



## Economics of pomegranate in Vijaypur district of Karnataka

Parameshwar, Dr. Dinesh Kumar, AK Rai, Ali Ahmad, Baryalai Rafi

Department of Agricultural Economics, Sam Higginbottom University of Agriculture Technology and Sciences, Allahabad, Uttar Pradesh, India

### Abstract

The study was conducted in the year 2016-2017 to study the "Economics of pomegranate in Vijaypur district of Karnataka" with the sample size of 120 respondents, Total cost incurred by the small size farms, medium size farms and large size farms were (Rs.72514.90/ha), and (Rs.70864.54/ha) and (Rs.69125.24/ha) respectively. The Gross Returns obtained per hectare by small size farms, medium and large size farms were (Rs.51658.70 /ha), and (Rs.536456.25/ha), and (Rs.556325.0/ha) respectively. And the Net returns per hectare was small size farms, medium and large size farms (444072.60/ha), and (Rs.465591.71/ha), and (Rs.487199.76/ha) respectively. Input-output ratio per hectare were small size farms, medium and large size farms, (1:6.0), and (1:6.39) and (1:6.79) respectively. Cost Concepts on different size of farms group per hectare. Cost A<sub>1</sub> and A<sub>2</sub> was highest in large size farms (Rs.4736.24/ha) followed by medium size farms (Rs.38281.54/ha) and lowest in small size farms (Rs.1891.90/ha) respectively. Cost B was highest in large size farms (Rs.49325.24/ha) as compared to medium size farms (Rs.40264.54/ha) and lowest in small size of farms (Rs.21014.90/ha) respectively. Cost C was highest in small size farms (Rs.72514.90/ha) and lowest in large size farms (Rs.69125.24/ha). Sample average for Cost A<sub>2</sub>, Cost B and Cost C was Rs.32750.78/ha, Rs.34744.95/ha and Rs.71089.12/ha in different size of farms group. Farm business income in small, medium and large size of farms group was Rs.497595.60/ha, Rs.498174.71/ha and Rs.508962.76/ha respectively. Sample average for farm business income was 500725.15/ha in different size of farms group. Farm investment income was highest in large size farms (Rs.504162.76/ha) as compared to medium size farms (Rs.482574.11/ha) and lowest in small size farms (Rs.461095.60/ha) respectively. This makes the sample average for Farm investment income was Rs.479380.79/ha in different size of farms group. The net returns per hectare obtained by large size farms were high (Rs.487199.76/ha) as compared to medium and small size farms (Rs.465591.71/ha and Rs.444072.60/ha) respectively. Sample average of net returns was 462386.82/ha in different size of farms group. Sample average of Family labour income was Rs. 498730.99/ha in different size of farms group.

**Keywords:** economics, cost, returns, pomegranate

### Introduction

It is native of Iran and Afghanistan. A handsome deciduous and somewhat thorny large shrub or small tree (*Punica granatum*) belonging to the family Punicaceae, native to semi tropical Asia and naturalized in the Mediterranean region in very early times. Plant grows to the height of 5-8 meters tall. It has long been cultivated as an ornamental and for its edible fruit. The fruit about the size of an apple bears many seeds, each with a fleshy crimson seed coating, enclosed in a tough yellowish to deep red rind. Popular in eastern as well as western parts of the world. Mediterranean region, Spain, Iran, India, Turkey, South East Asia, Afghanistan, tropical Africa, parts of USA etc. It is grown for its fully luscious grains called Arils; the fruits are very attractive with sweet acidic taste. The fruits are mainly used for dessert purposes. The fruits are also processed to make juice, syrup, jam, jelly, wine, to flavour cakes, baked apples, etc. of late, its nutritional and medicinal values are given ample importance. Pomegranate was considered as a minor fruit in India till the year 1986, but gained importance due to its economic and nutraceutical value. In 2010-11 the area 107 thousand ha and production 743 thousand tones. In 2011-12 the area 122 thousand and production 772 thousand tones. In 2014-15 the area increased

to 181 thousand ha and production 789 thousand tones. (Indian Horticulture Data Base 2015). In Karnataka pomegranate is being grown on commercial scale and occupies 19040 hectare, production 204640 tones in 2014-15. The area under pomegranate in the Vijaypur district is 1530 hectare and production in the district is 15250 tonnes in 2015-16. Study of the economics of pomegranate production is indispensable since there is no proper farm business data on its cost of production. The accurate figures on establishment cost, operating cost and input requirement of pomegranate orchard could be of great help to the pomegranate growers of Vijaypur district in particular.

### Materials and Methods

Pomegranate cultivation is practiced throughout the district. However the large scale cultivation of Pomegranate is concentrated mainly in Indi block extending on an area of 1530 hectares under Pomegranate in the district. Hence, Indi block was specifically selected for the study. The information on area under pomegranate crop and number of pomegranate growers from the selected villages was obtained from the respective village accountants. A proportionate sample of 10 per cent of respondents from each village was selected

randomly. Thus, the total size of the sample selected for the study was 120. The highest average age of the sample farmers in Indi block was found to be 15-60 years and more than 80 per cent farmers depended mainly on agriculture as their primary occupation around 22.00 per cent farmers in the selected block completed their middle and high school were as the per cent of illiterate farmers in the selected block were

around 25.00 per cent. The sample average area under pomegranate cultivation was 1.93 ha in different size of farm groups. For analyzing the data collected during the study. Tabular analysis and financial feasibility and measures of cost concepts were employed. The technique of tabular analysis employed for estimating the cost of cultivation, yield and returns of pomegranate etc. were computed.

## Results and Discussions

**Table 1:** Resource use and Cost of Cultivation of Pomegranate crop per hectare in different Size of Farms Group, during gestation period.

Sl. No	Particulars of Farm Operations	Size of Farms Groups			Sample Average
		Small	Medium	Large	
1	Hired Human Labour Charges	31800.00 (10.08)	49050.00 (15.96)	57350.00 (19.09)	44150.42 (14.23)
2	Bullock Labour Charges	2400.00 (0.76)	1500.00 (0.49)	900.00 (0.30)	1712.50 (0.55)
3	Machinery Labour Charges	4500.00 (1.43)	4500.00 (1.46)	4500.00 (1.50)	4500.00 (1.46)
4	Cost of Seedlings	18750.00 (5.94)	18500.00 (6.02)	18300.00 (6.09)	18550.42 (6.00)
5	Cost of Farm Yard Manure	13500.00 (4.28)	12900.00 (4.20)	12300.00 (4.09)	12990.00 (4.20)
6	Cost of chemical Fertilizers	16200.00 (5.13)	15700.00 (5.11)	15450.00 (5.14)	15839.58 (5.13)
7	Cost of Irrigation charges	750.00 (0.24)	750.00 (0.24)	750.00 (0.25)	750.00 (0.24)
8	Cost of Plant Protection charges	22500.00 (7.13)	22050.00 (7.18)	21600.00 (7.19)	22117.50 (7.16)
9	Cost of bore well	50000.00 (15.84)	50000.00 (16.27)	50000.00 (16.64)	50000.00 (16.19)
10	Cost of drip irrigation	47000.00 (14.89)	45000.00 (14.65)	43000.00 (14.31)	45300.00 (14.66)
11	Cost of fencing materials	15000.00 (4.75)	14500.00 (4.72)	14200.00 (4.73)	14626.67 (4.73)
12	Miscellaneous charges	1500.00 (0.47)	1500.00 (0.49)	1500.00 (0.50)	1500.00 (0.48)
13	Interest on Working Capital @ 8%	8952.00 (4.60)	10116.00 (5.35)	10612.00 (5.74)	9768.33 (5.13)
14	Amortized est. cost	0.00	0.00	0.00	0.00
15	Deprecation on Fixed Resources	5050.00 (1.60)	4650.00 (1.51)	4450.00 (1.49)	4761.67 (1.54)
16	Land Revenue Paid to Government	180.00 (0.06)	180.00 (0.06)	180.00 (0.06)	180.00 (0.06)
17	Interest on Fixed Capital @ 10%	2023.00 (0.64)	1983.00 (0.64)	1963.00 (0.65)	1994.17 (0.64)
18	Rental Value of Own Land	15000.00 (4.75)	15000.00 (4.88)	15000.00 (4.99)	15000.00 (4.86)
19	Imputed value of Family Labour charges	51500.00 (16.32)	30600.00 (9.96)	19800.00 (4.99)	36344.17 (11.76)
	Total Cost of Cultivation	315565.00	307239.00	300431.00	308880.05

The Table 1 revealed that among different size of farms during gestation period, total cost incurred by the small size farms were high (Rs.315565/ha) as compared to medium and large size farms (Rs.307239/ha and Rs.300431/ha). Sample average for total cost was Rs.308880.05/ha in different size of farms group.

The cost of human labour, fertilizers, seeds and bullock labour were the items of cost with major share in the variable costs, because most of the operations like harvesting, and weeding were human labour intensive operations and the other operations like land preparation and Interculture were bullock labour intensive. The distribution of pattern of operational cost under various inputs revealed that cost of human labour was the highest in the large size farms (Rs.57350/ha), compared to medium size farms (Rs.49050/ha) and lowest on small size farms (Rs.31800/ha). Whereas, bullock labour cost was the highest in case of small size farms (Rs. 2400/ha) as compared to medium (Rs. 1500/ha) and large farms (Rs. 900/ha). Machinery labour cost was Rs.4500/ha in different size of

farms group. The cost of seedlings was the highest on small size farms (Rs.18750/ha) and lowest in large size farms (Rs.18300/ha) respectively. As Pomegranate would respond well with chemical fertilizer so the cost of farm yard manure used was ranged from Rs. 13500 (small size farms) to 12300 (large size farms). Whereas, the expenditure on fertilizers was the highest (Rs.16200/ha) for small size farms as compared to medium size farms (Rs.15700/ha) and large size farms (Rs.15450/ha) respectively. It was also noticed that the highest expenditure on pesticide was seen on small size farms (Rs.22500/ha) as compared to medium and large size farms respectively. Sample average for depreciation on fixed resources was Rs.4761.67, interest on working capital Rs.18562.97, interest on fixed capital was Rs.1994.17. Land revenue paid to government was Rs.180 in different size of farms group.

The cost of rental value of own land was Rs.15000/ha in different size of farms group. Sample average for rental value of own land was Rs 15000/ha.

**Table 2:** Resource use and Cost of Cultivation of Pomegranate crop per hectare in different Size of Farms Group, during bearing period.

Sl. No	Particulars of Farm Operations	Size of Farms Groups			Sample Average
		Small	Medium	Large	
1	Hired Human Labour Charges	7900.00 (11.82)	10950.00 (16.73)	12000.00 (18.80)	9975.83 (15.20)
2	Bullock Labour Charges	900.00 (1.35)	600.00 (0.91)	300.0 (0.46)	645.00 (0.98)
3	Machinery Labour Charges	1200.00 (7.48)	800.00 (7.63)	400.00 (7.83)	860.00 (7.62)

4	Cost of Seedlings	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
5	Cost of Farm Yard Manure	5500.00 (8.22)	5300.00 (8.10)	5100.00 (7.99)	5330.00 (8.12)
6	Cost of chemical Fertilizers	6500.00 (9.75)	6300.00 (9.63)	6250.00 (9.79)	6368.75 (9.71)
7	Cost of Irrigation charges	200.00 (0.29)	200.00 (0.30)	200.00 (0.31)	200.00 (0.30)
8	Cost of Plant Protection charges	8500.00 (12.72)	8350.00 (12.76)	8200.00 (12.85)	8372.50 (12.76)
9	Cost of Bore well	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
10	Cost of Micro jet/Sprinkler	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
11	Cost of Fencing Materials	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
12	Miscellaneous charges	500.00 (0.74)	500.00 (0.76)	500.00 (0.78)	500.00 (0.76)
13	Amortized est. cost	12000.00 (17.95)	12000.00 (18.33)	12000.00 (18.80)	12000.00 (18.29)
14	Interest on Working Capital @ 8%	2496.00 (3.73)	2640.00 (4.03)	2636.00 (4.12)	2580.17 (3.93)
15	Depreciation on Fixed Resources	3250.00 (4.86)	3854.00 (5.89)	4254.00 (6.66)	3710.70 (5.66)
16	Land Revenue Paid to Government	60.00 (0.08)	60.00 (0.09)	60.00 (0.09)	60.00 (0.09)
17	Interest on Fixed Capital @ 10%	831.00 (1.24)	891.40 (1.36)	931.40 (1.46)	877.07 (1.33)
18	Rental Value of Own Land	5000.00 (7.48)	5000.00 (7.63)	5000.00 (7.83)	5000.00 (7.62)
19	Imputed value of Family Labour	12000.00 (17.95)	8000.00 (12.22)	6000.00 (9.40)	9116.67 (13.90)
	Total Cost of Cultivation	66837.00	65445.40	63831.40	65596.69

The Table 2. revealed that among different size of farms during bearing period, total cost incurred by the small size farms were high (Rs.66837.0/ha) as compared to medium and large size farms (Rs.65445.40/ha and Rs.63831.40/ha). Sample average for total cost was Rs.96289/ha in different size of farms group.

The cost of human labour, fertilizers, and machinery labour were the items of cost with major share in the variable costs, because of the weeding were human labour intensive operations. The distribution of pattern of operational cost under various inputs revealed that cost of human labour was the highest in the large size farms (Rs.12000/ha), compared to medium size farms (Rs.10950/ha) and lowest on small size farms (Rs.7900/ha) respectively.

As Pomegranate would respond well with chemical fertilizer

so the cost of farm yard manure used was ranged from Rs. 5500 (small size farms) to 5100(large size farms).Whereas, the expenditure on fertilizers was the highest (Rs.6500/ha) for small size farms as compared to medium size farms (Rs.6300/ha) and large size farms (Rs.6250/ha) respectively. It was also noticed that the highest expenditure on pesticide was seen on small size farms (Rs.8500/ha) as compared to medium and large size farms respectively. Sample average for depreciation on fixed resources was Rs.3710.70, interest on working capital Rs.2580.17, interest on fixed capital was Rs.877.07. Land revenue paid to government was Rs.60 in different size of farms group.

The cost of rental value of own land was Rs.5000/ha in different size of farms group. Sample average for rental value of own land was Rs 5000/ha.

**Table 3:** Costs and Returns in Pomegranate crop per hectare in different Size of Farms Group

Sl. No	Particulars	Size of Farms Group			Sample Average
		Small	Medium	Large	
1	Total Cost of cultivation	72514.90	70864.54	69125.24	71089.12
2	Yield in tons per hectare	11.05	11.48	11.90	11.41
3	Gross Returns per hectare in rupees	516587.50	536456.25	556325.00	533475.94
4	Net Returns per hectare	444072.60	465591.71	487199.76	462386.82
5	Cost of Production per tones	6562.43	6175.56	5808.84	6238.80
6	Price Per tones	46750.00	46750.00	46750.00	46750.00

Table 3. reveals that Costs and Returns in Pomegranate cultivation in different size of farms group. Among different size of farms groups, the total cost of cultivation incurred by the small farms were high (Rs.72514.90/ha) as compared to medium (Rs.70864.54/ha) and large farms (Rs. 69125.24/ha). Sample average for total cost of cultivation was Rs.71089.12/ha in different size of farms group. The gross returns obtained per hectare by large size farms were high (Rs.556325/ha) as compare to medium and small size farms (Rs.536456.25/ha and Rs.516587.50/ha) respectively. The net

returns per hectare obtained by large size farms were high (Rs.487199.76/ha) as compared to medium and small size farms (Rs.465591.71/ha and Rs.444072.60/ha) respectively.

The average yield of Pomegranate in different size of farms group was 11.41 ton/ha. The yield was highest in case of large size farms 11.90 ton/ha as compared to medium (11.48 ton/ha) and small size farms (11.05 ton/ha) respectively. Average cost of production per ton was Rs. 6238.80/ton. Gross Price per ton was Rs.46750.

**Table 4:** Cost Concepts in Pomegranate crop per hectare in different Size of Farms Group

Sl. No	Cost Concepts	Size of Farms Group			Sample Average
		Small	Medium	Large	
1	Cost A <sub>1</sub>	18991.90	38281.54	47362.24	32750.78
2	Cost A <sub>2</sub>	18991.90	38281.54	47362.24	32750.78

3	Cost B	21014.90	40264.54	49325.24	34744.95
4	Cost C	72514.90	70864.54	69125.24	71089.12

Table 4 reveals that Cost Concepts on different size of farms group per hectare. Cost A<sub>1</sub> and A<sub>2</sub> was highest in large size farms (Rs.4736.24/ha) followed by medium size farms (Rs.38281.54/ha) and lowest in small size farms (Rs.1891.90/ha) respectively. Cost B was highest in large size farms (Rs.49325.24/ha) as compared to medium size farms

(Rs.40264.54/ha) and lowest in small size of farms (Rs.21014.90/ha) respectively. Cost C was highest in small size farms (Rs.72514.90/ha) and lowest in large size farms (Rs.69125.24/ha). Sample average for Cost A<sub>2</sub>, Cost B and Cost C was Rs.32750.78/ha, Rs.34744.95/ha and Rs.71089.12/ha in different size of farms group.

**Table 5:** Measures of Farm Profitability in Pomegranate crop per hectare in different Size of Farms Group

Sl. No	Particulars	Size of Farms group			Sample Average
		Small	Medium	Large	
1	Gross Returns	516587.50	536456.25	556325.00	533475.94
2	Farm Business Income	497595.60	498174.71	508962.76	500725.15
3	Farm Investment Income	461095.60	482574.11	504162.76	479380.79
4	Net Returns	444072.60	465591.71	487199.76	462386.82
5	Family Labour Income	495572.60	496191.71	506999.76	498730.99

Table 5 reveals that Measures of Profitability in Pomegranate cultivation in different size of farms group. The gross returns obtained per hectare by large size farms were high (Rs.556325.00/ha) as compare to medium and small size farms (Rs.536456.25/ha and Rs.516587.50 /ha) respectively. This makes the sample average for gross returns was 533475.94/ha in different size of farms group. Farm business income in small, medium and large size of farms group was Rs.497595.60/ha, Rs.498174.71/ha and Rs.508962.76/ha respectively. Sample average for farm business income was 500725.15/ha in different size of farms group. Farm investment income was highest in large size farms (Rs.504162.76/ha) as compared to medium size farms (Rs.482574.11/ha) and lowest in small size farms (Rs.461095.60/ha) respectively. This makes the sample average for Farm investment income was Rs.479380.79/ha in different size of farms group. The net returns per hectare obtained by large size farms were high (Rs.487199.76/ha) as compared to medium and small size farms (Rs.465591.71/ha and Rs.444072.60/ha) respectively. Sample average of net returns was 462386.82/ha in different size of farms group. Sample average of Family labour income was Rs.498730.99/ha in different size of farms group.

### Conclusion

Pomegranate is a highly remunerative crop this reason behind rapid expansion of area under Pomegranate. The resources was under used, indicating that scope for increased used of the resources to increase the Pomegranate production. The irrigation, chemical fertilizer, good seeds and seedlings, use of compost and application of pesticides are very important in increasing the productivity of Pomegranate crop. And used the good technologies in Pomegranate production and ensure raised the subsidies seedlings to farmer, which helps to increase the production and decreases the cost of cultivation.

### Reference

1. Rane AA, Bagade SR. Economics of production and marketing of banana in Sindhur District Maharashtra, Indian J Agric. Mktg. 2006; 20(1):38-45.
2. Ravikumar KT, Hosamani SB, Mamle Desai NR, Suresh

Ekbote D, Ashalatha KV. Investment pattern and maintenance cost in pomegranate orchards: An economic analysis. Karnataka J Agric. Sci. 2011; 24(2):164-169.