57	16.36	XI

The result shown in the Table 1 indicated that greater majority of the respondents had given first rank to 'Pre dominant variety of Vidharbha region (89.42%)', followed by 'Preference of Nagpur mandarin due to loose juicy coat (79.58%)', 'Higher net Income (77.92%)', 'Superior taste and quality than other available varieties (77.42%)', 'Significant yield increase due to use of disease-free rootstock (75.67%)', 'Wider adaptability to agro-climatic conditions (42.58%)', 'Wide use of drip irrigation in mandarin (30.58%)', 'Correct choice of selection of bahar (29.00%)', 'Better extension strategy for nursery management (24.83%)', 'High density plantation (23.00%)'.

The predominant variety of Vidarbha mandarins is highly preferred due to its loose juicy coat, superior taste, higher income potential, and yield improvements from disease-free rootstock, along with good adaptability and effective cultivation practices. These results are in accordance to the findings of Keshav kettle (2011) [4], Senthil kumar (2015) [7].

The data summarized in table 2 revealed following characteristics; 'Majority of the respondents had given first rank to Processing industries are not available locally (86.50%)', followed by 'Severe infestation of pest and diseases (86.32%)', 'Non availability of labour and high cost of labour (83.89%)', 'Non availability of cold storage facility (81.81%)', 'Pre harvest fruit drop (81.25%)', 'Deep black cotton soil (49.79%)', 'Export facilities are not properly established (48.96%)', 'More commission charged by commission agent (47.92%)', 'Non preferred for export due to low TSS (25.07%)', 'Rind colour is non-uniform (27.85%)', 'Non adoption of latest/recommended technologies (17.22%)', 'Unavailability of tractor operated pruning machine on hire basis (16.53%)'.

The data indicate key challenges such as the absence of local processing industries, pest and disease issues, labour shortages, lack of cold storage, and pre-harvest fruit drop. Additional concerns include inadequate export infrastructure, high commission fees, and limited access to advanced technologies and equipment. These results are in accordance to the findings of Keshav Kattel (2011) [4], Anita deshmukh (2024) [1] and Hiwarale (2023) [3].

The data summarized in the depicted table 3 revealed that the majority of the respondents had given first rank to 'Increasing demand in domestic market (89.99%)', followed by 'Creating value-added products such as Mandarin juice, jams, dried Mandarin snacks etc. at mandarin belt (89.72%)', 'Establishment of processing industries at production area (86.32%)', 'To increase mechanization and automation (84.38%)', 'To establish partnerships with local food and beverage industries for incorporating Nagpur Mandarins into various culinary products (58.54%)', 'Exporting Nagpur Mandarins to international markets (58.26%)', 'Collaboration with retailers (51.88%)', 'Need to strengthen Research, Extension and Farmers linkage (46.94%)', 'Need to improve the export quality of fruit (24.03%)', 'Availability of disease-free rootstock for healthy growth (19.58%)'.

The data shows that respondents view increasing domestic demand and creating value-added products as top priorities. Establishing processing industries and increasing mechanization are also seen as important. Other areas of focus include partnerships with local industries, exporting, collaborating with retailers, and strengthening research and farmer connections. Less emphasis was placed on labor savings, improving export quality, and availability of disease-free rootstock. These results are in accordance with Mahdei (2005) [5], Keshav Kattel (2011) [4] and Senthil kumar (2015) [7].

he data summarized in the table 4 revealed that the great majority of the respondents had given first rank to 'Non-adoption of climate resilient technology (89.24%)', followed by 'Fluctuation in market prices (87.35%)', 'Decrease in yield to due Phytopthora (84.62%)', 'Damage to fruits by Parrot and other birds (82.35%)', 'Improper formulation of relevant government policies for mandarin growers (60.61%)', 'Delay in payment by middleman/ brokers to the farmer (51.59%)', 'Disease and pest outbreak (48.56%)', 'Post harvest handling and storage issues (35.38%)', 'Damage due to wild animals (22.27%)', 'Natural calamities like hailstorm, Cyclone etc (21.67%)', 'Inadequate market facilities (16.36%)'.

The respondents identified climate change, market price fluctuations, and yield loss due to disease as the most significant challenges. Other concerns include damage by birds, government policies, delayed payments, and post-harvest issues, with less emphasis on wild animals, natural calamities, and market facilities. These results are in accordance with Mahdei (2005) [5], Keshav kattel (2011) [4] and Prathyusha (2014) [6]

Conclusion

The most important Strengths perceived by mandarin growers were found to be having following characteristic

such as ‘pre dominant variety of Vidharbh region (89.42%)’, ‘followed by Preference of Nagpur mandarin due to loose juicy coat (79.58%)’, ‘Higher net Income (77.92%)’.The most important Weaknesses perceived by mandarin growers were found to be having following characteristic such as ‘Processing industries are not available locally (86.50%)’, followed by ‘Severe infestation of pest and diseases (86.32%), Non availability of labour and high cost of labour (83.89%), Non availability of cold storage facility (81.81%). The most important Opportunities perceived by mandarin growers were ‘Increasing demand in domestic market (89.99%)’, followed by ‘Creating value-added products such as Mandarin juice, jams, dried Mandarin snacks etc. at mandarin belt (89.72%)’, ‘Establishment of processing industries at production area (86.32%)’, ‘To increase mechanization and automation (84.38%)’. The most important Threats perceived by mandarin growers revealed the characteristic such as ‘Non-adoption of climate resilient technology (89.24%)’, followed by ‘Fluctuation in market prices (87.35%)’, ‘Decrease in yield to due Phytopthora (84.62%)’, ‘Damage to fruits by Parrot and other birds (82.35%)’, ‘Improper formulation of relevant government policies for mandarin growers (60.61%)’, ‘Delay in payment by middleman/ brokers to the farmer (51.59%)’ etc.

References

1. Anita SD. Information behavior about production and marketing of orange growers. [M.Sc. (Agri.) thesis]. Akola, India: Dr. Panjabrao Deshmukh Krishi Vidyapeeth (PDKV); c2014
2. Kumar D, Ram L, Ladaniya MS, Khadse A, Kumar S. Environmental impact on biochemical parameters during developmental stages of citrus fruit. Indian J Hort. 2019;76(2):253-258.
3. Hiwarale AS, Manvar VS, Vaidya NG, Sakhare SS, Gohade GR. Study on profile of sweet orange grower. J Krishi Vigyan. 2023;12(1):1442-1444.
4. Kattel K. A SWOT analysis on tea cultivation in Nepal. [M.Sc. (Agri.) thesis]. Hyderabad, India: Acharya N. G. Rang Agricultural University; 2011. Unpublished.
5. Mahdei KN. A “SWOT” analysis of medicinal plant production in Iran. Acta Hortic. 2005;678:23-27.
6. Prathyusha T. A study on SWOT analysis of Bt cotton cultivation in Karimnagar district of Andhra Pradesh: A case study. [Ph.D. thesis]. Hyderabad, India: Acharya N. G. Ranga Agricultural University; c2014.
7. Kumar RS. Horticultural production in Tamil Nadu SWOT analysis. Kisan World. 2015;42(4):45-49.