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Economic analysis of Sapota in Palghar district of Maharashtra

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Abstract

The present study was conducted during 2020-21 in Palghar district of Maharashtra. The cultivation of sapota in Dahanu tehsil is concentrated near and away from sea the shore, therefore, the villages in the Dahanu tehsil were divided in two categories Group I and Group II and from each group three villages were selected randomly. From each selected village 15 farmers were randomly selected. Thus, total sample consisted of 90 sapota farmers. The results revealed that, per hectare total cost of maintenance (cost-C) of sapota orchard at overall level for sapota orchard was worked out to Rs.208867. The per hectare gross returns received at overall level of sapota orchard were Rs.368717 and profit at different cost levels such as cost A, cost B, cost C was Rs.271980, Rs.177563, Rs.159850, respectively. The benefit cost ratio at overall level was 1.77. Regarding disposal, at overall level total production of sapota fruit was 235.06 qt out of which 99.70 per cent of produce was sold in market and negligible quantity was kept for home consumption and other purposes.

Keywords: Costs, returns, profitability, disposal

1. Introduction

Sapota (*Manilkara achras*) is one of the most important tropical fruits belonging to the family sapotaceae. It is popularly known as chiku and is one of the delicious fruits of humid tropical and subtropical regions. The origin of sapota is Tropical America and South-East Mexico. India ranks first in sapota production in the world. In India total area under sapota cultivation was 107.16 thousand ha with a production of 1284.60 thousand MT and productivity 11.99 MT/ha in 2020-21. Sapota was cultivated first time in Maharashtra in 1898 in a village named Gholwad in Dahanu tehsil of Palghar district. The area under sapota production in Maharashtra was 17.91 thousand ha with production of 156.42 thousand MT and productivity 8.73 MT/ha in 2020-21. In Maharashtra area under sapota cultivation is more in Palghar district. Area of Palghar district under sapota cultivation was 3.04 thousand ha with production of 34.05 thousand MT and productivity 11.20 MT/ha in 2020-21. The area under sapota cultivation in Dahanu tehsil was 2.32 thousand ha. In the Palghar district 76 per cent of total area under sapota is in Dahanu tehsil. The western part of Palghar district is most suitable for sapota cultivation. The sapota plantation is concentrated near the sea coast, with well drained black soil which is ideal for sapota cultivation.

2. Materials and Methods

In the Konkan region the Palghar district was selected purposively for this study due to maximum area under sapota cultivation. Dahanu tehsil from Palghar district having maximum area under sapota cultivation which constituted 76 per cent area to the Palghar district. Hence, Dahanu tehsil was selected purposively for the present study. The cultivation of sapota in Dahanu tehsil is concentrated near and away from sea shore, therefore, the villages in the Dahanu tehsil were divided in two categories i.e. near the sea shore (Group I) and away from sea shore (Group II) and from each group separate list of villages was prepared and from each group three villages were selected randomly. From each selected village 15 farmers were randomly selected. Thus, total sample consisted of 90 sapota farmers. The data regarding information of existing sapota orchard, inputs used, their cost and production, were collected from selected area by survey method. The selected farmers were interviewed personally with the help of schedule specially designed for research purpose.

3. Results and Discussion

3.1 Details of sapota orchard

It is observed that from table no.1, the average size of sapota orchards at overall level was 1.43

ha. Whereas, it was 1.64 ha and 1.22 ha in group I and group II. At overall level the average age of sapota orchards was 27.71 years and number of tress per hectare was 100.39, it is also seen that in both the groups there was significant difference with respect to age of the orchards (24 to 30 years)

and per hectare number of trees (100 trees per ha) was same in each group. It was observed that in both the groups, size and age of orchards was found to be different which directly affect the production level of orchards.

Table 1: Details of sapota orchard

Sr. No.	Particulars	Group I (N=45)	Group II (N=45)	Overall (90)
1.	Per farm area (ha)	1.64	1.22	1.43
2.	Number of tress per farm	164.67	122.44	143.56
3.	Average age of tress (years)	30.96	24.47	27.71
4.	Number of tress per hectare	100.41	100.36	100.39

3.2 Per hectare input utilization for maintenance of sapota orchards

It is seen that from table no.2, per hectare labour utilized for sapota orchards at overall level were 215.06 human days, 5.02 ton manures, 193.76 kg N, 202.18 kg P, 252.73 kg K, 3.01 lit of plant protection chemicals and Rs.3993 as irrigation charges. Similarly, per hectare input utilization in group I for maintaining of sapota orchard were 223.60 human days, 5.75 ton manures, 222.20 kg N, 231.86 kg P, 289.82 kg K, 3.45 lit

of plant protection chemicals and Rs.4003 for irrigation charges. Where, in group II per hectare input utilization for maintenance of sapota orchard were 206.48 human days, 4.28 ton manures, 165.25 kg N, 172.42 kg P, 215.60 kg K, 2.56 lit of plant protection chemicals and Rs.3979 for irrigation charges. It was observed that, the per hectare quantities of physical inputs utilized in near sea shore sapota orchards were more than away from sea shore sapota orchards.

Table 2: Per hectare input utilization for maintenance of sapota orchards

Sr. No.	Inputs	Group I	Group II	Overall
1.	Labour (Days)	223.60	206.48	215.06
2.	Manures (ton)	5.75	4.28	5.02
3.	Fertilizers in kg			
	N	222.20	165.25	193.76
	P	231.86	172.42	202.18
	K	289.82	215.60	252.73
4.	Plant protection (lit)	3.45	2.56	3.01
5.	Irrigation charges (Rs.)	4003	3979	3993

3.3 Per hectare maintenance cost of sapota orchard

The per hectare total cost of maintenance (cost-C) at overall level for sapota orchard was worked out to Rs.208867 of which share of cost-A was 46.32 per cent (Rs.96737) and cost-B was 91.52 per cent (Rs.191154). As regards item wise cost at overall level it was found that, for hired human labour Rs.48710 (23.32%), manures Rs.15060 (7.21%), fertilizers Rs.16216 (7.77%), plant protection Rs.1505 (0.72%), irrigation charges Rs.3393 (1.91%), land revenue Rs.150 (0.07%), depreciation on implements and machinery Rs.5118 (2.45%), interest on working capital Rs.5984 (2.86%), rental

value on land Rs.61303 (29.35%), interest on fixed capital Rs.14619 (7.00%), amortization cost Rs.18496 (8.86%), family labour cost Rs.8039 (3.85%) and supervision charges Rs.9674 (4.63%). The per hectare total cost of maintenance (cost-C) of sapota orchard in group I was worked out to Rs.225750 out of which share of cost-A was 45.99 per cent (Rs.103819) and cost-B was 91.44 per cent (Rs.206433). The per hectare total cost of maintenance (cost-C) of sapota orchard in group II was worked out to Rs.190405 out of which share of cost-A was 47.13 per cent (Rs.89745) and cost-B was 91.72 per cent (Rs.174630).

Table 3: Per hectare maintenance cost of sapota orchard

Sr. No.	Item of cost	Group I	Group II	Overall
1.	Hired labour (days)	122.53/65.32	116.79/63.40	120.08/63.43
	a) Male	36759 (16.28)	35037 (18.40)	36024 (17.25)
	b) Female	13064 (5.79)	12680 (6.66)	12686 (6.07)
	Total	49823 (22.07)	47717 (25.06)	48710 (23.32)
2.	Manures	17250 (7.64)	12840 (6.74)	15060 (7.21)
3.	Fertilizers			
	N	2898 (1.28)	2155 (1.13)	2527 (1.21)
	P	10869 (4.81)	8081 (4.24)	9477 (4.54)
	K	4830 (2.14)	3593 (1.89)	4212 (2.02)
4.	Plant protection	1725 (0.76)	1280 (0.67)	1505 (0.72)
5.	Irrigation charges	4003 (1.77)	3979 (2.09)	3393 (1.91)
6.	Land revenue	150 (0.07)	150 (0.08)	150 (0.07)
7.	Depreciation on implements and machinery	5870 (2.60)	4374 (2.30)	5118 (2.45)
8.	Interest on working capital	6400 (2.83)	5575 (2.93)	5984 (2.86)
	Cost- A	103819 (45.99)	89745 (47.13)	96737 (46.32)
9.	Rental value of land	67408 (29.86)	53843 (28.28)	61303 (29.35)

10.	Interest on fixed capital	16711 (7.40)	12546 (6.59)	14619 (7.00)
11.	Amortization	18496 (8.19)	18496 (9.71)	18496 (8.86)
	Cost- B	206433 (91.44)	174630 (91.72)	191154 (91.52)
12.	Family labour (days)	17.85/17.90	16.22/9.67	17.29/14.26
	a) Male	5355 (2.37)	4866 (2.56)	5187 (2.48)
	b) Female	3580 (1.59)	1934 (1.02)	2852 (1.37)
	Total	8935 (3.96)	6800 (3.57)	8039 (3.85)
13.	Supervision charges 10%			
	Cost A	10382 (4.60)	8974 (4.71)	9674 (4.63)
	Cost- C	225750 (100.00)	190405 (100.00)	208867 (100.00)
14.	Per quintal cost of cultivation	1278	1288	1271
15.	Per ha yield (qt)	176.70	147.81	164.38

3.4 Per hectare profitability of sapota orchard

On the basis of per hectare production of sapota crop, gross returns were worked out for overall level, group I and group II sapota orchards. The profitability of sapota orchard at various costs level viz., cost A, cost B, cost C were worked out by deducting respective costs from gross returns.

The per hectare gross returns received at overall level from sapota orchard were Rs.368717 and profit at different cost levels such as cost A, cost B, cost C was Rs.271980, Rs.177563, Rs.159850, respectively.

The per hectare gross returns received in group I were

Rs.405347 whereas, net profit received at different cost levels such as cost A, cost B, cost C was Rs.301528, Rs.198914, Rs.179597, respectively. The per hectare gross returns received in group II of were Rs.323959 whereas, net profit received at different cost levels such as cost A, cost B, cost C was Rs.234214, Rs.149329, Rs.133554, respectively. The benefit cost ratio at overall level was 1.77, whereas, in group I and group II it was 1.80 and 1.70, respectively. The benefit cost ratio was higher in group I sapota orchard than group II sapota orchard because of high yield as compared to group II sapota orchard.

Table 4: Per hectare profitability of sapota orchard

Sr. No.	Particulars	Group I	Group II	Overall
1.	Gross returns (Rs.)	405347	323959	368717
2.		Cost (Rs.)		
	a) Cost A	103819	89745	96737
	b) Cost B	206433	174630	191154
	c) Cost C	225750	190405	208867
3.		Profit at (Rs.)		
	a) Cost A	301528	234214	271980
	b) Cost B	198914	149329	177563
	c) Cost C	179597	133554	159850
4.	Benefit cost ratio	A) 3.90	A) 3.61	A) 3.81
		B) 1.96	B) 1.86	B) 1.93
		C) 1.80	C) 1.70	C) 1.77

3.5 Disposal pattern of sapota

It was observed that from table no.5, the total production of sapota fruit at overall level was 235.06 qt out of which 99.70 per cent of the produce was sold in market and negligible quantity i.e. 0.30 per cent (0.72 qt) was kept for family consumption 0.14 per cent (0.34 qt), gift to relatives 0.09 per cent (0.22 qt) and kind wages 0.07 per cent (0.16 qt) etc.

The total production of sapota fruit in group I was 289.78 qt out of which 99.74 per cent of the produce was sold in market

and negligible quantity i.e. 0.26 per cent (0.75 qt) was kept for family consumption 0.12 per cent (0.35 qt), gift to relatives 0.08 per cent (0.23 qt) and kind wages 0.06 per cent (0.17 qt) etc., and the total production of sapota fruit in group II was 180.33 qt out of which 99.62 per cent of the produce was sold in market and negligible quantity i.e. 0.38 per cent (0.68 qt) was kept for family consumption 0.18 per cent (0.32 qt), gift to relatives 0.11 per cent (0.21 qt) and kind wages 0.09 per cent (0.15 qt) etc., respectively.

Table 5: Per farm disposal pattern of sapota fruits

Sr. No.	Particulars	Group I	Group II	Overall
		Quantity (qt)	Quantity (qt)	Quantity (qt)
1.	Total quantity produced	289.78	180.33	235.06
2.	Disposal			
	a) Family consumption	0.35 (0.12)	0.32 (0.18)	0.34 (0.14)
	b) Gift to relatives	0.23 (0.08)	0.21 (0.11)	0.22 (0.09)
	c) Kind wages	0.17 (0.06)	0.15 (0.09)	0.16 (0.07)
	d) Sold in market	289.03 (99.74)	179.65 (99.62)	234.34 (99.70)
	Total	289.78 (100.00)	180.33 (100.00)	235.06 (100.00)

3.6 Agency wise mode of disposal of sapota fruits

At the overall level total quantity of fruits sold was 234.34 qt, out of that maximum quantity of fruits was sold through

distant market 85.13 per cent (199.49 qt), followed by local market 14.87 per cent (34.85 qt).

Table 6: Per farm mode of disposal of sapota fruits

Sr. No.	Mode of disposal	Group I		Group II		Overall	
		No. of farmer	Quantity (qt)	No. of farmer	Quantity (qt)	No. of farmer	Quantity (qt)
1.	Local market (20-50 km)	16 (35.56)	28.63 (9.91)	26 (57.78)	41.08 (22.87)	40 (44.44)	34.85 (14.87)
2.	Distant market (Wholesaler)	29 (64.44)	260.40 (81.30)	19 (22.22)	138.57 (77.13)	50 (55.56)	199.49 (85.13)
	Total	45 (100.00)	289.03 (100.00)	45 (100.00)	179.65 (100.00)	90 (100.00)	234.34 (100.00)

However, in group I total quantity of fruits sold was 289.03 qt, out of that maximum quantity was sold through distant market 81.30 per cent (260.40 qt), followed by local market 9.91 per cent (28.63 qt), respectively.

However, in group II total quantity of fruits sold was 179.65 qt, out of that maximum quantity was sold through distant market 77.13 per cent (138.57 qt), followed by local market 22.87 per cent (41.08 qt), respectively.

4. Conclusion

Per hectare labour utilized for maintenance of sapota orchards at overall level was 215.06 human days. While, other inputs used was 5.02 ton manures, 193.76 kg N, 202.18 kg P, 252.73 kg K, 3.01 lit of plant protection chemicals and Rs.3993 for irrigation charges. The per hectare total cost of maintenance (cost-C) of sapota orchard at overall level for sapota orchard was worked out to Rs.208867. While, in case of near sea shore (Group-I) and away from sea shore (Group-II) sapota orchard, cost of maintenance (cost-C) was worked out to Rs.225750 and Rs.190405, respectively. The per quintal cost of cultivation of sapota fruit was worked out and it was Rs.1271 at overall level, Rs.1278 and Rs.1288 in near the sea shore and away from sea shore, respectively. The per hectare yield of sapota orchard at overall level was 164.38 quintal, 176.70 and 147.81 quintal in near the sea shore and away from sea shore, respectively. Per hectare gross returns received at overall level from sapota orchard were Rs.368717, while at near the sea shore and away from sea shore it was Rs.405347 and Rs.323959, respectively. The benefit cost ratio at overall level was 1.77, while in case of near the sea shore and away from sea shore it was 1.80 and 1.70, respectively. More than 99 per cent of sapota fruits were sold in market and negligible quantity was kept for family consumption. The majority of growers sold their fruits in distant market 85.13 per cent (199.49 qt), followed by local market 14.87 per cent (34.85 qt).

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