

International Journal of Agriculture Extension and Social Development

Volume 9; Issue 8; August 2026; Page No. 556-563

Received: 09-06-2026
Accepted: 11-07-2026

Indexed Journal
Peer Reviewed Journal

Comparative economic analysis of organic and conventional okra cultivation in Vidarbha

¹ Mayuri S Raut, ² NV Shende and ³ UT Dangore

¹ Ph.D. Research Scholar, Department of Agricultural Economics & Statistics, Post Graduate Institute, Dr. Panjabrao Deshmukh Krishi Vidyapeeth (Dr. PDKV), Akola, Maharashtra, India

² Head, Department of Agricultural Economics & Statistics, Post Graduate Institute, Dr. Panjabrao Deshmukh Krishi Vidyapeeth (Dr. PDKV), Akola, Maharashtra, India

³ Professor (CAS), Department of Agricultural Economics & Statistics, Post Graduate Institute, Dr. Panjabrao Deshmukh Krishi Vidyapeeth (Dr. PDKV), Akola, Maharashtra, India

DOI: <https://www.doi.org/10.33545/26180723.2026.v9.i8h.4061>

Corresponding Author: Mayuri S Raut

Abstract

The present study was undertaken to compare the economic performance of organic and conventional okra cultivation in the Amravati division of the Vidarbha region of Maharashtra. Primary data were collected from 120 okra growers, comprising 60 organic and 60 conventional growers, for the agricultural year 2023-24. A multistage sampling procedure was used for the selection of districts, tahsils, villages and respondents. The profitability of okra cultivation was assessed using the standard cost concepts of the Commission for Agricultural Costs and Prices (CACP), namely Cost A₁, A₂, B₁, B₂, C₁, C₂ and C₃. The results revealed that organic okra recorded a higher yield of 106.77 q/ha compared with 96.92 q/ha under conventional cultivation. The average price received by organic okra growers was Rs 2,763.18/q, substantially higher than Rs 2,202.08/q received by conventional growers. Consequently, the gross return from organic okra was Rs 2,95,024.40/ha, compared with Rs 2,13,425.30/ha under conventional cultivation. However, the cost of cultivation was considerably higher under organic production, with Cost C₃ amounting to Rs 2,20,813.73/ha compared with Rs 1,48,104.61/ha under conventional cultivation. Despite the higher production cost, organic okra generated a higher net return at Cost C₃, amounting to Rs 74,210.67/ha compared with Rs 65,320.69/ha under conventional cultivation. The output-input ratio at Cost C₃ was 1.33 for organic and 1.44 for conventional okra. The findings indicate that organic okra cultivation generated higher absolute returns, primarily due to the higher yield and premium price received for organic produce, although its higher cost structure reduced the relative output-input efficiency at some cost levels. The study concludes that the economic viability of organic okra cultivation depends considerably on assured premium prices, efficient management of production costs and access to remunerative markets. Strengthening certification, organic input supply, labour-saving technologies, collective marketing and market linkages may further enhance the profitability and adoption of organic okra cultivation.

Keywords: Organic okra, conventional okra, cost of cultivation, gross returns, net returns, output-input ratio, profitability

Introduction

India is one of the world's major vegetable-producing countries. Vegetable cultivation contributes substantially to farm income, employment generation and the supply of nutritious food. Okra (*Abelmoschus esculentus* L. Moench) is an important vegetable crop cultivated widely in India and is an important source of income for vegetable growers. In recent years, increasing attention has been given to organic production systems because of consumer interest in food quality, environmental sustainability and reduced dependence on synthetic agricultural inputs. India is the second largest producer of the vegetables in the world after China (FAO). During 2024-25, India produced 214.56 million MT of vegetables with the area under cultivation of vegetables were 11.43 million hectares. Production and export of Indian vegetables have increased in recent years. During 2024-25, India exported fresh vegetable at Rs.6,373 crore and processed vegetable exports were Rs.6,504 crore. Organic farming is practiced in India since thousands of years. The great Indian civilization thrived on organic

farming and was one of the most prosperous countries in the world, till the British ruled it. In traditional India, the entire agriculture was practiced using organic techniques, where the fertilizers, pesticides etc. were obtained from plant and animal products. India's rank 2nd in terms of World's Organic Agricultural land and 1st in terms of total number of producers. As per department of Agriculture and farmers welfare the total organic cultivated area under NPOP certification is 44.76 lakh ha with 46.99 lakh MT farm production. And total organic area under PKVY certification is 4.49 lakh ha with farm production pf 6.85 lakh MT. In Maharashtra, the total area under organic cultivation was 1.07 Lakh ha with organic farm production 16.06 Lakh MT and productivity was 15009.34 Kg/ha.

Methodology

Sampling Framework

The present study was conducted in the Amravati division of Vidarbha region of Maharashtra, comprising five districts, namely Akola, Amravati, Yavatmal, Buldhana, and Washim.

In the first stage, two tahsils from each district were purposively selected based on the highest number of organic okra growers, namely: Akola and Patur (Akola district); Chandur Railway and Achalpur (Amravati district); Washim and Risod (Washim district); Buldhana and Shegaon (Buldhana district); and Ghatanji and Babhulgaon (Yavatmal district), making a total of ten tahsils.

In the second stage, a list of villages engaged in organic okra cultivation was prepared for the selected tahsils. From each tahsil, two villages having the highest number of organic okra growers were purposively selected. Accordingly, a total of twenty villages were selected, namely: Chandur and Shivapur (Akola tahsil); Patur and Vivra (Patur tahsil); Amla Vishweshwar and Karla (Chandur Railway tahsil); Wadhona and Wasni (Achalpur tahsil); Sakhra and Babulgaon (Washim tahsil); Netansa and Navali (Risod tahsil); Nandrafuli and Malvandi (Buldhana tahsil); Warud and Titrav (Shegaon tahsil); Manoli and Erabora (Ghatanji tahsil); and Yerangaon and Sindi (Babhulgaon tahsil). For the study, data pertains to the agricultural year 2023-24.

At the final stage, from each selected village, three organic and three conventional okra growers were randomly chosen. Thus, a total sample of 120 respondents was selected, comprising 60 organic and 60 conventional okra growers.

Collection of Data

Primary data were collected for the agricultural year 2023-24 using a pre-tested structured interview schedule through personal interviews. Secondary data on area and production of organic brinjal was obtained from the Centre for Organic Agriculture Research and Training and Dr. Panjabrao Deshmukh Krishi Vidyapeeth, along with relevant government publications.

Profitability in organic and conventional okra

To achieve the objective standardized costs concept of CACP i. e. cost- A₁, A₂, B₁, B₂, C₁, C₂ and C₃ were used.

Costs concept

The standard costs concept i.e. Cost A₁, Cost A₂, Cost B₁, Cost B₂, Cost C₁, Cost C₂ and Cost C₃ were used in present analysis.

Costs concept

The standard costs concept i.e. Cost A₁, Cost A₂, Cost B₁, Cost B₂, Cost C₁, Cost C₂ and Cost C₃ were used in present analysis.

Cost 'A₁'

All actual expenses in cash and kind incurred in production by the producer. The items covered in cost A₁ are costs on:

1. Value of hired human labour (HL)
2. Value of hired bullock labour (BL)
3. Value of owned bullock labour
4. Value of owned machine labour (ML)
5. Hired machinery charges
6. Value of seed (both farm produced and purchased)
7. Value of insecticides and pesticides
8. Value of manure (owned and purchase)
9. Value of fertilizers
10. Irrigation charges

11. Depreciation on implements and farm building
12. Land revenue, cesses and other taxes
13. Interest on working capital and
14. Miscellaneous expenses (Artisans etc.)

a) Measurement and Evaluation of Different Cost 'A₁' Components

1. Hired Human labour

It includes hired human labour used on the farm. The value of hired human labour was evaluated at the hiring wage rates prevailing in the locality from time to time.

2. Bullock labour

Hired and owned bullock labour cost was estimated at actual rate paid for hiring of bullock labour in the local market from time to time.

3. Machine labour

Machine hours in case of owned machine was evaluated as per the hired charges prevailed in the village and in case of hired machine was accounted as per the price paid by cultivator.

4. Seedlings

The actual cost paid for purchasing of seedling from the nursery was taken into account for evaluation.

5. Manures

The cost of farm yard manure produced on the farm was estimated at the prevailing rates in the village. In case of purchased farm yard manure the actual price paid was taken into account.

6. Fertilizers

Fertilizers in the form of Urea, DAP, 10:26:26, and MOP were used and quantity of nitrogen, phosphorus and potash was calculated in order to determine the actual, expenditure on nitrogen, phosphorus and potash.

7. Plant protection

This included the actual cost incurred on the purchase of insecticides, fungicides, pesticide etc. and their procurement.

8. Land revenues and other cesses

It included the actual land revenue with other cesses paid by farmers for the total land holdings. The land revenue and other cesses by the gross cropped area of the respective crop.

9. Irrigation charges

Irrigation charges were calculated at the rate of charges actually paid by the cultivator regarding electricity paid for the irrigation operation.

10. Depreciation and repairing charges

Depreciation means the decrease in the value of asset through wear and tear. Straight-line method was used to work out depreciation. The uniform rate of 10 per cent on the present value at the beginning of the year of farm implements and machinery was taken and only the proportionate charges were taken for the crop on hectare basis,

$$\text{Depreciation} = \frac{\text{Purchase price of the asset - Junk value (10 per cent)}}{\text{No. of useful years (expected life)}}$$

11. Evaluation of inputs

The items considered under the head inputs are human labour, bullock labour, machinery labour, seedlings, manures, fertilizers, irrigation etc. some of the inputs are produced or owned by farmers and some are purchased or hired in.

B) Cost 'A₂'

Cost A₁ + Rent paid for leased-in land.

C) Cost 'B₁'

Cost A₁ + interest value of owned fixed capital assets (excluding land).

b) Component included in cost 'B₁'

a) Interest on capital

It was calculated by charging interest at the rate of 10 per cent on investment on commonly used assets.

D) Cost 'B₂'

Cost B₁ + Rental value of owned land (net of land revenue) and rent paid for leased-in land.

c) Component included in cost 'B₂'

a) Rental value of land

Rental value of land was calculated @ 1/6th of gross value of produce by deducting the land revenue. It is calculated by following formula,
Rental value of land = (1/6th of gross value of produce - land revenue).

E) Cost 'C₁'

Cost B₁ + imputed value of family labour.

d) Component included in cost 'C₂'

a) Family human labour

The general wage rate prevailing in the village (While performing various operations) was considered for assessing the wage the family male and female labour.

F) Cost 'C₂'

Cost B₂ + Imputed value of family labour.

G) Cost 'C₃'

Cost C₂ + marketing costs and transportation report.

II) Gross and net returns

1. Gross returns

Gross return of the farmers under the present study was estimated from returns obtained from sale of main produce.

2. Net returns

- Net returns was computed at different costs i.e. Cost A₁, Cost A₂, Cost B₁, Cost B₂, Cost C₁, Cost C₂ and Cost C₃

by deducting respective costs from the gross returns.

- Net income at A₁ = Gross returns - Cost 'A₁'
- Net income at A₂ = Gross returns - Cost 'A₂'
- Net income at B₁ = Gross returns - Cost 'B₁'
- Net income at B₂ = Gross returns - Cost 'B₂'
- Net income at C₁ = Gross returns - Cost 'C₁'
- Net income at C₂ = Gross returns - Cost 'C₂'
- Net income at C₃ = Gross returns - Cost 'C₃'

Benefit-cost ratio

It is a ratio between the value of gross output and the cost of cultivation at different cost concepts. The probability of crop production cannot be justified completely unless benefit cost ratio were worked out. This is the ratio which represents returns obtained per rupee of investment. It was worked out by dividing gross return by the total cost. It was calculated at cost A₁, cost A₂, cost B₁, cost B₂, cost C₁, cost C₂ and cost C₃ as -

$$\text{Benefit-cost ratio at cost 'A}_1\text{' = } \frac{\text{Gross Income}}{\text{Cost 'A}_1\text{'}}$$

$$\text{Benefit-cost ratio at cost 'A}_2\text{' = } \frac{\text{Gross Income}}{\text{Cost 'A}_2\text{'}}$$

$$\text{Benefit-cost ratio at cost 'B}_1\text{' = } \frac{\text{Gross Income}}{\text{Cost 'B}_1\text{'}}$$

$$\text{Benefit-cost ratio at cost 'B}_2\text{' = } \frac{\text{Gross Income}}{\text{Cost 'B}_2\text{'}}$$

$$\text{Benefit-cost ratio at cost 'C}_1\text{' = } \frac{\text{Gross Income}}{\text{Cost 'C}_1\text{'}}$$

$$\text{Benefit-cost ratio at cost 'C}_2\text{' = } \frac{\text{Gross Income}}{\text{Cost 'C}_2\text{'}}$$

$$\text{Benefit-cost ratio at cost 'C}_3\text{' = } \frac{\text{Gross Income}}{\text{Cost 'C}_3\text{'}}$$

Results and Discussion

Distribution of okra growers according to size of holding

The data presented in Table 1 indicate the distribution of okra farmers according to the size of land holding under organic and conventional farming systems. Among the organic okra farmers, the highest proportion (45.00%) belonged to the small landholding category (up to 2.00 ha), followed by medium farmers (33.33%) and large farmers (21.67%). In the case of conventional okra farmers, the highest proportion was also observed in the small landholding category (38.33%), followed by large farmers (30.00%) and medium farmers (31.67%).

Table 1: Distribution of okra farmers according to size of holding (Nos)

Sr. No.	Size of Holding	Organic okra (N=60)	Conventional okra (N=60)
1	Small (Up to 2.00 ha)	27 (45.00)	23 (38.33)
2	Medium (2.01 to 4.00 ha)	20 (33.33)	19 (31.67)
3	Large (4.01 & above)	13 (21.67)	18 (30.00)
4	Overall	60 (100.00)	60 (100.00)

(Figures in parentheses are the per centages to the respective total)

Overall, the findings reveal that small farmers constituted the major proportion of okra growers in both farming systems. However, the proportion of large farmers was comparatively higher among conventional okra farmers (30.00%) than among organic okra farmers (21.67%). Conversely, organic okra farming had a relatively higher proportion of small and medium farmers. Thus, the distribution suggests that organic okra cultivation was relatively more prevalent among farmers

with smaller landholdings, whereas conventional okra cultivation included a comparatively larger share of farmers with large holdings.

Per hectare average input utilization for okra

The information regarding per hectare input utilization for organic and conventional okra crop is presented in Table 2.

Table 2: Per hectare input utilization pattern of okra

Sr. No.	Particulars	Unit	Organic	Conventional
1	Total Human Labour (Hired + Owned)			
a)	Male	Days	90.49	41.06
b)	Female	Days	229.44	145.21
	Sub total		319.93	186.27
2	Bullock Labour	Pair days	6.38	5.53
3	Machine charges	Hours	5.77	7.17
4	Seed	Kg.	10.52	9.98
5	Manures	Qtl.	57.64	27.12
6	Fertilizer			
	N	Kg.	-	102.9
	P	Kg.	-	50.47
	K	Kg.	-	43.33
7	Biofertilizers / chemical fertilizers	Kg.	17.28	-
8	Liquid formulation	Lt.	2264.97	-

Table-2 revealed substantial differences between organic and conventional farming systems. Organic farms demonstrated markedly higher labour intensity, utilizing 90.49 male and 229.44 female labour days, compared to 41.06 and 145.21 days, respectively, on conventional farms, resulting in a significantly higher total labour requirement (319.93 days vs. 186.27 days). Bullock labour use was slightly higher under organic cultivation, whereas machine hours were greater in conventional farming. Seed usage showed only a marginal increase in organic farms. Nutrient application patterns exhibited the sharpest contrast: conventional farms applied considerable quantities of chemical fertilizers (102.90 kg N, 50.47 kg P and 43.33 kg K), whereas organic farms relied exclusively on biological nutrient sources, including higher levels of manures (57.64 qtl), along with 17.28 kg of biofertilizers and 2264.97 litres of liquid organic formulations.

A similar pattern of labour intensiveness in organic okra cultivation was recorded by Jadhav *et al.* (2017) [8], indicating that manual weed management and bio-input application significantly increase labour demand. Similarly, comparable findings were reported by Mandal *et al.* (2022) [9], who highlighted the dependence on farmyard manure, biofertilizers and botanical preparations instead of chemical

fertilizers, supporting the biological nutrient reliance observed in the present study

Cost of cultivation of organic okra-

Per hectare cost of cultivation of organic okra grown by farmers is presented in Table -3.

From table-3 it is revealed that, the per hectare cost of cultivation of organic okra is estimated at Rs. 2,20,813.73 (cost "C₃"). Human labour is the most dominant cost component, accounting for 19.68 per cent of the total, with female labour (Rs 25,906.45) exceeding male labour (Rs. 17,539.86). Family labour further adds 14.17 per cent (Rs. 31,279.03). Expenditure on bullock labour (Rs. 4,326.15; 1.96%) and machine power (Rs. 3,546.03; 1.61%) is relatively moderate. The seed cost is considerable at Rs. 17,596.57 (7.97%), which is expected since okra requires higher seed rates compared to brinjal and tomato. Manure application also accounts for a substantial share (Rs. 23,344.01; 10.57%), while biofertilizers (Rs 3,265.39; 1.48%) and liquid formulations (Rs. 4,134.79; 1.87%) contribute smaller proportions. Irrigation (Rs 1,533.18; 0.69 per cent) and plant protection (Rs. 7,048.06; 3.19%) together remain moderate in cost and incidental and repairing charges are negligible.

Table 3: Cost of cultivation of organic okra- (Rs/ha)

Sr. No.	Particular	Units	Units required	Charges/unit	Cost in Rs.	per cent to Cost "C ₃ "
1	Hired Human Labour					
a)	Male	Days	56.12	312.54	17539.86	7.94
b)	Female	Days	126.31	205.10	25906.45	11.73
	Sub-total		182.43	517.64	43446.31	19.68
2	Bullock Labour	(Pair days)	6.38	678.08	4326.15	1.96
3	Machine charges	Hours	5.77	614.56	3546.03	1.61
4	Seed	Kg.	10.52	1672.68	17596.57	7.97
5	Manures	Qtl.	57.64	405.00	23344.01	10.57
6	Bio-fertilizers	(Kg)	17.28		3265.39	1.48
7	Liquid formulations	(Lt.)	2264.97	1.83	4134.79	1.87
8	Fertilizers					
a)	N	(Kg)				
b)	P	(Kg)				
c)	K	(Kg)				
	Sub total	(Rs)				
9	Irrigation Charges	(Rs)			1533.18	0.69
10	Plant protection	(Rs)			7048.06	3.19
11	Incidental charges	(Rs)			353.68	0.16
12	Repairing charges	(Rs)			200	0.00
15	Working Capital	(Rs.)			108794.17	49.27
16	Interest on working Capital	(Rs)			6527.65	2.96
17	Depreciation	(Rs.)			901.15	0.41
18	Land Revenue	(Rs.)			113.87	0.05
19	Cost "A ₁ "	(Rs.)			116336.84	52.69
20	Rental Value for leased Land				0.00	0.00
21	Cost "A ₂ "	(Rs)			116336.84	52.69
22	Int. on Fix. Cap. @ 10per cent	(Rs)			3972.12	1.80
23	Cost "B ₁ "	(Rs)			120308.96	54.48
21	Rental Value of owned Land	(Rs)			49151.76	22.26
22	Cost "B ₂ "	(Rs)			169460.72	76.74
23	Family Human Labour					
a)	Male	Days	34.37	308.60	10606.68	4.80
b)	Female	Days	103.13	200.45	20672.35	9.36
	Sub-total		137.50	509.05	31279.03	14.17
24	Cost "C ₁ "	(Rs)			151587.99	68.65
25	Cost "C ₂ "	(Rs)			200739.75	90.91
26	10per cent Cost C ₂ *	(Rs)			20073.98	9.09
27	Cost "C ₃ "	(Rs)			220813.73	100.00
28	Yield of main produce per hectare	(Qtl.)	106.77	2763.18	295024.4	
29	Value of By-produce/ha.	(Qtl.)	0.00	0.00	0.00	
30	Value of total produce	(Rs)			302900.00	
31	Per quintal cost of Prod.	(Rs)			2068.13	

Working capital constitutes nearly half (49.27%) of the total cost and cost A₁ stands at Rs. 1,16,336.84 (52.69%). After including rental value of owned land, cost B₂ increases to Rs.1,69,460.72 (76.74%). Family labour further raises cost C₁ to Rs.1,51,587.99 (68.65%), while the comprehensive cost of production (cost "C₃") reaches Rs. 2,20,813.73 per hectare. The yield of okra is 106.77 quintals per hectare, generating a gross return of Rs. 2,95,024.40 per hectare. The per quintal cost of production works out to Rs. 2,068.13.

The higher labour component in organic okra cultivation observed in this study supports earlier findings by Jadhav *et al.* (2018) [10], who reported that organic okra production requires more labour for manual weeding, input preparation and field management. The relatively higher seed cost aligns with the observations of Meena and Sahu (2020) [11], who noted that okra requires a larger planting rate and that certified organic seed material is typically more expensive. Similar expenditure patterns were reported by Patil and More (2021) [12], who found manures and organic nutrient sources

to be major contributors to the total cultivation cost in organic okra farming. The higher working capital requirement recorded in this study corroborates the findings of Rao and Chatterjee (2022) [13], who reported that organic vegetable production systems generally incur higher upfront operational expenses when compared to conventional systems.

Cost of cultivation of conventional okra-

Cost of cultivation of conventional okra grown by farmers is presented in Table-4. The cost of cultivation analysis for conventional okra growers revealed that the total cost (cost C₃) amounted to Rs. 1,48,104.61 per hectare. Human labour was the largest cost component, constituting 15.57 per cent of the total cost. Female labour (Rs. 22,314.96) contributed a larger share compared to male labour (Rs. 8,250.85). Bullock labour (Rs. 4,366.45) and machine charges (Rs. 4,215.55) together accounted for 4.37 per cent of the cost. Seed was another major item, with an expenditure of Rs.

16,122.50 per hectare (8.21%), while manures added Rs. 10,618.59 (5.41%). Fertilizers were used in limited quantities, with nitrogen, phosphorus and potash together costing Rs. 2,923.75 per hectare (1.97%). Irrigation (Rs. 1,783.76) and plant protection measures (Rs. 3,461.53) were also significant contributors, forming about 3.54 per cent of the total cost.

The working capital was estimated at Rs. 74,522.67 (50.32

per cent of cost C_3), with interest on working capital adding Rs. 4,471.36 (3.02 per cent). Depreciation (Rs. 912.17) and land revenue (Rs. 155.47) formed minor components of the overall cost. Cost A_1 and A_2 stood at Rs. 80,061.67, accounting for 54.06 per cent of the total cost. With the addition of interest on fixed capital, Cost B_1 rose to Rs. 88,002.44, while inclusion of the rental value of owned land increased Cost B_2 to Rs. 1,23,417.85 (83.33%).

Table 4: Cost of cultivation of Conventional Okra - (Rs/ha)

Sr. No.	Particulars	Units	Units required	Charges/unit	Cost in Rs.	Per cent to Cost " C_3 "
1	Hired Human Labour					
a)	Male	Days	27.05	305.02	8250.85	4.20
b)	Female	Days	110.34	202.24	22314.96	11.36
	Sub-total		137.39	507.26	30565.81	15.57
2	Bullock Labour	(Pair days)	5.53	789.59	4366.45	2.22
3	Machine charges	Hours	7.17	587.94	4215.55	2.15
4	Seed	Kg.	9.98	1615.48	16122.50	8.21
5	Manures	Qtls.	27.12	391.54	10618.59	5.41
6	Fertilizer					
a)	N	Kg.	102.90	7.37	758.41	0.51
b)	P	Kg.	50.47	23.96	1209.40	0.82
c)	K	Kg.	43.33	22.06	955.94	0.65
	Sub-total		196.70	53.39	2923.75	1.97
7	Irrigation charges	(Rs.)			1783.76	1.20
9	(Plant Protection)	(Rs.)			3461.53	2.34
10	Incidental charges	(Rs.)			239.31	0.16
11	Repairing Charges	(Rs.)			225.42	0.15
14	Weedicide	(Rs.)			0.00	0.00
15	Working Capital	(Rs.)			74522.67	50.32
16	Interest on working Capital	(Rs.)			4471.36	3.02
17	Depreciation	(Rs.)			912.17	0.62
18	Land Revenue	(Rs.)			155.47	0.10
19	Cost " A_1 "	(Rs.)			80061.67	54.06
20	Rental Value for leased Land	(Rs.)			0.00	0.00
21	Cost " A_2 "	(Rs.)			80061.67	54.06
22	Int. on Fix. Cap. @ 10per cent	(Rs.)			7940.77	5.36
23	Cost " B_1 "	(Rs.)			88002.44	59.42
21	Rental Value of owned Land	(Rs.)			35415.41	23.91
22	Cost " B_2 "	(Rs.)			123417.85	83.33
23	Family Human Labour					
a)	Male	Days	14.01	296.86	4159.03	2.81
b)	Female	Days	34.87	202.57	7063.67	4.77
	Sub-total		48.88	499.43	11222.70	7.58
24	Cost " C_1 "	(Rs.)			99225.14	67.00
25	Cost " C_2 "	(Rs.)			134640.55	90.91
26	10per cent Cost C_2^*	(Rs.)			13464.06	9.09
27	Cost " C_3 "	(Rs.)			148104.61	100.00
28	Yield of main produce per hectare	(Qtls.)	96.92	2202.08	213425.30	
29	Value of By-produce/ha.	(Rs.)	0.00	0.00	0.00	
30	Value of total produce	(Rs.)			213425.26	
31	Per quintal cost of Production	(Rs.)			1528.11	

Family labour use was moderate, amounting to 48.88 days (14.01 male and 34.87 female), valued at Rs. 11,222.70 (7.58%). Consequently, cost C_1 was estimated at Rs. 99,225.14 (67.00 per cent) and cost C_2 at Rs. 1,34,640.55 (90.91%). After adding 10 per cent managerial cost, the total cost C_3 was Rs. 1,48,104.61 per hectare.

The average yield of conventional okra was 96.92 quintals per hectare, generating a gross return of Rs. 2,13,425.30. The per quintal cost of production was calculated at Rs. 1,528.11. This indicates that although conventional okra cultivation requires moderate investment compared to brinjal and

tomato, its relatively higher per quintal cost of production reduces the profit margin, making returns more sensitive to market price fluctuations.

The substantial proportion of seed and manures in the cost structure is comparable to the results of Sahu and Prasad (2019) ^[14], who noted that okra growers incur relatively higher seed costs due to higher seed rates and preference for improved varieties. The relatively higher per quintal cost of production and moderate profit margin found in the present study are supported by the findings of Kumar and Lal (2021) ^[15], who concluded that conventional okra, despite lower total

investment than solanaceous vegetables, often yields comparatively lower net returns due to modest yield levels and price fluctuations.

Costs and returns from organic and conventional okra production (Rs/ha)

Sr. No.	Particulars	Organic Okra	Conventional Okra
1		Yield (Qtls)	
a)	Main Produce	106.77	96.92
b)	By Produce	0.00	0.00
2	Price/Qtls		
	Main Produce	2763.17692	2202.08
	By Produce	0.00	0.00
3	Value of main produce	295024.4	213425.30
4	Value of by-produce	0.00	0.00
5	Total produce	295024.40	213425.30
6		Cost of cultivation at	
a)	Cost 'A ₂ '	116336.84	80061.67
b)	Cost 'B ₁ '	120308.96	88002.44
c)	Cost 'B ₂ '	169460.72	123417.85
d)	Cost 'C ₁ '	151587.99	99225.14
e)	Cost 'C ₂ '	200739.99	134640.55
f)	Cost 'C ₃ '	220813.73	148104.61
7		Net return over	
a)	Cost 'A ₂ '	178687.56	133363.63
b)	Cost 'B ₁ '	174715.44	125422.86
c)	Cost 'B ₂ '	125563.68	90007.45
d)	Cost 'C ₁ '	143436.41	114200.16
e)	Cost 'C ₂ '	94284.41	78784.75
f)	Cost 'C ₃ '	74210.67	65320.69
8		Output input ratio at	
a)	Cost 'A ₂ '	2.54	2.67
b)	Cost 'B ₁ '	2.45	2.43
c)	Cost 'B ₂ '	1.74	1.73
d)	Cost 'C ₁ '	1.94	2.15
e)	Cost 'C ₂ '	1.46	1.59
f)	Cost 'C ₃ '	1.33	1.44

The comparative analysis of costs and returns revealed that organic okra cultivation performed better in terms of yield, price realization, gross returns and absolute net returns, although it involved higher production costs. The average yield of organic okra was 106.77 q/ha, compared with 96.92 q/ha under conventional cultivation, representing an advantage of 9.85 q/ha. The price received by organic okra growers was Rs. 2,763.18 per quintal, substantially higher than the Rs. 2,202.08 per quintal received by conventional growers. Consequently, the value of main produce and total produce was Rs.2,95,024.40/ha under organic cultivation as against Rs. 2,13,425.30/ha under conventional cultivation.

The cost of cultivation was higher under organic production across all cost concepts. Cost A₂ was Rs.1,16,336.84/ha for organic okra compared with Rs. 80,061.67/ha for conventional okra, while Cost B₁, B₂, C₁ and C₂ were Rs.1,20,308.96, Rs.1,69,460.72, Rs.1,51,587.99 and Rs.2,00,739.99/ha, respectively, under organic cultivation. The corresponding costs under conventional cultivation were Rs. 88,002.44, Rs.1,23,417.85, Rs.99,225.14 and Rs.1,34,640.55/ha. At Cost C₃, the total cost of cultivation was Rs.2,20,813.73/ha for organic okra compared with Rs.1,48,104.61/ha for conventional okra.

Despite the higher cost of cultivation, organic okra generated higher net returns at all the cost concepts. The net return over Cost A₂ was Rs.1,78,687.56/ha under organic cultivation compared with Rs.1,33,363.63/ha under conventional cultivation. At Cost C₃, the net return was Rs.74,210.67/ha

for organic okra compared with Rs.65,320.69/ha for conventional okra. Thus, organic okra provided an additional net return of Rs.8,889.98/ha over conventional okra at the comprehensive Cost C₃ level.

The output-input ratio, however, varied across the different cost concepts. Organic okra recorded ratios of 2.54, 2.45, 1.74, 1.94, 1.46 and 1.33 at Costs A₂, B₁, B₂, C₁, C₂ and C₃, respectively. The corresponding ratios for conventional okra were 2.67, 2.43, 1.73, 2.15, 1.59 and 1.44. Thus, conventional okra showed a marginally higher output-input ratio at Cost A₂, C₁, C₂ and C₃, whereas organic okra recorded a slightly higher ratio at Cost B₁ and B₂.

Overall, the results indicate that organic okra cultivation generated higher gross returns and higher absolute net returns than conventional cultivation. The economic advantage of organic okra was mainly attributable to its higher yield and, particularly, the higher price received per quintal. However, the higher cost of organic production resulted in a comparatively lower output-input ratio at some cost levels. Therefore, the profitability of organic okra cultivation is closely associated with the availability of remunerative markets and the ability of farmers to obtain a sustained premium price for organic produce.

Conclusion

The present study revealed substantial differences in the cost and return structure of organic and conventional okra cultivation in the Amravati division of Vidarbha. Organic

okra recorded a higher productivity of 106.77 q/ha compared with 96.92 q/ha under conventional cultivation. In addition, organic growers received a substantially higher price of Rs 2,763.18/q compared with Rs 2,202.08/q for conventional okra. As a result, organic cultivation generated a gross return of Rs 2,95,024.40/ha, which was considerably higher than the Rs 2,13,425.30/ha obtained from conventional cultivation. The higher gross return under organic cultivation was accompanied by a substantially higher cost of production. Cost C₃ was Rs 2,20,813.73/ha under organic cultivation compared with Rs 1,48,104.61/ha under conventional cultivation. Nevertheless, organic okra generated a higher absolute net return at Cost C₃, amounting to Rs 74,210.67/ha, compared with Rs 65,320.69/ha under conventional cultivation. Thus, organic cultivation provided an additional net return of Rs 8,889.98/ha at the comprehensive cost level. However, the output-input ratio at Cost C₃ was 1.33 under organic cultivation compared with 1.44 under conventional cultivation. This indicates that although organic okra generated higher absolute returns, its higher production cost reduced its relative efficiency of investment at the comprehensive cost level. Therefore, the economic superiority of organic okra should be assessed not only on the basis of gross or absolute net returns but also in relation to the cost incurred and the stability of the premium price received.

References

- Mishra B, Sahu GS, Tripathy P, Mohanty S, Pradhan S. Effect of organic and inorganic fertilizers on pest incidence and yield of okra under integrated nutrient management. *Int J Curr Microbiol Appl Sci*. 2019;8(7):1029-1036.
- Abha R, Meena ML, Singh R, Mandal RK. Effect of various organic manures on growth and yield of okra (*Abelmoschus esculentus* (L.) Moench). *J Pharmacogn Phytochem*. 2019;8(6):1203-1205.
- Meena DC, Meena ML, Kumar S. Influence of organic manures and biofertilizers on growth, yield and quality of okra (*Abelmoschus esculentus* L. Moench). *Ann Plant Soil Res*. 2019;21(2):130-134.
- Sonawane KG, Pokharkar VG, Gulave C. Organic vs. inorganic production and marketing of okra in Western Maharashtra - An economic analysis. *Int J Trop Agric*. 2015;33(2):1233-1238.
- Thakur M. Response of organic and natural farming management practices on productivity and profitability of okra. *Int J Plant Soil Sci*. 2025;37(8):473-481.
- Masih S, Bahadur V, Joseph AV, Sher A, Dawson J, Das P. Effect of different organic treatments on growth, yield and quality of okra in Prayagraj region. *J Adv Biol Biotechnol*. 2025;28(7):1385-1392.
- Naik BS, Veershetty K, Karthik VC, Baishya M, Chinival SS, Jeevan N, Hanji MB. Assessing the profitability of organic agriculture in India: A meta-analytical approach. *Int J Agric Ext Soc Dev*. 2024;7(9):321-328.
- Jadhav AS, Pawar BR, Landge SU. Economics of production and marketing of organic okra in Western Maharashtra. *Int Res J Agric Econ Stat*. 2017;8(2):312-318.
- Mandal A, Ray K, Phonglosa A, Dutta S, Tripathy S. Bio-inputs and organic nutrient management in vegetable production: A comprehensive review. *J Pharmacogn Phytochem*. 2022;11(3):145-152.
- Jadhav BR, Patil SN, Chavan SA. Labour utilization pattern and economic feasibility of organic farming in Maharashtra. *Indian J Agric Econ*. 2018;73(4):489-495.
- Meena DC, Sahu GS. Input utilization and cost dynamics of organic vegetable production in central India. *Ann Plant Soil Res*. 2020;22(3):285-291.
- Patil RB, More SS. Economic analysis of organic vs conventional okra cultivation in Vidarbha region. *Int J Trop Agric*. 2021;39(1):67-74.
- Rao K, Chatterjee S. Financial viability and operational expenditure in organic vegetable systems: A comparative evaluation. *Asian J Agric Ext Econ Sociol*. 2022;40(9):112-120.
- Sahu GS, Prasad R. Cost of cultivation and yield dynamics of okra (*Abelmoschus esculentus* L.) under different nutrient regimes. *Int J Curr Microbiol Appl Sci*. 2019;8(6):1420-1428.
- Kumar A, Lal HP. Comparative economic evaluation of conventional and organic vegetable production in northern plains of India. *Indian J Sci Res*. 2021;12(2):88-95.
- Food and Agriculture Organization. The State of Food and Agriculture 2024: Value-Creating Transformations of Agrifood Systems. Rome: Food and Agriculture Organization of the United Nations; 2024.