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Contribution of Rajiv Gandhi Kisan Nyay Yojana on cost of cultivation

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Abstract
RGKNY is the agriculture input support scheme launched by the state government of Chhattisgarh towards adequate investment in agriculture and relief in input cost which enables them to use high yielding variety seeds and modern technologies that enhance the productivity of agriculture. The study analyzed that by Rajiv Gandhi Kisan Nyay Yojana scheme contribution on variable cost in the year 2021-22 was 72.86 percent to marginal, 68.74 percent to small, 62.69 percent to medium, 58.84 percent to large farmers. Contribution on fixed cost was 99.85 percent to marginal, 99.58 to small, 99.32 percent to medium and 98.80 percent to large farmers. Contribution on paid out cost was 83.95 percent for marginal, 78.25 percent for small, 70.08 percent for medium and 64.83 percent for large farmers. Contribution on total cost was 42.12 percent for marginal, 40.67 percent for small, 38.43 percent for medium and 36.88 percent for large farmers. The overall contribution on variable cost, fixed cost, paid out cost and total cost was 65.34, 99.50, 73.55, 39.44 percent.

Keywords: RGKNY scheme, input support, variable cost, fixed cost, paid out cost, total cost

Introduction
Rajiv Gandhi Kisan Nyay Yojana was started by the Chhattisgarh government led by Bhupesh Baghel with the objective of encouraging the farmers of Chhattisgarh for crop production and increasing the agricultural area. This is one of its kind big scheme for the farmers in the country. Motto of the scheme is "Kisan ki Unnati Rajya ki Pragati". In the state budget presented by the Chhattisgarh Government, a provision of Rs 5700 crore was made for the welfare of farmers through which Rajiv Gandhi Kisan Nyay Yojana was launched on 21 May 2020, the martyrdom day of former Prime Minister Rajiv Gandhi. In Chhattisgarh, the total cultivable land area is 46.77 lakh hectares. 70% population of the state is engaged in agriculture and around 37.46 Lakh are farm families. The objective of this scheme is to encourage crop production and increase agricultural acreage. Under this scheme the amount as input subsidy transferred directly into the bank accounts of beneficiary farmers in the state.

Methodology
For the study Raipur division of Chhattisgarh was selected purposively because highest number of beneficiaries belongs to this division. Two districts of this division and two blocks from each district were selected. 351 samples of household farmers were selected for the study.

Method of analysis of data and analytical procedure
By seeing the behavior of the collected data, following economic and statistical tools was used to analyze the data in order to achieve the objectives of study. Descriptive analysis, Tabular Methods, Graphical Methods, independent and dependent variable.

Cost of cultivation: CACP Cost Concept: for Cost-A1, A2, B1, B2, C1, C2 and C3

$$\text{Input-output ratio} = \frac{\text{Gross return}}{\text{Total Input cost}}$$

Income Analysis
Gross income = Main product income + By product income
Net income = Gross income-Cost C2
Farm business income = Gross income-Cost A1

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Family labour income = Gross income-Cost B1

Result and Discussion
Contribution of Rajiv Gandhi Kisan Nyay Yojana on cost

of cultivation after implementation of the scheme
For Economic analysis of paddy crop partition of cost of cultivation first part for variable cost and second part for fixed cost.
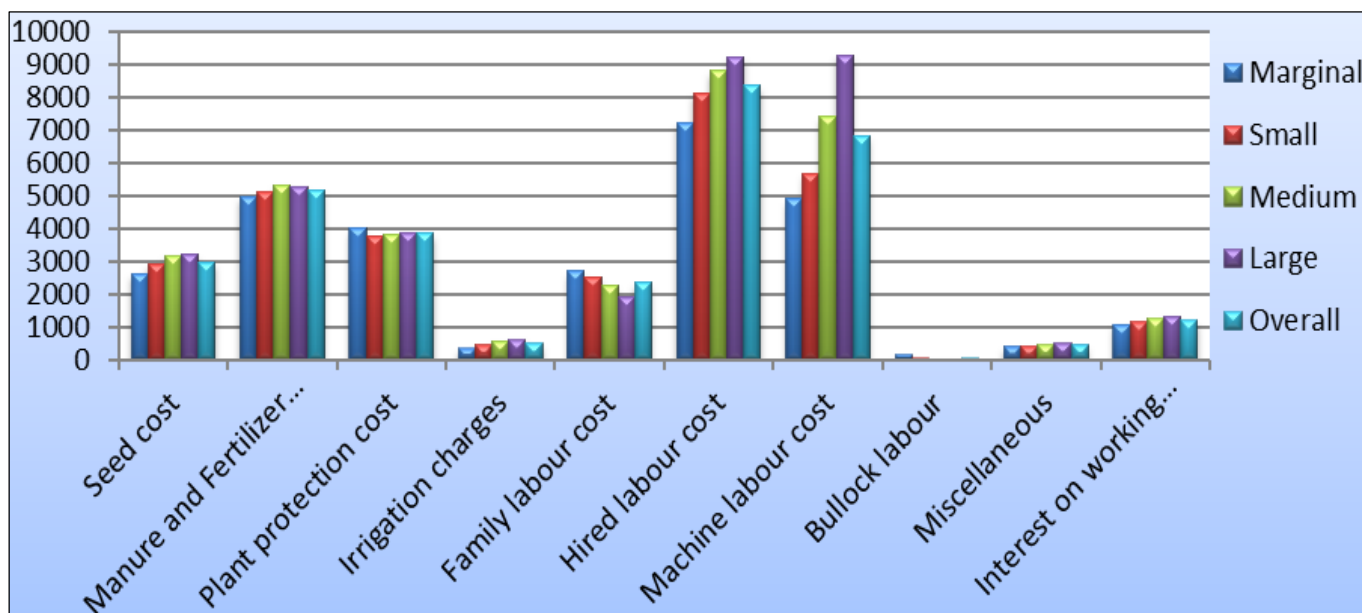
Table 1: Total variable cost incurred in different size of farm households (Rs./ha.)

S. No.	List of total costs	Marginal	Small	Medium	Large	Overall
1.	Seed cost	2639.2	2923.52	3189.27	3195.17	2986.79
		(5.35)	(5.73)	(5.90)	(5.67)	(5.67)
2.	Manure and Fertilizer cost	4989.25	5119.06	5323.51	5281.93	5178.43
		(10.12)	(10.03)	(9.86)	(9.38)	(9.84)
3.	Plant protection cost	3997.8	3746.39	3796.25	3845.79	3846.55
		(8.11)	(7.34)	(7.03)	(6.83)	(7.31)
4	Irrigation charges	347.58	446.88	585.52	621.12	500.27
		(0.70)	(0.87)	(1.08)	(1.10)	(0.95)
	Total material cost	11973.83	12235.85	12894.55	12944.01	12512.06
		(24.31)	(23.98)	(23.88)	(23.01)	(23.78)
5.	Family labour cost	2696.55	2538.69	2248.94	1937.60	2355.44
		(5.47)	(4.97)	(4.16)	(3.44)	(4.47)
6	Hired labour cost	7238.64	8135.34	8812.86	9243.76	8357.65
		(14.69)	(15.94)	(16.32)	(16.43)	(15.88)
	Total human labour	9935.19	10674.03	11061.80	11181.36	10713.10
		(20.17)	(20.92)	(20.49)	(19.87)	(20.36)
7	Machine labour cost	4920.53	5677.77	7413.76	9294.70	6826.69
		(9.99)	(11.13)	(13.73)	(16.52)	(12.97)
8	Bullock labour	161.24	19.14	0	0	45.095
		(0.32)	(0.03)	(0.00)	(0.00)	(0.08)
9	Miscellaneous	404.86	428.81	470.55	501.30	451.38
		(0.82)	(0.84)	(0.87)	(0.89)	(0.85)
	Interest on working capital (4% of total cost)	1079.63	1143.50	1254.80	1336.80	1203.68
		(2.19)	(2.24)	(2.32)	(2.37)	(2.28)
	Total variable cost	28475.29	30179.12	33095.47	35258.19	31752.02
		(57.81)	(59.15)	(61.30)	(62.67)	(60.36)

Note: Figures in parentheses indicate percentages of the total cost.

Fig 1: Total variable cost of paddy of different size of farm households

Table 2: Total fixed cost incurred in different size of farm households (Rs./ha.)

| S. No.	Particulars	Marginal	Small	Medium	Large	Overall
1	Depreciation (no junk value)	350	400	450	550	412.5
		(0.71)	(0.78)	(0.83)	(0.97)	(0.78)
2	Land revenue	15	15	15	15	15
		(0.03)	(0.02)	(0.02)	(0.02)	(0.02)
3	Rental value of owned land	18525	18525	18525	18525	18525
		(37.61)	(36.31)	(34.31)	(32.92)	(35.21)
4	Interest on fixed capital (10% of fixed capital)	1889	1894	1899	1909	1897.75
		(3.83)	(3.71)	(3.51)	(3.39)	(3.60)
	Total fixed cost	20779	20834	20889	20999	20850.25
		(42.18)	(40.84)	(38.69)	(37.32)	(39.63)
	Total cost (TVC + TFC)	49254.29	51013.12	53984.47	56257.19	52602.27
		(100)	(100)	(100)	(100)	(100)

Note: Figures in parentheses indicate percentages of the total cost.

Cost of cultivation of Paddy: From the table, it was observed that the overall per hectare cost-A1, Cost-A2, Cost-B1, Cost-B2, Cost C1, Cost-C2 and Cost-C3 were Rs. 29824.07, Rs. 29824.07, Rs. 31721.82, Rs. 50246.82, Rs. 34077.27, Rs. 52602.27 and Rs. 57862.49 per ha., respectively at the sampled farms.

Table 3: Cost of cultivation incurred in different size of farm households (Rs./ha.)

S. No.	Different costs	Marginal	Small	Medium	Large	Overall
1	Cost A1	26143.73	28055.42	31311.53	33885.59	29824.07
2	Cost A2 (A1+Rent paid for Leased in Land)	26143.73	28055.42	31311.53	33885.59	29824.07
3	Cost B1(Cost A2+ interest on fixed capital	28032.73	29949.42	33210.53	35794.59	31721.82
4	Cost B2 (Cost B1+Rental value of owned land)	46557.73	48474.42	51735.53	54319.59	50246.82
5	Cost C1 (Cost B1+Family labour cost)	30729.29	32488.12	35459.47	37732.19	34077.27
6	Cost C2 (Cost B2+ Family labour cost)	49254.29	51013.12	53984.47	56257.19	52602.27
7	Cost C3 (Cost C2+10% of cost C2)	54179.72	56114.43	59382.92	61882.91	57862.49
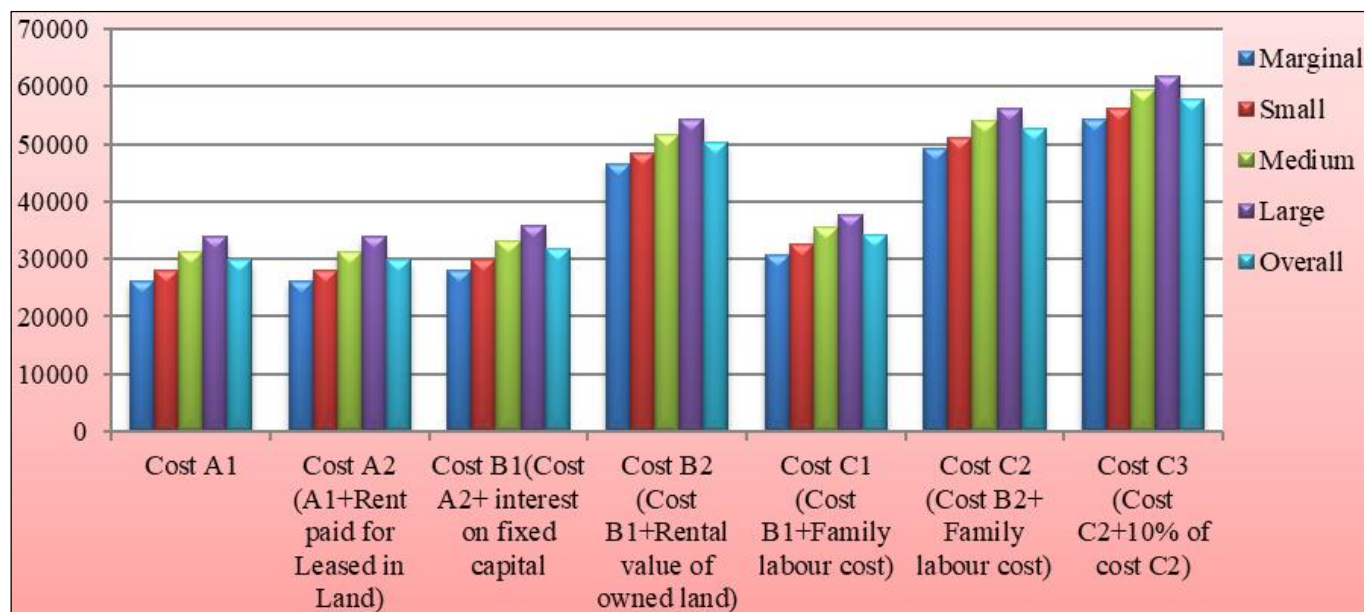
Fig 2: Cost of cultivation of paddy of different size of farm households

Table 4 indicates: grain yield increases with farm size on an average overall yield 45.32 qt. per ha. Price of grain sold Rs. 2500.00 per qt. and gross return observed Rs. 111108.72 per ha. Which was maximum for large farmers Rs. 116348.52 per ha. Net return observed Rs. 58506.45 per ha. maximum for large farm Rs. 60091.32 per ha. and minimum for marginal farm Rs. 56912.92 per ha. because fixed cost maximum for large farms. On an average overall Input: Output and Benefit: Cost ratio was observed 1: 2.11 and 1:1.11, respectively.

Table 4: Yield, returns, cost of production per quintal and Input-Output ratio of paddy (Rs./ha.)

| S. No.	Particulars	Marginal	Small	Medium	Large	Overall
1	Yield/ha	42.6322	44.3365	46.0161	48.3132	45.3245
2	Price of grain sold (Rs./qt.) at MSP	2500	2500	2500	2500	2500
3	Price of grain sold (Rs./qt.) at Mandi	1600	1600	1600	1600	1600
4	value of grain at PACS	92625	92625	92625	92625	92625
5	value of grain at mandi price	8931.52	11658.4	14345.76	18021.12	13239.2
6	Total value of grain	101556.52	104283.4	106970.76	110646.12	105864.2
7	Straw/husk	51.23	57.11	61.39	63.36	58.2725
8	Price of straw/husk sold (Rs./qt.)	90	90	90	90	90
9	Value of straw yield	4610.7	5139.9	5525.1	5702.4	5244.525
10	Gross return	106167.22	109423.3	112495.86	116348.52	111108.72
11	Cost of cultivation(C2)	49254.29	51013.12	53984.47	56257.19	52602.271
12	Cost of Production	1155.33	1150.58	1173.16	1164.42	1160.57
13	Net return	56912.92	58410.17	58511.38	60091.32	58506.45
14	Input-Output	2.15	2.14	2.08	2.06	2.11
15	Cost-Benefit ratio	1.15	1.14	1.08	1.06	1.11

Table 5 indicates: farm profits of paddy crop family labour income, farm business income and farm investment income which was observed on an average Rs. 79386.90, Rs. 81284.65 and Rs. 78929.20 per ha., respectively.

Table 5: Measures of farm profits of paddy crop (Rs./ha.)

S. No.	Particulars	Marginal	Small	Medium	Large	Overall
1	Total cost (Cost C2)	49254.29	51013.12	53984.47	56257.19	52602.27
2	Net Returns	56912.92	58410.17	58511.38	60091.32	58506.45
3	Family Labour income (Gross income- Cost B)	78134.48	79473.87	79285.32	80553.92	79386.90
4	Farm Business income	80023.48	81367.87	81184.32	82462.92	81284.65
5	Farm Investment income	77326.92	78829.17	78935.38	80525.32	78929.20
6	Gross returns	106167.22	109423.3	112495.86	116348.52	111108.72

Table 6: Income over different cost of paddy (per ha.)

S. No.	Income over different costs	Marginal	Small	Medium	Large	Overall
1	Income over A1	80023.48	81367.87	81184.32	82462.92	81284.65
2	Income over A2	80023.48	81367.87	81184.32	82462.92	81284.65
3	Income over B1	78134.48	79473.87	79285.32	80553.92	79386.90
4	Income over B2	59609.48	60948.87	60760.32	62028.92	60861.90
5	Income over C1	75437.92	76935.17	77036.38	78616.32	77031.45
6	Income over C2	56912.92	58410.17	58511.38	60091.32	58506.45
7	Income over C3	51987.49	53308.86	53112.93	54465.60	53246.22
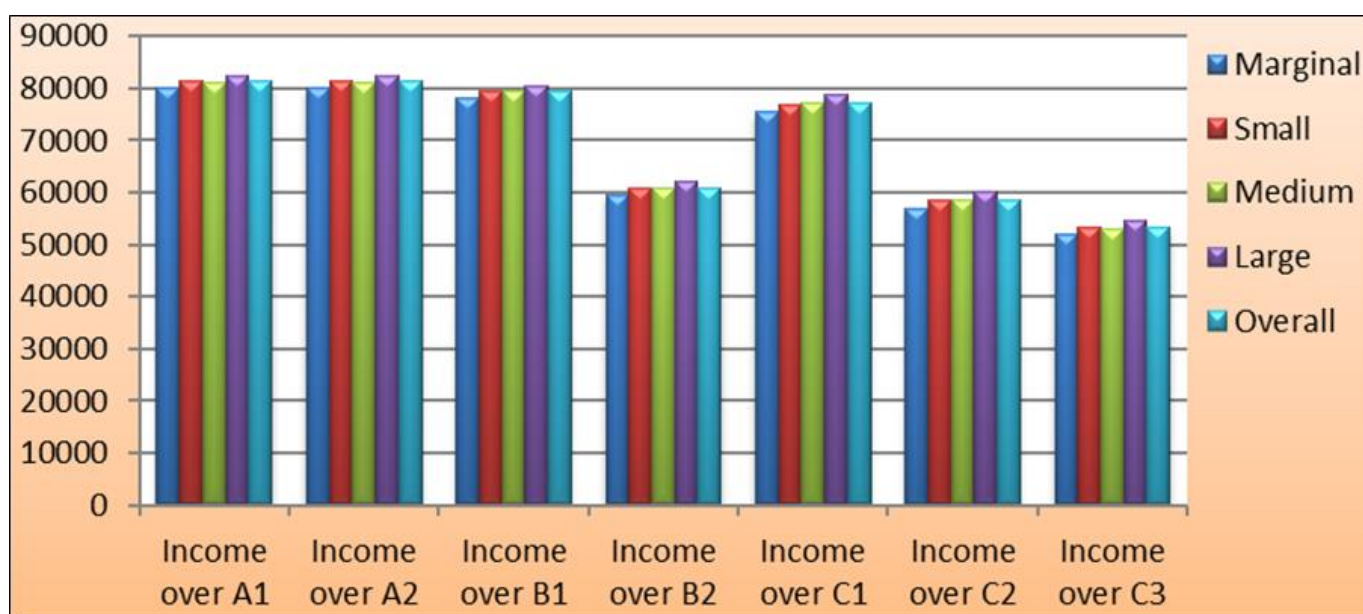
Fig 3: Income over different cost of paddy

Contribution of Rajiv Gandhi Kisan Nyay Yojana on farmers cost of cultivation

From RGKNY farmers got benefit of the difference of the support price of paddy yields under this scheme. The income of farmers will rise as a result of the Chhattisgarh Agricultural Development Fund. By this fund farmers will capable of producing high quality paddy. This support contributes to cover different costs of cultivation. Per quintal difference amount is Rs.560 in the year 2021-22. Per hectare installment amount is Rs. 20748 which was the difference amount of paddy support price. Total quantity of produced paddy per hectare is above the purchasing limit of PACS mandis which was fixed by state government, the remaining differential quantity of paddy was sold to the mandis where farmers receive low price as compared to PACS.

Table 7: Installment amount (Difference amount) given under Rajiv Gandhi Kisan Nyay Yojana from Kharif Year 2019-20 to Year 2021-22. (per quintal)

Year	MSP	State govt. price	Difference amount
2019-20	1815	2500	685
2020-21	1868	2500	632
2021-22	1940	2500	560

Table 8: Installment amount received by farmer's under RGKNY (Rs. per ha.)

Category of Farmers	Production	Value of grain under RGKNY	Value of grain at mandi price	Value of grain under MSP (2021-22)	Total value of grain	Installment amount
Marginal	42.6322	92625	8931.52	71877	101556.52	20748
Small	44.3365	92625	11658.4	71877	104283.4	20748
Medium	46.0161	92625	14345.76	71877	106970.76	20748
Large	48.3132	92625	18021.12	71877	110646.12	20748
Overall	45.3245	92625	13239.2	71877	105864.2	20748
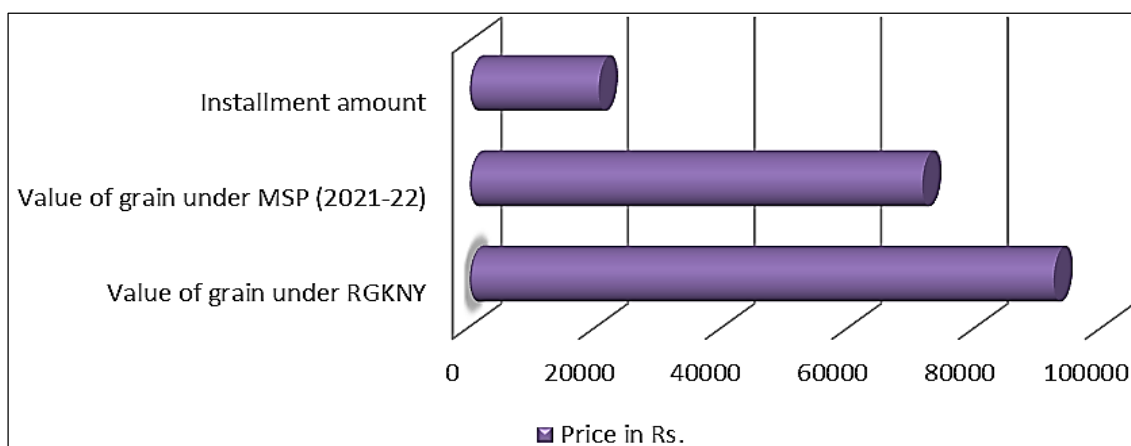
Fig 4: Installment amount received by farmer's under Rajiv Gandhi Kisan Nyay Yojana

Table 9: Contribution of RGKNY on farmers cost of cultivation for Kharif Year 2021-22

Different costs	Marginal		Small		Medium		Large		Overall	
	(Cost-Installment amount)	Contribution of RGKNY	(Cost-Installment amount)	Contribution of RGKNY	(Cost-Installment amount)	Contribution of RGKNY	(Cost-Installment amount)	Contribution of RGKNY	(Cost-Installment amount)	Contribution of RGKNY
Cost A1	5395.73	20748	7307.42	20748	10563.53	20748	13137.59	20748	9076.07	20748
	(20.63)	(79.36)	(26.04)	(73.95)	(33.73)	(66.26)	(38.77)	(61.22)	(30.43)	(69.56)
Cost A2	5395.73	20748	7307.42	20748	10563.53	20748	13137.59	20748	9076.07	20748
	(20.63)	(79.36)	(26.04)	(73.95)	(33.73)	(66.26)	(38.77)	(61.22)	(30.43)	(69.56)
Cost B1	7284.73	20748	9201.42	20748	12462.53	20748	15046.59	20748	10973.8	20748
	(25.98)	(74.01)	(30.72)	(69.27)	(37.52)	(62.47)	(42.03)	(57.96)	(34.59)	(65.40)
Cost B2	25809.73	20748	27726.42	20748	30987.53	20748	33571.59	20748	29498.82	20748
	(55.43)	(44.56)	(57.19)	(42.80)	(59.89)	(40.10)	(61.80)	(38.19)	(58.70)	(41.29)
Cost C1	9981.29	20748	11740.12	20748	14711.47	20748	16984.19	20748	13329.27	20748
	(32.48)	(67.51)	(36.13)	(63.86)	(41.48)	(58.51)	(45.01)	(54.98)	(39.11)	(60.88)
Cost C2	28506.29	20748	30265.12	20748	33236.47	20748	35509.19	20748	31854.27	20748
	(57.87)	(42.12)	(59.32)	(40.67)	(61.56)	(38.43)	(63.11)	(36.88)	(60.55)	(39.44)
Cost C3	33431.72	20748	35366.43	20748	38634.92	20748	41134.91	20748	37114.49	20748
	(61.70)	(38.29)	(63.02)	(36.97)	(65.06)	(34.93)	(66.47)	(33.59)	(64.14)	(35.85)

Note: Figures in parentheses indicate percentages of the cost A1, cost A2, cost B1, cost B2, cost C1, cost C2, and cost C3.

Table 10 represents the contribution on different costs of Rajiv Gandhi Kisan Nyay Yojana. It contributes overall 65 percent of variable cost and 99.50 percent contributes to cover fixed cost and it covers 73.55 percent of paid out cost. Contribution of RGKNY on total cost was Rs. 20748 which was 39.44 percent.
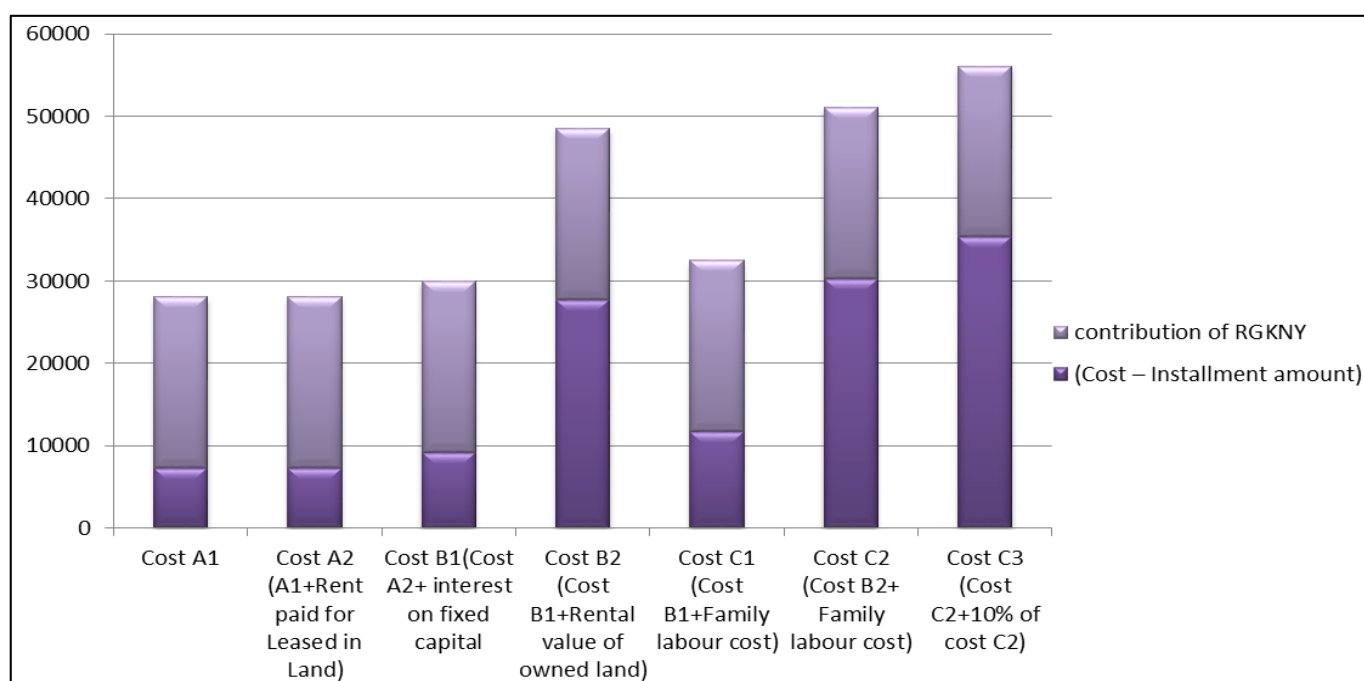
Table 10: Contribution of Rajiv Gandhi Kisan Nyay Yojana on farmers variable cost, fixed cost, paid out cost and total cost for Kharif Year 2021-22

| Particulars	Marginal	Small	Medium	Large	Overall
Variable cost	28475.29	30179.12	33095.48	35258.19	31752.02
Contribution of RGKNY on Variable Cost	20748	20748	20748	20748	20748
	(72.86)	(68.74)	(62.69)	(58.84)	(65.34)
Fixed cost	20779	20834	20889	20999	20850.25
Contribution of RGKNY on fixed cost	20748	20748	20748	20748	20748
	(99.85)	(99.58)	(99.32)	(98.80)	(99.50)
Paid out cost	24714.11	26511.92	29606.73	31998.79	28207.88
Contribution of RGKNY on Paid out cost	20748	20748	20748	20748	20748
	(83.95)	(78.25)	(70.08)	(64.83)	(73.55)
Total cost	49254.29	51013.12	53984.48	56257.19	52602.27
Contribution of RGKNY on total cost	20748	20748	20748	20748	20748
	(42.12)	(40.67)	(38.43)	(36.88)	(39.44)
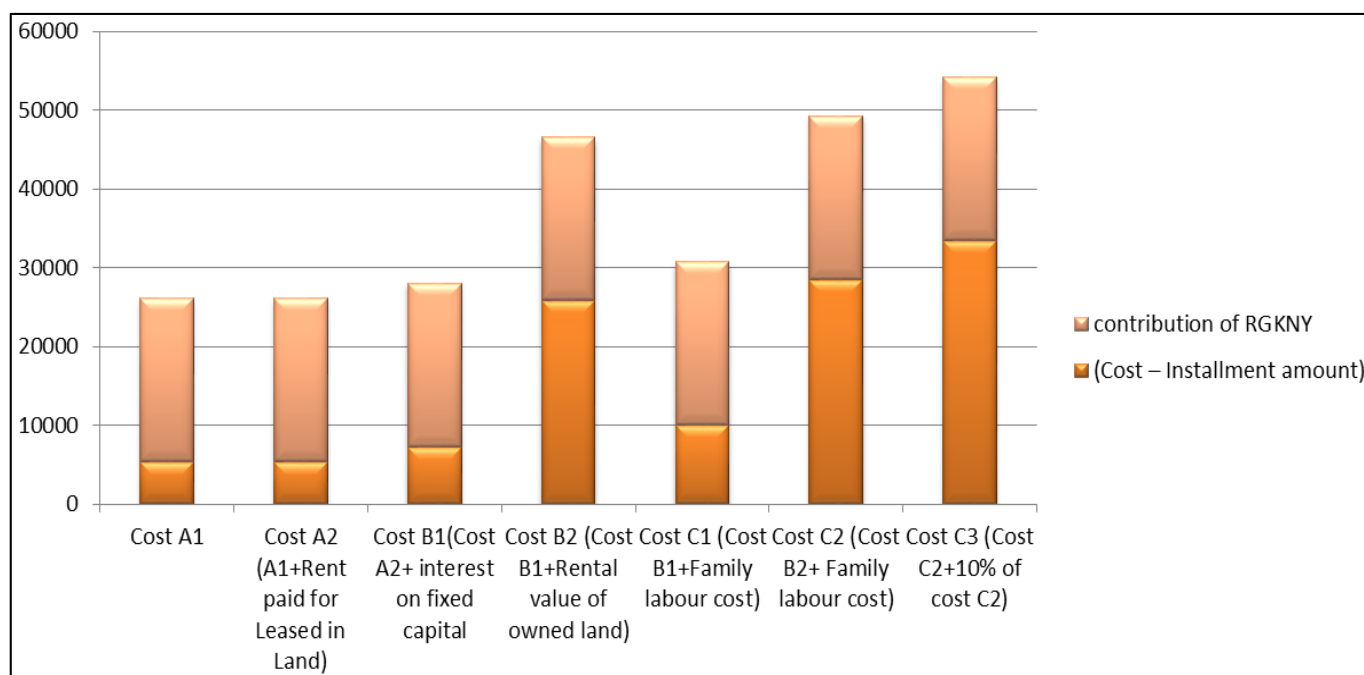
Fig 5: Contribution of Rajiv Gandhi Kisan Nyay Yojana to Marginal farmers
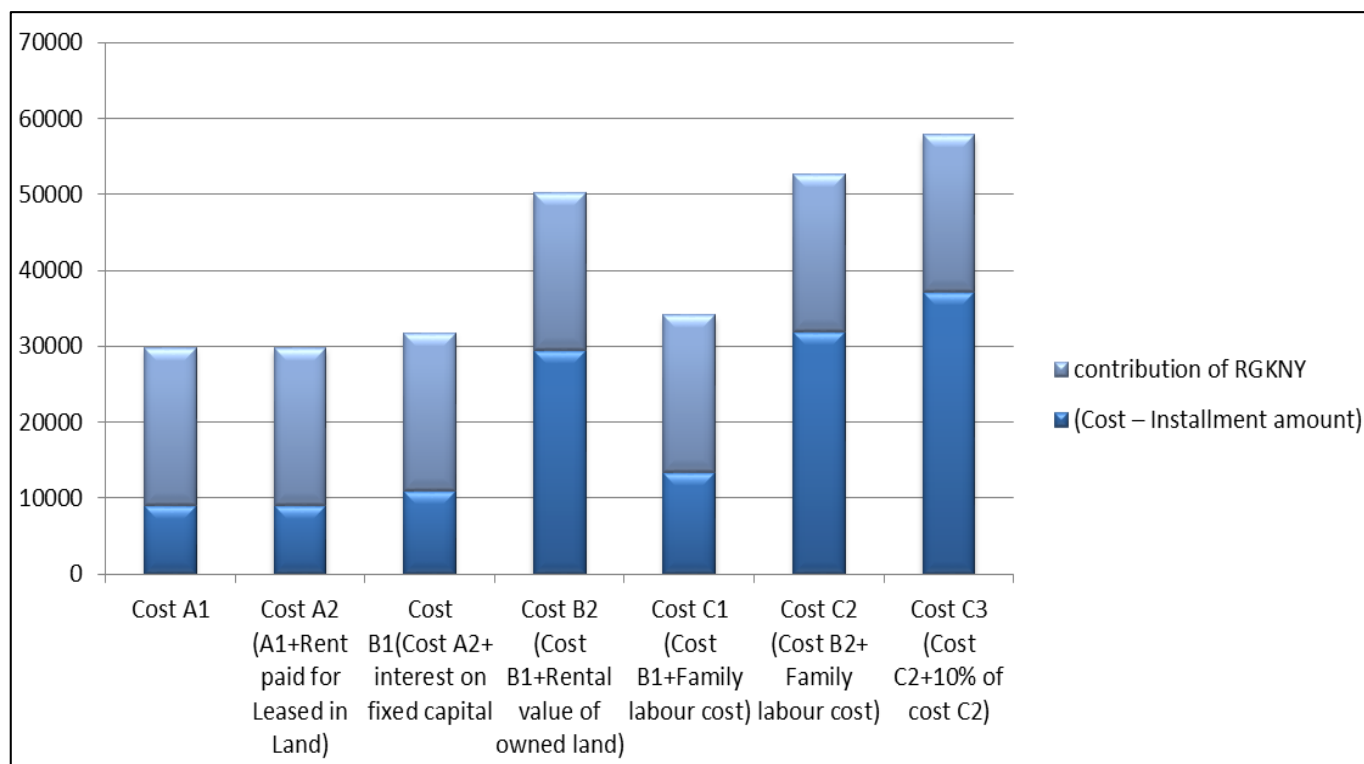

Fig 6: Contribution of Rajiv Gandhi Kisan Nyay Yojana to Small farmers
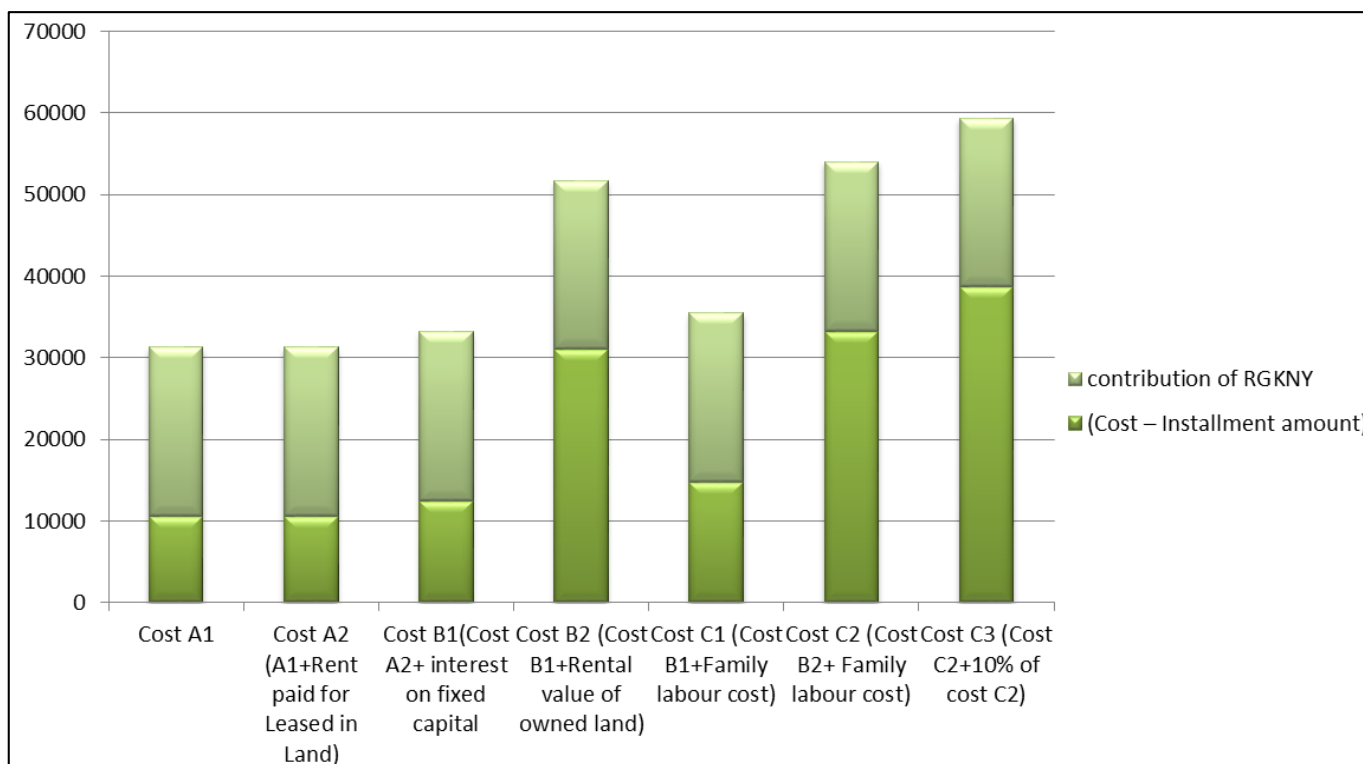
Fig 7: Contribution of Rajiv Gandhi Kisan Nyay Yojana to Medium farmers
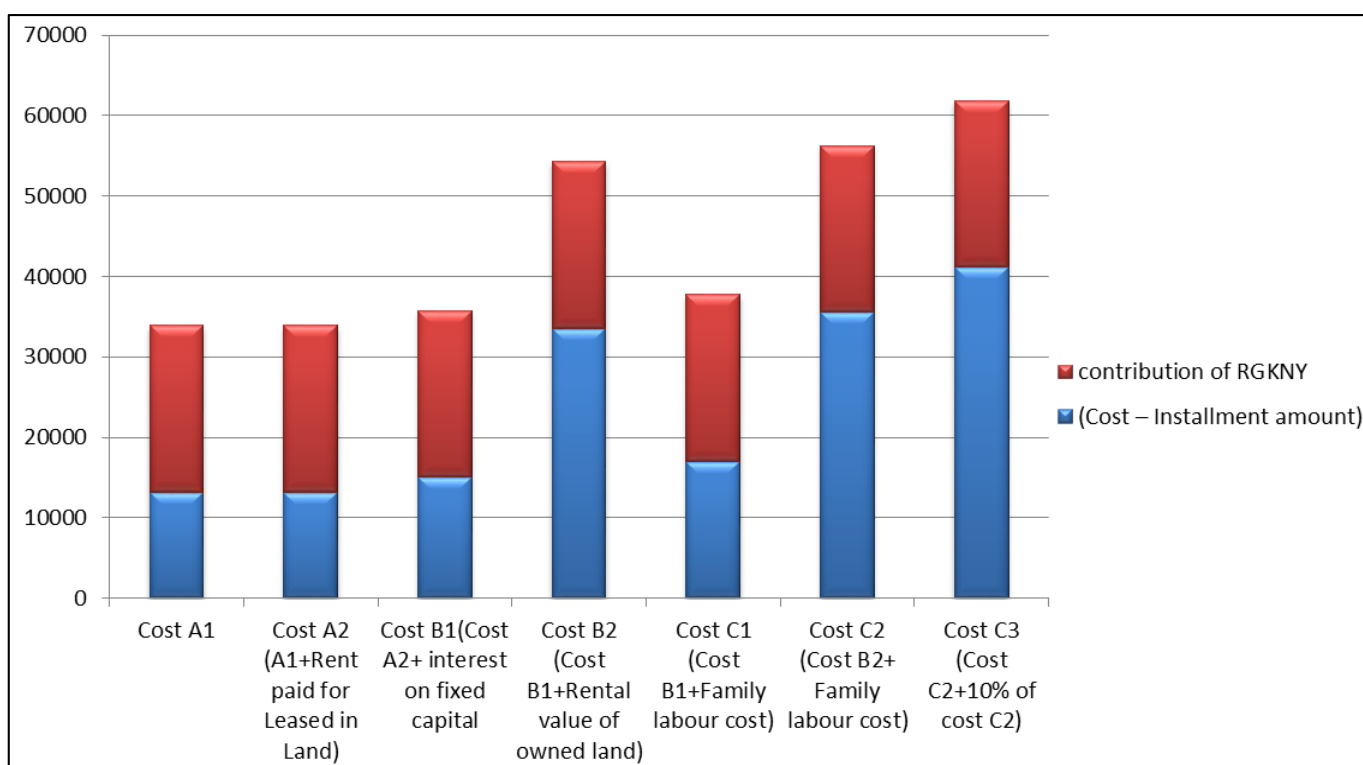
Fig 8: Contribution of Rajiv Gandhi Kisan Nyay Yojana to Large farmers

Fig 9: Contribution of Rajiv Gandhi Kisan Nyay Yojana to overall farmers group

Conclusion

The main objective of this study is to analyze contribution of RGKNY on cost of cultivation. From CACP cost concept analysis indicated the cost incurred in per ha. paddy production was Rs. 52602.27 per ha. and yield obtained 45.3245 qt. per ha. which is maximum for large farms 48.3132 qt. per ha. and minimum for marginal farms 42.6322 qt. per ha. in crop year 2021-22. On an average per ha. overall input: output and Benefit: Cost ratio was observed 1:2.11 and 1:1.11, respectively and gross return observed Rs. 111108.72 per ha. which was maximum for large farmers Rs. 116348.52 per ha. Net return observed Rs. 58506.45 per ha. The per quintal difference amount was Rs.560 in the year 2021-22 which was given to the farmers in the form of installments. Contribution of Rajiv Gandhi Kisan Nyay Yojana on farmers cost of cultivation for Cost A1, Cost-A2, Cost-B1, Cost-B2, Cost C1, Cost- C2 and Cost-C3 were 69.56 percent, 69.56 percent, 65.40 percent, 41.29 percent, 60.88 percent, 39.44 percent and 35.85 percent respectively. Also contribution on variable cost, fixed cost, paid out cost and total cost were 65.34 percent, 99.50 percent, 73.55 percent and 39.44 percent respectively.

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