

Original Research Article

Economic Analysis of Grape Production in Sangli District of Maharashtra

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ABSTRACT

Grape (*Vitis vinifera*) is one of the most commercially important fruit crop in the world. The present study was attempted to study economic analysis of grape production in Sangli district of Maharashtra. For the study multistage sampling method was adopted. Two tehsils of Sangli district namely Tasgaon and Miraj selected purposively as the tehsils have highest acreages under grape cultivation. Primary data was collected from ninety six grape growers through pre-tested interview schedules for the year 2019-20. Cost of cultivation was worked out using the standard cost concept of cost-A, cost-B and cost-C. To determine profitability output-input ratio was calculated. The results revealed that per hectare cost of establishment of grape orchard was Rs. 568303.2. Estimated per hectare cost of cultivation grape orchard was Rs. 1124862, which was mostly dominated by rental value of land, plant protection and hired human labour. Per hectare grape production was 355.98 quintals which obtains gross return of Rs. 2036205.6. Net return from per hectare grape cultivation was Rs. 911343.6. Output - input ratio was 1.81 this shows the profitability of grape cultivation.

Keywords

Grape growers,
Sangli, Cost,
Return, Output –
input ratio,
Profitability

Introduction

Grape (*Vitis vinifera*) is one of the most commercially important fruit crop in the world. It belonged to family Vitiaceae and native to America near the Capsaicin Sea. It is one of the delicious, refreshing and nourishing fruit. It is good source of minerals like calcium, phosphorus and iron, besides being rich in vitamins like B1 and B2. It is consumed as a fresh table purpose fruit and also used for manufacturing of processed food product. There are 16 by-products made from grapes like raisin, grape juice, squash, syrup, jam, jelly, vinegar, wine, pickles, chocolates, tartaric acid, oil, cattle feed, tannin etc. China, Italy, USA, France, Spain, Turkey are major grape producing countries

in the world. India ranks seventh in production and third in table grape production in the world. (Source: 2019 Statistical report on world Viticulture).

In India total area under grape cultivation was 139 thousand hectare and production was 2958.0 thousand metric tonnes during the year 2018-19. Productivity of India was 21.0 metric tonnes per hectare.(Source: www.Indiastat.gov.in) The major grape producing states are namely Maharashtra, Karnataka, Mizoram, Tamil Nadu and Andhra Pradesh which jointly contribute more than 90 per cent of the total area and production of grapes in India. In terms of area and production Maharashtra leads among states of country. During 2017-18, area under

grape cultivation in Maharashtra was 105.50 thousand hectare and production was 2286.44 thousand metric tonnes. Maharashtra contributes about 78.3 per cent production of the country. Productivity of Maharashtra was 21.67 metric tonnes per hectare which was higher as compared to India. (Source: Horticultural statistics at a glance 2018) The main grape growing pockets in Maharashtra are Nashik, Sangli, Solapur, Pune, Osmanabad. In area and production Nashik ranks first with 56.27 thousand hectare area. Sangli district is having second position with respect to area and production. Total area under grape cultivation in Sangli district was 26106.71 hectare in the year 2019-20. (Source: District statistical office, Sangli). India is the second largest producer of fruits and vegetables. The different types of fruits are exported to the outside world. During 2019-20 grape occupies the premier position in exports with 193.69 thousand metric tonnes of fresh grape and it gives precious foreign exchange to the country which values Rs. 217686.82 lakh. Major importing countries of grape from India are Netherland, Russia, U.K., Bangladesh, Germany, United Arab Emirates, Saudi Arab, Hong Kong etc.

Objective

To estimate per hectare cost, returns and profitability in grape production

Materials and Methods

In order to fulfill the objectives of the study, Multistage sampling method was adopted in the selection of district, tehsils, villages and grape growers. In first stage, Sangli district was purposively selected as district ranks second highest in area under grape cultivation in Maharashtra. In second stage, two tehsils namely Tasgaon and Miraj were selected purposively as the tehsils have highest acreages under grape cultivation. In third

stage, six villages from each tehsils were selected purposely on the basis of maximum area and production. In last stage of sampling design, eight grape growers were selected randomly from each selected villages. In all ninety six grape growers were selected for the present study. The data covering complete agricultural year 2019-20 were collected through personal interviews by the survey method with the help of pretested questionnaire. The collected data were analyzed using the standard cost concept of cost-A, cost-B and cost-C. To determine profitability output- input ratio was calculated.

Results and Discussions

The success of any enterprise in agriculture can be judged on the basis of economic benefits secured by the entrepreneur from the enterprise. With the help of inputs and outputs, profitability of grape production was determined. The results obtained from the present investigation as well as relevant discussion have been summarized under the following heads.

Establishment cost of grape orchard

Cost of establishment is calculated till the crop comes to commercial yielding stage. Period of establishment of grape orchard is considered 15-18 months. Per hectare establishment cost of grape orchard was estimated and is presented in Table 1.

Per hectare establishment cost of grape orchard was worked out Rs. 568303.2. The value of installation of training system was the major item in establishment cost accounting for Rs. 238894.3 which was 42.03 per cent of total establishment cost followed by plant protection Rs. 97718.14 (17.19 per cent), installation drip set Rs. 75162.38 (13.22 per cent), manures and fertilizers Rs.

41570.11 (7.31 per cent). The minor expenses less than 5 per cent was on bamboo support Rs. 23728.55 (4.17 per cent), plantation Rs. 19278.71 (3.39 per cent), training of wines Rs.15861.52 (2.79 per cent), weed control Rs. 14401.26 (2.53 per cent), Land preparation i.e. ploughing, harrowing and levelling Rs. 12520.13 (2.20 per cent), grafting Rs. 12131.65 (2.13 per cent), irrigation charges Rs. 10811.73 (1.90 per cent), layout and pit digging Rs. 3220.57(0.56 per cent), growth regulators Rs. 3004.202 (0.53 per cent). Assuming economics life of grape orchard 15 years amortized cost was worked out Rs. 58478.4. Similar result was concluded by Kerutagi *et al.*, (2018) that per acre cost of establishment of grape orchard were Rs. 267342.

Cost of cultivation and returns of grape

Per hectare cost of cultivation was worked out and is presented in the Table 2. It is observed from the table that, per hectare cost-C of grape cultivation was Rs. 1124862, cost-

B was Rs. 1063781 followed by cost-A was Rs. 637928 in study area. Among the all items of cost cultivation, rental value of land was major constituent i.e. 30.16 per cent followed by plant protection 16.93 per cent. The share of hired human labour i.e. male and female was 10.15 and 4.23 per cent respectively. Expenditure on manure, machine power, family labour and amortized cost were 10 per cent, 5.43 per cent, 5.43 per cent and 5.2 per cent respectively. It was observed that, interest on working capital was 3.08 per cent likewise interest on fixed capital was 2.5 per cent, depreciation on implements and machinery was 2.26 per cent. Expenditure on fertilizer and micronutrients (1.81 per cent), growth regulators (1.42 per cent), irrigation charges (0.71 per cent), repairs on farm implements and machinery 0.40 per cent, incidental charges (0.24 per cent) and land revenue and other taxes (0.05 per cent) which were less than 2 per cent proportionate expenditure hence these considered minor items of expenditure.

Table.1 Per hectare cost of establishment of grape orchard

Sr. No.	Name of operation	Cost (Rs.)	Per cent
1	Land preparation	12520.13	2.20
2	Layout and pit digging	3220.57	0.56
3	Manures and fertilizers	41570.11	7.31
4	Plantation	19278.71	3.39
5	Installation of drip set	75162.38	13.22
6	Irrigation charges	10811.73	1.90
7	Bamboo support	23728.55	4.17
8	Installation of training system	238894.3	42.03
9	Grafting	12131.65	2.13
10	Weed control	14401.26	2.53
11	Training of wines	15861.52	2.79
12	Plant protection	97718.14	17.19
13	Growth regulators	3004.202	0.53
	Total Establishment cost	568303.2	100
	Amortized cost	58478.4	

(Percentage with respect to total establishment cost)

Table.2 Per hectare cost of cultivation of grape

Sr. No.	Particulars	Rate	Quantity	Cost (Rs.)	Per cent
1	Hired human labour (Man days)				
	a. Male	300	380.62	114186	10.15
	b. Female	250	190.26	47565	4.23
3	Machine power (Hours)		290.4	61084.03	5.43
4	Manure (Quintals)	300	375	112500	10
5	Fertilizer (Kg.)	80.1	597.29	17242.33	1.54
	Micronutrients			3004.2	0.27
6	Plant Protection			190491.42	16.93
7	Growth regulators			16022.4	1.42
8	Irrigation charges			8011.2	0.71
9	Incidental charges			2703.78	0.24
10	Repairs on farm implements and machinery			4506.3	0.4
	Working capital			577296.67	51.32
11	Interest on working capital @ 6 per cent			34637.8	3.08
12	Depreciation on implements and machinery			25473.03	2.26
13	Land revenue and other taxes			520.72	0.05
14	Cost A (Σ 1 to 12)			637928	56.71
15	Rental value of land			339281	30.16
16	Amortized cost			58478.4	5.2
17	Interest on fixed capital @10 per cent			28093.1	2.5
18	Cost B (Σ 14 to 17)			1063781	94.57
19	Family labour				
	a. Male	300	170.23	51069	4.54
	b. Female	250	40.05	10012.5	0.89
20	Cost C (Σ 18+19)			1124862	100
	Total Produce	5720	355.98	2036205.6	

Table.3 Per hectare profitability of grape production

Sr. No.	Particulars	Unit	Value
1	Cost- A	Rs.	637928
2	Cost-B	Rs.	1063781
3	Cost -C	Rs.	1124862
4	Production	Quintal	355.98
5	Gross return	Rs.	2036205.6
6	Farm business income (Gross return minus Cost-A)	Rs.	1398277.6
7	Family labour income (Gross return minus Cost-B)	Rs.	972424.6
8	Net return (Gross return minus Cost-C)	Rs.	911343.6
9	Output - Input ratio (Gross return divided by Cost-C)		1.81
10	Per quintal cost of production (Cost-C divided by quantity of produce)	Rs.	3160.43
11	Price received per quintal (Gross return divided by quantity of produce)	Rs.	5720

The average yield obtained by respondent grape growers was 355.98 quintals, average per quintal price received by respondent grape growers was Rs. 5720 and gross return obtained per hectare was Rs. 2036205.6. Mulla (2014) and Patil (2013) also reported that, rental value of land followed by hired human labour and plant protection has major share in cost of cultivation.

Per hectare profitability of grape production

An attempt has been made to compare per hectare cost of cultivation, yield, gross returns and profitability at cost-A, cost-B, cost-C and Output-Input ratios for respondent grape growers were worked out and is presented in Table 3. From the table it was clear that average per hectare gross returns was Rs. 2036205.6 which was from 355.98 quintals of grape produce. Per hectare total cost production (cost-C) was Rs. 1124862 and per quintal cost of grape production was Rs. 3159.90. It was clear

from the table that net return of grape cultivation was Rs. 911343.6 per hectare. Farm business income and family labour income i.e. profit at a cost-A and cost-B was Rs. 1398277.6 and Rs. 972424.6 respectively. The Output-Input ratio was 1.81. This shows the profitability of grape production. Results revealed that cultivation of grape crop is more beneficial to farmers comparatively other crops in the study area. The figure of Output-Input ratio revealed that, if one rupee invested in grape production, they received 1.81 rupees return. Price received from per quintal grape was Rs. 5720. Jadhv (2014) reported the similar findings related to profitability i.e. overall Output-Input ratio was 1.79

In conclusion, the above discussion throws light on the fact that per hectare cost of establishment was worked out Rs. 568303.2. Out of which installation of training system, plant protection and installation of drip set were the major items in cost of establishment. Per hectare cost of cultivation

was Rs. 1124862 in which share of cost-B was 94.57 per cent and cost-A was 56.71 per cent. The major items in cost of cultivation were rental value of land, plant protection and hired human labour. Per hectare grape production was 355.98 quintals which obtains gross return of Rs. 2036205.6. Net return from per hectare grape cultivation was Rs. 911343.6. Output-input ratio was 1.81. Ratio was more than unity which shows economic profitability of grape production.

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