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### Comparative economics of vegetable cultivation in Vidarbha, Maharashtra

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#### Abstract

This study analyzed the cost of cultivation for four vegetables: green chili, cabbage, cauliflower, and onion. Among these, the total per hectare cultivation cost (Cost C<sub>3</sub>) for green chili was highest in the large-size group at Rs. 122,519 per hectare, followed by the medium-size group at Rs. 117,799.1, and the small-size group at Rs. 111,400.8. Similarly, for cabbage, the highest cost was observed in the large-size group at Rs. 122,382.7 per hectare, with the medium and small-size groups incurring Rs. 116,936.3 and Rs. 112,017.4, respectively. In the case of cauliflower, the per hectare cultivation cost was highest for the large-size group at Rs. 161,722.6, followed by Rs. 148,716.1 for the medium-size group and Rs. 142,182 for the small-size group. Lastly, for onion cultivation, the highest cost was recorded in the large-size group at Rs. 138,836.4 per hectare, with the medium and small-size groups incurring Rs. 134,844.4 and Rs. 129,974.2, respectively.

**Keywords:** Green chilli, cabbage, cauliflower, onion, cost of cultivation, C<sub>3</sub>, benefit cost ratio

#### Introduction

India ranks as the world's second-largest producer of vegetables, following China. Contributing 14% (146.55 million tonnes) to global vegetable production, India cultivates these crops on 15% (8.5 million hectares) of the world's vegetable-growing area. However, the country's average vegetable yield (17.3 tonnes per hectare) remains lower than the global average of 18.8 tonnes per hectare. In 2010-2011, the leading vegetable-producing nations included China (473.06 million tonnes, accounting for 48% of global production), India (146.55 million tonnes, 14%), the USA (35.29 million tonnes, 3%), Turkey (25.83 million tonnes, 2.2%), and Egypt (19.51 million tonnes, 2%). Despite its significant production, India faces substantial post-harvest losses. Perishable foods such as milk, fish, and eggs experience losses ranging from 10% to 25%, while fruits and vegetables suffer even greater losses, estimated between 30% and 40%. These high post-harvest losses pose a serious challenge to the Indian economy and agricultural sector.

#### Results and Discussion

The data presented in Table 1 highlights the per hectare cost of cultivation for green chili across different cost categories. The cost at 'A<sub>2</sub>' was Rs. 58,340.56, while 'B<sub>1</sub>' was Rs.

61,181.79. The cost under 'B<sub>2</sub>' stood at Rs. 94,326.09, followed by 'C<sub>2</sub>' at Rs. 1,07,748.23. The highest cost, 'C<sub>3</sub>', was Rs. 1,18,523.06, which included a 10% managerial cost. A significant portion of the total cultivation cost was attributed to 'A<sub>2</sub>', accounting for 49.22%. Within this category, expenses were distributed as follows: fertilizers (3.46%), plant protection chemicals (8.32%), hired human labor (20.68%), bullock labor (3.72%), seeds (2.28%), and machinery usage (3.41%). The share of 'B<sub>1</sub>' in the total cost was 51.62%, whereas 'B<sub>2</sub>' contributed 79.58%. Additionally, family labor accounted for 11.32% of the total cost.

The overall yield per hectare among farmers was 73.84 quintals, generating a gross return of Rs. 1,99,957.81. The cost of production per quintal at the overall level was Rs. 1,604.98.

Table 2 provides insights into green chili production across different farm sizes. The yield per hectare for small, medium, and large farmers was recorded at 70.12, 73.86, and 77.56 quintals, respectively, with an overall yield of 77.84 quintals per hectare. The net returns per hectare at cost 'C<sub>3</sub>' were Rs. 78,360.01 for small farmers, Rs. 82,176.85 for medium farmers, and Rs. 87,629.78 for large farmers. The overall net return stood at Rs. 81,434.76.

The net returns for green chili cultivation at different cost

levels were as follows: Rs. 1,41,417.3 at 'A2', Rs. 1,05,631.7 at 'B2', Rs. 92,209.58 at 'C2', and Rs. 81,434.76 at 'C3'. This indicates that green chili farming provided significant monetary benefits. Cost 'A2', representing the farmer's direct variable expenses, yielded the highest benefit-cost ratio. Among different farm sizes, the benefit-cost ratio at 'A2' was highest for large farmers (1:3.52),

followed by small and medium farmers (both at 1:3.49). However, at cost 'C3', the benefit-cost ratio was 1:1.70 for both small and medium farmers and 1:1.72 for large farmers, with an overall ratio of 1:1.69. These figures confirm that green chili cultivation remains a profitable venture.

**Table 1:** Per hectare Cost of cultivation of Green Chilli for overall growers (Rs.)

Particulars		Unit/ha	Input	Cost per input (Rs)	Total cost	Percentage to Cost C3
Hired Human Labour	Male	DAYS	28.26667	249.88	7063.274667	5.96
	Female	DAYS	110.1233	158.4733	17451.61171	14.72
	Total	DAYS			24514.88638	20.68
Bullock Labour	Hired	DAYS	0	0	0	0.00
	Owned	DAYS	8.286667	532.1067	4409.390578	3.72
	Total	DAYS	8.286667	532.1067	4409.390578	3.72
Machine Charges	Hired	HOURS	5.94	680.73	4043.5362	3.41
	Total	HOURS	5.94	680.73	4043.5362	3.41
Manure		TONS.	0	0	0	0.00
Fertilizer	N	Kg.	67.79	24	1626.96	1.37
	P	Kg.	56.22	44	2473.68	2.09
	K	Kg.	0	22	0	0.00
	Total				4100.64	3.46
Seed	Cost	Kgs/Rs.	0.673333	4011.92	2701.359467	2.28
Irrigation charges	Cost	RS.			2105.533333	1.78
Insecticide (Plant Protection)	Cost	RS.			9864.87	8.32
Incidental charges	Cost	RS.			258.8466667	0.22
Repairing charges	Cost	RS.			380.5866667	0.32
Working capital	Cost	RS.			52379.64929	44.19
Int. on working capital	Cost	RS.			3142.778957	2.65
@ 6%						0.00
Depreciation		RS.			2636.133333	2.22
Land Rev. cess & other taxes		RS.			182	0.15
COST A1		RS.			58340.56158	49.22
Rent paid for leased land		RS.			0	0.00
COST A2		RS.			58340.56158	49.22
Int. on Fix. Cap. @ 10 %/annum		RS.			2841.23	2.40
COST B1		RS.			61181.79158	51.62
Rental value of land		RS.			33144.30323	27.96
COST B2		RS.			94326.09481	79.58
Family Human Labour	Male	DAYS	35.71333	250.2433	8937.023578	7.54
	Female	DAYS	27.87	160.93	4485.1191	3.78
	Total	DAYS			13422.14268	11.32
COST C1		Rs.			74603.93426	62.94
COST C2					107748.2375	90.91
10 % of Cost C2					10774.82375	9.09
COST C3					118523.0612	100.00
Yield Per hectare	Main	QTLS.	73.84667	2707.743	199957.8194	
	By produce	QTLS.	0	0	0	
Value Of Total Produce		RS.	73.84667	2707.743	199957.8194	
Per qtl. Cost of main produce at Cost C3					1604.988642	

(Figures in parentheses indicate percentage to the Cost C3)

**Table 2:** Costs and returns of Green Chilli growers (Rs.)

Sr. No.	Particulars		Size group			
			Small	Medium	Large	Overall
1	Yield (Qtls)	Main Produce	70.12	73.86	77.56	73.84
		By Produce	0	0	0	0
2	Price/ (Qtls)	Main Produce	2706.23	2711.7	2709.5	2707.743
		By Produce	0	0	0	0
3	Value of main produce		189760.8	199976	210148.8	199957.8
4	Value of by-produce		0	0	0	0
5	Total produce		189760.8	199976	210148.8	199957.8
6	<b>Cost of cultivation at</b>					
a)	Cost 'A <sub>2</sub> '		54416.04	57375.77	59731.85	58340.56
b)	Cost 'B <sub>1</sub> '		57257.27	60217	62573.08	61181.79
c)	Cost 'B <sub>2</sub> '		88700.08	93364.32	97417.89	94326.09
d)	Cost 'C <sub>2</sub> '		101273.5	107090.1	111380.9	107748.2
e)	Cost 'C <sub>3</sub> '		111400.8	117799.1	122519	118523.1
7	<b>Net return over</b>					
a)	Cost 'A <sub>2</sub> '		135344.8	142600.2	150417	141617.3
b)	Cost 'B <sub>1</sub> '		132503.6	139759	147575.7	138776
c)	Cost 'B <sub>2</sub> '		101060.8	106611.6	112730.9	105631.7
d)	Cost 'C <sub>2</sub> '		88487.36	92885.86	98767.87	92209.58
e)	Cost 'C <sub>3</sub> '		78360.01	82176.85	87629.78	81434.76
8	<b>Benefit-cost ratio at</b>					
a)	Cost 'A <sub>2</sub> '		3.49	3.49	3.52	3.43
b)	Cost 'B <sub>1</sub> '		3.31	3.32	3.36	3.27
c)	Cost 'B <sub>2</sub> '		2.14	2.14	2.16	2.12
d)	Cost 'C <sub>2</sub> '		1.87	1.87	1.89	1.86
e)	Cost 'C <sub>3</sub> '		1.70	1.70	1.72	1.69

Table 3 presents the per hectare cultivation costs for cabbage under different cost categories. The cost under 'A<sub>2</sub>' was Rs. 67,749.13, while 'B<sub>1</sub>' was Rs. 70,590.36. The cost for 'B<sub>2</sub>' stood at Rs. 1,00,291.80, followed by 'C<sub>2</sub>' at Rs. 1,06,620.23. The highest cost, 'C<sub>3</sub>', was Rs. 1,17,282.25, which included a 10% managerial expense. A significant portion of the total cultivation cost was attributed to 'A<sub>2</sub>', making up 57.77%. Within this category, the cost distribution was as follows: fertilizers (8.98%), plant protection chemicals (13.33%), hired human labor (12.47%), bullock labor (4.62%), seeds (5.98%), and machinery use (2.91%). The share of 'B<sub>1</sub>' in the total cost was 60.19%, whereas 'B<sub>2</sub>' contributed 85.51%. Additionally, family labor accounted for 5.40% of the total cost. The overall per hectare yield for cabbage farmers was recorded at 131.83 quintals, with gross returns of Rs. 1,79,267.85. The production cost per quintal at the overall level was Rs. 889.63.

According to Table 4, the per hectare cabbage production varied by farm size. Small farmers achieved a yield of 125.27 quintals, medium-sized farmers produced 131.56 quintals, and large farmers obtained 138.67 quintals. At the overall level, the yield stood at 131.83 quintals per hectare. The net returns at cost 'C<sub>3</sub>' per hectare were Rs. 58,353.52

for small farmers, Rs. 61,936.58 for medium farmers, and Rs. 66,175.24 for large farmers, with an overall net return of Rs. 61,985.6.

The average gross returns at the overall level amounted to Rs. 1,79,287.8. The net returns at different cost levels were as follows: Rs. 1,11,518.7 at 'A<sub>2</sub>', Rs. 78,976.05 at 'B<sub>2</sub>', Rs. 72,647.62 at 'C<sub>2</sub>', and Rs. 61,985.6 at 'C<sub>3</sub>'. This indicates that cabbage farming yielded favorable financial benefits. Cost 'A<sub>2</sub>', which represents the farmer's direct variable expenses, showed the highest benefit-cost ratio. Among different farm sizes, the benefit-cost ratio at 'A<sub>2</sub>' was highest for large farmers at 1:2.70, followed by small farmers at 1:2.60 and medium farmers at 1:2.65. The overall benefit-cost ratio at 'A<sub>2</sub>' was 1:2.65.

At cost 'C<sub>2</sub>', the highest benefit-cost ratio was recorded for large farmers at 1:1.69, followed by medium-sized farmers at 1:1.68 and small farmers at 1:1.67. The overall benefit-cost ratio at 'C<sub>2</sub>' was 1:1.68. Similarly, at cost 'C<sub>3</sub>', large farmers had the highest benefit-cost ratio at 1:1.54, while medium and small farmers recorded 1:1.53 and 1:1.52, respectively. The overall benefit-cost ratio at 'C<sub>3</sub>' was 1:1.53. These findings confirm that cabbage cultivation is a profitable venture.

**Table 3:** Per hectare Cost of cultivation of Cabbage for overall growers(Rs)

Particulars		Unit/ha	Input	Cost per input (Rs)	Total cost	Percentage to Cost C3
Hired Human Labour	Male	DAYS	24.38333	251.3433	6128.59	5.23
	Female	DAYS	55.99	151.7667	8497.42	7.25
	Total	DAYS			14626.00	12.47
Bullock Labour	Hired	DAYS	0	0	0.00	0.00
	Owned	DAYS	8.803333	615.2567	5416.31	4.62
	Total	DAYS	8.803333	615.2567	5416.31	4.62
Machine Charges	Hired	HOURS	5.006667	680.73	3408.19	2.91
	Total	HOURS	5.006667	680.73	3408.19	2.91
Manure		TONS.	3.503333	508.1733	1780.30	1.52
Fertilizer	N	Kg.	141.7767	24	3402.64	2.90
	P	Kg.	107.08	44	4711.52	4.02
	K	Kg.	110.1233	22	2422.71	2.07
	Total				10536.87	8.98
Seed	Cost	Kgs/Rs.	0.68	10307.69	7009.23	5.98
Irrigation charges	Cost	RS.			2362.30	2.01
Insecticide (Plant Protection)	Cost	RS.			15639.29	13.33
Incidental charges	Cost	RS.			253.88	0.22
Repairing charges	Cost	RS.			503.24	0.43
Working capital	Cost	RS.			61535.61	52.47
Int. on working capital	Cost	RS.			3692.14	3.15
@ 6%						0.00
Depreciation		RS.			2344.85	2.00
Land Rev. cess & other taxes		RS.			176.53	0.15
COST A1		RS.			67749.13	57.77
Rent paid for leased land		RS.			0.00	0.00
COST A2		RS.			67749.13	57.77
Int. on Fix. Cap. @ 10 %/annum		RS.			2841.23	2.42
COST B1		RS.			70590.36	60.19
Rental value of land		RS.			29701.44	25.32
COST B2		RS.			100291.80	85.51
Family Human Labour	Male	DAYS	10.80667	250.81	2710.42	2.31
	Female	DAYS	22.58667	160.1833	3618.01	3.08
	Total	DAYS			6328.43	5.40
COST C1		Rs.			76918.79	65.58
COST C2					106620.23	90.91
10 % of Cost C2					10662.02	9.09
COST C3					117282.25	100.00
Yield Per hectare	Main	QTLS.	131.8333	1359.807	179267.85	
	By produce	QTLS.	0	0	0.00	
Value Of Total Produce		RS.	131.8333	1359.807	179267.85	
Per qtl. Cost of main produce at Cost C3					889.63	

(Figures in parentheses indicates percentage to the Cost C3)

**Table 4:** Costs and returns of Cabbage growers (Rs.)

Sr. No.	Particulars		Size group			
			Small	Medium	Large	Overall
1	Yield (Qtls)	Main Produce	125.27	131.56	138.67	131.83
		By Produce	0	0	0	0
2	Price/ (Qtls)	Main Produce	1360.03	1359.63	1359.76	1359.81
		By Produce	0	0	0	0
3	Value of main produce		170371	178872.9	188557.9	179267.8
4	Value of by-produce		0	0	0	0
5	Total produce		170371	178872.9	188557.9	179267.8
6	<b>Cost of cultivation at</b>					
a)	Cost 'A2'		65412.73	67530.34	69842.06	67749.13
b)	Cost 'B1'		68253.96	70371.57	72683.29	70590.36
c)	Cost 'B2'		96470.22	100007.2	103935.4	100291.8
d)	Cost 'C2'		101834	106305.8	111257	106620.2
e)	Cost 'C3'		112017.4	116936.3	122382.7	117282.3
7	<b>Net return over</b>					
a)	Cost 'A2'		104958.2	111342.6	118715.9	111518.7
b)	Cost 'B1'		102117	108501.4	115874.6	108677.5
c)	Cost 'B2'		73900.74	78865.7	84622.51	78976.05
d)	Cost 'C2'		68536.92	72567.16	77300.93	72647.62
e)	Cost 'C3'		58353.52	61936.58	66175.24	61985.6

8	Benefit-cost ratio at					
a)	Cost 'A2'		2.60	2.65	2.70	2.65
b)	Cost 'B1'		2.50	2.54	2.59	2.54
c)	Cost 'B2'		1.77	1.79	1.81	1.79
d)	Cost 'C2'		1.67	1.68	1.69	1.68
e)	Cost 'C3'		1.52	1.53	1.54	1.53

Table 5 presents the per hectare cost of cauliflower cultivation across different cost categories. The cost at 'A2' was Rs. 74,843.40, while 'B1' stood at Rs. 77,684.63. The cost under 'B2' was Rs. 1,21,453.65, followed by 'C2' at Rs. 1,37,063.15. The highest cost, 'C3', amounted to Rs. 1,50,769.46, which included a 10% managerial cost. A significant portion of the total cultivation cost, 49.64%, was allocated to 'A2'. Within this category, expenses were distributed as follows: fertilizers (4.19%), plant protection chemicals (6.49%), hired human labor (11.02%), bullock labor (2.98%), seeds (6.57%), and machinery (2.09%). The share of 'B1' in the total cost was 51.53%, while 'B2' contributed 80.56% to 'C3'. Additionally, family labor accounted for 10.35% of the total cost.

The overall per hectare yield of cauliflower was recorded at 129.59 quintals, with gross returns amounting to Rs.

2,63,822.09. The cost of production per quintal was Rs. 1,163.37 at the overall level.

According to Table 6, the average gross returns per hectare at the overall level were Rs. 2,63,822.1. The net returns at different cost levels were Rs. 1,88,978.7 at 'A2', Rs. 1,21,453.7 at 'B2', Rs. 1,37,063.2 at 'C2', and Rs. 1,13,052.6 at 'C3'. The net return at cost 'C3' for small, medium, and large farms was Rs. 99,925.61, Rs. 1,09,268.1, and Rs. 1,29,635.5, respectively, while the overall net return at cost 'C3' stood at Rs. 1,13,052.6.

The benefit-cost ratio at cost 'C3' was calculated as 1:1.70 for small farmers, 1:1.73 for medium farmers, and 1:1.80 for large farmers. At the overall level, the benefit-cost ratio was found to be 1:1.75. This indicates that cauliflower farming is financially rewarding.

**Table 5:** Per hectare Cost of cultivation of Cauliflower for overall growers (Rs.)

Particulars		Unit/ha	Input	Cost per input (Rs)	Total cost	Percentage to Cost C3
Hired Human Labour	Male	DAYS	26.643333	225.6733	6012.68	3.99
	Female	DAYS	66.63	159.1367	10603.27	7.03
	Total	DAYS			16615.96	11.02
Bullock Labour	Hired	DAYS	0	0	0	0.00
	Owned	DAYS	6.62	678.82	4493.78	2.98
	Total	DAYS	6.62	678.82	4493.78	2.98
Machine Charges	Hired	HOURS	4.6233333	680.73	3147.24	2.09
	Total	HOURS	4.6233333	680.73	3147.24	2.09
Manure		TONS.	27.653333	476.4867	13176.44	8.74
Fertilizer	N	Kg.	105.34	24	2528.16	1.68
	P	Kg.	64.733333	44	2848.26	1.89
	K	Kg.	43.03667	22	946.80	0.63
	Total				6323.23	4.19
Seed	Cost	Kgs/Rs.	0.962667	10293.89	9909.58	6.57
Irrigation charges	Cost	RS.			3451.05	2.29
Insecticide (Plant Protection)	Cost	RS.			9782.43	6.49
Incidental charges	Cost	RS.			528.90	0.35
Repairing charges	Cost	RS.			354.13	0.23
Working capital	Cost	RS.			67782.77	44.96
Int. on working capital @ 6%	Cost	RS.			4066.96	2.70
Depreciation		RS.			2792.33	1.85
Land Rev. cess & other taxes		RS.			201.33	0.13
COST A1		RS.			74843.40	49.64
Rent paid for leased land		RS.			0	0.00
COST A2		RS.			74843.40	49.64
Int. on Fix. Cap. @ 10 %/annum		RS.			2841.23	1.88
COST B1		RS.			77684.63	51.53
Rental value of land		RS.			43769.01	29.03
COST B2		RS.			121453.65	80.56
Family Human Labour	Male	DAYS	18.423333	253.26	4665.89	3.09
	Female	DAYS	68.603333	159.52	10943.60	7.26
	Total	DAYS			15609.49	10.35
COST C1		Rs.			93294.13	61.88
COST C2					137063.15	90.91
10 % of Cost C2					13706.31	9.09
COST C3					150769.46	100.00
Yield Per hectare	Main	QTLS.	129.5967	2035.717	263822.09	
	By produce	QTLS.	0	0	0	
Value Of Total Produce		RS.	129.5967	2035.717	263822.09	
Per qtl. Cost of main produce at Cost C3					1163.37	

(Figures in parentheses indicate percentage to the Cost C3)

**Table 6:** Costs and returns of Cauliflower growers (Rs.)

Sr. No.	Particulars		Size group			
			Small	Medium	Large	Overall
1	Yield (Qtls)	Main Produce	118.89	126.73	143.17	129.5967
		By Produce	0	0	0	0
2	Price/(Qtls)	Main Produce	2036.4	2035.7	2035.05	2035.717
		By Produce	0	0	0	0
3	Value of main produce		242107.6	257984.3	291358.1	263822.1
4	Value of by produce		0	0	0	0
5	Total produce		242107.6	257984.3	291358.1	263822.1
6	<b>Cost of cultivation at</b>					
a)	Cost 'A <sub>2</sub> '		71403.29	73999.79	79414.85	74843.41
b)	Cost 'B <sub>1</sub> '		74244.52	76841.02	82256.08	77684.64
c)	Cost 'B <sub>2</sub> '		114403.8	119634.4	130607.8	121453.7
d)	Cost 'C <sub>2</sub> '		129256.3	135196.5	147020.5	137063.2
e)	Cost 'C <sub>3</sub> '		142182	148716.1	161722.6	150769.5
7	<b>Net return over</b>					
a)	Cost 'A <sub>2</sub> '		170704.3	183984.5	211943.3	188978.7
b)	Cost 'B <sub>1</sub> '		167863.1	181143.2	209102	186137.5
c)	Cost 'B <sub>2</sub> '		127703.8	138349.9	160750.3	142368.4
d)	Cost 'C <sub>2</sub> '		112851.2	122787.8	144337.6	126758.9
e)	Cost 'C <sub>3</sub> '		99925.61	109268.1	129635.5	113052.6
8	<b>Benefit-cost ratio at</b>					
a)	Cost 'A <sub>2</sub> '		3.39	3.49	3.67	3.52
b)	Cost 'B <sub>1</sub> '		3.26	3.36	3.54	3.40
c)	Cost 'B <sub>2</sub> '		2.12	2.16	2.23	2.17
d)	Cost 'C <sub>2</sub> '		1.87	1.91	1.98	1.92
e)	Cost 'C <sub>3</sub> '		1.70	1.73	1.80	1.75

Table 7 provides details on the per hectare cost of onion cultivation across different cost categories. The cultivation cost under 'A<sub>2</sub>' was Rs. 78,671.79, while 'B<sub>1</sub>' amounted to Rs. 81,513.02. The cost for 'B<sub>2</sub>' was Rs. 1,15,149.1, followed by 'C<sub>2</sub>' at Rs. 1,22,116.38. The highest cost, 'C<sub>3</sub>', stood at Rs. 1,34,380.2, which included a 10% managerial expense. A significant portion of the total cultivation cost, 58.54%, was attributed to 'A<sub>2</sub>'. Within this category, the expenses were allocated as follows: fertilizers (4.43%), plant protection chemicals (5.62%), hired human labor (10.38%), bullock labor (2.98%), seeds (10.14%), and machinery usage (2.98%). The contribution of 'B<sub>1</sub>' to the total cost was 60.66%, while 'B<sub>2</sub>' accounted for 85.69% of 'C<sub>3</sub>'. Additionally, family labor comprised 5.22% of the total cost.

The overall per hectare yield for onion cultivation was 197.86 quintals, generating gross returns of Rs. 2,02,862.1.

The production cost per quintal at the overall level was Rs. 679.14.

According to Table 8, the average gross returns per hectare at the overall level were Rs. 2,02,862.1. The net returns at various cost levels were Rs. 1,24,190.4 at 'A<sub>2</sub>', Rs. 87,713.02 at 'B<sub>2</sub>', Rs. 80,698.32 at 'C<sub>2</sub>', and Rs. 68,481.94 at 'C<sub>3</sub>'. This indicates that onion farming provided substantial financial benefits. The net return at cost 'C<sub>3</sub>' varied across different farm sizes: Rs. 64,888.65 for small farms, Rs. 67,812.62 for medium farms, and Rs. 72,240.29 for large farms. The overall net return at cost 'C<sub>3</sub>' was Rs. 68,481.94.

The benefit-cost ratio at cost 'C<sub>3</sub>' was 1:1.50 for small and medium farms, while it was slightly higher at 1:1.52 for large farms. At the overall level, the benefit-cost ratio stood at 1:1.51, confirming that onion cultivation is a profitable agricultural activity.

**Table 7:** Per hectare Cost of cultivation of Onion for overall growers (Rs.)

Particulars		Unit/ha	Input	Cost per input (Rs)	Total cost	Percentage to Cost C <sub>3</sub>
Hired Human Labour	Male	DAYS	20.41	250.1267	5105.0853	3.80
	Female	DAYS	55.43333	159.5667	8845.3122	6.58
	Total	DAYS			13950.397	10.38
Bullock Labour	Hired	DAYS	0	0	0	0.00
	Owned	DAYS	5.92	676.9167	4007.3467	2.98
	Total	DAYS	5.92	676.9167	4007.3467	2.98
Machine Charges	Hired	HOURS	5.88	680.73	4002.6924	2.98
	Total	HOURS	5.88	680.73	4002.6924	2.98
Manure		TONS.	24.6	786.5667	19349.54	14.40
Fertilizer	N	Kg.	104.8333	24	2516	1.87
	P	Kg.	55.05667	44	2422.4933	1.80
	K	Kg.	46.36667	22	1020.0667	0.76
	Total				5958.56	4.43
Seed	Cost	Kgs/Rs.	10.73333	1269.25	13623.283	10.14
Irrigation charges	Cost	RS.			3097.45	2.30

Insecticide (Plant Protection)	Cost	RS.			7557.6267	5.62
Incidental charges	Cost	RS.			376.3	0.28
Repairing charges	Cost	RS.			455.13333	0.34
Working capital	Cost	RS.			72378.33	53.86
Int. on working capital	Cost	RS.			4342.6998	3.23
@ 6%						0.00
Depreciation		RS.			1776.5	1.32
Land Rev. cess & other taxes		RS.			174.26	0.13
COST A1		RS.			78671.79	58.54
Rent paid for leased land		RS.			0	0.00
COST A2		RS.			78671.79	58.54
Int. on Fix. Cap. @ 10 %/annum		RS.			2841.23	2.11
COST B1		RS.			81513.02	60.66
Rental value of land		RS.			33636.097	25.03
COST B2		RS.			115149.12	85.69
Family Human Labour	Male	DAYS	13.08667	249.9167	3270.5761	2.43
	Female	DAYS	23.42667	159.8233	3744.128	2.79
	Total	DAYS			7014.7041	5.22
COST C1		Rs.			88527.724	65.88
COST C2					122163.82	90.91
10 % of Cost C2					12216.382	9.09
COST C3					134380.2	100.00
Yield Per hectare	Main	QTLS.	197.8667	1025.247	202862.14	
	By produce	QTLS.	0	0	0	
Value Of Total Produce		RS.	197.8667	1025.247	202862.14	
Per qtl. Cost of main produce at Cost C3					679.14523	

(Figures in parentheses indicate percentage to the Cost C3)

**Table 8:** Costs and returns of Onion growers (Rs.)

Sr. No.	Particulars		Size group			
			Small	Medium	Large	Overall
1	Yield (Qtls)	Main Produce	190.24	197.56	205.8	197.8667
		By Produce	0	0	0	0
2	Price/(Qtls)	Main Produce	1024.3	1025.8	1025.64	1025.247
		By Produce	0	0	0	0
3	Value of main produce		194862.8	202657	211076.7	202862.1
4	Value of by produce		0	0	0	0
5	Total produce		194862.8	202657	211076.7	202862.1
6	<b>Cost of cultivation at</b>					
a)	Cost 'A2'		77456.78	79439.61	81369.27	78671.79
b)	Cost 'B1'		79693.68	81806.71	83505.67	81513.02
c)	Cost 'B2'		111994.7	115408.5	118512.8	115149.1
d)	Cost 'C2'		118158.3	122585.8	126214.9	122163.8
e)	Cost 'C3'		129974.2	134844.4	138836.4	134380.2
7	<b>Net return over</b>					
a)	Cost 'A2'		117406.1	123217.4	129707.4	124190.4
b)	Cost 'B1'		115169.2	120850.3	127571	121349.1
c)	Cost 'B2'		82868.11	87248.54	92563.89	87713.02
d)	Cost 'C2'		76704.49	80071.21	84861.78	80698.32
e)	Cost 'C3'		64888.65	67812.62	72240.29	68481.94
8	<b>Benefit-cost ratio at</b>					
a)	Cost 'A2'		2.52	2.55	2.59	2.58
b)	Cost 'B1'		2.45	2.48	2.53	2.49
c)	Cost 'B2'		1.74	1.76	1.78	1.76
d)	Cost 'C2'		1.65	1.65	1.67	1.66
e)	Cost 'C3'		1.50	1.50	1.52	1.51

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