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Economic analysis of different vegetables in Vidarbha region of Maharashtra

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Abstract

This paper has examined the cost of cultivation of two vegetables i.e., fenugreek and spinach. For Fenugreek, the per hectare total cost of cultivation i.e., cost C3 was highest in the large size group i.e., Rs. 98872.04 per hectare followed by the medium size group (Rs. 98087.77) and small size group (Rs. 96818.4) respectively. For Spinach, the per hectare total cost of cultivation i.e., cost C3 was highest in the large size group i.e., Rs. 138845.2 per hectare followed by medium size group (Rs. 138547.4) and small size group (Rs. 137683.8) respectively. For Tomato, the per hectare total cost of cultivation i.e. cost C3 was highest in the large size group i.e. Rs. 163725 per hectare followed by small size group (Rs. 160714) and medium size group (Rs. 159866.6) respectively. For Brinjal, the per hectare total cost of cultivation i.e. cost C3 was highest in the large size group i.e. Rs. 168170.1 per hectare followed by small size group (Rs. 165097.6) and medium size group (Rs. 165092.9) respectively.

The benefit cost ratio of Fenugreek cultivation at Cost C3 was higher in large size group i.e., 1.66, followed by medium size group (1.60) and small size group (1.54). The benefit cost ratio of Spinach cultivation at Cost C3 was higher in large size group i.e., 1.70, followed by medium size group (1.67) and small size group (1.66). The benefit cost ratio of Tomato cultivation at Cost C3 was higher in large size group i.e. 1.53, followed by medium size group (1.51) and small size group (1.49). The benefit cost ratio of Brinjal cultivation at Cost C3 was higher in large size group i.e. 1.51, followed by medium size group (1.49) and small size group (1.46).

Keywords: Fenugreek, spinach, tomato, brinjal, cost of cultivation, C3, benefit cost ratio

Introduction

India is the second largest vegetables producing country after China. India produces 14% (146.55 million tonnes) of world's vegetables on 15% (8.5 million hectares) of world area under vegetables. Productivity of vegetables in India (17.3t/ha) is less than the world average productivity (18.8t/ha). Major vegetable producing countries of the world during 2010-2011 were: China [473.06 million t (48% world production)]; India [146.55 million t (14% world production)]; USA [35.29 million t (3% world production)]; Turkey [25.83 million t (2.2% world production)]; and Egypt [19.51 million t (2% world production)]. As the second largest producer of vegetables in the world, large no. of varieties of vegetables are grown in India. In India, similar concerns exist, with losses in post-harvest is estimated at 10%-25% for perishable foods like milk, fish, eggs and an even higher from 30%-40% for fruits and vegetables. The estimated losses in fruits and vegetables are higher and reached from 30 to 40 percent. These percentages are not acceptable and adversely affect the Indian economy.

Methodology

The research was conducted in four districts of Vidarbha region which are suitable for production and marketing of Vegetable crops. Random sampling was used to collect the data from the respondents. Akola, Bhandara, Nagpur, Amaravati and Yavatmal district will be selected purposively to have whole representation of Vidarbha region. From each district, two tehsils were selected based on Production of vegetables and from each tehsil, three villages were selected. For the study primary data were collected from the selected farmers and the market middlemen through personal interview method with the help of a set of pre-tested schedules.

For the present study the cost of cultivation of vegetables was calculated as per the standardized cost concept by CACP i.e., COST- A1, COST- A2, COST-B1, COST-B2, COST-C1, COST- C2 and COST-C3 used and benefit- cost ratio was worked out.

Cost and returns of selected vegetables

To achieve the objective standard cost concept was used.

D) Cost concept

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

A) Cost A1

All actual expenses in cash and kind incurred in production by the producer. The following items are included in cost A1.

- Value of hired human labour (HL).
- Value of hired bullock labour (BL).
- Value of owned bullock labour.
- Value of owned machine labour (ML).
- Hired machinery charges.
- Value of seed (both farms produced and purchased).
- Value of insecticides and pesticides.
- Value of manure (owned and purchase).
- Value of fertilizers
- Irrigation charges.
- Depreciation on implements and farm building.
- Land revenue, cesses and other taxes.
- Interest on working capital and
- Miscellaneous expenses.

Cost 'A2'

Cost A1+ Rent paid for leased-in land.

Cost 'B1'

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

Cost 'B2'

Cost B2 = Cost B1 + Rental value of owned land (net of land revenue) and rent paid for leased-in land. Rental value of land = (1/6th of gross value of produce – land revenue).

Cost 'C1'

Cost B1 + imputed value of family labour.

Cost 'C2'

Cost B2 + imputed value of family labour.

Cost 'C3'

It is obtained by adding the 10 percent value of cost C2* to the cost C2*. Cost C2 + marketing costs and transportation report.

Analytical Tools

$$\text{Benefit-cost ratio at cost 'A2'} = \frac{\text{Gross Income}}{\text{Cost 'A2'}}$$

$$\text{Benefit-cost ratio at cost 'B1'} = \frac{\text{Gross Income}}{\text{Cost 'B1'}}$$

$$\text{Benefit-cost ratio at cost 'B2'} = \frac{\text{Gross Income}}{\text{Cost 'B2'}}$$

$$\text{Benefit-cost ratio at cost 'C1'} = \frac{\text{Gross Income}}{\text{Cost 'C1'}}$$

$$\text{Benefit-cost ratio at cost 'C2'} = \frac{\text{Gross Income}}{\text{Cost 'C2'}}$$

$$\text{Benefit-cost ratio at cost 'C3'} = \frac{\text{Gross Income}}{\text{Cost 'C3'}}$$

Results and Discussion

It is revealed from the Table 1 that, the per hectare cost of cultivation at cost 'A2' was Rs 46926.22, cost 'B1' was Rs. 49767.45 Whereas cost 'B2' was Rs. 75718.69 and cost 'C2' was Rs. 89076.88 whereas cost 'C3' was Rs 97984.57 which indicate the 10 percent as a managerial cost. The major share of cost of cultivation goes towards cost 'A2' 47.89 percent. In cost 'A' share of fertilizer was 1.85 percent, plant protection chemicals 5.95 percent, hired human labour 16.65 percent, manure 2.06 percent, bullock labour 3.44 percent and seed 2.05 percent, machine hours 5.39 percent, cost 'B1' contributes to 50.79 percent, cost 'B2' contribute 77.28 percent to the total cost i.e., cost 'C3'. The share of family labour was 13.63 percent. Per hectare yield obtained by large farmers was 53.15 quintal with gross returns of Rs. 156755.5. In case of overall size group, per quintal cost of production was Rs. 1843.548.

The Table 2 indicates that the per hectare production of fenugreek for small medium and large farmer was 50.64, 53.14 and 55.67 quintals respectively. At overall level it was 53.15 q/ha. The average per hectare net return received by the small, medium and large cultivator was Rs. 52503.76, Rs. 58638.03 and Rs. 65349.45. At an overall the net returns were Rs. 58770.91.

Efficiency of investment in the cultivation of fenugreek was judge by calculating input-output ratios. The input- output ratio at Cost C3 for small, medium and large group of growers was 1.54, 1.60 and 1.66 respectively. The overall ratio was 1.60. From this it can be conclude that cultivation of fenugreek was economically benefited.

It is revealed from the Table 3 that, the per hectare cost of cultivation at cost 'A2' was Rs 58024.89, cost 'B1' was Rs. 60866.12 Whereas cost 'B2' was Rs. 99430.05 and cost 'C2' was Rs 125919.8 whereas cost 'C3' was Rs 138511.7 which indicates the 10 percent as a managerial cost. The major share of cost of cultivation goes towards cost 'A2' 41.89 percent. In cost 'A' share of fertilizer was 3.59 percent, plant protection chemicals 4.98 percent, hired human labour 20.17 percent, manure 0.00 percent, bullock labour 2.08 percent and seed 2.68 percent, machine hours 1.05 percent, cost 'B1' contributes to 43.94 percent, cost 'B2' contribute 71.78 percent to the total cost i.e. cost 'C3'. The share of family labour was 19.12 percent. Per hectare yield obtained by overall farmers was 139.73 quintal with gross returns of Rs. 232500.01. In case of overall group, per quintal cost of production was Rs. 991.28.

The Table 5.34 indicates that the per hectare production of spinach for small medium and large farmer was 137.13, 139.89 and 142.17 quintals respectively. At overall level it

was 139.73 q/ha. The average per hectare net return received by the the small, medium and large cultivator was Rs.

90427.83, Rs. 92793.07 and Rs. 97739.85. At an overall the net returns was Rs. 93988.26.

Table 1: Per hectare cost of cultivation of Fenugreek for overall growers (Rs.)

Particulars		Unit/ha	Input	Cost per input (Rs)	Total cost	Percentage to Cost C3
Hired Human Labour	Male	DAYS	32.71667	250.99	8211.556	8.38
	Female	DAYS	53.60667	151.1167	8100.861	8.27
	Total	DAYS			16312.42	16.65
Bullock Labour	Hired	DAYS	0	0	0	0.00
	Owned	DAYS	6.35	530.4967	3368.654	3.44
	Total	DAYS	6.35	530.4967	3368.654	3.44
Machine Charges	Hired	HOURS	7.751667	680.73	5276.792	5.39
	Total	HOURS	7.751667	680.73	5276.792	5.39
Manure		TONS.	7.406667	272.9067	2021.329	2.06
Fertilizer	N	Kg.	17.66667	24	424	0.43
	P	Kg.	31.46	44	1384.24	1.41
	K	Kg.	0	22	0	0.00
	Total				1808.24	1.85
Seed	Cost	Kgs/Rs.	18.24667	109.83	2004.031	2.05
Irrigation charges	Cost	RS.			4312.733	4.40
Insecticide (Plant Protection)	Cost	RS.			5840.833	5.96
Incidental charges	Cost	RS.			359.8	0.37
Repairing charges	Cost	RS.			609.9667	0.62
Working capital	Cost	RS.			41914.8	42.78
Int. on working capital @ 6%	Cost	RS.			2514.888	2.57
Depreciation		RS.			2321.867	2.37
Land Rev. cess & other taxes		RS.			174.6667	0.18
COST A1		RS.			46926.22	47.89
Rent paid for leased land		RS.			0	0.00
COST A2		RS.			46926.22	47.89
Int. on Fix. Cap. @ 10%/annum		RS.			2841.23	2.90
COST B1		RS.			49767.45	50.79
Rental value of land		RS.			25951.25	26.48
COST B2		RS.			75718.69	77.28
Family Human Labour	Male	DAYS	26.15667	251.0367	6566.282	6.70
	Female	DAYS	42.55667	159.5967	6791.902	6.93
	Total	DAYS			13358.18	13.63
COST C1		Rs.			63125.63	64.42
COST C2					89076.88	90.91
10% of Cost C2					8907.688	9.09
COST C3					97984.57	100.00
Yield Per hectare	Main	QTLS.	53.15	2949.303	156755.5	
	By produce	QTLS.	0	0	0	
Value Of Total Produce		RS.	53.15	2949.303	156755.5	
Per qtl. Cost of main produce at Cost C3					1843.548	

Table 2: Costs and returns of fenugreek growers (Rs.)

Sr. No.	Particulars		Size group			
			Small	Medium	Large	Overall
1	Yield (Qtls)	Main Produce	50.64	53.14	55.67	53.15
		By Produce	0	0	0	0
2	Price / (Qtls)	Main Produce	2948.7	2949.3	2949.91	2949.303
		By Produce	0	0	0	0
3	Value of main produce		149322.2	156725.8	164221.5	156755.5
4	Value of by-produce		0	0	0	0
5	Total produce		149322.2	156725.8	164221.5	156755.5
6	Cost of cultivation at					
a)	Cost 'A2'		47063.39	47013.43	46581.4	46926.22
b)	Cost 'B1'		49864.69	49854.66	49422.63	49767.45
c)	Cost 'B2'		74574.62	75801.02	76620.58	75718.69
d)	Cost 'C2'		88016.73	89170.7	89883.67	89076.88
e)	Cost 'C3'		96818.4	98087.77	98872.04	97984.57
7	Net return over					
a)	Cost 'A2'		102258.8	109712.4	117640.1	109829.3
b)	Cost 'B1'		99457.48	106871.1	114798.9	106988
c)	Cost 'B2'		74747.55	80924.78	87600.91	81036.78
d)	Cost 'C2'		61305.44	67555.1	74337.82	67678.59

e)	Cost 'C3'	52503.76	58638.03	65349.45	58770.91
8	Benefit-cost ratio at				
a)	Cost 'A2'	3.17	3.33	3.53	3.34
b)	Cost 'B1'	2.99	3.14	3.32	3.15
c)	Cost 'B2'	2.00	2.07	2.14	2.07
d)	Cost 'C2'	1.70	1.76	1.83	1.76
e)	Cost 'C3'	1.54	1.60	1.66	1.60

Efficiency of investment in the cultivation of spinach was judge by calculating input-output ratios. The input-output ratio at cost C3 was 1.66, 1.67 and 1.70 for small, medium and large farmer respectively. The overall input-output ratio

was 1.68.

From this it can be conclude that cultivation of spinach was economically benefited. It indicates that the spinach cultivation was profitable

Table 3: Per hectare Cost of cultivation of Spinach for overall growers (Rs.)

Particulars		Unit/ha	Input	Cost per input (Rs)	Total cost	Percentage to Cost C3
Hired Human Labour	Male	DAYS	36.21	249.6833	9041.034	6.53
	Female	DAYS	118.7167	159.17	18896.13	13.64
	Total	DAYS			27937.17	20.17
Bullock Labour	Hired	DAYS	0	0	0	0.00
	Owned	DAYS	5.413333	532.5433	2882.835	2.08
	Total	DAYS	5.413333	532.5433	2882.835	2.08
Machine Charges	Hired	HOURS	2.13	680.73	1449.955	1.05
	Total	HOURS	2.13	680.73	1449.955	1.05
Manure		TONS.	0	0	0	0.00
Fertilizer	N	Kg.	34.93733	24	838.496	0.61
	P	Kg.	94.00367	44	4136.161	2.99
	K	Kg.	0	22	0	0.00
	Total				4974.657	3.59
Seed	Cost	Kgs/Rs.	23.04667	161.24	3716.045	2.68
Irrigation charges	Cost	RS.			3352.363	2.42
Insecticide (Plant Protection)	Cost	RS.			6897.347	4.98
Incidental charges	Cost	RS.			623.25	0.45
Repairing charges	Cost	RS.			438.2267	0.32
Working capital	Cost	RS.			52271.84	37.74
Int. on working capital	Cost	RS.			3136.311	2.26
@ 6%						0.00
Depreciation		RS.			2430.66	1.75
Land Rev. cess & other taxes		RS.			186.08	0.13
COST A1		RS.			58024.89	41.89
Rent paid for leased land		RS.			0	0.00
COST A2		RS.			58024.89	41.89
Int. on Fix. Cap. @ 10%/annum		RS.			2841.23	2.05
COST B1		RS.			60866.12	43.94
Rental value of land		RS.			38563.92	27.84
COST B2		RS.			99430.05	71.78
Family Human Labour	Male	DAYS	47.58667	249.5267	11874.14	8.57
	Female	DAYS	91.72	159.35	14615.58	10.55
	Total	DAYS			26489.72	19.12
COST C1		Rs.			87355.85	63.07
COST C2					125919.8	90.91
10% of Cost C2					12591.98	9.09
COST C3					138511.7	100.00
Yield Per hectare	Main	QTLS.	139.73	1663.923	232500	
	By produce	QTLS.	0	0	0	
Value Of Total Produce		RS.	139.73	1663.923	232500	
Per qtl. Cost of main produce at Cost C3					991.2814	

Table 4: Costs and returns of spinach growers (RS.).

Sr. No.	Particulars	Size group				
		Main Produce	Small	Medium	Large	Overall
1	Yield (Qtls)		137.13	139.89	142.17	139.73
		By Produce	0	0	0	0
2	Price / (Qtls)	Main Produce	1663.47	1664.2	1664.1	1663.923
		By Produce	0	0	0	
3	Value of main produce		228111.6	231340.4	236585.1	232500
4	Value of by-produce		0	0	0	0
5	Total produce		228111.6	231340.4	236585.1	232500
6	Cost of cultivation at					
a)	Cost 'A2'		58366.74	57963.93	57811.29	58024.89
b)	Cost 'B1'		60722.86	60805.16	60652.52	60866.12
c)	Cost 'B2'		98551.93	99419.58	99901.07	99430.05
d)	Cost 'C2'		125167.1	125952.2	126223	125919.8
e)	Cost 'C3'		137683.8	138547.4	138845.2	138511.7
7.	Net return over					
a)	Cost 'A2'		169744.9	173376.5	178773.8	174475.1
b)	Cost 'B1'		167388.8	170535.3	175932.6	171633.9
c)	Cost 'B2'		129559.7	131920.9	136684	133070
d)	Cost 'C2'		102944.5	105388.3	110362.1	106580.2
e)	Cost 'C3'		90427.83	92793.07	97739.85	93988.26
8	Benefit-cost ratio at					
a)	Cost 'A2'		3.91	3.99	4.09	4.01
b)	Cost 'B1'		3.76	3.80	3.90	3.82
c)	Cost 'B2'		2.31	2.33	2.37	2.34
d)	Cost 'C2'		1.82	1.84	1.87	1.85
e)	Cost 'C3'		1.66	1.67	1.70	1.68

It is revealed from the Table 5 that, the per hectare cost of cultivation at cost 'A2' was Rs 98964.88, cost 'B1' was Rs. 101806.12 Whereas cost 'B2' was Rs. 142323.9 and cost 'C2' was Rs 148443.54 whereas cost 'C3' was Rs 163287.9 which indicates the 10 percent as a managerial cost. The major share of cost of cultivation goes towards cost 'A2' 60.61 percent. In cost 'A' share of fertilizer was 3.62 percent, plant protection chemicals 9.25 percent, hired human labour 16.92 percent, manure 13.66 percent, bullock labour 2.43 percent and seed 5.80 percent, machine hours 1.51 percent, cost 'B1' contributes to 62.35 percent, cost 'B2' contribute 87.16 percent to the total cost i.e. cost 'C3'. The share of family labour was 3.75 percent. Per hectare yield obtained by overall

size farmers was 174.3 quintal with gross returns of Rs. 244233.26. In case of overall size group, per quintal cost of production was Rs. 936.84.

The Table 6 indicates that the per hectare production of tomato for small medium and large farmer was 169.7, 173.45 and 178.23 quintals respectively. At overall level it was 174.3 q/ha. The average per hectare net return received by the small, medium and large cultivator was Rs. 78990.23, Rs. 83379.66 and Rs. 86025.15. At an overall the net returns was Rs. 80944.72. The input-output ratio at cost C3 was 1.49, 1.51 and 1.53 for small, medium and large farmer respectively. The overall input- output ration was 1.51. It indicates that the tomato cultivation was profitable.

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

Particulars	Unit/ha	Input	Cost per input (Rs)	Total cost	Percentage to Cost C3	
Hired Human Labour	Male	DAYS	41.05333	250.8133	10296.72	6.31
	Female	DAYS	108.5567	159.59	17324.56	10.61
	Total	DAYS			27621.28	16.92
Bullock Labour	Hired	DAYS	0	0	0	0.00
	Owned	DAYS	7.46	531.9633	3968.446	2.43
	Total	DAYS	7.46	531.9633	3968.446	2.43
Machine Charges	Hired	HOURS	3.616667	680.73	2461.974	1.51
	Total	HOURS	3.616667	680.73	2461.974	1.51
Manure	TONS.	34.34667	649.1867	22297.4	13.66	
Fertilizer	N	Kg.	106.32	24	2551.68	1.56
	P	Kg.	53.96	44	2374.24	1.45
	K	Kg.	44.41	22	977.02	0.60
	Total				5902.94	3.62
Seed	Cost	Kgs/Rs.	235.33	40.27333	9477.524	5.80
Irrigation charges	Cost	RS.			3878.833	2.38
Insecticide (Plant Protection)	Cost	RS.			15098	9.25
Incidental charges	Cost	RS.			424.5233	0.26
Repairing charges	Cost	RS.			409.1767	0.25
Working capital	Cost	RS.			91540.1	56.06
Int. on working capital	Cost	RS.			5492.406	3.36
@ 6%						0.00
Depreciation		RS.			1744.733	1.07

Land Rev. cess & other taxes		RS.			187.6533	0.11
COST A1		RS.			98964.89	60.61
Rent paid for leased land		RS.			0	0.00
COST A2		RS.			98964.89	60.61
Int. on Fix. Cap. @ 10%/annum		RS.			2841.23	1.74
COST B1		RS.			101806.1	62.35
Rental value of land		RS.			40517.78	24.81
COST B2		RS.			142323.9	87.16
Family Human Labour	Male	DAYS	13.20667	249.7867	3298.849	2.02
	Female	DAYS	17.54333	160.79	2820.793	1.73
	Total	DAYS			6119.642	3.75
COST C1		Rs.			107925.8	66.10
COST C2					148443.5	90.91
10% of Cost C2					14844.35	9.09
COST C3					163287.9	100.00
Yield Per hectare	Main	QTLS.	174.2967	1401.247	244232.6	
	By produce	QTLS.	0	0	0	
Value Of Total Produce		RS.	174.2967	1401.247	244232.6	
Per qtl. Cost of main produce at Cost C3					936.8389	

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

Sr. No.	Particulars	Size group				
		Small	Medium	Large	Overall	
1	Yield	Main Produce	169.7	173.45	178.23	174.2967
		By Produce	0	0	0	0
2	Price / (Qtls)	Main Produce	1400.06	1402.4	1401.28	1401.247
		By Produce	0	0	0	0
3	Value of main produce	239704.3	243246.3	249750.1	244232.6	
4	Value of by-produce	0	0	0	0	
5	Total produce	239704.3	243246.3	249750.1	244232.6	
6	Cost of cultivation at					
a)	Cost 'A2'	98250.02	95809.44	98277.63	98964.89	
b)	Cost 'B1'	101271.6	98650.67	100442.4	101806.1	
c)	Cost 'B2'	141880.8	139004	129329.8	142323.9	
d)	Cost 'C2'	146103.7	145333.3	148840.9	148443.5	
e)	Cost 'C3'	160714	159866.6	163725	163287.9	
7	Net return over					
a)	Cost 'A2'	141454.3	147436.8	151472.5	145267.7	
b)	Cost 'B1'	138432.7	144595.6	149307.8	142426.5	
c)	Cost 'B2'	97823.44	183260.5	120420.3	101908.7	
d)	Cost 'C2'	93600.59	97912.99	100909.2	95789.08	
e)	Cost 'C3'	78990.23	83379.66	86025.15	80944.72	
8	Benefit-cost ratio at					
a)	Cost 'A2'	2.44	2.54	2.54	2.47	
b)	Cost 'B1'	2.37	2.47	2.49	2.40	
c)	Cost 'B2'	1.69	1.75	1.93	1.72	
d)	Cost 'C2'	1.64	1.67	1.68	1.65	
e)	Cost 'C3'	1.49	1.51	1.53	1.51	

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

Particulars		Unit/ha	Input	Cost per input (Rs)	Total cost	Percentage to Cost C3
Hired Human Labour	Male	DAYS	37.88333	250.0367	9472.222	5.68
	Female	DAYS	133.5833	159.01	21241.09	12.73
	Total	DAYS			30713.31	18.41
Bullock Labour	Hired	DAYS	0	0	0	0.00
	Owned	DAYS	10.80333	520.26	5620.542	3.37
	Total	DAYS	10.80333	520.26	5620.542	3.37
Machine Charges	Hired	HOURS	7.276667	680.73	4953.445	2.97
	Total	HOURS	7.276667	680.73	4953.445	2.97
Manure		TONS.	32.59667	501.8467	16358.53	9.81
Fertilizer	N	Kg.	106.08	24	2545.92	1.53
	P	Kg.	52.47	44	2308.68	1.38
	K	Kg.	47.95667	22	1055.047	0.63
	Total				5909.647	3.54
Seed	Cost	Kgs/Rs.	0.823	14609.77	12023.84	7.21
Irrigation charges	Cost	RS.			2435.773	1.46
Insecticide (Plant Protection)	Cost	RS.			13541.85	8.12
Incidental charges	Cost	RS.			517.1833	0.31

Repairing charges	Cost	RS.			386.17	0.23
Working capital	Cost	RS.			92460.29	55.42
Int. on working capital	Cost	RS.			5547.617	3.33
@ 6%						0.00
Depreciation		RS.			2343.283	1.40
Land Rev. cess & other taxes		RS.			174.5567	0.10
COST A1		RS.			100525.7	60.25
Rent paid for leased land		RS.			0	0.00
COST A2		RS.			100525.7	60.25
Int. on Fix. Cap. @ 10%/annum		RS.			2841.23	1.70
COST B1		RS.			103367	61.96
Rental value of land		RS.			41029.99	24.59
COST B2		RS.			144397	86.55
Family Human Labour	Male	DAYS	14.83667	248.68	3689.582	2.21
	Female	DAYS	22.65333	158.2067	3583.908	2.15
	Total	DAYS			7273.491	4.36
COST C1		Rs.			110640.5	66.32
COST C2					151670.5	90.91
10% of Cost C2					15167.05	9.09
COST C3					166837.5	100.00
Yield Per hectare	Main	QTLS.	155.8433	1.6E+03	247227.3	
	By produce	QTLS.	0	0	0	
Value Of Total Produce		RS.	155.8433	1586.383	247227.3	

Per qtl. Cost of main produce at Cost C3 1070.546

Table 8: Costs and returns of Brinjal growers

Sr. No.	Particulars		Size group			
			Small	Medium	Large	Overall
1	Yield (Qtls)	Main Produce	152.24	155.07	160.22	155.8433
		By Produce	0	0	0	0
2	Price / (Qtls)	Main Produce	1586.25	1586.9	1586	1586.383
		By Produce	0	0	0	0
3	Value of main produce		241490.7	246080.6	254108.9	247227.3
4	Value of by-produce		0	0	0	0
5	Total produce		241490.7	246080.6	254108.9	247227.3
6	Cost of cultivation at					
a)	Cost 'A2'		100397.5	99494.51	100264.9	100525.7
b)	Cost 'B1'		103238.7	102124.6	102783.3	103367
c)	Cost 'B2'		143310.3	142963.6	144962.5	144397
d)	Cost 'C2'		150088.7	150084.5	152881.9	151670.5
e)	Cost 'C3'		165097.6	165092.9	168170.1	166837.5
7	Net return over					
a)	Cost 'A2'		141093.2	146586.1	153844	146701.5
b)	Cost 'B1'		138252	143956	151325.6	143860.3
c)	Cost 'B2'		98180.44	103117	109146.4	102830.3
d)	Cost 'C2'		91401.95	95996.09	101227	95556.82
e)	Cost 'C3'		76393.08	80987.64	85938.84	80389.77
8	Benefit-cost ratio at					
a)	Cost 'A2'		2.41	2.47	2.53	2.46
b)	Cost 'B1'		2.34	2.41	2.47	2.39
c)	Cost 'B2'		1.69	1.72	1.75	1.71
d)	Cost 'C2'		1.61	1.64	1.66	1.63
e)	Cost 'C3'		1.46	1.49	1.51	1.48

It is revealed from Table 7 that, the per hectare cost of cultivation at cost 'A2' was Rs.100525.74, cost 'B1' was Rs. 103366.97 Whereas cost 'B2' was Rs.144396.96 and cost 'C2' was Rs 143362.8 whereas cost 'C3' was Rs 157699.1 which indicates the 10 percent as a managerial cost. The major share of cost of cultivation goes towards cost 'A2' 60.25 percent. In cost 'A' share of fertilizer was 3.54 percent, plant protection chemicals 8.12 percent, hired human labour 18.41 percent, manure 9.81 percent, bullock labour 3.37 percent and seed 7.21 percent, machine hours 2.97 percent, cost 'B1' contributes to 61.96 percent, cost 'B2' contribute 86.55 percent to the total cost i.e. cost 'C3'. The share of family labour was 4.36 percent. Per hectare yield obtained by overall size farmers was 155.84 quintal with gross returns of

Rs.247227.26. In case of overall size group, per quintal cost of production was Rs. 1070.54.

The Table 8 indicates that the per hectare production of brinjal for small medium and large farmer was 152.24, 155.07 and 160.22 quintals respectively. At overall level it was 155.84 q/ha. The average per hectare net return received by the small, medium and large cultivator was Rs. 76393.08, Rs. and Rs. 85938.84. At an overall the net returns was Rs. 80389.77 at cost C3.

Efficiency of investment in the cultivation of brinjal was judge by calculating input-output ratios. The input-output ratio at cost C3 was 1.46, 1.49 and 1.51 for small, medium and large farmer respectively. The overall input-output ration was 1.48. From this it can be conclude that cultivation of

brinjal was economically benefited. It indicates that the brinjal cultivation was profitable.

Conclusion

- For Fenugreek, the per hectare total cost of cultivation i.e. cost C3 was highest in the large size group i.e. Rs. 98872.04 per hectare followed by medium size group (Rs. 98087.77) and small size group (Rs. 96818.4) respectively.
- For Spinach, the per hectare total cost of cultivation i.e. cost C3 was highest in the large size group i.e. Rs. 138845.2 per hectare followed by medium size group (Rs.138547.4) and small size group (Rs. 137683.8) respectively.
- For Tomato, the per hectare total cost of cultivation i.e. cost C3 was highest in the large size group i.e. Rs. 163725 per hectare followed by small size group (Rs.160714) and medium size group (Rs. 159866.6) respectively.
- For Brinjal, the per hectare total cost of cultivation i.e. cost C3 was highest in the large size group i.e. Rs. 168170.1 per hectare followed by small size group (Rs.165097.6) and medium size group (Rs. 165092.9) respectively.
- The benefit cost ratio of Fenugreek cultivation at Cost C3 was higher in large size group i.e. 1.66, followed by medium size group (1.60) and small size group (1.54).
- The benefit cost ratio of Spinach cultivation at Cost C3 was higher in large size group i.e. 1.70, followed by medium size group (1.67) and small size group (1.66).
- The benefit cost ratio of Tomato cultivation at Cost C3 was higher in large size group i.e. 1.53, followed by medium size group (1.51) and small size group (1.49).
- The benefit cost ratio of Brinjal cultivation at Cost C3 was higher in large size group i.e. 1.51, followed by medium size group (1.49) and small size group (1.46).

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