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## Economic analysis of production of watermelon in Haveri district of Karnataka

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### Abstract

Watermelon plays important role in economy and human diet. Fruits are basic ingredients in the Diets of an Agriculture is the mainstay of economics. An attempt has been made in this study to examine the economic analysis of cost and return per hectare and input output ratio of watermelon in Haveri district of Karnataka was conducted with a sample of 120 respondents. The result indicated that the no of respondents The average area per hectare holdings in small, medium, large farms respectively. The cost incurred by small, medium and large farms respectively. Input- Output ratio per hectare was small, medium, large farms respectively.

**Keywords:** Watermelon, cost and return, input output ratio, Haveri

### Introduction

Watermelon (*Citrullus lanatus* var. *lanatus*, family Cucurbitaceae) is a scrambling and trailing vine originally from southern Africa. It is a large, sprawling annual plant with coarse, hairy pinnately-lobed leaves and white to yellow flowers. It is grown for its large edible fruit, also known as a *watermelon*, which is a special kind of berry with a hard rind and no internal division, botanically called a *pepo*. The fruit has a smooth hard rind usually green with dark green stripes or yellow spots and a sweet, juicy interior flesh usually deep red to pink, but sometimes orange, yellow, or white with many seeds, which can be soft and white or hard and black. Considerable breeding effort has been put into disease-resistant varieties and into developing a "seedless" strain with only digestible white seeds. Many cultivars are available that produce mature fruit within 100 days of planting the crop. The fruit can be eaten raw or pickled and the rind can be cooked. Watermelons have 92% water by weight. It is a thirst quencher in hot summer days. It is a nature's gift to beat the scorching summer heat. It is an excellent fruit, which can work wonders for human skin. It acts as a natural moisturizer as well as a toner and keeps the skin cool, glowing and fresh. It has a good source of potassium; which helps in controlling blood pressure thereby ensuring the health of one's heart.

Traditionally, watermelon cultivation in India was confined to the riverbeds of the Yamuna, Ganges and Narmada in the north India, and the Kaveri, Krishna and Godavari in the south India. At present, it is grown in almost all parts of the country. It is a fast-growing cash crop for poor and marginal farmers with little acreage of their own. In India Watermelon is grown largely in major states like Uttar Pradesh having area 11.65 thousand hacter, production 544.57 thousand tonnes, Karnataka having area 11.11 thousand hacter, production 357.03 thousand tonnes, Tamil Nadu having area 6.77 thousand hacter, production 248.63 thousand tonnes, and Odisha having area 12.69 thousand hacter, production 245.04 thousand tonnes, and Andhra Pradesh having area 7.95 thousand hacter, production 225.62 thousand tonnes.

### Research methodology

The study was conducted in Haveri district of Karnataka which is one of the 30 district of Karnataka. Haveri district comprises of 7 blocks among that Ranebennur block were selected for this study. From that block 7 villages viz., yerekuppi, aladakatti, bevinahalli, chalageri, gangapur, hunumanahalli, kudrihalli were selected. A list of all watermelon farmers/ respondents is prepared with the help of head of the village pradhan or head of each selected villages in the block, there after farmers/respondents is categorized in 3 size groups on the basis of their land holding and then from each village 10% farmers were selected randomly

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from all the different size of farm groups. Data for the study was collected from 120 farmers randomly.

### Results and Discussion

The study was conducted in Haveri district of Karnataka. The necessary data were collected from the sample farmers spread over the blocks in above mentioned district. The present chapter is going to tell about the results and discussion for various objectives. The chapter is arranged in different sub-sections according to objectives of the study.

- To study cost and return per hectare and input output ratio of different size of farm groups.

### Resource use and cost of cultivation of watermelon crop per hectare in different size of farm groups:

The economic aspects of watermelon such as cost of cultivation, returns per hectare, input and output ratio of small size, medium and large size farm groups are given below

Resource use and cost of cultivation of watermelon crop per hectare in different size of farms group

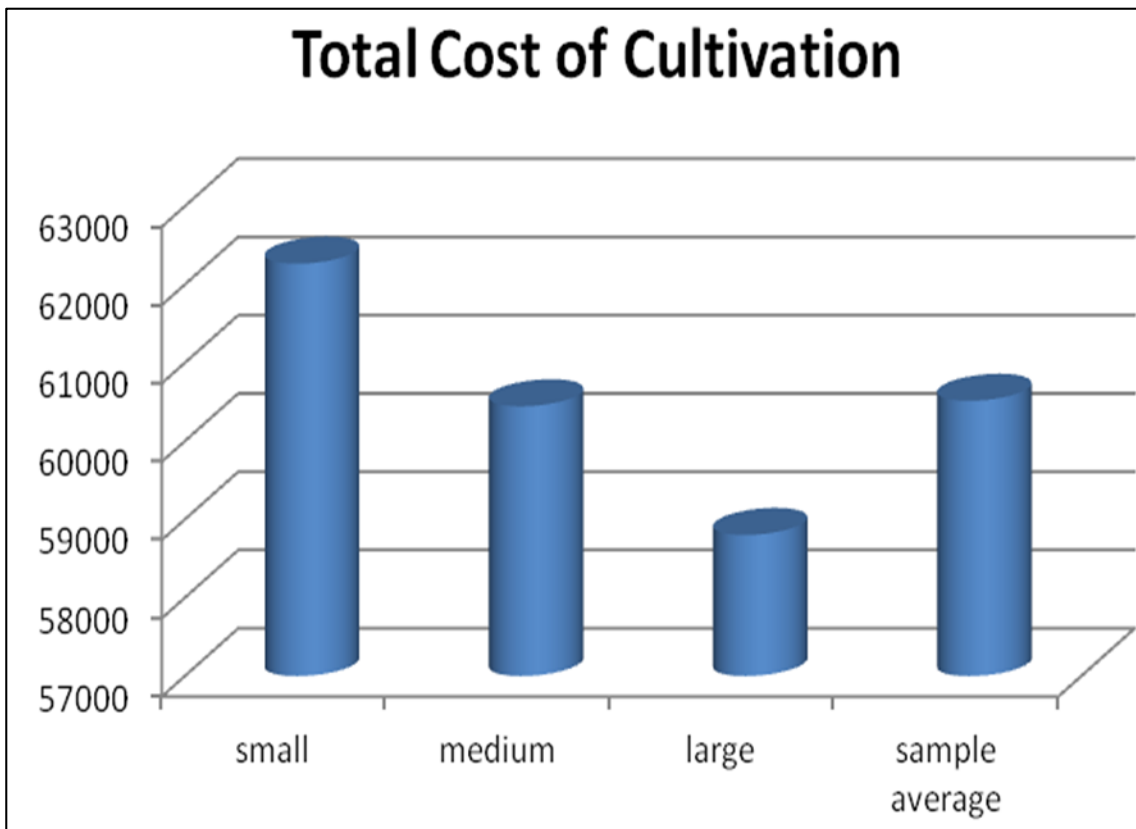
Sl. No	Particulars of Farm Operations	size of the farm groups			sample average
		Small	medium	large	
1	Hired Human Labour Charges	5000 (7.99)	7750 (12.76)	9000 (15.23)	7264.58 (11.95)
2	Bullock Labour Charges	5400 (8.63)	4200 (6.91)	3000 (5.08)	4210 (6.92)
3	Machinery Labour Charges	5200 (8.31)	4450 (7.33)	5200 (8.80)	4918.75 (8.09)
4	Cost of Seeds and Seedlings	8840 (14.13)	8560 (14.09)	8350 (14.13)	8583.92 (14.11)
5	Cost of Farm Yard Manure	2300 (3.68)	2100 (3.46)	1870 (3.16)	2092.42 (3.44)
6	Cost of chemical Fertilizers	4150 (6.63)	4350 (7.16)	4600 (7.78)	4363.75 (7.18)
7	Cost of Irrigation charges	2300 (3.68)	2000 (3.29)	1820 (3.08)	2039.5 (3.35)
8	Cost of Plant Protection charges	1500 (2.40)	1450 (2.39)	1300 (2.20)	1419.58 (2.33)
9	Miscellaneous charges	750 (1.20)	700 (1.15)	650 (1.10)	700.42 (1.15)
10	Interest on Working Capital @ 8%	2871 (4.59)	2845 (4.68)	2832 (4.79)	2849.21 (4.69)
11	Deprecation on Fixed Resources	2400 (3.84)	2250 (3.70)	2150 (3.64)	2266.67 (3.73)
12	Land Revenue Paid to Government	150 (0.24)	150 (0.25)	150 (0.25)	150 (0.25)
13	Interest on Fixed Capital @ 10%	1405 (2.26)	1390 (2.30)	1380 (2.35)	1391.67 (2.30)
14	Rental Value of Own Land	11500 (18.38)	11500 (18.93)	11500 (19.46)	11500 (18.91)
15	Imputed value of Family Labour charges	8500 (13.58)	6750 (11.11)	5000 (8.46)	6764.58 (11.12)
16	Total Cost of Cultivation	62266 (100)	60445 (100)	58802 (100)	60515 (100)

The above table revealed that among different size of farms in total cost incurred by the small size farms were high (Rs.62266/ha) as compared to medium and large size farms (Rs. 60445/ha and Rs.58802/ha). Sample average for total cost was Rs.60515/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 were bullock labour intensive. The distribution pattern of operational cost under various inputs revealed that cost of human labour was the highest in the large size farms (Rs.9000/ha), compared to medium size farms (Rs.7750/ha) and lowest on small size farms (Rs.5000/ha). Whereas, bullock labour cost was the highest in case of small size farms (Rs. 5400/ha) as compared to medium (Rs. 4200/ha) and large farms (Rs. 3000/ha). Machinery labour cost was Rs. 4918.75/ha in different size of farms group. The cost of seedlings was the highest on small

size farms (Rs.8840/ha) and lowest in large size farms (Rs.8350/ha) respectively. As watermelon would respond well with chemical fertilizer so the cost of farm yard manure used was ranged from Rs. 2300 (small size farms) to 1870 (large size farms). Whereas, the expenditure on fertilizers was the highest (Rs.4600/ha) for large size farms as compared to medium size farms (Rs.4350/ha) and small size farms (Rs.4150/ha) respectively. It was also noticed that the highest expenditure on pesticide was seen on small size farms (Rs.1500/ha) as compared to medium and large size farms respectively. Sample average for depreciation on fixed resources was Rs.2667.67, interest on working capital Rs.2849.21, interest on fixed capital was Rs.1391.67. Land revenue paid to government was Rs.150 in different size of farms group.

The cost of rental value of own land was Rs.11500/ha in different size of farms group. Sample average for rental value of own land was Rs 11500/ha.



Total cost of cultivation in watermelon crop per hectare in different Size of Farms Group

**Cost of cultivation in watermelon crop per hectare in different size of farm groups**

Below table explains about cost of cultivation in watermelon

crop per hectare in different size of farm groups with cost A1 and cost A2 and cost B and cost C.

**Table 1:** Cost Concepts in watermelon 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>	40861.00	40805.00	40922.00	40858.81
2	Cost A <sub>2</sub>	40861.00	40805.00	40922.00	40858.81
3	Cost B	53766.00	53695.00	53802.00	53750.47
4	Cost C	62266.00	60445.00	58802.00	60515.1

Table 1 reveals that Cost Concepts on different size of farms group per hectare. Cost A<sub>1</sub> in small, medium and large size of farms groups was Rs.40861/ha, Rs.40805/ha and Rs.40922/ha respectively. Cost A<sub>2</sub> was also same as Cost A<sub>1</sub> in small, medium and large size of farms groups was Rs.40861/ha, Rs.40805/ha and Rs.40922/ha respectively. Cost B in small, medium and large farms group was Rs.53766/ha, Rs.53695/ha and Rs.53802/ha respectively. Cost C was highest in small size farms (Rs.62266/ha) and lowest in large size farms

(Rs.58802/ha). Sample average for Cost A<sub>1</sub>, Cost B and Cost C was Rs.40858.81/ha, Rs.53750.47/ha and Rs.60515.1/ha in different size of farms group.

**Cost and returns in watermelon crop per hectare in different size of farm groups:**

Below table explains about cost of cultivation per quintal, returns per quintal and price per ton, gross return, net return, yield in tons per hectore

**Table 2:** Costs and Returns in watermelon 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	62266	60445	58802	60515.1
2	Yield in tones per hectare	19.00	19.60	20.00	19.53
3	Gross Returns per hectare in rupees	190000	196000	200000	195333
4	Net Returns per hectare	127734	135555	141198	134818.3
5	Cost of Production per ton	3277.2	3083.9	2940.1	3100.8
6	Price per ton	10000	10000	10000	10000

The above Table 2 reveals that Costs and Returns in watermelon 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.62266/ha) as compared to medium (Rs.60445/ha) and large farms (Rs.58802/ha). Sample average for total cost of

cultivation was Rs.60515/ha in different size of farms group. The gross returns obtained per hectare by large size farms were high (Rs. 200000/ha) as compare to medium and small size farms (Rs.196000/ha and Rs.190000 /ha) respectively. The net returns per hectare obtained by large size farms were high (Rs.141198/ha) as compared to medium and small size farms (Rs.135555/ha and Rs.127734/ha) respectively.

The average yield of watermelon in different size of farms group was Rs.19.53/ha. The yield was highest in case of large size farms (20 ton/ha) as compared to medium (19.60 ton/ha) and small size farms (19 ton/ha) respectively. Average cost of production per ton was Rs. 3100.8/ton. Price per ton was Rs.10000/ton.

### **Conclusion**

The study shows that the production of Watermelon in Haveri district. The main objective of the study is to analyze, economics of Watermelon production, price spread and cost and returns of production of Watermelon. Economics of Watermelon production is more profitable in large farms as compared to medium size farms and small size farms. . This will be the way for making watermelon cultivation more lucrative. Major constraints in production was found that high cost of labour.

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