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Cots, returns and profitability of mandarin orange in Amravati district of Maharashtra

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Abstract

Present study was conducted during 2012-13 in Amravati district of Maharashtra. About 80 mandarin orange growers were randomly selected with area under mandarin orange. They Data were collected by personal interview method with the help of pretested schedule. Data were related to costs, returns and profitability of mandarin orange. The results revealed that per hectare mandarin orange required higher quantity of hired human labour and Manures on mandarin orange farms. Per hectare cost of cultivation of mandarin orange was Rs. 130155.56. A gross return from mandarin orange was Rs. 182205.07. It was observed that, farm business income was Rs. 128788.38. Per quintal cost of mandarin orange production was 1087.53. Mandarin orange was highly profitable with output-input ratio was 1.40.

Keywords: Mandarin orange, per hectare, cost-C, gross return, net profit

Introduction

Mandarin orange (*Citrus reticulata*) locally called as 'Nagpuri santra' belong to family 'Rutaceae' originated from the warm southern slope of Himalaya in northern India and recent countries like Burma, china. Mandarin orange is a highly polyembryonic species, having medium sized upright trees. It has good reputation and best of it's kind grown in India. At present India ranks 3rd in production of mandarin orange in the world after Brazil and U.S.A. which ranked 1st and 2nd, respectively. In India orange is grown in several states but leading states are Karnataka, Maharashtra, Tamil Nadu, Madhya Pradesh, Assam, Punjab etc. In India area under orange was 311.0 thousand hectares with annual production of about 2906.00 thousand MT in the year 2012-2013 and productivity was 9.34MT/ha. In Maharashtra, the most common variety is Nagpur Santra which is considered as the best quality orange. As such, although it is possible to propagate mandarin orange by seed, under as well as by budding. In Maharashtra Mandarin orange commonly budded on Rangpur lime. Orange is planted at 6m x 6m. Planting can be done by following square system or triangular system. In Maharashtra state maximum area under mandarin orange was covered by Amravati, Nagpur, Wardha and Akola districts of Vidarbha. The area under mandarin orange in Maharashtra was about 128.00 thousand hectare with production and productivity of 500 thousand MT and 3.9 MT/ha, respectively. (Source: India Stat.) While in Amravati district area under orange was about 53662.39 ha with production of 375.63 MT. The Productivity of orange in Amravati was 7.00 MT/ha during the year 2012-2013.

Area under Vidarbha is 73,150 hectare, out of which Amravati, Akola, Nagpur and Wardha contributed near about 80 percent area of orange cultivation (NHB. 2011) Hence this area was known as 'California of Maharashtra'. In consideration with physical inputs, outputs, costs and returns, whether mandarin orange is most profitable to the farmers. By keeping in view the above aspect, the present study has been undertaken.

Materials and Methods

Multistage sampling design was adopted for the selection of district, tehsils, villages and mandarin orange growers. In the first stage, Amravati district was purposively selected because of more mandarin orange growers. In the second stage, Warud, Morshi, Chandur Bazar and Amravati tehsils of Amravati district were selected on the basis of highest number Mandarin orange growers. In the third stage two villages namely Jamgaon,

Jarud from Warud tehsil, Hiwarkhed, Sawangi from Morshi tehsil, Madhan, Kodori from Chandur Bazar tehsil and Borgaon, Wadgaon from Amravati tehsil. Thus from each village, ten mandarin orange growers were selected randomly. In this way from ten villages of four tehsils, eighty mandarin orange producers were selected for the study. The cross sectional data were collected from 80 mandarin orange growers with the help of pre-tested schedule for the year 2012-2013. The techniques like tabular analysis, arithmetic mean and ratio were used to analyze the data under concept of cost-A, cost-B and cost-C.

Result and Discussion

The results with respect to per hectare physical inputs, outputs, cost-C and profitability of mandarin orange are as follows.

Per hectare physical inputs and outputs in mandarin orange production:

Per hectare physical input and outputs in mandarin orange production were estimated and are presented in the table 1. With respect to various types of labours viz, hired human labour, bullock labour and machine labour, it is observed that, use of hired human labour, bullock labour and machine labour was 89.46 man days, 1.12 pair days and 6.38 machine hours respectively. With regards to fertilizers, it is seen that, 152.50 kg nitrogen, 57.98 kg phosphorus and 22.84 kg potash were used in orange production. In addition to fertilizers, 69.72 quintals of manures were also added. In all 20 irrigations were given to orange orchard and 13.63 man days of family labour were worked in the orange production.

In case of output, it is observed that, 119.68 quintals mandarin oranges were harvested from one-hectare mandarin orange orchard.

Cost of cultivation of mandarin orange production:

Per hectare cost of cultivation of mandarin orange production was calculated and presented in Table 2. The results revealed that Cost-C was 130155.56. Among individual items was predominant item of expenditure. Per hectare amortized cost was 42820.42. In other words, proportionate expenditure on amortized cost was 33.21 percent. Rental value of land was the next important item of expenditure. It was 30292.46 for one hectare. In short, the share of rental value of land was found to be 23.27 percent. In the next order use of hired human labour was 17891.17 for one hectare of mandarin orange garden. Share of hired human labour expenditure in mandarin orange cultivation was 13.75 percent. The next use of manures was 9760.88 for one hectare of mandarin orange garden. The share of manure expenditure in mandarin orange cultivation was 7.50 percent. Irrigation was the next Irrigation was the next important item of expenditure whereas per hectare expenditure was 6520.33. Thus proportionate expenditure on irrigation was 5.01 percent. It was clear that share of interest on working capital in expenditure was 4.66 percent followed by fertilizers (3.71 percent); machine labour (2.94 percent), plant protection (2.30 percent) and family human labour (2.10 percent). Other items of expenditure showed negligible percentage in mandarin orange cultivation.

Profitability of mandarin orange production

Per hectare profitability in mandarin orange production was estimated and is presented in Table 4.7. The results revealed that gross returns were ₹ 182205.07 in the mandarin orange production. It was clear that farm business income, family labour income, net profit was ₹ 128788.38; 54776.76 and ₹ 52049.51, respectively, in the mandarin orange production with output input ratio of 1.40. Per quintal cost of production was ₹ 1087.53 in the mandarin orange production. The results showed that mandarin orange is a profitable crop.

Table 1: Per hectare physical inputs and output in Mandarin orange production

	Particular	Unit	Quantity
	Input		
1.	Hired human labour	man day	89.46
2.	Bullock labour	pair day	1.12
3.	Machine labour	Hour	6.38
4.	Nitrogen	Kg	152.80
5.	Phosphorus	Kg	57.98
6.	Potash	Kg	22.84
7.	Manure	qlts	69.72
8.	Irrigation	no.	20
9.	Family human labour	man day	13.63
	Output		
10.	Mandarin orange production	qlts	119.68

Table 2: Per hectare cost of cultivation of Mandarin orange production (Rs/ha)

Particular	Amount (₹/ha)	Percent
Costs		
1. Hired human labour	17891.17	13.75
2. Bullock labour	337.43	0.26
3. Machine labour	3827.69	2.94
4. Fertilizers		
N	3237.84	2.49
P	1594.25	1.22
K	244.88	0.19
5. Manures	9760.88	7.50
6. Plant protection	2990.24	2.30
7. Irrigation	6520.33	5.01
8. Land revenue	75.05	0.06
9. Incidental expenditure	129.31	0.10
10. Interest on working capital @ 13%	6059.18	4.66
11. Depreciation on capital assets	748.43	0.58
12. Cost-A (Σ items 1 to 11)	53416.69	41.04
13. Rental value of land	30292.46	23.27
14. Interest on fixed capital @ 12%	898.77	0.69
15. Amortised cost	42820.42	32.90
16. Cost-B (Σ item 12 to 15)	127428.34	97.90
17. Family human labour	2727.22	2.10
18. Cost-C (Σ item 16 to 17)	130155.56	100

Table 3: Per hectare profitability in Mandarin orange production (Rs/ha)

	Particular	Amount (₹/ha)
1.	Gross return	182205.07
2.	Cost-A	53416.69
3.	Cost-B	127428.34
4.	Cost-C	130155.56
5.	Farm business income (Gross return minus Cost-A)	128788.38
6.	Family labour income (Gross return minus cost-B)	54776.73
7.	Net profit (Gross return minus cost-C)	52049.51
8.	Output input ratio (Gross returns divided by Cost-C)	1.40
9.	Per quintal cost of production (Cost-C minus by produce value and divided through main produce quantity)	1087.53

Conclusion

In conclusion, the study on mandarin orange production in Amravati district reveals that it is a profitable agricultural venture for farmers. The per-hectare cost of cultivation is ₹ 130,155.56, with the highest expenditures on amortized costs, rental value of land, and hired human labor. The gross returns from mandarin orange production were ₹ 182,205.07, resulting in a farm business income of ₹ 128,788.38. The output-input ratio of 1.40 and a net profit of ₹ 52,049.51 suggest that mandarin orange farming offers good returns. Overall, mandarin orange cultivation is economically viable and beneficial for farmers in the region.

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