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ECONOMIC ANALYSIS OF GRAPE PRODUCTION: A CASE STUDY OF SAVALAJ AND MANERAJURI VILLAGES OF TASGOAN BLOCK IN SANGLI DISTRICT

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----------ABSTRACT----------

The present paper evaluates an economic analysis of grape production in Tasgaon block of Sangli district which was carried during period 2020-2021. For the particular study two villages were selected namely Savalaj and Manerajuri based on highest area of cultivation under graphs in Tasgaon block of Sangli district. Primary data was collected from thirty grape growers through pre-tested interview schedules to estimate cost of cultivation of graphs, net and gross returns and profitability. The cost of cultivation is different with respect to region, cultivation method, establishment cost and quality of output. The attempt has been made to find out actual cost of cultivation and profitability by using average data of thirty grape growers in Savalaj and Manerajuri villages of Tasgaon block in Sangli district. The study found that the grape production basically divided into two major costs firstly, establishment cost (Fixed cost) and secondly, cost of cultivation. The establishment cost contains fifteen major operations which are mentioned in table 01 and the calculated per acre establishment cost of grape orchard was Rs 5,98,800 in which maximum expenditure was made for Mandap and Bambu support. The cost of cultivation was worked out using the standard cost concept of cost-A, cost-B and cost-C. The calculated cost of cultivation was Rs. 267669 per acre. The maximum cultivation expenditure was for plant protection (fungicide, insecticides) and labour wages. Net return from per acre grape cultivation was Rs. 212361 and output ratio was 1.81 which was more than unity shows economic profitability in grape production.----------

1. INTRODUCTION

Grape is a major commercial and remunerative crop of west India. The global grape production was around 25.62 million metric tons during the year 2021-22. Maharashtra and Karnataka are the leading producer of grapes in India contributing 96.13 % of national production. The estimated area available for the production of grapes across India during the fiscal year 2021 was approximately 152 thousand hectares. 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 tons 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.

Table 01: Major grapes producer states in India (2020-21)

Sr. No	States	Production (000' Tonnes)	Share (%)
1.	Maharashtra	2399.72	71.47
2.	Karnataka	821.79	24.47
3.	Tamil Nadu	50.01	1.49
4.	Andhra Pradesh	46.82	1.39
5.	Mizoram	17.30	0.52
	INDIA	**3356.99**	**100**

Source: National Horticulture Board (NHB)

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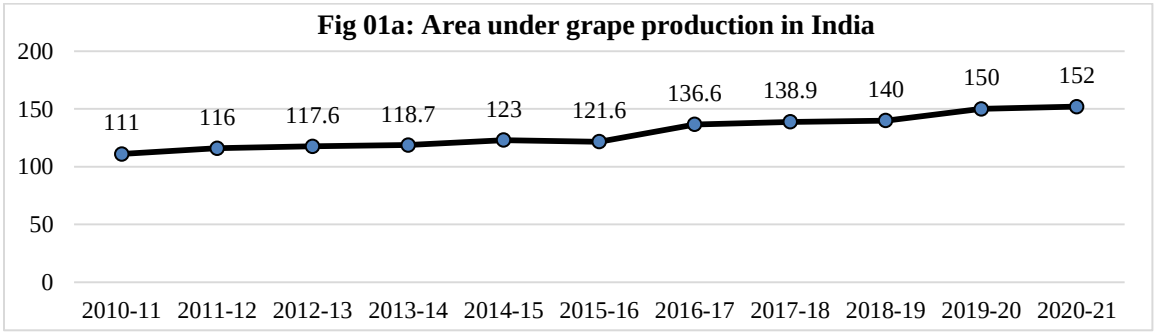
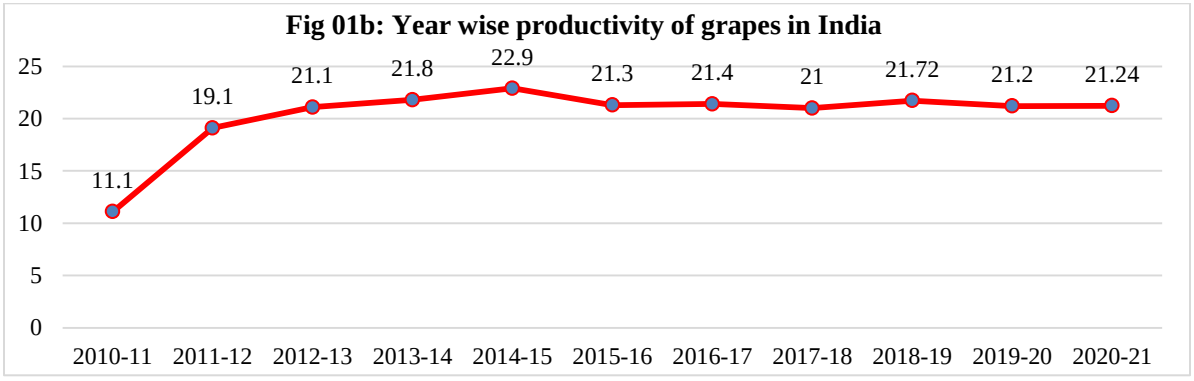
The above table reveals that the major grapes producer states in India during 2020-21. Maharashtra was leading producer having 71.47% share in total grapes production in India followed by Karnataka (24.47%), Tamil Nadu (1.49%) etc. India's total grapes production in 2020-21 was 3356.99 (000' Tonnes) according to National Horticulture Board (NHB) of India. Talking about the Maharashtra, Nashik and Sangli are the leading grapes producers in the state of Maharashtra. Total area under cultivation in Sangli district was 26106.71 hectare in the year 2019-20. (DSO- Sangli 2020). Whereas, Tasgaon is the highest grape producer block in western Maharashtra, the popular varieties of grape cultivated in this area are Tas-A-Ganesh, Thompson seedless, Sonaka, manik-chaman, Sharad seedless and Super Sonaka etc.

Table 02: Area, production and productivity of grape production in India.

Year	Area (000 Ha)	Production (000 MT)	Productivity (MT/Ha)
2010-11	111	1235	11.1
2011-12	116	2220	19.1
2012-13	117.6	2483.1	21.1
2013-14	118.7	2585.3	21.8
2014-15	123	2822.8	22.9
2015-16	121.6	2590	21.3
2016-17	136.6	2921.7	21.4
2017-18	138.9	2920	21
2018-19	140	3041	21.72
2019-20	150	3181	21.20
2020-21	152	3229	21.24

Source: Agricultural Statistics at Glance 2021





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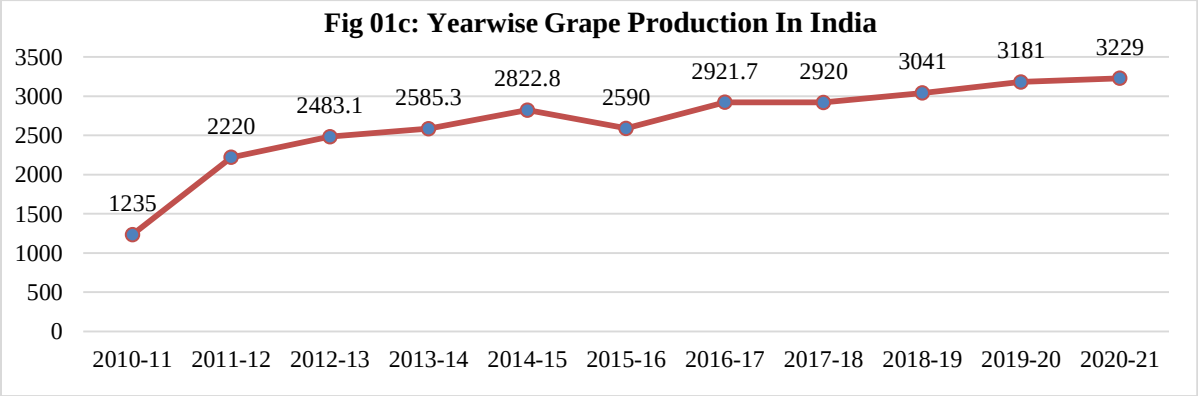

Table 03: Block wise area under grapes cultivation in Sangli district for the year 2020-21

Sr. No	Block	Area (Ha)
1.	Shirala	0
2.	Walwa	1215
3.	Palus	1561
4.	Kadegaon	229
5.	Khanapur	1125
6.	Atpadi	365
7.	Tasgaon	9236
8.	Miraj	8268
9.	K Mahankal	2871
10.	Jat	6906
	SANGLI	**31776**

Source: Directorate of Economics and Statistics, Govt. of Maharashtra

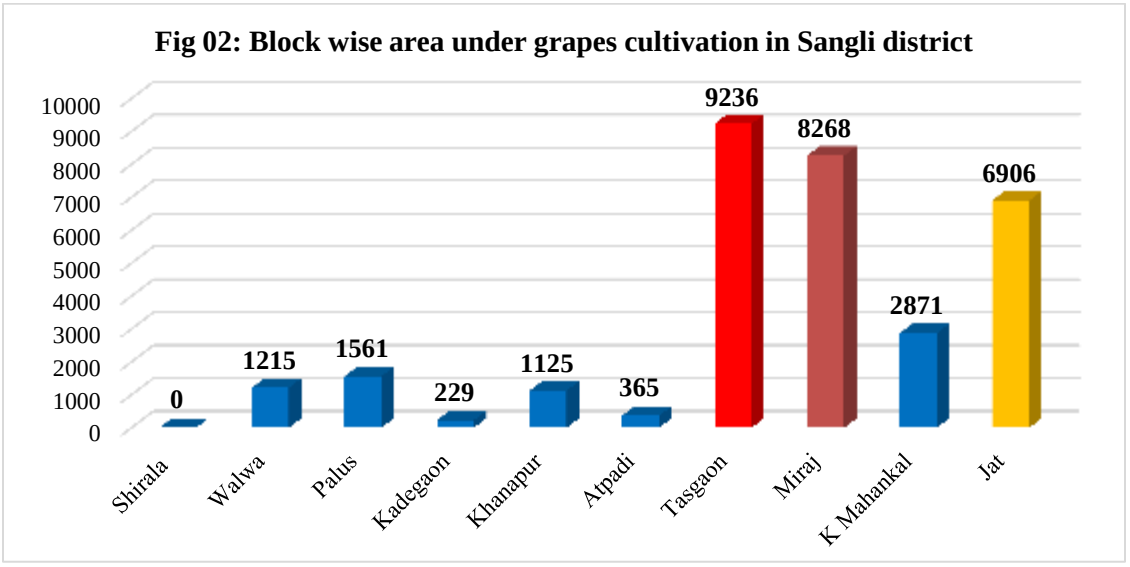

Table 03and fig 02reveals that the block wise area under grapes cultivation in Sangli district for the year 2020-21. The data showcase that Tasgaon has highest area under cultivation of grapes followed by Miraj and Jat. Therefore, Tasgaon block is purposefully selected to estimate cost of cultivation, returns and profitability in grapes production in Sangli district.

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2. LITERATURE REVIEW

Mhetre A.V et al (2020) in their research paper entailed "Economic Analysis of Grape Production in Sangli District of Maharashtra" discussed about the economics of grapes production includes estimation of per hectare cost, returns and profitability. For the study two blocks were selected by using multistage sampling method namely Tasgaon and Miraj. 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. Similarly, Alagumani T, M.Anjugam (2018) in their research paper entitled "Economic analysis of grape production in Tamil Nadu" analyzedthe trend in grapes production, economics of grape production, resource use efficiency and constraints. They found different aspects which has been influencing the grapes production and economics such as Pest and disease infestation, labor problem, water scarcity, price fluctuation and lack of price information.

3. OBJECTIVES

1. To estimate per acre cost, returns and profitability of grape production in selected villages of Tasgaon blocks in Sangli district.
2. To identify the constraints in production of grapes in selected villages in study area.

4. METHODOLOGY

In order to fulfill the objectives of the study, multistage sampling method was adopted in the selection of blocks, villages and grape growers. In first stage, Sangli district was purposively selected as it has highest area under grape cultivation in Maharashtra. In second stage, Tasgoan block was selected based on highest area under cultivation among all ten blocks of Sangli district which is also known as *Drakshpadhanri.* In third stage, two villages were selected based on above mentioned criterion. In last stage of sampling design, fifteen framers selected randomly from each selected village. Overall, thirty grape growers were selected for the present study. The data covering complete agricultural year 2020-21 The data was collected through personal interviews by the survey method with help of pretested questionnaire. The collected data were analyzed using the standard cost concept of cost-A, cost-B, cost-C. To determine Profitability and input-output ratio of selected villages in Tasgaon block of Sangli district.

5. RESULT AND DISCUSSIONS

The success of any enterprise in agriculture is purely based upon the economic profit earned from production activity by the enterprise. The profit margin, gross/net returns and cost of cultivation is estimated based on following heads.

5.1 Establishment of grape orchard (Fixed cost)

The establishment cost of grape orchard is estimated by using thirteen operations. It is the cost which is incorporated in fixed cost. Cost of establishment is calculated till the crop comes to commercial yielding stage. Period of establishment of grape orchard is around 15 to 16 months. Per acre grape establishment cost of grape orchard was estimated in the following table 04.

Table 04: Establishment cost of grape orchard

Sr. No	Name of operation	Cost (Rs)	Percent
1	Land preparation	10000	1.67
2	Layout and pit digging	8000	1.33
3	Manures and Fertilizers	45000	7.51
4	Installation of drips system	35000	5.84
5	Plantation	4800	0.80
6	Mandap and Bambu support	350000	58.45
7	Grafting	15500	2.58
8	Weed Control(herbicide)	11000	1.83
9	Plant protection	30000	5.01
10	Growth regulators	10000	1.67
11	Mulching	20000	3.34
12	Farm equipment	7000	1.16
13	Transportation cost	15000	2.50
14	Chemical (Insecticide, Fungicide)	30000	5.01
15	Oil and Other cost	8000	1.33
Total Establishment cost		**598800**	**100**

Source: Authors Calculations (Percentage with respect to total establishment cost)

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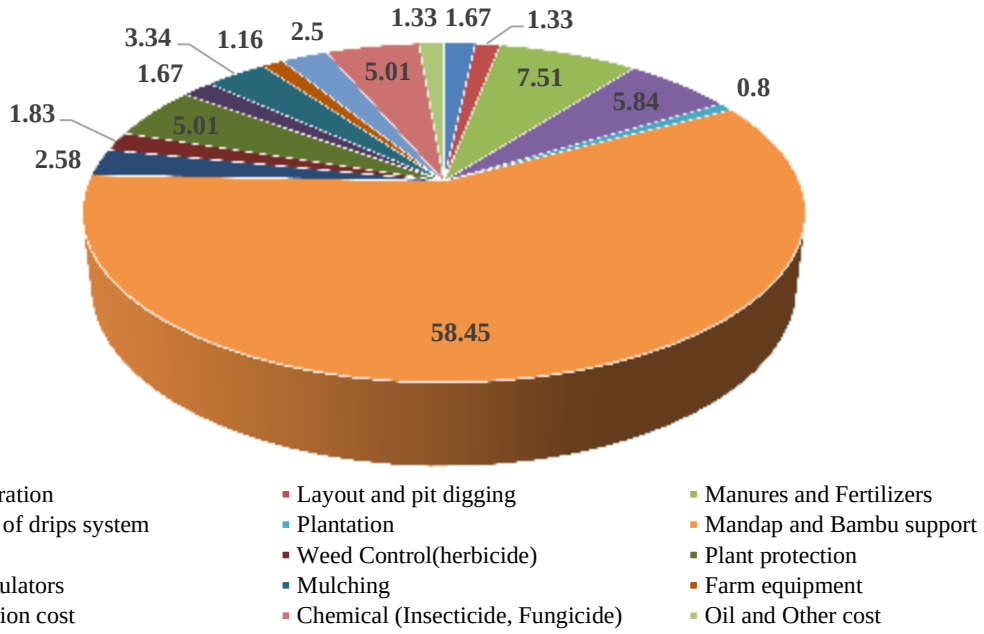
Assuming 10 years of life period of grapevine orchard. The value of installation of *Mandap* and Bambu support cost is very high Rs. 350000 which was 58.45 per cent of total establishment cost followed by manures and fertilizers Rs. 45000 (7.51%), installation drip set Rs.35000 (5.84%), chemical and spray insecticide cost is Rs. 30000 (5.01%), Plant protection cost is 30000 (5.01%) and Mulching (3.34%). The Minor expenses less than 5 per cent was on layout and pit digging 8000(1.33%), plantation cost is Rs.4800 (0.80%), land preparation cost is Rs. 10000 (1.67%), grafting costwas 15500 (2.58), weed control herbicide and human rescore cost wasRs. 11000 (1.83%), growth regulators cost was Rs. 10000 (1.67%), farm equipment cost is Rs. 7000 (1.16). Taking into consideration all the costs the per acre cost of establishment of grape orchard was Rs.598800 estimated for the year 2020-21.

5.2 Different costs to estimate cost of cultivation

Fig 04: Different type of costs in establishment of grape orchard



Researcher has used standard method to estimate cost of cultivation by using three costs namely Cost A, Cost B and Cost C. The particular incorporated in each cost is given in following table

Table 05: Cost A, B and C and its particulars:

Sr. No	Cost	Particulars
1.	Cost A	Hired human labor (Man days), Land preparation, Manures, Machine power, Fertilizers, Plant protections, Growth Regulators, Irrigation charges, Incidental charges, Repairs on farm implements and machinery working capital, Land revenue and other taxes.
2.	Cost B	**Cost A,** Interest on fixed capital (06 %), Amortized cost
3.	Cost C	**Cost B**, Family labors

Source: Mhetre, A.V et al (2021)

5.3 Per acre cost of cultivation of grapes

Economics of grape orchard the costs and returns of grape cultivation were worked out for one year and presented in table 06. It could be seen from the table that the total cost of cultivation per acre was about Rs. 267669 in two villages of Tasgaon blocks. Cost B was Rs.239919 followed by cost-A was Rs.199680 in study area.

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Table 06: Cost of cultivation of grapes (Per acre)

Sr. No	Particulars	Rate	Quantity	Cost (Rs.)	Percent
	Hired human labor (Man days)				
1	a) Male	450	90	40500	15.13
	b) Female	300	40	12000	4.48
2	Land preparation			3000	1.12
3	Manure			36000	13.45
4	Machine Power			6000	2.24
	Fertilizer (Kg)				
5	a) Micronutrients	800	5	4000	1.49
	b) Chemical Fertilizer	2500	2	5000	1.87
6	Plant Protection			70000	26.15
7	Growth Regulators			12000	4.48
8	Irrigation Charges			2000	0.75
9	Incidental Charges			00	0.00
10	Repairs on farm implements and machinery working capital			9000	3.36
11	Land revenue and other taxes			180	0.07
12	**Cost A (∑1 to 11)**			**199680**	**74.60**
13	Interest on fixed capital 06 %			4311	1.61
14	Amortized cost			35928	13.42
15	**Cost B (∑ 12 to 14)**			**239919**	89.63
	Family Labor				
16	a) Male	450	50	22500	8.41
	b) Female	350	15	5250	1.96
17	**Cost C (∑ 15+16)**			**267669**	**100.00**
18.	**Gross return**	**40**	**12000**	**480000**	

Source: Authors Calculations

Among the all items of cost cultivation, plant protection was major constituent Rs.70,000 (26.15%) followed by Hired human labor in which male is 40,500 (15.13%) and female is 12,000 (4.48%) respectively. Expenditure on manure was 36,000 (13.45%). However, Family labor charge for male and female was Rs. 27750 (10.37%). The minor expenses less than 10 per cent was on land preparation (1.12%), machine power (2.24%), fertilizer (3.36%), growth regulators (4.48%), irrigation charges (0.75%), repairs on farm implements and machinery working capitalwas (3.24%), land revenue and other taxes (0.07%) etc. summation of all the particulars are termed as cost of cultivation of grapes per acre.

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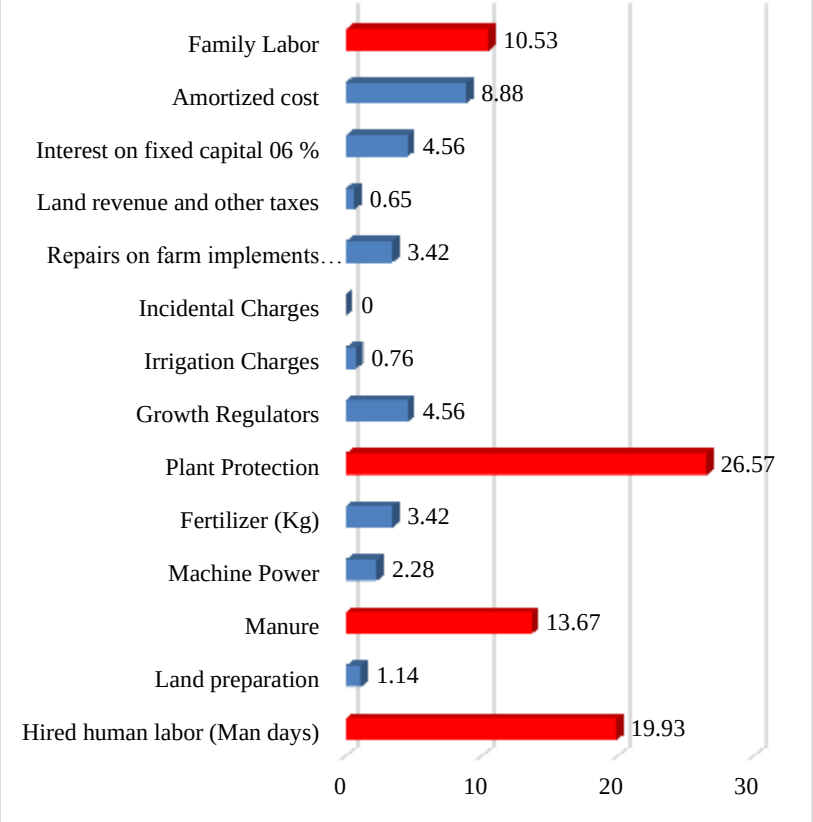
Fig 05: Per acre cost of cultivation of grapes



5.4 Per acre profitability in cultivation of grapes

The data was collected to estimate per acre cost of cultivation, yield, gross returns and profitability at cost-A, cost-B, cost-C and Output-Input ratios from respondent grape growers of Tasgaon block of Sangli district. The estimated average per acre gross returns was Rs. 4,80,000 which was from 12000 Kg of grape produce. Per acre total cost of production (cost-C) was Rs. 267669 and per kg cost of grape production was Rs.22.30. The calculated net return of per acre grapecultivation was Rs. 212331 as well as farm business income and family labor income i.e., profit at a cost-A and cost-B was Rs. 280320 and Rs. 240081 respectively. The Output-Input ratio was 1.79 which indicates 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 1.79 rupees return. Price received from per Kg grape was Rs. 40 which has possibility of fluctuation with respect to quality of the produce and demand-supply mechanism.

Table 07: Per acre profitability of grape production

Sr. No	Particulars	Unit	Value
1.	Cost- A	Rs.	199680
2.	Cost-B	Rs.	239919
3.	Cost -C	Rs.	267669
4.	Production	Kg	12000
5.	Gross return	Rs.	480000
6.	Farm business income (Gross return minusCost-A)	Rs.	280320
7.	Family labor income (Gross return minusCost-B)	Rs.	240081
8.	Net return (Gross return minus Cost-C)	Rs.	212331
9.	Output - Input ratio (Gross return divided by Cost-C)	Rs.	1.79
10.	Per Kg cost of production (Cost-Cdivided by quantity of produce)	Rs.	22.30
11.	Price received per Kg (Gross returndivided by quantity of produce)	Rs.	40

Source: Mhetre, A.V et al (2021) and Authors Calculations.

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6. CONCLUSION AND SUGGESTIONS

The attempt has been made to estimate cost of cultivation, returns and profitability in grape production of Tasgaon block of Sangli district. The results shows that the initial cost of establishment of grape orchard was around Rs. 598800 which was very high than other commercial crops in western Maharashtra. The estimated cost of cultivation per acre was Rs 264341 which is decent but before that those farmers must spent above mentioned initial cost of establishment. The profitability and net returns from the grape cultivation found very decent since it has input-output ratio of 1.81 estimated. The net return from grape production was around Rs. 267669 which encourage other farmers to cultivate grapes in their farms as well. Tough the profitability was at higher side there are some constraints in grape production which are as follows:

1. The capital required for grape production is very high since the establishment cost is around Rs. 598800. The marginal and small farmers will not able to afford such huge initial cost. Therefore, many farmers choose conventional crop in agricultural practices.
2. The major constraint in grape production is affordability and unavailability of crop loan in study area.
3. The quality of gapes has been highly influenced by change in climatic conditions so this exogenous factor plays significant role in cultivation of grapes and quality of the produce.
4. The cost of cultivation is highly influenced by labor cost. The scarcity of skilled labor and high wages of labors creating hindrances in sustainable production of grapes in Tasgaon block of Sangli district.
5. The ever-increasing prices of fertilizers and pesticides growing the cost of cultivation. However, the unstable supply of inputs is also the tragedy for the grape growers.
6. The proper guidance and skills are necessary in grape production. Therefore, training programs and workshops are necessary to guide the grape grower to reduce cost of cultivation and increase quality of the produce.
7. The analysis reveals that the establishment cost of mandap and Babu support is highest among all the operations. Therefore, the government should provide subsidies for these operations.

7. ACKNOWLEDGEMENT

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