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## Production of okra in Meerut district of western Uttar Pradesh

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#### Abstract

The evaluation of production of okra, primary data for the year 2015-16 were collected from randomly selected 100 farmers of okra growers in Meerut district of Western Uttar Pradesh. The analysis revealed that the major item of cost incurred by the farmers was the expenditure made on labour (23.61%). The gross income increased with an increase in the farm size and net income per hectare of okra cultivation increased with an increase in the farm size except small farm.

**Keywords:** production, okra, Meerut, Uttar Pradesh

#### Introduction

Vegetables may be described as those plants, which are consumed in relatively small quantities as a side dish with the staple food. Vegetables can be distinguished from field crops by the fact that, vegetables are harvested when the plant is fresh and high in moisture while the field crops are harvested at the mature stage for their grains, seeds, roots, fiber etc. Vegetable growing has assumed increased interest by the farmers during the last few decades with the commercialization of agriculture okra is cultivated throughout India for its immature fruits which are generally cooked as vegetable. Okra soups and stews are also popular dishes. When ripe, the black or brown white eyed seeds are sometimes roasted and used as substitute for coffee. The crop is used for the extraction of the fibre. The fruits also have some medicinal value. Now a days, India is one of the main vegetable growing countries of the world. Okra crop is grown all over India. Among the most important states only four U.P. Maharashtra, M.P. and Tamil Nadu account three fourth of total area (Schweers and Sims, 3). An attempt was made here to collect primary data and analyse it to find out certain special features which would reveal a broad picture of cost of production, profit and income from okra and put forth suggestion to overcome them

#### Methodology

The Sampling technique was used for following the selection of district, block, villages and respondents. Selection of Meerut district was selected purposively to avoid the operational inconvenience of the investigator. Selection of Block out of 12 blocks of selected district, one block namely Kharkhoda having highest area under Okra crop was selected purposively. Selected of villages a list of all the villages falling under selected block was prepared and arranged in ascending order according to area covered by okra crop and 5 villages were selected randomly from the list. Selection of respondents a separate list of okra growers of selected five villages was prepared along with their size of holdings. Thus the farm holding categorized into three size groups. i.e. (1) Marginal: Below 1.0 hectare, (2) Small: 1.0 to below 2.0 ha. And (3) medium: 2.0 to 4.0 ha from this list a sample of 100 respondents were selected following the proportionate random sampling technique

#### Analytical tool

Tabular analysis was employed to work out socioeconomic profile and cost of cultivation. To examine the profitability the cost of cultivations and returns were worked out on per ha. Basis. Cost of cultivation and returns from okra cultivation were estimated using standardized CACP cost concept.

#### Costs concepts

##### Costs A1

1. Value of hired labour
2. Value of bullock labour (hired + owned)
3. Machinery charges

4. Value of seed
5. Value of FYM and fertilizer
6. Irrigation charges
7. Plant protection
8. Interest on working capital

**Cost B<sub>1</sub>:** cost A<sub>1</sub> + imputed on value of owned fixed capital assets (excluding land).

**Cost B<sub>2</sub>:** cost B<sub>1</sub> + rental value of owned land less land revenue

**Cost C<sub>1</sub>:** cost B<sub>1</sub> + imputed value of family labour.

**Cost C<sub>2</sub>:** cost B<sub>2</sub> + imputed value of family labour.

**Cost C<sub>3</sub>:** cost C<sub>2</sub> + 10% of cost C<sub>2</sub> (managerial cost).

### Result and Discussion

For the sake of convenience, the present study divided into input cost, cost & profit and income from okra crop.

### Economics of okra production

Costs and income of okra production per hectare is given in Table shows the cost of production and return on marginal

small and medium farms of Kharkhoda block. On an average cost of cultivation of okra per hectare came to Rs. 115973.00. The cost of cultivation was maximum on marginal farms (Rs.118065.00) followed by medium farms (Rs. 116072.00) and small farms (Rs. 113783.00). Per hectare cost of cultivation was highest (118065.00) on marginal farms, mainly due to maximum investment on working capital compared to the medium and small farms. On an average the study further reveals that major components on which maximum cost was incurred being 23.61 per cent on human labour followed by plant protection 13.10 per cent, seed 9.16 per cent, manures and fertilizer 7.52 per cent, irrigation 3.61 per cent, machinery charges 1.98 per cent, and bullock labour 0.24 per cent respectively. A similar trend indicated on all categories of sample farms. The cost incurred on interest on working capital, rental value of land, interest on fixed capital and 13% managerial cost of sub-total was calculated as 1.26, 21.21, 6.79 and 10.50 per cent of total costs, respectively. The maximum share among these costs was rental value of owned land being 21.21 per cent of total cost per hectare.

**Table 1:** Per hectare input cost on different size of sample farm of Okra (Rs./ha)

S. No.	Components of investment	Cost imputed to various components			
		Marginal below 1 ha	Small 1-2 ha	Medium 2-4 ha	Overall average
1.	Human labour	28458.00 (24.10)	27258.00 (23.95)	26346.00 (22.69)	27384.00 (23.61)
a.	Family labour	26152.00 (22.15)	17368.00 (15.26)	5092.00 (4.38)	16204.00 (13.97)
b.	Hired labour	2306.00 (1.95)	9890.00 (8.69)	21254.00 (18.31)	11150.00 (9.61)
2.	Bullock labour	452.00 (0.38)	254.00 (0.22)	161.00 (0.13)	289.00 (0.24)
3.	Machinery charges	2456.00 (2.08)	2315.00 (2.03)	2127.00 (1.83)	2299.00 (1.98)
4.	Seed	9478.00 (8.02)	10248.00 (9.00)	12158.00 (10.47)	10628.00 (9.16)
5.	Manure and fertilizer	8420.00 (7.13)	8386.00 (7.37)	9367.00 (8.06)	8724.00 (7.52)
6.	Irrigation	4658.00 (3.94)	4720.00 (4.14)	3210.00 (2.76)	4196.00 (3.61)
7.	Plant protection	14657.00 (12.41)	14982.00 (13.16)	15954.00 (13.74)	15198.00 (13.10)
8.	Total working capital	68579.00 (58.08)	68163.00 (59.90)	69323.00 (59.72)	68688.00 (59.22)
9.	Interest on working capital	1464.00 (1.23)	1454.00 (1.27)	1483.00 (1.27)	1467.00 (1.26)
10.	Rental value of land	24000.00 (20.32)	24500.00 (21.53)	25300.00 (21.79)	24600.00 (21.21)
11.	Interest on fixed capital	10439.00 (8.84)	6576.00 (5.77)	6613.00 (5.69)	7876.00 (6.79)
12.	Sub-total	104482.00 (88.49)	100693.00 (88.49)	102719.00 (88.49)	102631.00 (88.49)
13.	13% cost managerial of sub-total	13583.00 (10.50)	13090.00 (10.50)	13353.00 (10.50)	13342.00 (10.50)
14.	Grand total	118065.00 (100.00)	113783.00 (100.00)	116072.00 (100.00)	115973.00 (100.00)

### Measure of costs and income of Okra

Table shows the cost of production and return on marginal small and medium farms. Main product of okra yield was calculated as 79.21, 83.05 and 91.86 quintal and average yield 84.70 quintal per hectare. Gross returns was calculated as maximum in medium farms Rs. 219361.00 followed by small farms Rs. 200981.00, marginal farms Rs. 197708.00 and observed gross return Rs.206159.00, net income per hectare over cost a + b + c was found highest in medium farms Rs. 1103289.00 and lowest small farm Rs. 78198.00 and marginal

farms Rs. 79643.00, net income over cost C<sub>1</sub> medium farm is Rs.141942.00, followed by small farm Rs.124788.00 and marginal farms Rs. 117226.00 respectively and net return over cost C<sub>2</sub> is highest medium farm Rs.116642.00 followed by small farms Rs. 100288.00 and marginal farms Rs. 93226.00 respectively.

The B.C ratio found highest in lady finger crop medium farms 1: 1.88 followed by small farms 1:1.76 and marginal farms 1:1.67 respectively.

**Table 4.13:** Measures of per hectare cost and profit of Okra (Rs./ha)

S. No.	Particulars	Measure of farm profit			
		Marginal below 1 ha	Small 1-2 ha	Medium 2-4 ha	Overall Average
1.	Cost A <sub>1</sub>	43891.00	52249.00	65714.00	53951.00
2.	Cost B <sub>1</sub>	54330.00	58825.00	72327.00	61827.00
3.	Cost B <sub>2</sub>	78330.00	83325.00	97627.00	86427.00
4.	Cost C <sub>1</sub>	80482.00	76193.00	77419.00	78031.00
5.	Cost C <sub>2</sub>	104482.00	100693.00	102719.00	102631.00
6.	Cost C <sub>3</sub>	118065.00	113783.00	116072.00	115973.00
7.	Product (qt./ha)	79.21	83.05	91.86	84.70
A	Price of Product (qt./ha)	2496.00	2420.00	2388.00	2434.00
8.	Gross Income	197708.00	200981.00	219361.00	206159.00
9.	Net return over cost C <sub>1</sub>	117226.00	124788.00	141942.00	128126.00

10	Net return over cost C <sub>2</sub>	93226.00	100288.00	116642.00	103528.00
11.	Net income	79643.00	78198.00	103289.00	90186.00
12.	Family labour income	119378.00	117656.00	121734.00	119732.00
13.	Farm investment income	127665.00	131364.00	148555.00	136004.00
14	Farm Business Income	153817.00	148732.00	153647.00	152208.00
15.	Cost of production (Rs./q)	1491.00	1370.00	1264.00	1369.00
16	Input-Output Ratio				
A	On the basis of cost A <sub>1</sub>	1:4.50	1:3.84	1:3.33	1:3.82
B	On the cost 'B <sub>1</sub> ' basis	1:3.63	1:3.41	1:3.03	1:3.33
C	On the cost 'B <sub>2</sub> ' basis	1:2.52	1:2.41	1:2.24	1:2.38
D	On the cost 'C <sub>1</sub> ' basis	1:2.45	1:2.63	1:2.83	1:2.64
E	On the cost 'C <sub>2</sub> ' basis	1:1.89	1:1.99	1:2.13	1:2.00
F	On the cost 'C <sub>3</sub> ' basis	1:1.67	1:1.76	1:1.88	1:1.77

**Note:** Figure in parentheses shows the percent to corresponding total.

### Income from okra production

Incomes from okra production were calculated and are given in Table Per hectare gross returns was calculated as maximum in medium farms Rs. 219361.00 followed by small farms Rs. 200981.00 and marginal farms Rs. 197708.00 respectively. Per hectare gross income was highest on medium farms due to higher investment on H.Y.V. of seeds resulted higher productivity. On an overall average, gross income came to Rs. 206159.00 whereas net income was Rs. 115973.00 per hectare. Overall average, family labour income, farm investment income and farm business income were worked out to be Rs. 119772.00, Rs. 136004.00 and Rs. 152208.00 per hectare, respectively. Cost of production per quintal of okra was computed to be Rs. 1491.00, Rs. 1370.00, and 1264.00 on marginal, small and medium farms, respectively with an average of Rs. 1369.00. Average input-output ratio on cost A<sub>1</sub>, cost B<sub>1</sub>, cost B<sub>2</sub>, cost C<sub>1</sub>, cost C<sub>2</sub> and cost C<sub>3</sub> were worked out and came to 1:3.82, 1:3.33, 1:2.38, 1:2.64, 1:2.00 and 1:1.77, respectively. Input-output ratio related to cost C<sub>3</sub> was highest on medium farms (1:1.88) followed by small farms (1:1.76), and marginal farms (1:1.67). In respect of cost C<sub>2</sub> input-output ratio (1:2.13) was highest on medium farms followed by small farms (1:1.99), and marginal farms (1:1.89). Cost C<sub>1</sub> input-output ratio (1:2.83) was highest medium farms followed by small farms (1:2.63) and marginal farms 1:2.45). In respect to input-output ratio (1:2.52) of B<sub>2</sub> was found highest on marginal farms followed by small farms (1:2.41) and medium farms (1:2.24) whereas, in Cost B<sub>1</sub> the input-output ratio was highest on marginal farms (1:3.63) followed by small farms (1:3.41) and medium farms (1:3.03). In respect to cost A<sub>1</sub>, Input-output ratio cost A<sub>1</sub>, was highest on marginal farms (1:4.50) followed by small farms (1:3.84) and medium farms (1:3.33), respectively.

### Summary and Conclusion

The highest cost of cultivation in okra was observed under marginal size of sample farms mainly due to higher working capital. Overall average, cost of cultivation was worked out to be Rs. 115973.00. Maximum cost incurred in the okra crop was human labour having average share of 23.61 per cent. The gross income per hectare in okra was observed maximum under medium farms (Rs. 29361.00) followed by small farms (Rs. 200981.00) and marginal farms (Rs. 197708.00), respectively. The gross income per hectare was highest on medium farms due to intensive cultivation. Productivity on these farms was associated with better management by farmers, timely cultural operations through hired labours. On an average, gross income came to Rs. 206159.00 whereas net income was Rs. 90186.00 per hectare. An overall average, family labour income, farm investment income and farm business income, were worked out to be Rs. 119732, Rs.

136004.00 and Rs. 152208.00 per hectare, respectively. Cost of production per quintal of okra was computed to be Rs. 1491.00, Rs. 1370.00, and Rs. 1264.00 on marginal, small, and medium farms, respectively. Input-output ratio related to cost C<sub>3</sub> was highest on medium farms (1:1.88) followed by small farms (1:1.76), and marginal farms (1:1.67).

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