



E-ISSN: 2278-4136
P-ISSN: 2349-8234
JPP 2019; 8(4): 255-258
Received: 09-05-2019
Accepted: 13-06-2019

Kausadikar HH

Ph.D. Scholar, Department of
Agricultural Economics,
VNMKV, Parbhani,
Maharashtra, India

Dr. SR Nagargoje

Associate Professor,
Department of Agricultural
Economics, VNMKV, Parbhani,
Maharashtra, India

Dr. KV Deshmukh

Associate Dean and Principal,
COA, Ambejogai Department of
Agricultural Economics,
VNMKV, Parbhani,
Maharashtra, India

Profitability of sweet orange in Marathwada region

Kausadikar HH, Dr. SR Nagargoje and Dr. KV Deshmukh

Abstract

The study compared the economic performance of Sweet orange of Marathwada region with the aim of assessing the determinants of its profitability. Primary data obtained from a sample of 160 farmers by stratified and multi-staged random sampling from four villages were analyzed using percentages, means, gross margin, net profit. Results revealed gender inequality; majority of sweet orange respondents were in middle age group. More number of selected respondent were educated up to high school level (35.62 per cent). It was revealed from the table that per hectare cost of establishment of sweet orange orchard was Rs.301796.68. Net profit obtained by cultivation of sweet orange is Rs. 131665.75; The study concludes that cultivation of sweet orange was found to be profitable.

Keywords: Socio economic profile, establishment cost, cost of cultivation and profitability

Introduction

According to final figures for the 2016-17 crop year, production of vegetables recorded higher percentage increases as compared to fruits. The fruits recorded nearly an increase of 5 per cent as compared to previous year. Horticulture accounts for about 30% of India's agricultural GDP from 13.08% of cropped area. Share of horticulture in agricultural production was more than 33%. During 2016-17, the production of horticulture crops was about 3,00,634 Thousand Mt from an area of 24,851 thousand ha. After vegetables, fruits are on second position of the area and production of horticultural crops. Citrus crops sharing 33.58 per cent from total production of fruits (source: NHB). Maharashtra has area of 54.878 Thousand hectare with production 4068.38 Thousand metric tons. In Marathwada region the total sweet orange area is 40.267 thousand hectare. Out of which Aurangabad having highest area under sweet orange crop i.e. 21.475 thousand ha and Jalna ranks second in area of sweet orange crop is 14.342 thousand ha (Source: HAPIS).

Methodology

The present study is based on both primary and secondary data sources. The survey method of economic investigation was adopted for the primary data collection. A specially designed schedule for getting the information on cost of cultivation, financial feasibility and other related aspects was used. Cross sectional data were collected from the sampled sweet orange growers and market intermediaries by personal interview method with the help of pre-tested schedule. Data pertained for the year 2016-17.

Multi stage sampling design was adopted for selection of districts, tehsils, villages and sweet orange growers. The sampling procedure adopted for the study is given below. The area of sweet orange in Marathwada region is 40.267 thousand ha. Aurangabad district and Jalna districts were selected for the present study. From Aurangabad tehsil Pimpri (bu.), Dewalai, Chite pimpalgaon, Kesapuri villages were selected. From Paithan tehsil Paithan, Katpur, Dhorkin, Bidkin villages were selected. From Jalna tehsil Dhandegaon, Nirkheda, Pirkalyan, and Jalna (Gramin) were selected. From Ambad tehsil Chandanapuri (khu.), Wadigodri, Domegaon, and Hastapokhari village were selected. These villages having maximum sweet orange area in their respective tehsil. From the list of sweet orange growers, ten growers randomly selected from each village. Thus one hundred sixty sweet orange growers were selected for the study of which eighty farmers from Aurangabad district and eighty farmers from Jalna district.

Socio economic profile

First objective that is socio economic characteristics was achieved by application of tabular analysis i.e. comprised of arithmetic mean, percentage and ratio.

Correspondence**Dr. SR Nagargoje**

Associate Professor,
Department of Agricultural
Economics, VNMKV, Parbhani,
Maharashtra, India

2. Cost and returns

It can be analysed by tabular analysis

2.1 Estimation of capital investment for establishment of sweet orange orchard

Input wise per hectare cost of establishment of Sweet orange orchard was estimated for first five years separately for each year and added together to obtain the total capital investment for plantation of sweet orange orchard.

Amortization cost

The capital investment made in the first five years for the establishment of sweet orange orchard was divided into equal annual installments for the economic life of sweet orange orchards starting from sixth year, as amortization cost for this purpose, the average life of sweet orange orchard was taken as 30 years because after 30 years generally, sweet orange become uneconomical. Amortization cost was calculated by using formula,

$$A = P \left[\frac{i}{1 - (1 + i)^{-n}} \right]$$

Where,

A= Annual amortized establishment cost (Rs)

P= Establishment cost (Rs)

n= Economic life of orchard

i= Interest rate

The discount rate was taken as 12 per cent per annum and expected life of sweet orange orchard was taken 30 years.

Results and Discussion

Results of economics of production of Sweet orange are presented and discussed under the following heads.

1. Socio-economic profile of Sweet orange growers.
2. Costs and returns in Sweet orange production.

1. Socio-economic profile of Sweet orange growers

Socio economic characters of different farm size was studied and presented in table 1 it is observed from table that in case of Age, middle age group (36 to 50 years) dominated over other age groups i.e. for young age group 25 per cent, and old age group i.e. 33.75 per cent. In respect to education status all most all were educated. Most of the farmers were educated up to high school level i.e. 35.625 per cent with frequency 57 farmers. Followed by more frequency of farmers were from primary level i.e 34.375 per cent.

Table 1: Socio- economic profile of sweet orange growers

Particulars	Frequency	Per cent
Age		
i) Young (< 35 years)	40	25.00
ii) Middle (36 to 50 years)	66	41.25
iii) Old (>50 years)	54	33.75
Total	160	
Education		
i) Primary	55	34.37
ii) High school	57	35.62
iii) College level	48	30.00
Total	160	
Family size number		
i) Small	63	39.37
ii) Medium	69	43.12
iii) Large	28	17.50
Total	160	
Occupation		
i) Agriculture	63	39.37
ii) Service	55	34.37
iii) Business	42	26.25
Total	160	

The family size of the farmers was divided into three categories on the basis of members of family as small family, medium family and large family. It is observed from table 1 farmer size having highest per cent age of medium family size (4 to 6 members) with frequency of 69. In respect to occupation level of farmers, in all farmers belongs to agricultural occupation as whole observed 39.37 per cent with frequency of 63. Where as farmers having services were observed 34.37 per cent.

Age wise distribution of selected samples revealed that majority of sweet orange growers was in middle group i.e. 43.12 per cent. Education is an important factor influencing managerial ability and technical knowledge of farmers. The educational status revealed that most of the growers were educated up to high school level (35.62 per cent).

2. Cost and returns of sweet orange orchard

2.1 Establishment cost

Every long durational horticultural crop has two phases that is establishment phase or development phase and production

phase. The sweet orange orchard starts bearing after five years from the year of plantation. The grower has to invest considerable amount for establishing orchard till starts bearing. This period is called as gestation period and the sweet orange growers do not get any returns from the sole orchards. Therefore, the cost of establishment of sweet orange orchards can be regarded as an investment capital. The item wise per hectare cost of establishment of sweet orange orchard is given in Table 2.

It was revealed from the table that per hectare cost of establishment of sweet orange orchard was Rs. 301796.68. Out of this, rental value of land contributing Rs.46718.75 (15.48 per cent). Followed by 15.22 per cent was incurred on hired human labour (Rs. 45940.07), irrigation Rs. 43295.86 (14.34 per cent), manure Rs.31622.65 (10.47 per cent) depreciation value of assets and interest on fixed capital contributing same percentage i.e. 14.07 per cent., interest on working capital was Rs. 12395.97 (4.10 per cent), Phosphorus (4.55 per cent), nitrogen (2.13 per cent) and planting material

(2.82 per cent). Other items of expenditure were less than 2 percent.

2.2 Production of sweet orange

It is observed from the table 2 that the per orchard area of sweet orange was 0.75 hectare. The per orchard farm production of sweet orange fruits was 11.77 ton. Per hectare sweet orange production was 15.70 ton of fruits. The tree yield was 0.05 ton. This may be results of better utilization of important inputs by the growers.

Table 2: Per hectare establishment cost of sweet orange orchard

	Particulars	Amount (Rs)	Percent
1.	Hired human labour	45940.07	15.22
2.	Bullock labour	154.6875	0.05
3.	Machine labour	3646.26	1.20
4.	Planting material	8519.12	2.82
5.	Nitrogen	6441.79	2.13
6.	Phosphorus	13741.78	4.55
7.	Potash	8164.80	2.701
8.	Manure	10523.62	3.48
9.	Irrigation	43295.86	14.34
10.	Plant protection	6027.65	1.99
11.	Land revenue	139.95	0.046
12.	Incidental charges	1256.59	0.41
13.	Interest on working capital	12395.97	4.10
14.	Depreciation cost	42478.44	14.07
15.	Cost A (Σ item 1 to 14)	202726.62	67.17
16.	Interest on fixed capital	42478.44	14.07
17.	Rental value of land	46718.75	15.48
18.	Cost B (Σ item 15 to 17)	291923.83	96.72
19.	Family human labour	9872.85	3.27
20.	Cost C (Σ item 18 to 19)	301796.68	100

Table 2.1: Per orchard and per hectare number of trees

Particulars	Unit	Sweet orange orchard
I Per orchard		
a Area of orchard	Ha	0.75
b No. of trees	No.	251.00
c Production	Ton	11.77
II Per hectare		
a Area of orchard	Ha	1.00
b No. of trees	No.	312.00
c Production	Ton	15.70
III Yield per tree	Ton	0.05

2.3 Per hectare physical inputs and outputs in sweet orange orchard

The per hectare physical inputs used for maintenance of adult sweet orange orchard were estimated and presented in table 3. It is observed from the table that, per hectare hired human labour was 57.88 man days while family human labour was 15.65 man days. Most of the farmers were not using bullock labours in the cultivation of sweet orange after five years, so the machine power was comparatively higher i.e. 1.93 hrs to bullock labours. The per hectare quantity of manure applied to the orchard was 71.03 q.

The per hectare quantities of nitrogen, phosphorus and potash used by sweet orange. The irrigation was given 275.41 days to sweet orange orchard while the plant protection chemicals use was 3.10 lit per hectare.

2.4 Cost of cultivation of sweet orange production

The physical inputs and output can be converted into monetary terms to determine the cost of cultivation per hectare.

It is observed from Table 4 that per hectare total cost of cultivation (Cost C) of adult sweet orange orchards worked out Rs. 127384.25 in which share of Cost A was 36.98 per cent and Cost B was 98.03 per cent. Among the various items of an expenditures, proportionate share of rental value of land predominant as 33.87 per cent and amortization cost 21.54 per cent.

Table 3: Per hectare physical inputs and output of sweet orange orchard

Particulars	Unit	Physical quantity
Inputs		
Hired human labour	man day	57.88
Machine labour	Hours	1.93
Nitrogen	Kg	125.28
Phosphorus	Kg	45.10
Potash	Kg	80.18
Manure	Qt	71.03
Irrigation	Days	275.41
Plant protection	Lit	3.10
Family human labour	man day	15.65
OUTPUT		
Sweet orange production	Ton	15.70

In sweet orange production followed by irrigation 10.10 per cent. Among remaining expenditures, proportionate share of hired human labour (7.27 per cent) followed by manure (5.58 per cent), interest on working capital (2.25 per cent) and potash (1.57 per cent). It is observed that sweet orange production was labour as well as capital intensive.

2.5 Profitability of sweet orange production

The per hectare profitability of sweet orange orchard was worked out by deducting different cost viz. Cost A, Cost B, Cost C and per ton cost of production from the output and presented in Table 5.

It was observed that per hectare gross return was Rs.259050.00 from the sweet orange orchard. It was clear from table that farm business income, family labour income and net profit was Rs.211932.56, Rs.134170.92 and Rs.131665.75 respectively from the sweet orange orchard. Output input ratio was 2.03 from sweet orange orchard which indicated the sweet orange production was profitable in the study area.

Table 4: Per hectare cost of cultivation of sweet orange production

Particulars	Amount (Rs)	Percent
Hired human labour	9261.40	7.27
Machine labour	904.75	0.71
Nitrogen	1804.05	1.42
Phosphorus	1747.67	1.37
Potash	2004.50	1.57
Manure	7102.81	5.56
Irrigation	12868.08	10.10
Plant protection	1083.90	0.85
Land revenue	27.99	0.02
Incidental charges	261.25	0.21
Interest on working capital	2872.45	2.25
Depreciation cost	7178.57	5.63
Cost A (Σ item 1 to 14)	47117.44	36.98
Interest on fixed capital	7178.57	5.63
Amortization cost	27436.06	21.54
Rental value of land	43147.01	33.87
Cost B (Σ item 15 to 17)	124879.08	98.03
Family human labour	2505.17	1.97
Cost C (Σ item 18 to 19)	127384.25	100

Table 5: Per hectare profitability of sweet orange orchard

Particulars	Amount (Rs)
Gross return	259050.00
Cost A	47117.44
Cost B	124879.08
Cost C	127384.25
Farm business income (Gross return minus Cost A)	211932.56
Family labour income (Gross return minus Cost B)	134170.92
Net profit (Gross return minus Cost C)	131.665.75
Input-output ratio (Gross return divided by Cost C)	2.03
Per Ton cost of production (Cost C divided by main produce quantity)	8113.64

Conclusion

The average age of the sweet orange grower was 41.25 years with seven members average family size. The average area under sweet orange was 0.75 hectare. The gross cropped area was 5.23 hectare and with 141.73 per cent cropping intensity. Per hectare establishment cost of sweet orange was Rs. 301796.68. Per hectare total cost of sweet orange (cost-C) was Rs. 127384.25 in which contribution of cost-A was Rs. 47117.44 and cost-B was Rs. 124879.08. In sweet orange cultivation with the net profit was Rs 131665.75. The profit in sweet orange cultivation is double i.e. 2.03. From the above results we concluded that sweet orange cultivation is profitable fruit crop for farmers.

References

1. Anil Bhat, Jyoti Kachroo, Sudhakar Dwivedi, Singh SP, Pawan Kumar Sharma, Rizvi SEH *et al.* Profitability and marketing of fruit and vegetable crops in Chennai block of Udhampur district. Maharashtra Jn. of Agril. Economics. 2017; 20(2):146-149.
2. Bante, Ropan, Pallewar, Sarju, Shrey, Ravi. Economics of orange production in Nagpur district of Maharashtra. Internat. Res. J. Agric. Eco. & Stat. 2015; 6(1):136-139.
3. Kardekar PM. Economics of production and marketing of sweet orange in Marathwada region of Maharashtra. An unpublished Thesis Submitted to VNMKV, Parbhani, 2001.