



A Study On Economic Analysis Of Major Crops In Damoh District Of Madhya Pradesh

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ABSTRACT

In this study, an attempt has been made with the specific objectives to determine the economics analysis of major crops in Madhya Pradesh. The major crop under this study was Soybean, Wheat and Gram. The study was based on primary data collected from various sample respondents. The study revealed that on an average soybean cost of production was 2606.06 Rs./ha. and Return per Rupee from soybean was 1.35. In the case of Wheat crop cost of production was 2784.37 Rs./ha and Return per Rupee was 1.94. in case of Gram, Cost of per ha production was 2784.37 Rs. And Return per Rupee was 1.34.

Keywords: cost of cultivation, Krishi Vigyan Kendra, Income measures, Profitability.

INTRODUCTION

To analyse farm profitability the focus was given to rice production because of the growing rice demand, especially with an increasing household's income in the cities, and also soil and climate are favourable for rice production in the research area. Unfortunately, in Chhattisgarh, rice production is yet to be commercialized. Several factors, including natural and non-natural, were identified to be behind the low production. Factors such as the lower yields and profitability, price variability, low level of technology transfer, use of local seeds, high fertilizer cost, and lack of modern agricultural implements are among the key challenges holding back productivity in the state. In this context, the knowledge regarding good rice varieties in terms of yield and market price is highly essential for farmers. The economic factor is one of the key factors that played an important role in affecting the selection of new technology (Carboni & Napier, 1993; Fuglie & Kascak, 2001). Jat defined that cost and return of prevalent main cropping system in study area of soybean-wheat and soybean-gram. He found that the operational cost of soybean-wheat of Rs.37753.14 per hectare followed by soybean gram Rs.33519.23. The study shows that net income in

cultivation of soybean wheat found Rs.14651.1 per hectare followed by soybean gram Rs.5258.62 per hectare. It is expected that the adoption level will increase when the adopters attained the greater profit (Jeon, Han, & Lee, 2006)

OBJECTIVE

Cost of Cultivation and Income measures of Major Crops of Madhya Pradesh.

METHODOLOGY

The study was based on primary data collected from various sample respondents. Primary data were collected using pretested interview schedule and personal interview of selected respondents by survey method. The required secondary data were collected from the annual report and other publications of Krishi Vigyan Kendra. The collected primary data pertained to the agricultural year 2018-2019. The analysis of data was done using different analytical tools, keeping in view the objective of the study.

Cost of cultivation

Cost A₁ = Value of hired human labour + Value of owned bullock labour + Value of hired bullock labour + Value of owned machinery + Hired machinery charges + Value of fertilizers Value of manures (owned and purchased) + Value of seed (farm produced and purchased) + Value of plant protection chemicals + Irrigation charges + Canal water charges + Land revenue and other taxes

Depreciation on farm implements and farm buildings + Interest on working capital

Cost A₂ = Cost A₁ + Rent paid for leased in land

Cost B₁: = Cost A₁ + Imputed rental value of owned land + interest on fixed capital

Cost B₂ = Cost B₁ + Rental value of owned land and Rent paid for leased-in land

Cost C₁ = Cost B₁ + imputed value of family labour

Cost C₂ = Cost B₂ + imputed value of family labour

Cost C₃ = Cost C₂ + 10 percent of Cost C₂ on account of a farmer's managerial function.

Cost of production: Cost of production per quintal = $\frac{\text{Cost of cultivation per hectare}}{\text{Quantity of main product per hectare}}$

Income measures

Gross income: Total value of the main product. $GI = (Q_m \times P_m)$

Where GI = Gross income,

Q_m = Quantity of main product and

P_m = Price of the main product

Returns over variable cost (RVC): $RVC = \text{Gross income} - \text{Cost A}_1$

Farm business income (FBI): $FBI = \text{Gross income} - \text{Cost A}_2$

Family labour income FLI = $\text{Gross income} - \text{Cost B}_2$

Net income (NI): $NI = \text{Gross income} - \text{Cost C}_2$

Returns to management RM = $\text{Gross income} - \text{Cost C}_3$

$$\text{Returns per rupee (RPR)} \quad \text{RPR} = \frac{\text{Gross income per hectare}}{\text{Cost } C_2 \text{ per hectare}}$$

RESULTS & DISCUSSION

Cost and profitability across different size of farms has been analyzed for major crops grown viz. soybean, wheat and gram by the respondents in the area under study.

1. Soybean

The cost incurred and profit received in cultivation of soybean has been presented in table 1. It is observed from the data that an average farmer invested Rs.37094.71 to cultivate soybean in a hectare in his farm and got a net profit of Rs.16523.41 an investment of Rs.1.00 he is able to get Rs.1.35 through cultivation of soybean. In total cost of cultivation an average farmers invested maximum in rental value of owned land (24%) followed by value of hired and owned machine labour (14%), value of manures and fertilizers (13%), value of seed (13%), value of hired human labour (12%), management cost (10%), imputed value of family labour (10%) and interest on fixed capital (1%).

It is also observed from the data that as the size of holding increases the cost of cultivation (Cost C_3) increases from Rs.35884.01 (small) to Rs.37680.61/ha (large), an average farmer found to be invested Rs.2606.06 to produce a quintal of soybean grain. The cost of production of per quintal of grain also increases with the size of farm from Rs.2377.68 (small) to Rs.2864.14/q (large) in the area under study.

An average soybean grower produced 12.94 quintal of grain in a hectare. The yield of soybean was found to be decreases with the size of farm from 13.72q/ha (small) to 11.96q/ha (large) size of farms.

Table 1: Cost concept in soybean (Rs/ha)

S.No.	Particulars	Small	Medium	Large	Overall
Cost incurred in cultivation					
1	Value of hired human labour	2245.76	3782.36	6480.21	4169.44
2	Value of hired & owned mac. labour	3996.02	4854.02	6222.40	5024.31
3	Value of seed	4583.33	4462.18	4372.71	4472.74
4	Value of manures & fertilizers	3950.56	4485.44	4978.54	4471.51
5	Depreciation	237.00	268.80	268.59	258.13
6	Irrigation charges	0.00	0.00	0.00	0.00
7	Land revenue	12.50	12.50	12.50	12.50
8	Interest on working capital @ 10%	678.29	802.80	902.59	794.45
A	Cost A ₁	16739.33	20913.16	25717.89	21123.46
	Rent paid for leased-in land	0.00	0.00	0.00	0.00
B	Cost A ₂	16739.33	20913.16	25717.89	21123.46
	Interest on fixed capital	547.74	527.33	481.02	518.70
C	Cost B ₁	17287.07	21440.49	26198.91	21642.16
	Rental value of owned land	8879.50	8507.60	7735.83	8374.31
D	Cost B ₂	26166.57	29948.09	33934.74	30016.47
	Imputed value of family labour	6455.25	4342.36	320.36	3705.99
E	Cost C ₁	23742.32	25782.85	26519.27	25348.15
F	Cost C ₂	32621.82	34290.45	34255.10	33722.46
	10% of cost C ₂ as management cost	3262.18	3429.05	3425.51	3372.25
G	Cost C ₃	35884.01	37719.50	37680.61	37094.71
H	Cost of production (Rs/q)	2377.68	2609.62	2864.14	2606.06

Table 2: Profitability in Soyabean

(Rs/ha)

S.No.	Particulars	Small	Medium	Large	Overall
Returns from the investment					
1	Quantity of main product (q/ha)	13.72	13.14	11.96	12.94
2	Value of main product	50764	48618	44252	47878
3	Quantity of by product (q/ha)	17.95	17.34	15.45	16.91
4	Value of by product	2513.00	2427.60	2163.00	2367.86
5	Gross income	53277.00	51045.60	46415.00	50245.87
6	Returns over variable cost	36537.67	30132.44	20697.11	29122.4
7	Farm business income	36537.67	30132.44	20697.11	29122.4
8	Family labour income	27110.43	21097.51	12480.26	20229.4
9	Net income	20655.18	16755.15	12159.90	16523.41
10	Returns per Rupee	1.48	1.35	1.23	1.35

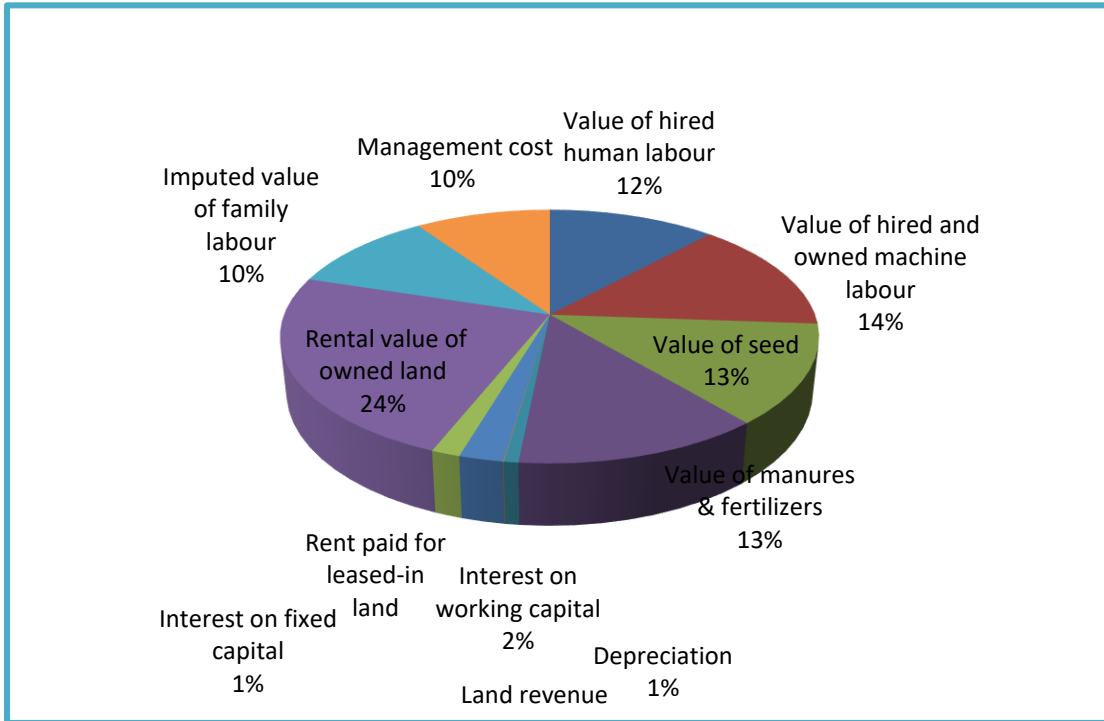


Fig1: Percentages share of different components of cost of cultivation in soybean on an average size of farm.

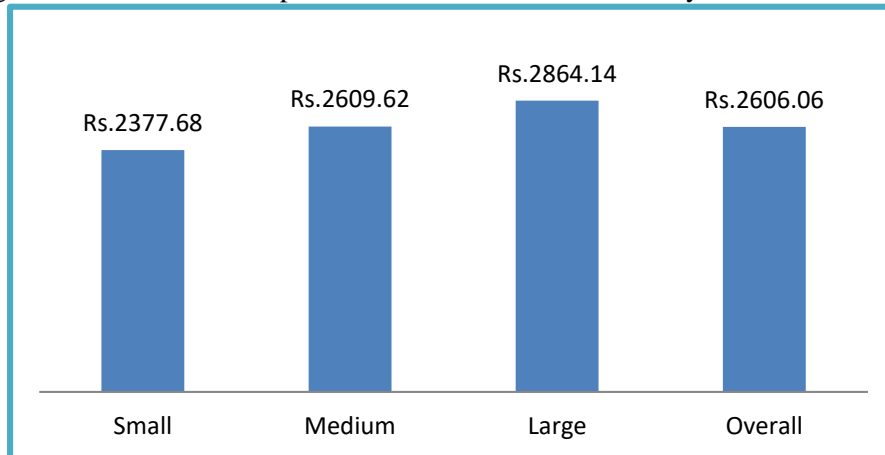


Fig.2: Cost of production of soybean (Rs./q)

2. Wheat

Wheat was found to be a major *Rabi* crop grown by the respondents. The cost incurred and profit received in cultivation of wheat has been presented in table 3.

Table 3: Cost concept & profitability in wheat (Rs/ha)

S.No.	Particulars	Small	Medium	Large	Overall
Cost incurred in cultivation					
1	Value of hired human labour	1865.44	2485.45	3250.85	2533.91
2	Value of hired and owned mac. labour	6084.55	6825.46	8509.10	7139.70
3	Value of seed	3145.14	3190.47	3230.41	3188.67
4	Value of manures & fertilizers	3380.45	3440.65	3666.15	3495.75
5	Depreciation	215.55	102.82	98.65	139.01
6	Irrigation charges	3845.65	3985.41	4127.00	3986.02
7	Land revenue	12.50	12.50	12.50	12.50
8	Interest on working capital @ 10%	1050.99	1130.10	1178.20	1119.76

A	Cost A ₁	19600.26	21172.86	24072.86	21615.33
	Rent paid for leased-in land	0.00	0.00	0.00	0.00
B	Cost A ₂	19600.26	21172.86	24072.86	21615.33
	Interest on fixed capital	853.65	826.44	786.48	822.19
C	Cost B ₁	20453.92	21999.30	24859.34	22437.52
	Rental value of owned land	13999.53	13658.75	12996.88	13551.72
D	Cost B ₂	34453.45	35658.05	37856.22	35989.24
	Imputed value of family labour	2698.48	2674.52	780.46	2051.15
E	Cost C ₁	23152.40	24673.82	25639.80	24488.67
F	Cost C ₂	37151.93	38332.57	38636.68	38040.39
	10% of cost C ₂ as management cost	3715.19	3833.26	3863.67	3804.04
G	Cost C ₃	40867.12	42165.83	42500.35	41844.43
H	Cost of production (Rs/ha)	1013.97	1057.74	1104.54	1058.75

Table 4: Return from Wheat (Rs/ha)

S.No.	Particulars	Small	Medium	Large	Overall
Returns from the investment					
1	Quantity of main product (q/ha)	36.64	36.24	34.98	35.95
2	Value of main product	73280	72480	69960	71906.7
3	Quantity of by product (q/ha)	47.63	42.1	35.65	41.79
4	Value of by product	10717.2	9472.5	8021.25	9403.65
5	Gross income	83997.2	81952.5	77981.3	81310.3
6	Returns over variable cost	64396.9	60779.6	53908.4	59695
7	Farm business income	64396.9	60779.6	53908.4	59695
8	Family labour income	49543.8	46294.4	40125	45321.1
9	Net income	46845.3	43619.9	39344.6	43269.9
10	Returns per Rupee	2.05	1.94	1.83	1.94

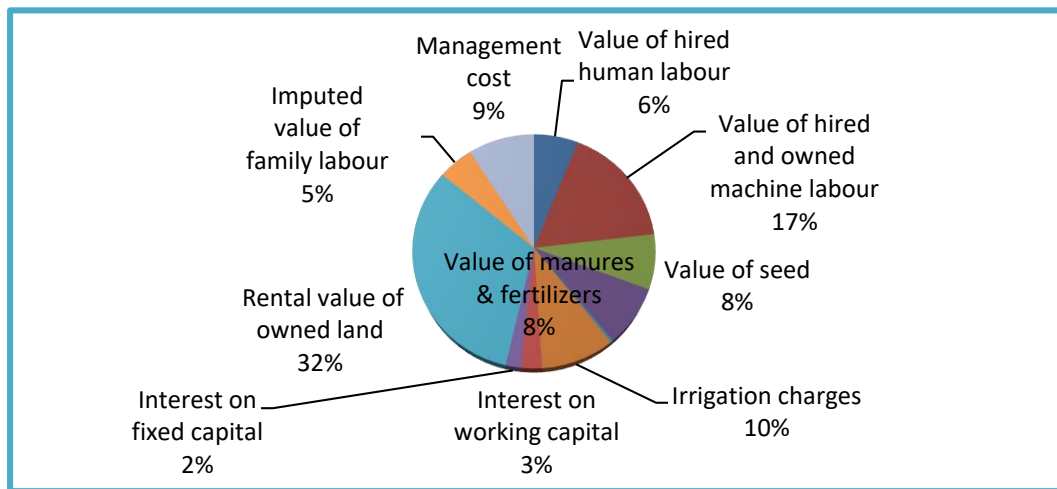


Fig.3: Percentage share of different components of cost of cultivation in wheat on an average size of farm.

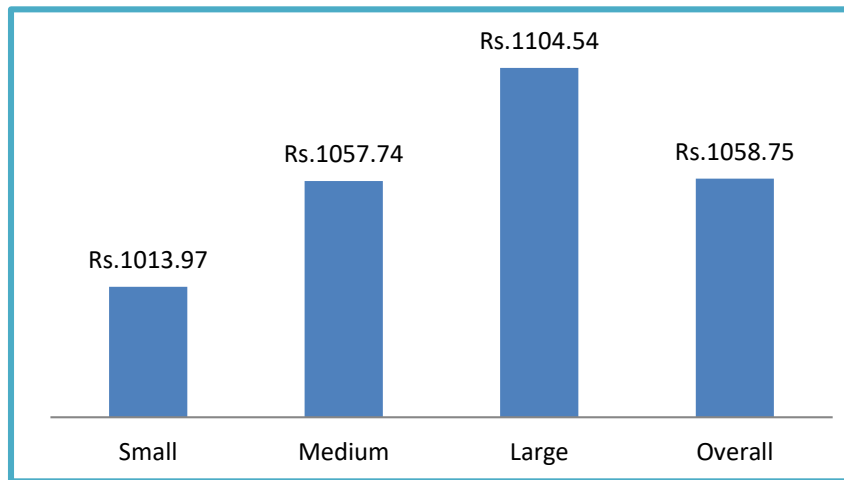


Fig.4: Cost of production of wheat (Rs. /q)

It is observed from the data that an average farmer invested Rs.41844.43/ha to cultivate wheat in his farm and got a net profit of Rs.43269.92, an investment of Rs.1.00 he able to got Rs.1.94 through cultivation of wheat. In total cost of cultivation an average farmers invested maximum in rental value of owned land (32%) followed by value of hired and owned machine labour (17%), value of manures and fertilizers (8%), value of seed (8%), value of hired human labour (6%), management cost (9%), imputed value of family labour (5%) interest on fixed capital (2%), interest on working capital (3%) and irrigation charges (10%).

It is also observed from the data that as the size of holding increases the cost of cultivation (Cost C₃) increases from small Rs.40867.12 to large Rs.42500.35/ha, an average farmer found to be invested Rs.1058.75 to produce a quintal of wheat grain. The cost of production of per quintal of grain also increases with the size of farm from Rs.1013.97 to Rs.1104.53/q. Fig.4.6,an average wheat grower produced 35.95 quintal of grain in a hectare .The yield of wheat was found to be decreases with the size of farm increases from 36.64q/ha (small) to 34.98q/ha (large) size of farm.

3 Gram

Gram was found to be a major *Rabi* crop grown by the respondents. The cost incurred and profit received in cultivation of gram has been presented in table 4.8.It is observed from the data that an average farmer invested Rs.40153.34/ha to cultivate gram in his farm and got a net profit of Rs.17170.53 an investment of Rs.1.00 he able to got Rs.1.34through cultivation of gram. In total cost of cultivation an average farmers invested maximum in rental value of owned land (22%) followed by value of hired and owned machine labour (18%), value of manures and fertilizers (9%), value of seed (10%), value of hired human labour (12%), management cost (9%), imputed value of family labour (9%) interest on fixed capital (1%), interest on working capital (3%), irrigation charges (6%) and depreciation (1%).

Table 5: Cost concept in gram

(Rs/ha)

S.No.	Particulars	Small	Medium	Large	Overall
Cost incurred in cultivation					
1	Value of hired human labour	2088.65	5057.36	7219.54	4788.52
2	Value of hired and owned mac labour	3395.65	9119.79	8973.74	7163.06
3	Value of seed	3652.57	3815.62	3977.21	3815.13
4	Value of manures & fertilizers	3503.37	3515.34	3837.67	3618.80
5	Depreciation	237.00	220.54	204.35	220.63
6	Irrigation charges	2451.36	2550.66	2540.14	2514.05
7	Land revenue	12.50	12.50	12.50	12.50
8	Interest on working capital @ 10%	1084.45	1393.92	1346.44	1274.93
A	Cost A ₁	16425.55	25685.72	28111.59	23407.62
	Rent paid for leased-in land	0.00	0.00	0.00	0.00
B	Cost A ₂	16425.55	25685.72	28111.59	23407.62
	Interest on fixed capital	551.58	555.80	544.79	550.72
C	Cost B ₁	16977.13	26241.53	28656.37	23958.34
	Rental value of owned land	8943.50	9030.33	8862.95	8945.59
D	Cost B ₂	25920.63	35271.86	37519.32	32903.94
	Imputed value of family labour	6597.33	3819.55	380.41	3599.10
E	Cost C ₁	23574.46	30061.08	29036.78	27557.44
F	Cost C ₂	32517.96	39091.41	37899.73	36503.03
	10% of cost C ₂ as management cost	3251.80	3909.14	3789.97	3650.30
G	Cost C ₃	35769.75	43000.55	41689.71	40153.34
H	Cost of production (Rs/ha)	2459.75	2950.30	2947.10	2784.37

Table 6: Returns from Gram

(Rs/ha)

S.No.	Particulars	Small	Medium	Large	Overall
Returns from the investment					
1	Quantity of main product (q/ha)	13.22	13.25	12.86	13.11
2	Value of main product	50236.00	50986.00	50089.70	50437.23
3	Quantity of by product (q/ha)	17.14	15.98	15.44	16.19
4	Value of by product	3425.00	3196.00	3088.00	3236.33
5	Gross income	53661.00	54182.00	53177.70	53673.57
6	Returns over variable cost	37235.45	28496.28	25066.11	30265.95
7	Farm business income	37235.45	28496.28	25066.11	30265.95
8	Family labour income	27740.37	18910.14	15658.38	20769.63
9	Net income	21143.04	15090.59	15277.97	17170.53
10	Returns per Rupee	1.50	1.26	1.27	1.34

It is also observed from the data that middle farmers have been incurred more cost of cultivation cost C₃ 43000.55 as compared to 35769.75 (small) and 41689.71 (large) farmers, an average farmer found to be invested Rs.2784.37 to produce a quintal of gram. The cost of production of per quintal of grain was found more by the medium farm Rs.2950.30 as compared to small Rs.2459.75 and large farm Rs.2947.10. Fig.4.8, an average gram grower produced 13.11 quintal of grain in a hectare. The yield of gram was found to be more in the medium farm 13.25q/ha as compared to small 13.22q/ha and large farm 12.86q/ha.

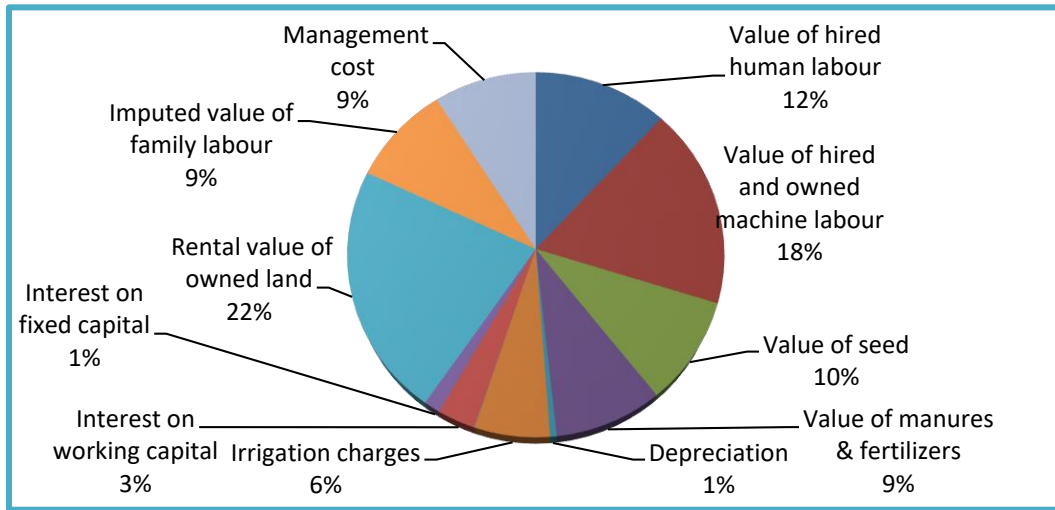


Fig.5: Percentage share of different components of cost of cultivation in gram on an average size of farm.

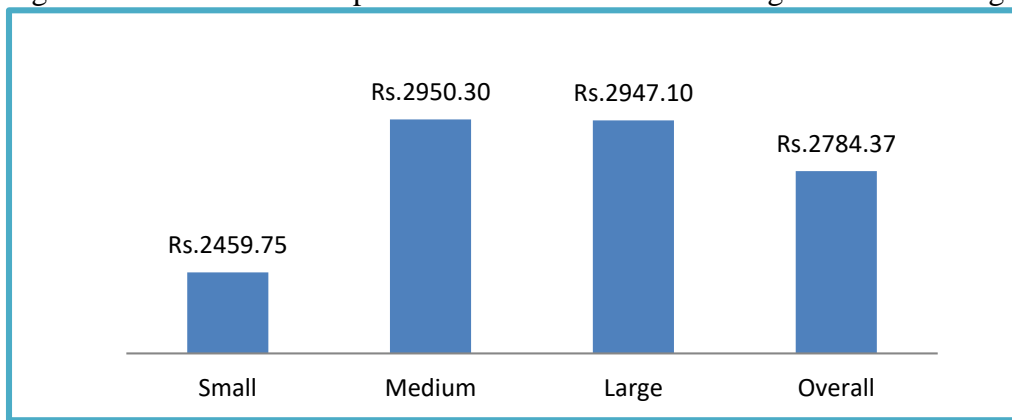


Fig.6: Cost of production in gram (Rs. /q)

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