

## Cost and Returns Analysis of Mentha Oil Production in Sitapur district of Uttar Pradesh

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### ABSTRACT

The present study deals with the cost and return of Mentha Oil in Sitapur district of Uttar Pradesh. It was conducted in Biswan and Sakran blocks in Sitapur district of Uttar Pradesh. 60 farmers were selected randomly. The overall cost of cultivation of Mentha was Rs 57813.59 per hectare and net return was realized Rs.57035.34 per hectare. Thus Input - Output Ratio obtained in mentha cultivation was 1.93. This was reflected in higher Input - Output Ratio of mentha cultivation. The response of farmers about mentha Cultivation constraints namely High Price of fertilizers and insecticides, Lack of trained labour for cultivation, Attack by pest and diseases, Inadequate market information, High cost of good quality distillation machine, Environment related problem, and Lack of awareness about export market, etc.

**Keywords:** Cost and return analysis, Mentha oil, Mentha crop, Net return, and Input-output ratio.

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### INTRODUCTION

India is considered to be the ancient home of perfumes and aromatic plants because it is blessed with a wide variety of soil and climatic conditions which support the enormous plant wealth. Medicinal and Aromatic Plants (MAPs) are receiving considerable attention all over the world because of their vast untapped economic potential; especially in the use of herbal medicines. Mentha is an aromatic herb plant having pleasant odour leaves, which is familiar with the name Japanese pudina. The native place of mentha is Japan. So, mentha is also known as Japanese mint. Presently in India, mentha is cultivated in an area of about 250 thousand hectares with a total production of 520 thousand metric tonnes and productivity of 2.02 metric tonnes/ hectare. In U.P., mainly cultivated in the districts are Barabanki, Rampur, Moradabad, Badaun, Pilibhit, Bareilly, Luknow, Sitapur, Shahjahanpur, Hardoi, Unnao, Faizabad, a belt well known for Mint growing area in the world. Uttar Pradesh produces nearly 90 per cent of total mentha oil of the country with 80 per cent of the area under cultivation. It is cultivated in an area of about 198 thousand hectares with a total production of 344.73 thousand metric tonnes and productivity of 1.74 metric tonnes/ hectare [1-8].

The development of the food and flavor industry across the globe brought a need for greater quantities of Natural Menthol and Peppermint Oil which gave "Mentha" tremendous opportunities to develop a direct commercial relationship with some of the major consumers of Menthol in India as well as in the International Market and since then we never looked back and leading the market with its unmatched quality products. This scenario has made "Mentha" one of the fastest growing mint producers with largest capacity to manufacture Mint Products [9-12]. The study was conducted in Sitapur districts of Uttar Pradesh with the following objectives:

- To analyze the cost and return in mentha crop cultivation and its value added products.
- To find out the constraints faced by the mentha growers in the study area.

## MATERIAL AND METHODS

For the study conducted during the year 2016-17, the Sitapur district of Uttar Pradesh was selected randomly because of its highest area under mentha cultivation. From the district; two blocks Biswan and Sakran and from these blocks, 60 mentha growers (30 from each block) on the basis of highest area under mentha crop. Two villages each were selected from each selected block, randomly. The present study was mainly based on primary data. The primary data were collected through personal interview, while the secondary data were collected from the various published records of government offices, block development offices, reports, and other related agencies sources.

### Analytical tools:

Cost of cultivation and returns from mentha cultivation were also estimated using standardized C.A.C.P cost concepts as listed below.

### C.A.C.P cost concept:

#### Returns over various cost concepts:

Gross returns were calculated at the price to which the mentha crop was sold to menthe oil. Returns were calculated by subtracting costs as  $A_1$ ,  $A_2$ ,  $B_1$ ,  $B_2$ ,  $C^1$ ,  $C_2$ ,  $C_2^*$  and cost  $C_3$  from gross returns.

### Results and Discussion:

#### Cost of cultivation of Mentha

The input use pattern in mentha cultivation is clearly indicated in the Table 1.1 It is observed that the cost of cultivation per hectare for mentha amounted to Rs. 57813.59 per hectare and Operational costs and fixed costs are individually computed on per hectare basis. Total operational cost amounted to Rs.33988.52 and fixed cost was Rs.23825.07. The major expenditure under operational cost was human labour followed by cost of irrigation and they accounted for 24.19 per cent and 9.84 per cent of the total cost respectively. However labour cost in mentha was found to be higher as compared to cost of machine labour. The higher use of human labour in mentha was mainly due to their usage for cutting, hand weeding, application of manure and irrigation etc. similarly machines were used largely for land preparation only. Other operational costs included are, cost of machine labour, manures and fertilizers, plant protection chemicals, irrigation, distillation cost and interest on working capital.

**Table 1.1: Cultivation of mentha on sample mentha growers in the study area (Rs./hectare)**

Sl. No.	Particulars	Total cost (Rs)	Per cent
<b>I.</b>	Operational cost		
1.	<b>Human labour</b>	<b>13988.20</b>	24.19
2.	<b>Machine labour</b>	<b>4950.70</b>	<b>8.56</b>
3.	<b>Slips</b>	<b>3000.60</b>	<b>5.19</b>
4.	<b>Manures and fertilizers</b>	<b>3840.70</b>	<b>6.64</b>
5.	<b>Irrigation</b>	<b>5690.60</b>	<b>9.84</b>
6.	<b>Plant protection</b>	<b>300.73</b>	<b>0.52</b>
7.	<b>Interest on working capital</b>	<b>2216.99</b>	<b>3.84</b>
	Total operational cost (A)	33988.52	58.78
<b>II.</b>	Fixed cost		
1.	<b>Depreciation</b>	<b>1012.15</b>	<b>1.74</b>
2.	<b>Land revenue</b>	<b>21.35</b>	<b>0.04</b>
3.	<b>Rental value of own land</b>	<b>21875.23</b>	<b>37.84</b>
4.	<b>Interest on fixed capital</b>	<b>916.34</b>	<b>1.57</b>
	Total Fixed cost (B)	23825.07	41.23
	<b>Total cost of cultivation (A+B)</b>	<b>57813.59</b>	<b>100.00</b>

Note –Interest on working capital is computed at 12% interest rate\* per annum for the crop period

(\*The interest rate at which commercial banks advance short-term and medium-term loans)

The fixed costs in mentha production constituted 41.23 per cent of the total cost. The major cost under fixed cost was rental value of owned land which constituted around 37.84 per cent of the total cost of cultivation. The other items are; depreciation, land revenue and interest on fixed capital. It is clear from the analysis that the operational cost is the major cost in mentha production is mainly due to high cost of labour and irrigation.

#### **Returns from mentha production**

The analysis of cost and return structure revealed that mentha production was profitable in the study area. Per hectare average mentha oil production in the study area was 115.17 litres and the average price of mentha oil was Rs.1025 per litre. Thus Input Output Ratio obtained in mentha cultivation was 1.93. Even though total cost (cost of cultivation of mentha + distillation cost) was higher at Rs.61013.91, still the gross returns and net return were positive. This is reflected in higher Input – Output Ratio (Table 1.2). However, most of the farmers in the study area were still following traditional methods of cultivation that led to the higher cost of cultivation.

**Table 1.2: Cost and return structure of mentha production on sample mentha growers in the study area**

Sl. No.	Particulars	Unit	Quantity
1	<b>Total quantity of produces per hectare</b>	<b>Qtl</b>	<b>275.4</b>
2	<b>Quantity of oil extracted from per hectare produce</b>	<b>Litres</b>	<b>115.17</b>
3	<b>Distillation cost of per hectare produce</b>	<b>Rs.</b>	<b>3200.32</b>
4	<b>Price of mentha oil (per litre)</b>	<b>Rs.</b>	<b>1025.00</b>
5	<b>Gross return per hectare</b>	<b>Rs.</b>	<b>118049.25</b>
6	<b>Cost of cultivation of mentha per hectare</b>	<b>Rs.</b>	<b>57813.59</b>
7	<b>Total cost (cost of cultivation + distillation cost)</b>	<b>Rs.</b>	<b>61013.91</b>
8	<b>Net returns</b>	<b>Rs.</b>	<b>57035.34</b>
9.	<b>Input - Output Ratio</b>	-	<b>1.93</b>

#### **Major Constraints Faced by mentha growers**

Table 1.3 shows the major constraints faced by the mentha growers in the study area were lack of support price, high input cost, climate change, erratic electricity supply, inadequate market information, high processing cost, high cost of good quality distillation machine, lack of awareness export market, lack of improved quality distillation units.

**Table 1.3: Major constraints faced by the mentha growers in the study area**

Sl. No.	Constraints	No. of beneficiaries	Percentage	Rank
1.	Lack of training on cultivation methods	54	90.00	II
2.	Climate Change	52	86.67	V
3.	Electricity problem	50	83.33	VIII
4.	High input costs	48	80.00	X
5.	Attack by pest and diseases,	49	81.67	IX
6.	Lack of trained labour for cultivation	51	85.00	VI
7.	Lack of support price system	55	91.67	I
8.	Inadequate market information	46	76.67	XII
9.	Lack of improved and quality distillation unit	51	85.00	VII
10.	High cost of good quality distillation machine	54	90.00	III
11.	High processing cost	52	86.67	IV
12.	Lack of awareness about export market	47	78.33	XI

#### **CONCLUSION**

The study has revealed that the major source of earning of farmers in the study area was agriculture. Mentha crop has been found to give a higher return to the farmers. The major findings are found as the cost of cultivation of mentha was amounted as 57813.59 Rs/ha. The net return against the cost of cultivation observed **57035.34** Rs/ha. The input-output ratio of mentha came to 1:1.93. There is a constraints faced by the farmers have been

reported as high input costs, lack of awareness about export market, climate change, electricity supply problem, inadequate market information, lack of modern and efficient processing technology, lack of support price and poor quality of distillation units in the study area. Hence, State government is required to create modern processing facilities to realize quality mentha oil and thereby giving best price to the producer of mentha crop.

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