



P-ISSN: 2349-8528

E-ISSN: 2321-4902

IJCS 2019; 7(3): 3491-3493

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Received: 11-03-2019

Accepted: 15-04-2019

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## An economic analysis of production of Chilli in Durg district of Chhattisgarh

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### Abstract

An attempt has been made in this study to examine the economic analysis of cost and return per hectare and input output ratio of chilli in durg district of Chhattisgarh. The study made use of a multistage sampling and random sampling technique to select 120 respondents among those selected villages. Data for the study were collected with the aid of a well-structured questionnaires. The production of chilli has increased largely due to productivity increase and increase in the area under the crop. The acreages under chilli not influenced by improvement in the productivity but it largely depended on the other factors like rainfall and price of this crop. Resource use structure in chilli was found to be varied among the size groups. Production cost of chilli was varied according to size groups of holding. The per hectare cost of cultivation of chilli was highest in small size farms and lowest on large size farms. The cost of cultivation was varied among the size groups of chilli growers. The input output ratio is highest on large size farms and lowest on small size farms.

**Keywords:** Chilli, cost and return, input output ratio, Durg

### Introduction

In India, a wide variety of crops can be cultivated successfully. These include all of cereals, vegetables, fruits, flowers, spices, plantation crops, medicinal and aromatic crops. The Government of India had greatly emphasized on higher production of all these crops right after independence. Also, After the Green Revolution of the 1960's, it was realized that Indian topography and agro-climatic conditions are well suited for horticultural crops also and these crops can help in achieving sustainability of farmers with small holdings which constitutes a huge farmers population in India. However, it was only in the mid 1980's when Government of India realized the need for diversification to make agriculture more profitable by adopting efficient land use options, expansion in irrigation and development of institutes to create gainful employment for rural people. These efforts which are put forth by the Indian Government proved to be rewarding in terms of increased production and productivity of horticultural crops.

Agriculture plays the central role in lives of rural people in India. Although, the share of agriculture in overall Gross Domestic Product (GDP) has declined over the years from around 38 percent in 1980-81 to about 17.4 percent in 2017-18, the proportion of the population that is dependent upon agriculture still remains large at almost 60 percent. This reveals the need of increased production per unit land area in India, where a huge population relies either directly or indirectly on agriculture.

India has a long and glorious history of growing and exporting finest quality of spices, hence called as 'Land Of Spices'. The reason behind this was that India is gifted with wide variety of climatic conditions prevailing in one state or other. These include tropical, sub tropical, and temperate. Spices are the fragrant products of plant origin, which are used for flavoring foods and beverage, they also act as components of medicines in pharmaceutical industries, dyes in textile industries, etc. One of such spices which is extensively produced and exported from India is chilli.

### Research Methodology

The study was conducted in Durg district of Chhattisgarh which is one of the 27 districts of. Durg district comprises of 27 blocks among that 3 blocks i.e., durg, dhamdha, patan blocks were selected for this study. From that 3 blocks 5% villages viz., achoti, kapasda, nandauri, parsuli, jatakhara, kanahapuri were selected. A list of all red gram farmers/respondents is

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prepared with the help of head of the village pradhan or head of each selected villages in both 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 from all the different size of farm groups. Data for the study was collected from 120 farmers randomly. Tabulation method is used for analysis of data along with required statistical tool for the interpretation of the result.

### Results and Discussion

The study was conducted in durg district of Chhattisgarh. The necessary data were collected from the sample farmers spread

over two 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 chilli crop per hectare in different size of farm groups

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

**Table 1:** Resource use and cost of cultivation of chilli crop per hectare in different size of farms group

| SI. No | Particulars of Farm Operations         | size of the farm groups <sup>^</sup> |               |                  | sample average  |
|--------|----------------------------------------|--------------------------------------|---------------|------------------|-----------------|
|        |                                        | Small                                | medium        | Large            |                 |
| 1      | Hired Human Labour Charges             | 12600                                | 13050         | 14400            | 13196.25        |
| 2      | Bullock Labour Charges                 | 3150                                 | 2700          | 2250             | 2778.75         |
| 3      | Machinery Labour Charges               | 4800(4.71)                           | 5400          | 6000             | 5295            |
| 4      | Cost of Seeds and Seedlings            | 4500(4.41)                           | 4200(4.27)    | 3900(4.09)       | 4252.5(4.29)    |
| 5      | Cost of Farm Yard Manure               | 1500(1.47)                           | 1300(1.37)    | 1100(1.15)       | 1335.00(1.35)   |
| 6      | Cost of chemical Fertilizers           | 16920(16.60)                         | 16360(16.66)  | 15950(16.71)     | 16495.50(16.63) |
| 7      | Cost of Irrigation charges             | 1500(1.47)                           | 1350(1.37)    | 1100(1.15)       | 1351.25(1.36)   |
| 8      | Cost of Plant Protection charges       | 14080(13.81)                         | 13250(13.46)  | 12758(13.36)     | 13477.75(13.59) |
| 9      | Miscellaneous charges                  | 550(0.54)                            | 500(0.51)     | 450(0.47)        | 508.75(0.51)    |
| 10     | Interest on Working Capital @ 8%       | 4768(4.68)                           | 4648.80(4.72) | 4632(4.85)       | 4695.26(4.73)   |
| 11     | Deprecation on Fixed Resources         | 3200(3.14)                           | 2950(3.00)    | 2780(2.91)       | 3013.75(3.04)   |
| 12     | Land Revenue Paid to Government        | 12(0.01)                             | 12(0.01)      | 12(0.01)         | 12(0.01)        |
| 13     | Interest on Fixed Capital (a> 10%)     | 1821.2(1.79)                         | 1796.2(1.83)  | 1779.2(1.86)     | 1802.58(1.82)   |
| 14     | Rental Value of Own Land               | 15000(14.71)                         | 15000(15.24)  | 15000(15.71)     | 15000(15.12)    |
| 15     | Imputed value of Family Labour charges | 17550(17.21)                         | 15900(16.16)  | 13350(13.99)     | 15963.75(16.10) |
| 16     | Total Cost of Cultivation              | 101951.20(100)                       | 98417...(100) | 95453.20...(100) | 99178.09(100)   |

The Table 1revealed that among different size of farms in total cost incurred by the small size farms were high (Rs. 101951.20/ha) as compared to medium and large size farms (Rs. 98417/ha and Rs. 95453.20/ha) respectively. Sample average for total cost was Rs.99178.09/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. 14400/ha), compared to medium size farms (Rs. 13050/ha) and lowest on small size farms (Rs. 12600/ha). Whereas, bullock labour cost was the highest in case of small size farms (Rs. 3150/ha) as compared to medium (Rs. 2700/ha) and large farms (Rs. 2250/ha). Machinery labour cost was Rs. 5295/ha in different size of farms group. The cost of seedlings was the highest on small size farms (Rs.4500/ha) and lowest in large size farms (Rs.3900/ha) respectively. As chilli would respond well with

chemical fertilizer so the cost of farm yard manure used was ranged from Rs. 1500 (small size farms) to 1100 (large size farms). Where as, the expenditure on fertilizers was the highest (Rs. 16920/ha) for small size farms as compared to medium size farms (Rs. 16360/ha) and large size farms (Rs. 15950/ha) respectively. It was also noticed that the highest expenditure on pesticide was seen on smallsize farms (Rs. 14080/ha) as compared to medium and large size farms (Rs. 13250 and Rs. 12758) respectively. Sample average for depreciation on fixed resources was Rs. 3013.75 interest on working capital Rs. 4695.26, interest on fixed capital was Rs. 1802.58. Land revenue paid to government was Rs.12 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.

### Cost of cultivation in chilli crop per hectare in different size of farm groups

Below table explains about cost of cultivation in chilli crop per hectare in different size of farm groups with cost A1 and cost A2 and cost B and cost C.

**Table 2:** Cost concepts in chilli crop per hectare in different size of farms group

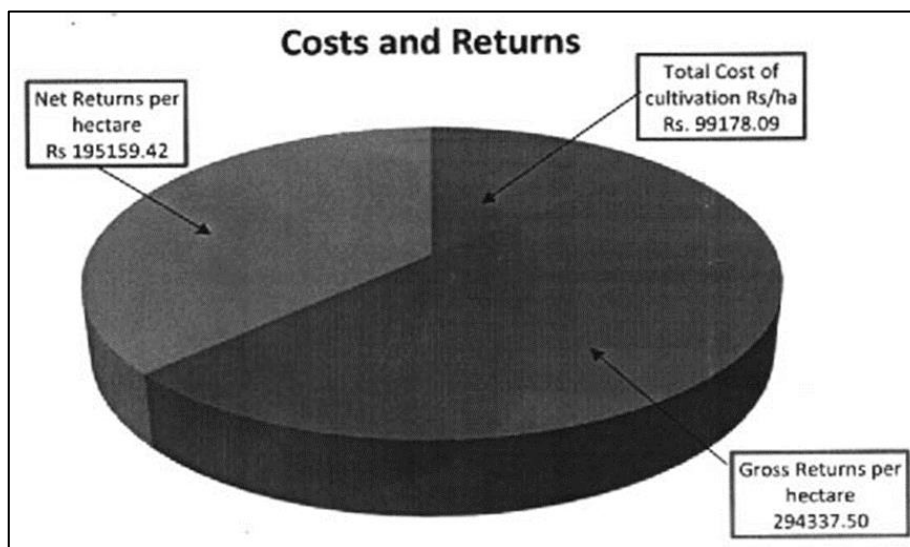
| SI. No | Cost Concepts       | Size of Farms Group |         |         | Sample Average |
|--------|---------------------|---------------------|---------|---------|----------------|
|        |                     | Small               | Medium  | Large   |                |
| 1      | Cost A <sub>1</sub> | 67580               | 65730.8 | 65324   | 66411.76       |
| 2      | Cost A <sub>2</sub> | 67580               | 65730.8 | 65324   | 66411.76       |
| 3      | Cost B              | 84401.2             | 82517   | 82103.2 | 83214.34       |
| 4      | Cost C              | 101951.2            | 98417   | 95453.2 | 99178.09       |

Table 2 reveals that Cost Concepts on different size of farms group per hectare. Cost A<sub>i</sub> in small, medium and large size of farms groups was Rs. 67580/ha, Rs. 65730.8/ha and Rs. 65324/ha respectively. Cost A<sub>2</sub> was also same as Cost A<sub>i</sub> in small, medium and large size of farms groups was Rs.67580/ha, Rs.65730/ha and Rs.65324/ha respectively. Cost B in small, medium and large farms group was Rs.

84401.2/ha, Rs. 82517/ha and Rs.82103.2/ha respectively. Cost C was highest in small size farms (Rs. 101951.2/ha) and lowest in large size farms (Rs.95453.2/ha). Sample average for Cost A<sub>i</sub>, Cost B and Cost C was Rs. 66411.76/ha, Rs. 83214.34/ha and Rs. 99178.09/ha in different size of farms group.

**Table 3:** Costs and returns in chilli crop per hectare in different size of farm group number of respondents \*=120

| Sl. No | Particulars                         | Size of Farms Group |        |         | Sample Average |
|--------|-------------------------------------|---------------------|--------|---------|----------------|
|        |                                     | Small               | Medium | Large   |                |
| 1      | Total Cost of cultivation           | 101951.2            | 98417  | 95453.2 | 99178.09       |
| 2      | Yield in quintal per hectare        | 183                 | 191    | 208     | 196.23         |
| 3      | Gross Returns per hectare in rupees | 312000              | 286500 | 274500  | 294337.50      |
| 4      | Net Returns per hectare             | 210048.8            | 188083 | 179047  | 195159.42      |
| 5      | Cost of Production per qtl          | 490.15              | 515.27 | 521.60  | 506.18         |
| 6      | Price per qtl                       | 1500                | 1500   | 1500    | 1500           |



**Fig 3:** Sample average of cost and returns of chilli production per hectare in different size of farms group

Table 3 reveals that Costs and Returns in chilli 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. 101951.2/ha) as compared to medium (Rs.98417/ha) and large farms (Rs.95453.2/ha).Sample average for total cost of cultivation was Rs. 99178.09/ha in different size of farms group. The gross returns obtained per hectare by small size farms were high (Rs.312000/ha) as compare to medium and large size farms (Rs. 286500/ha and Rs. 274500 /ha) respectively. The net returns per hectare obtained by small size farms were high (Rs. 210048.8/ha) as compared to medium and large size farms (Rs. 188083/ha and Rs. 179047/ha) respectively.

The average yield of chilli in different size of farms group was 196.23 qtl/ha. The yield was highest in case of small size farms (208qtl/ha) as compared to medium (191 qtl/ha) and small large farms (183qtl/ha) respectively. Average cost of production per qtl was Rs. 506.18/qtl. Price per ton was Rs.1500/qtl.

### Conclusion

The production of chilli has increased largely due to productivity increase and increase in the area under the crop. The acreages under tapioca not influenced by improvement in the productivity but it largely depended on the other factors like rainfall and price of this crop. Resource use structure in tapioca was found to be varied among the size groups.

Production cost of chilli was varied according to size groups of holding. The per hectare cost of cultivation of chilli was the highest on small size farms and lowest on large size farm. Among which rental value of land, hired human labour, fertilizers, manures, seeds were the major items of cost. The cost of cultivation varied among the size groups of chilli growers.

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