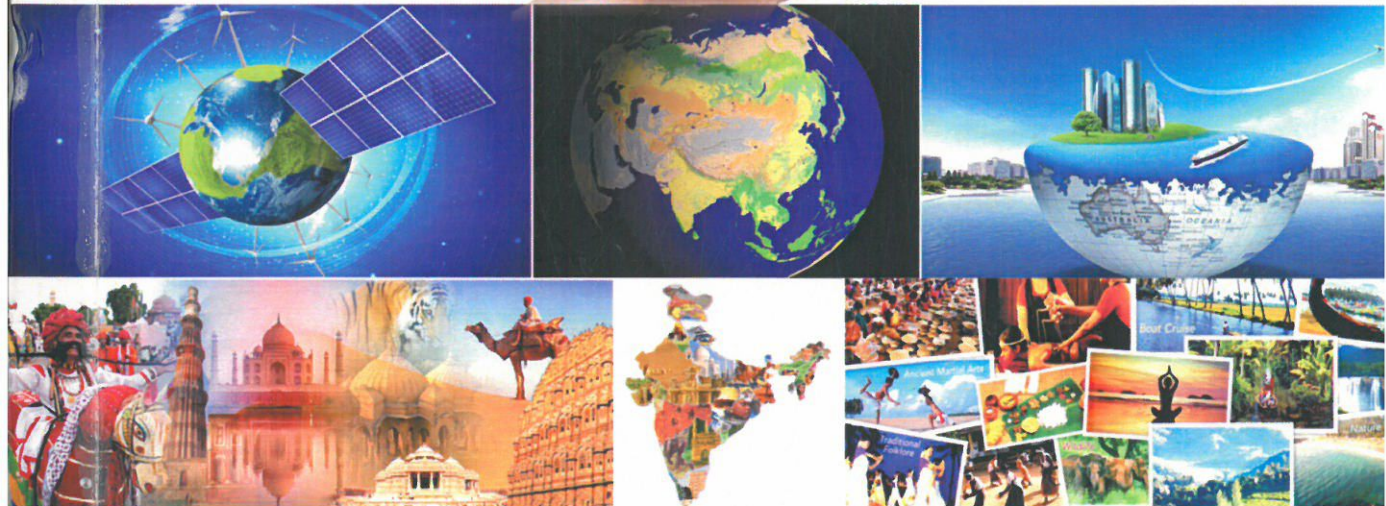


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**Economics of Pomegranate Fruit Production in Drought Prone
Region: A Case Study of Nashik
District in Maharashtra**

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Abstract:

The economic aspects of pomegranate cultivation were assessed with help of analysis of primary data collected by random field survey method. The cost structure divided under three heads revealed that the establishment, operational and marketing cost contributed their respective share 5.77%, 84.04% and 10.19% in gross annual cost of pomegranate cultivation. Good demand for pomegranate fruits fetched remunerative prices in the market. Finally, the net profits Rs. 214831.33 / ha / annum obtained by growers and cost benefit ratio 1: 2.06 provide evidence of good economic viability of pomegranate crop in the study region.

Keywords: Establishment, operational and marketing costs, cost-benefit ratio, profits.

Introduction:

Nashik district is famous for production of grape & pomegranate fruits in Maharashtra. Of them, pomegranate crop obtained great significance due to its suitability in drought prone environment. The pomegranate crop characteristics like versatile soil adaptability, low requirement of water, drought resistant plant, hardy nature of fruits, year round growing seasons are some of its main features responsible for its wide spread cultivation in the district. In addition, encouraging economic factors such as government subsidies, low inputs, good remunerative market prices, demand in national and international markets, export potentials, ability to generate employment in all sectors of agriculture had favored its cultivation. The net returns up to 2.5 lakh / ha / annum have been demonstrated by some growers. Demand in international markets has widened the scope for earning higher profits from this crop (Jadhav & Sharma 2009). As a consequence, this crop has developed the agricultural economy to the considerable extent. Therefore, it is also considered as the backbone of rural economy in district. The major cause behind the expansion of pomegranate orchards is the element of profit involved in its cultivation. That is usually very high. The study of economics of pomegranate production is indispensable since there is no proper farm business data on its cost of production and marketing (Khunt and et. al. 2003). Against this backdrop, present study examines the profitability of pomegranate cultivation based on primary data collected by field survey method.

Hypothesis: The pomegranate cultivation is highly profitable venture as the net return per unit area of the land is maximum compared to traditional crops.

Objective: To assess the economical profitability of pomegranate crop in drought prone region.

Methodology:

- i) Based on the random field survey method, the interviews and discussions with 62 pomegranate growers (from Malegaon & Satana tahsils of Nashik district) were carried out. According to the objectives of present study, the questionnaire consisting of three sections viz. Cost A (Establishment Cost), Cost B (Operational Cost) and Cost C (Marketing Cost) was designed for the collection of primary data.
- ii) The technique of tabular analysis was employed for financial calculations. And relative profitability of pomegranate cultivation was measured by computing Cost Benefit Ratio.
- iii) In order to minimize the impact of cost variations, average figures all of financial inputs made by respondents in particular category are considered for interpretation of results. Since the costs, type of material used and labor inputs varied from one grower to another.

Discussion:

The pomegranate like other horticultural crops involves a sizable amount of expenditure for production of fruits. The grower has to incur expenditure on various items for plantations and operations like preparatory tillage, planting material, fertilization, irrigation, pruning, pest & disease control, harvesting etc. It means that growing of pomegranate orchards is capital and labour intensive enterprise, which required significant expenditure on agro inputs throughout the year (Jagtap 2000). The cost structure divided under three heads indicated that the establishment, operational and marketing cost contributed their respective share 5.77 %, 84.04 % and 10.19 % in gross annual cost (Rs. 203603.87/ ha/annum) of pomegranate cultivation.

However, it arises some questions in mind that whether the cultivation of this fruit crop has been a profitable venture? How far this crop is economically viable in the study region? This undoubtedly makes it necessary to go into the details of cost and return structure of this important crop grown in the district.

1) Establishment Cost: -

It is an essential and initial investment made for creating the basic structure and to set up pomegranate orchard called as 'establishment cost'. It constitutes expenses for i) plantation and ii) gestation period cost (development of the orchard in first two years).

i) Plantation cost:

The proportionate costs of various inputs made for pomegranate plantation revealed that drip irrigation kit (35.94 %), piston pump (11.86%) and power generator (15.85%) has emerged as the major components of cost. Together, these equipments contributed to 63.64 % in total of plantation cost. It is followed by the compost manures 8.39% and pomegranate saplings 7.97%. Soil cultivation practices i.e. preparation of orchard site shared only 3.41 %. And expenditure on human labour employed for plantation layout, digging and filling pits occupied lowest proportion about 2.52 %. All others were minor items of cost.

Table 1 Gross cost of pomegranate orchard establishment

S N	.Heads of expenditure	Size of pomegranate holding			Average Cost	Avera ge cost in %
		Small	Medium	Large		
1	Plantation cost	86880.05	81625.19	76369.29	81624.84	69.62
2	Gestation period cost	33414.13	36179.09	37251.74	35614.99	30.38
3	Gross Establishment cost	120294.18	117804.28	113621.03	117239.83	100

ii) Gestation period:

The pomegranate plant takes 2 years to complete their canopy structure for bearing the fruits. This waiting period is known as "juvenile phase" or "gestation period" of pomegranate orchard. Table show that the fertilizers (29.86 %) & pesticides (22.60 %) as vital material inputs together shared nearly half of expenditure during gestation period. Then labour wages occupied more than one-fourth proportion (26.85%). It is followed by expenses on irrigation (10.53%) and soil tillage practices (7.53 %). Whereas, plantation gap filling shared lowest cost only 2.64 % .

iii) Annual cost of orchard establishment:

The cash outflows during this unproductive stage of orchards. So this cost needs to be spread over the returns obtained in the productive stage. Extensive discussions with respondents and experts in the field of pomegranate cleared that the average economic or productive life span of pomegranate in the study area is around 10 years. Thus total establishment cost was apportioned over 10 years and annual cost was obtained as below.

Gross Establishment Cost

Annual establishment cost =

Economic life span of orchard (10 years)

Thus, average annual establishment cost for all sampled orchards was Rs.11723.98. It contributed lowest share (5.75 %) in gross cost of pomegranate cultivation.

2) Operational cost:

This is recurring cost that involves sizeable amount of expenditure on purchase of materials and labour inputs from time to time for operating the pomegranate holdings known as 'operational cost'. It comprises the annual expenses made for cropping season (bahar period) as well as during rest period of orchard. Among various items of expenses, firstly the material inputs consisting of fertilizers and pesticides were major cost component that occupied half proportion (48.66%) in total operational cost (table 1). Secondly, other cost components such as rental value and revenue of land, depreciation, electricity charges, interest on fix and working capital etc. together occupied nearly one-fourth share (24.81 %) in total cost. Thirdly, the share of expenditure made on human labour was higher (18.24 %) as compared to tractor utilization charges (8.29%) in the total operational cost of pomegranate.

In brief, the average cost for operating pomegranate holding was Rs. 170639.08 ha⁻¹ annum⁻¹. Its share was as high as 84.04 % in total pomegranate cultivation cost.

3) Marketing cost:

Table 2 show that there are five major items of cost for marketing of pomegranate as discussed below. It includes expenses on labour for completing certain marketing operations such as harvesting, sorting and packing of fruits at the field level. Additionally, the charges were also deducted at market place for loading, unloading, weighing, commission of fruit agents and market fees. Total of all this expenses is taken as marketing cost.

Cost benefit ratio (CBR) of pomegranate crop:-

Table 2 show that for study region as a whole, the establishment (5.77%), operational (84.04%) and marketing (10.19%) costs together constituted gross annual cost i.e. Rs. 203603.87 / ha / year (100%) of pomegranate cultivation. The pomegranate fruit crop requires modern agro-equipments, skills as well as timely material and labour inputs. Therefore, usually the cost of pomegranate production is very high.

Table 2 Average per hectare CBR of pomegranate according to size of holding (Value in Rs.)

Sr. No.	Heads of expenditure	Subheads of expenditure	Average	Cost in %
1	Establishment cost	i) Plantation	8162.49	4.02
		ii) Gestation period	3561.50	1.75
		Subtotal	11723.99	5.77
2	Operational cost	i) Nutrients / Fertilizers	49557.03	24.41
		ii) Plant protection chemicals	33743.06	16.62
		ii) Labour	31227.64	15.38
		iii) Machinery	14183.94	6.99
		iv) Other costs	42478.07	20.92
		Subtotal	170639.08	84.04
3	Marketing cost	i) Harvesting	4489.49	2.21
		ii) Packing material	306.63	0.15
		iii) Transport	3251.41	1.60
		iv) Market charges	12642.62	6.23
		Subtotal	20690.14	10.19
4	Gross cost [1+ 2 + 3]		203053.21	100.00
5	Average production in tons		8.65	-
6	Average price in Rs./ kg		50.79	-
7	Gross return [5 x 6]		439304.67	-
8	Net profit [7 - 4]		235700.80	-
9	Cost benefit ratio		2.16	-

(Source: Compiled from primary data)

On the other side, net profit earned by grower is composite result of production cost, yield of pomegranate and prices received for fruits on the farm or in the market. In the existing edapho-climatic conditions of study area the pomegranate crop gave good response along with higher inputs given by growers resulted in satisfactory yields (Rs. 8680 kg/ha). And good demand for pomegranate fruits leads to fetch the remunerative prices (Rs.50.89/kg). Consequently higher monetary returns were gained by sampled growers. The net profits Rs. 214831.33/ha/annum obtained by growers provide evidence of good economic viability of pomegranate in study region. Finally, the cost benefit ratio 1: 2.06 proved good economic profitability from pomegranate farming in the study area. Attractive returns gained from pomegranate cultivation have made the farmers to change their cropping pattern.

Conclusion:

Finally it could be concluded that investment in pomegranate orchard was financially viable in the study region. Net return is the earning power of money invested on pomegranate during its life span. The cost benefit analysis revealed that the net return was nearly double of the gross cost of capital invested in pomegranate enterprise. Therefore, investment on pomegranate orchard is a financially sound, profitable and in attractive prepositions.

Pomegranate is also found the best fruit crop for replacing subsistence farming and alternative for crop diversification. Its cultivation is even adopted by small and marginal farmers. Therefore, pomegranate has ability to reduce poverty levels in drought prone areas.

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