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Performance of Kisan credit card scheme in Chikkaballapur district of Karnataka

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Abstract

This study is attempted to know the status of kisan credit card performance in CHIKKABALLAPUR district of Karnataka. Study analyzed effect of credit system, capital adequacy on major four crops tomato, mize, potato and groundnut between KCC holders and Non-KCC holders. The total cost incurred for growing all four by the KCC beneficiaries marginally high compared to non KCC beneficiaries but the net returns realized from cultivation of KCC beneficiaries higher than that for non KCC beneficiaries. The average credit gap for KCC holding farmers was lower as against non KCC holder farmers in all four crops. Where as in small farmers average credit gap is very more followed by medium and small farmers. Even though KCC farmers are getting higher benefit credit availability is low.

Keywords: Kisan Credit card, average credit gap

Introduction

Agriculture and allied sector plays a predominant role in the Indian economy accounting for 14.1 per cent of Gross value added (GVA) and about 54 per cent of employment. Agricultural credit is essential for the development of agriculture in India. Credit is not only the serious input but also is the effective means of development. Cooperative, RRBs, Commercial Banks, SHGs and informal credit sources together constitutes the Indian rural credit delivery system. To improve credit flow to agriculture and minimize the role of non-institutional credit several initiatives have been taken from time to time like nationalization of major commercial banks establishment of RRBs, establishment of NABARD, Lead Bank scheme Special Agricultural Credit Plans (SCAP), etc. The Government of India launched Kisan Credit Card Scheme in 1998-99 with an objective to provide appropriate amount of credit to the farmers. The KCC has become single window for a comprehensive credit product meeting short term and term loans directly to the farmer account to maintain requirement of the credit as and when necessary for the operation.

In Karnataka, the KCC Scheme is being implemented by all the three agencies since its inception and it stood 7th in the issuance of KCCs as at the end of March 2012. As per the year, 2017 41.66 lakhs KCC credit cards were issued with this background; the present study was taken up with the objective of evaluating the efficiency KCC scheme among the implementing institutions.

Research methodology

Cost of cultivation

The cost of cultivation of major crops grown in Chikkaballapur district of South Karnataka was founded by using various cost concepts such as operational cost, material cost, and other cost and returned were calculated.

Adequacy of credit and credit gap analysis

The adequacy of credit and the credit gap is more important if the required credit gap is not available; there is a chance of mis-utilization of amount for different purposes.

Total Credit Gap (TCG) = Credit required – Credit sanctioned

$$\text{Credit Gap} = \frac{(\text{Credit required} - \text{credit sanctioned})}{\text{Amount of credit required}} \times 100$$

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Result and discussion

A general understanding of the local environment of the selected sample contains 120 respondents would provide a true picture using a standard questionnaire; the requisite data were obtained from all the respondents, both Kisan Credit Card holders and non KCC holders. The list of KCC holders obtained from the respective bank branches in the taluk are stratified in to three groups marginal, small & large farmers based on operational area. The study has been made to analyze some of important characteristics of the sample farmers. Important aspects like family size, educational status, land use pattern and cropping pattern are discussed in this section to understand the distinct economic features of the selected total 120 sample farmers.

Cost and return of major crops under different size group

The data on tomato, maize, ground nut, and potato in study area were collected for the calculation of cost of cultivation.

Cost of cultivation and returns of tomato

The cost incurred and returns realized from tomato cultivation were presented in the Table 1. The total cost incurred by the KCC beneficiaries was Rs. 120251 which was marginally high compared to non KCC beneficiaries (Rs. 113478). Out of total cost the total operational cost of KCC was Rs.70608 and non KCC was Rs. 64620. The material cost of KCC and non KCC was Rs.36201.92 and Rs.33464 respectively. The share of cost of picking, transportation and staking was highest under the total operational cost for both categories (24.30%, 22.04 %, 12.81 % and 25.78 %, 19.49%, 13.74% for KCC and non KCC respectively) because of more no. of tomato pickings they need more number of labour. Out of total material cost the cost plant protection was highest for both KCC and non KCC. The interest on working capital was more for non KCC as compared to KCC farmers. The net returns realized from tomato cultivation of KCC beneficiaries was Rs.43881 /ha, which was higher than that for non KCC beneficiaries Rs.39601/ha. This revealed that the KCC beneficiaries have used available resources properly to get higher net profit from tomato crop. The total output of tomato was 165 q/ha under KCC, 163 q/ha under non KCC. The cost of cultivation and returns of KCC farmers was high as compare to non KCC farmers.

Cost of cultivation and returns of maize

Table 2. shows that the cost of cultivation of KCC beneficiary and non KCC beneficiary was Rs. 69987 and Rs. 64644 respectively. The cost of total operational cost incurred was Rs.40400 for KCC and Rs.36636 for non KCC out of which the harvesting and weeding operations took highest share for both KCC and non KCC holders. The total material cost of both KCC and non KCC was Rs.15318 and Rs.12267 Out of

this the fertilizer cost incurred was high in case of both KCC and non KCC beneficiaries. The value of owned land is more in case of total other cost for both KCC and non KCC holders. The yield of maize under KCC was 63.64 q/ha and 55.34 q/ha under non KCC. The net returns of KCC beneficiary were Rs.17676 which was high as compared to non KCC Rs.9940. This revealed that the cost of cultivation and returns were high in KCC holders as compared to non KCC holders.

Cost of cultivation and returns of ground nut

The cost incurred and returns realized from ground nut cultivation were presented in Table 3. for all the KCC, non-KCC beneficiaries, the total cost incurred by the KCC beneficiaries was higher Rs. 57327 as compared to non KCC beneficiaries Rs.54791. This revealed that KCC beneficiaries were using inputs judiciously as compared to the other categories of farmers. Total operational cost, material cost and total other cost to the total cost was Rs.30738, Rs.19379, Rs.7209 under KCC category and Rs.29059, Rs.17916, Rs.7681 under non KCC category showing high cost of KCC farmers compares to non KCC. The cost of weeding is highest under the operational cost. The cost of seeds was highest under material cost for both categories (57.02 per cent and 56.74 per cent for KCC and non KCC respectively). The interest on working capital was high in non KCC as compared to KCC holders. The net returns realized from ground nut cultivation by KCC beneficiaries was Rs.9342/ha, for non KCC Rs.8714/ha. The total output of ground nut under the KCC was 16.46q/ha was higher than non KCC farmers 15.53 q/ha. The returns of KCC farmers are somewhat more than the non KCC farmers.

Cost of cultivation and returns of potato

The cost incurred and returns realized from potato cultivation were presented in Table 4. for all the KCC, non-KCC beneficiaries. The total cost incurred by the KCC beneficiaries were (Rs. 106222/ha) as compared to non KCC beneficiaries (Rs. 102794/ha). The proportion of cost of total operational cost, total material cost, total other cost in the total cost were Rs. 49812, Rs.41516, Rs.14893 under KCC category, which was Rs. 45149, Rs.37406, Rs.20238 under non KCC category whereas the cost of KCC category was more than the non KCC. The cost of weeding and harvesting was highest under total operational cost for both categories. the cost incurred on seed (55.92 per cent for both KCC and non KCC respectively) and fertilizers were more in total material cost. The net returns realized from potato cultivation by KCC beneficiaries was Rs. 54215/ha, which was higher than that for non KCC beneficiaries Rs.43622/ha. The total output of potato under the KCC was 211q/ha which was higher than non KCC 203 q/ha. This can be attributed to good access to credit and resources by KCC holders.

Table 1: The cost of cultivation and return of tomato (Rs/ha)

Particulars	KCC farmers								NON KCC farmers							
	Small farmers		Medium farmers		Large farmer		All		Small farmers		Medium farmer		Large farmer		All	
A. Operational cost	Physical unit	Value (Rs)	Physical unit	Value (Rs)	Physical unit	Value (Rs)	Physical unit	Value (Rs)	Physical unit	Value (Rs)	Physical unit	Value (Rs)	Physical unit	Value (Rs)	Physical unit	Value (Rs)
Ploughing (hours)	5.5	3850 (6.18)	6.0	4200 (5.97)	7.2	4320 (5.44)	6.23	4123 (5.83)	5.2	3640 (6.33)	5.7	3906 (6.01)	6.1	4270 (5.96)	5.66	3938 (6.09)
Harrowing (hours)	1.6	1150 (1.84)	1.8	1300 (1.85)	1.9	1500 (1.89)	1.76	1316 (1.86)	1	800 (1.39)	1.2	900 (1.38)	1.7	1200 (1.67)	1.3	966 (1.49)
Planking		1300 (2.08)		1300 (1.85)		1500 (1.89)		1366 (1.93)		1250 (2.17)		1200 (1.84)		1500 (2.09)		1316 (2.03)
Bullock labour	1.3	1000 (1.60)	1.7	1200 (1.70)	2.5	1500 (1.89)	1.83	1233 (1.74)	1	900 (1.56)	1.2	1000 (1.54)	2	1300 (1.81)	1.4	1066 (1.64)
Manuring	4.5	1350 (2.16)	4.9	1470 (2.09)	6.2	1860 (2.34)	5.2	1560 (2.20)	4	1200 (2.08)	4.3	1290 (1.98)	4.8	1440 (2.01)	4.36	1310 (2.02)
Farrow and bund preparation	12	2400 (3.85)	12	2400 (3.41)	16	3200 (4.03)	13.33	2666 (3.77)	12	2400 (4.17)	14	2800 (4.31)	15	3000 (4.19)	13.66	2733 (4.22)
Transplanting	14	2800 (4.49)	15	3000 (4.27)	16	3200 (4.03)	15	3000 (4.24)	14	2800 (4.87)	15	3000 (4.62)	16	3200 (4.47)	15	3000 (4.64)
Irrigation		3000 (4.81)		3300 (4.69)		3333 (4.20)		3211 (4.54)		2500 (4.35)		3000 (4.62)		3200 (4.47)		2900 (4.48)
Weeding	25.35	5070 (8.14)	34.86	6800 (9.68)	38.56	7600 (9.58)	32.92	6490 (9.19)	23.76	4600 (8.00)	30.45	6000 (9.24)	36.54	7200 (10.06)	30.25	5933 (9.18)
Fertilizer application	9.23	1800 (2.88)	10.54	2050 (2.91)	10.87	2100 (2.64)	10.21	1983 (2.80)	9.34	1710 (2.97)	9.98	1850 (2.85)	10.23	2030 (2.83)	9.81	1863 (2.88)
Plant protection	5	1500 (2.40)	5	1500 (2.13)	6	1800 (2.26)	5.33	1600 (2.26)	3	900 (1.56)	4	1200 (1.84)	5	1500 (2.09)	4	1200 (1.85)
Staking	40.54	8080 (12.97)	45.24	9000 (12.81)	50.34	10068 (12.69)	45.33	9049 (12.81)	40.23	8046 (14.00)	43.56	8712 (13.42)	49.43	9886 (13.82)	44.38	8881 (13.74)
Picking	80.74	16000 (25.68)	86.76	17352 (24.70)	90.67	18134 (22.86)	86.34	17162 (24.30)	80.35	16000 (27.84)	82.43	16486 (25.40)	87.54	17508 (24.47)	83.42	16664 (25.78)
Transportation charges		12734 (20.44)		15064 (21.44)		18900 (23.82)		15566 (22.04)		10500 (18.27)		13300 (20.49)		14000 (19.57)		12600 (19.49)
Miscellaneous cost		250 (0.004)		300 (0.004)		300 (0.003)		283 (0.004)		200 (0.003)		250 (0.003)		300 (0.003)		250 (0.003)
Total operational cost		62284 (100)		70236 (100)		79315 (100)		70608 (100)		57446 (100)		64894 (100)		71534 (100)		64620 (100)
B. Material cost																
Seedlings	7000	4500 (14.01)	7030	4070 (11.28)	7500	4440 (12.01)	7176	4336.66 (11.97)	7010	4060 (12.62)	6900	4500 (13.29)	7300	4900 (14.23)	7070	4486.66 (13.40)
Farm yard manure	4	4500 (14.01)	4.45	4700 (13.03)	5	5000 (13.53)	4.15	4566.66 (12.61)	3.34	3900 (12.12)	4.74	4250 (12.55)	4.98	4300 (12.48)	4.35	4133 (12.35)
Fertilizer		6950 (21.65)		7050 (19.54)		7500 (20.30)		7166.6 (19.79)		6500 (20.21)		6850 (20.23)		6700 (19.45)		6683.33 (19.97)
Plant protection chemicals		7150 (22.27)		7400 (20.51)		7900 (21.38)		7483 (20.67)		5000 (15.54)		5300 (15.65)		5700 (16.55)		5333 (15.93)
Staking		2500 (7.78)		2500 (6.93)		2500 (6.76)		2500 (6.90)		2500 (7.77)		2900 (8.56)		2700 (7.84)		2700 (8.06)
Steel wire		5000 (15.57)		5200 (14.41)		5000 (13.53)		5066 (13.99)		5050 (15.70)		4960 (14.65)		5050 (14.66)		5020 (15.00)
Rope/gunny twine		1500 (4.67)		1650 (4.57)		1600 (4.33)		1583 (4.37)		1649 (5.12)		1595 (4.71)		1583 (4.59)		1609 (4.80)
Total material cost		32100 (100)		36070 (100)		36940 (100)		36201.92 (100)		32159 (100)		33855 (100)		34433 (100)		33464.99 (100)
C. Other cost																
Depreciation		220 (1.56)		210 (1.45)		330 (2.15)		253 (1.73)		250 (1.70)		325 (2.10)		290 (1.80)		290 (1.86)
Rental value on land		10000 (71.32)		10000 (69.15)		10000 (65.23)		10000 (68.47)		10000 (68.35)		10000 (64.82)		10000 (6.22)		10000 (64.26)
Land revenue		50 (0.003)		50 (0.003)		50 (0.003)		50 (0.003)		50 (0.003)		50 (0.003)		50 (0.002)		50 (0.003)
Interest on fixed capital		250 (1.78)		350 (2.42)		750 (4.89)		450 (3.08)		330 (2.25)		550 (3.56)		720 (4.48)		720 (4.62)
Interest on working capital		3500 (24.96)		3850 (26.62)		4200 (27.39)		3850 (26.36)		4000 (27.34)		4500 (29.17)		5000 (31.13)		4500 (28.92)
Total other cost		14020 (100)		14460 (100)		15330 (100)		14603 (100)		14630 (100)		15425 (100)		16060 (100)		15560 (100)
C.Total cost		108404		120766		131585		120251		104235		114174		122027		113478
Yield in quintal	135	1000	180	930	190	1000	165	960	132	970	178	900	180	950	163.33	930
Gross returns		135000		167400		190000		158400		128040		160200		171000		151896
Net returns		26596		46634		58415		43881		23805		46026		48973		39601

Table 2: Cost of cultivation and returns of maize (Rs/ha)

Particular A. Operational cost	KCC holders								Non KCC holders							
	Small farmers		Medium farmers		Large farmers		All		Small farmers		Medium farmers		Large farmers		All	
	Physical unit	Value (Rs)	Physical unit	Value (Rs)	Physical unit	Value (Rs)	Physical unit	Value (Rs)	Physical unit	Value (Rs)	Physical unit	Value (Rs)	Physical unit	Value (Rs)	Physical unit	Value (Rs)
Ploughing (hours)	3.5	2100 (5.81)	4.7	2820 (6.97)	5	3000 (6.72)	4.4	2640 (6.53)	3	1800 (5.45)	3.8	2280 (6.21)	4.5	2700 (6.71)	3.76	2260 (5.59)
Harrowing (hours)	1	1000 (2.76)	1	1000 (2.4)	1	1000 (2.24)	1	1000 (2.47)	1	1000 (3.03)	1	1000 (2.72)	1	1000 (2.48)	1	1000 (2.72)
Planking		1500 (4.15)		1500 (3.71)		1500 (3.36)		1500 (3.71)		1500 (4.54)		1500 (4.08)		1500 (3.72)		1500 (4.09)
Bullock labour		2250 (6.22)		2500 (6.18)		2800 (6.27)		2516 (6.22)		2000 (6.06)		2430 (6.62)		2500 (6.21)		2310 (6.30)
Farrow and bund preparation	12.45	3112 (8.61)	14.72	3578 (8.85)	15.28	3750 (8.40)	14.15	3480 (8.61)	10.35	2594 (7.86)	12.56	3246 (8.84)	13.67	3250 (8.07)	12.19	3030 (8.27)
Manuring	6.45	1500 (4.15)	10	2154 (5.32)	11.24	2741 (9.23)	9.23	2131 (5.27)	5.45	1251 (3.79)	6.24	1503 (4.09)	9.37	2250 (5.59)	6.9	1668 (4.55)
Sowing	9.34	1832 (5.08)	11.45	2242 (5.54)	12.45	2492 (5.58)	11.06	2188 (5.41)	9.24	1892 (5.73)	10.56	2041 (5.56)	11.34	2296 (5.70)	10.33	2076 (5.66)
Fertilizer application	6.32	1276 (3.53)	7.45	1492 (3.69)	8.23	1691 (7.34)	7.34	1486 (3.67)	5.43	1077 (3.26)	6.63	1279 (3.48)	7.23	1423 (3.53)	6.4	1259 (3.43)
Irrigation		2800 (7.74)		3000 (7.42)		3500 (7.84)		3100 (7.67)		2500 (7.58)		2699 (7.35)		3085 (7.66)		2761 (7.53)
Weeding	30.25	6209 (17.17)	34.33	6891 (17.04)	38.54	7619 (17.07)	34.34	6869 (17.00)	30.2	6017 (18.24)	32.87	6481 (17.65)	35.35	7241 (17.99)	32.73	6579 (17.95)
Harvesting	33.46	7663 (21.20)	35.46	7854 (19.42)	40.79	8643 (19.36)	36.5	8053 (19.93)	30.35	6842 (20.74)	32.56	7324 (19.95)	38.21	7952 (19.76)	33.66	7372 (20.12)
Threshing		4902 (13.56)		5398 (13.35)		5893 (13.20)		5397 (13.35)		4503 (13.65)		4922 (13.40)		5032 (12.50)		4819 (13.15)
Total operational cost		36144 (100)		40429 (100)		44629 (100)		40400 (100)		32976 (100)		36705 (100)		40229 (100)		36636 (100)

B. Material cost																
Seeds	30.34	3053 (23.33)	37.45	3700 (24.71)	40.35	4076 (22.77)	36.01	3609 (23.56)	30.12	3005 (30.95)	35.56	3532 (26.94)	37.56	3741 (26.74)	34.41	3426 (27.92)
Manures (Cart loads)	4.23	5682 (43.42)	5.13	6722 (44.89)	6.34	8321 (46.49)	5.25	6908 (45.09)	2	2800 (28.83)	3.4	4924 (37.5)	4	5600 (40.04)	3.13	4441 (36.20)
Fertilizers		4200 (32.09)		4400 (29.38)		5300 (29.61)		4633 (30.24)		3800.56 (39.13)		4500.56 (34.33)		4445 (31.78)		4248 (34.62)
Plant protection chemicals		150.67 (1.14)		150.56 (0.1)		200.67 (1.11)		166 (1.08)		103.56 (1.06)		150.56 (1.14)		200.34 (1.43)		151 (1.23)
Total material cost		13085.67 (100)		14972.56 (100)		17897.67 (100)		15318 (100)		9709.12 (100)		13107.12 (100)		13986.34 (100)		12267 (100)
C. Other cost																
Depreciation		975 (6.96)		930 (6.54)		1080 (7.39)		995 (6.97)		1030 (6.81)		1200 (7.71)		990 (5.98)		1073 (6.81)
Land revenue		40.67 (0.02)		49.78 (0.03)		48.78 (0.04)		45.66 (0.03)		40.12 (0.02)		47.79 (0.03)		49.45 (0.02)		45.33 (0.02)
Rental value of owned land		10000 (71.45)		10000 (70.40)		10000 (68.45)		10000 (70.08)		10000 (66.13)		10000 (64.32)		10000 (60.40)		10000 (63.53)
Intrest on fixed capital		880 (6.28)		950 (6.68)		1030 (7.05)		953 (6.67)		850 (5.62)		890 (5.72)		1500 (9.06)		1080 (6.86)
Intrest on working capital		2100 (15.00)		2275 (16.01)		2450 (16.77)		2275 (15.94)		3200 (21.11)		3408 (21.92)		4016 (24.25)		3541 (22.49)
Total other cost		13995.67 (100)		14204.78 (100)		14608.78 (100)		14269 (100)		15120.12 (100)		15545.79 (100)		16555.45 (100)		15740 (100)
Total cost (A+B+C)		63224		69605		77134		69987		57805		65357		70770		64644
Main product (Quintal)	57.73	68400	62.24	74400	70.23	91860	63.64	78220	50.32	60428	55.23	65842	60.34	72000	55.34	66090
Byproduct (Tonne)	5.63	8473	6.24	9360	7	10500	6.26	9444	5.12	7532	5.84	8760	6.13	9190	5.67	8494
Gross income		76873		83760		102360		87664		67960		74602		81190		74584
Net income		13649		14155		25226		17676		10155		9245		10420		9940

Note: Figure in Parentheses are percentage to the Total operational cost, Total material cost and Total other cost.

Particular Operational cost	KCC farmers								NON KCC farmers							
	Small farmers		Medium farmers		Large farmers		all		Small farmers		Medium farmers		Large farmers		All	
	Physical unit	Value (Rs)	Physical unit	Value (Rs)	Physical unit	Value (Rs)	Physical unit	Value (Rs)	Physical unit	Value (Rs)	Physical unit	Value (Rs)	Physical unit	Value (Rs)	Physical unit	Value (Rs)
Ploughing (hours)	5.53	3390 (12.31)	6.02	3650 (11.96)	6.56	3900 (11.41)	6.06	3646 (11.86)	5.0	3000 (11.15)	5.78	3420 (11.66)	6.05	3600 (11.63)	5.61	3340 (11.49)
Harrowing (hours)	1.56	1250 (4.53)	1.98	1520 (4.98)	2.02	1616 (4.73)	1.8	1462 (4.75)	1.21	1200 (4.46)	1.67	1300 (4.43)	2.04	1600 (5.16)	1.64	1366 (4.70)
Planking		1500 (5.44)		11500 (4.91)		2000 (5.85)		1666 (5.42)		1500 (5.57)		1500 (5.11)		2000 (6.46)		1666 (5.73)
Bullock labour		2000 (7.26)		2200 (7.20)		2500 (7.31)		2233 (7.26)		2000 (7.43)		2000 (6.81)		2300 (7.43)		2100 (7.22)
Manuring	6.34	1800 (6.53)	7.18	2100 (6.88)	7.27	2190 (6.41)	6.93	2030 (6.60)	6.01	1800 (6.69)	6.45	1879 (6.40)	7.0	2100 (6.78)	6.54	1926 (6.62)
Sowing	15.92	3090 (11.22)	16.54	3276 (10.73)	20.36	4058 (11.87)	17.60	3474 (11.30)	15.85	3000 (11.15)	15.26	3089 (10.53)	18.56	2790 (9.01)	16.55	2959 (10.18)
Fertilizer application	5.33	1000 (3.63)	5.83	1180 (3.86)	6.01	1200 (3.51)	5.75	1126 (3.66)	5.02	1000 (3.71)	5.5	1100 (3.75)	6.0	1200 (3.87)	5.54	1100 (3.78)
Furrow and bund formation	8.90	2408 (8.74)	9.23	2780 (9.11)	9.50	2850 (8.34)	9.21	2679 (8.71)	8.02	2400 (8.92)	9.0	2700 (9.20)	9.02	2710 (8.75)	8.66	2603 (8.95)
Irrigation charge		2200 (7.98)		2500 (8.19)		2350 (6.87)		2350 (7.64)		2200 (8.17)		2500 (8.52)		2300 (7.43)		2333 (8.02)
Weeding	16.34	3290 (11.94)	18.98	3609 (11.82)	22.98	4470 (13.08)	19.43	3789 (12.32)	15.09	3200 (11.89)	18.98	3690 (12.58)	20.98	4000 (12.92)	17.66	3630 (12.49)
Harvesting	25.78	5610 (20.37)	28.97	6200 (20.31)	30.98	7029 (20.57)	27.66	6279 (20.42)	25.02	5600 (20.81)	25.98	6150 (20.96)	27.54	6350 (20.51)	26.13	6033 (20.76)
Total operational cost		27538 (100)		30515 (100)		34163 (100)		30738 (100)		26900 (100)		29328 (100)		30950 (100)		29059 (100)

B. Material cost																
Seeds	95	9500 (58.64)	110	11000 (55.59)	115	12650 (57.11)	106.66	11050 (57.02)	90	9000 (60.0)	105	10500 (58.01)	110	11000 (53.26)	101.66	10166 (56.74)
Manures (Cart loads)	2.56	3200 (19.75)	3.67	4587.5 (23.18)	4	5000 (22.57)	3.41	4262 (21.99)	2.5	3000 (20.00)	3	3600 (19.88)	4.16	5200 (25.18)	3.22	3933 (21.95)
Fertilizers		3500 (21.60)		4200 (21.22)		4500 (20.31)		4066 (20.98)		3000 (20.00)		4000 (22.09)		4450 (21.54)		11450 (63.90)
Total material cost		16200 (100)		19787.5 (100)		22150 (100)		19379 (100)		15000 (100)		18100 (100)		20650 (100)		17916 (100)
C. Other cost																
Depreciation		300 (4.23)		259 (3.60)		270 (3.67)		276 (3.82)		290 (3.87)		272 (3.56)		255 (3.21)		272.33 (3.54)
Land revenue		45.32 (0.006)		50.78 (0.006)		50.58 (0.006)		48.33 (0.006)		48.78 (0.006)		50.75 (0.006)		50.95 (0.006)		50.12 (0.006)
Rental value of owned land		5000 (70.57)		5000 (69.50)		5000 (68.02)		5000 (69.35)		5000 (66.77)		5000 (65.47)		5000 (63.13)		5000 (65.09)
Intrest on fixed capital		340 (4.79)		300 (4.17)		350 (4.76)		330 (4.57)		250 (3.33)		290 (3.79)		320 (4.04)		2866 (37.31)
Intrest on working capital		1400 (19.76)		1585 (22.03)		1680 (22.85)		1555 (21.57)		1900 (25.37)		2025 (26.51)		2295 (28.97)		2073 (26.98)
Total other cost		7085.32 (100)		7194.78 (100)		7350.58 (100)		7209 (100)		7488.78 (100)		7637.75 (100)		7920.95 (100)		7681 (100)
Total cost		50823		57496		63663		57327		49788		55065		59520		54791
Yield																
Main product	14.67	52884	16.5	59400	18.23	65624	16.46	59302	14.23	51228	15.5	55800	16.98	61128	15.53	56052
Byproduct (Tractorload)	5.02	6500	5.59	7150	6.50	8450	5.70	7366	5.30	6890	5.96	7670	6.01	7800	5.56	7453
Gross income		59384		66550		74074		66669		58118		63470		68928		63505
Net income		8561		9054		10411		9342		8330		8405		9408		8714

Table 4: Cost of production and returns of potato (Rs/ha)

Particular	KCC farmers								NON KCC farmers							
	Small farmers		Medium farmers		Large farmers		All		Small farmers		Medium farmers		Large farmers		All	
	Physical unit	Value (Rs)	Physical unit	Value (Rs)	Physical unit	Value (Rs)	Physical unit	Value (Rs)	Physical unit	Value (Rs)	Physical unit	Value (Rs)	Physical unit	Value (Rs)	Physical unit	Value (Rs)
Operational cost																
Ploughing (hours)	6.35	4376 (9.8)	6.95	4982 (10.2)	7.85	6280 (11.14)	7.05	5212 (10.46)	6.01	4100 (10.06)	6.51	4472 (9.88)	6.85	4832 (9.76)	6.52	4468 (9.89)
Harrowing (hours)	1.3	1250 (2.8)	1.8	1300 (2.67)	2.13	2871 (5.09)	1.74	1807 (3.62)	1	1090 (2.69)	1.5	1230 (2.71)	1.89	1571 (3.17)	1.43	1297 (2.87)
Planking		1350 (3.0)		1300 (2.67)		1500 (2.66)		1383 (2.77)		1250 (3.06)		1200 (2.65)		1500 (3.03)		1316 (3.01)
Bullock labour	1.5	1000 (2.2)	1.8	1200 (2.47)	2.5	1500 (2.66)	1.93	1250 (2.50)	1	950 (2.33)	1.3	1050 (2.32)	2	1300 (2.62)		1100 (2.43)
Farrow and bund preparation	14.54	4280 (9.6)	15.93	4500 (9.26)	16.24	4800 (8.52)	15.57	4526 (9.08)	12.45	3691 (9.06)	14.75	4290 (9.48)	15.56	4465 (9.02)	14.23	4148 (9.18)
Manuring	6.32	1860 (4.1)	7.22	2230 (4.59)	8.54	2491 (4.42)	7.36	2193 (4.40)	5.21	1583 (3.88)	7.00	2100 (4.64)	7.32	2190 (4.42)	6.5	1957 (4.33)
Sowing	25.23	5180 (11.6)	26.78	5356 (11.03)	30.23	6734 (11.95)	27.36	5756 (1.15)	22.54	4508 (11.06)	23.34	4600 (10.06)	26.61	5322 (10.75)	23.66	4810 (10.65)
Fertilizer application	5.43	1620 (3.6)	6.32	1890 (3.89)	6.46	1920 (3.40)	6.09	1810 (3.63)	5.0	1500 (3.68)	5.87	1740 (3.84)	6.35	1905 (3.84)	5.7	1715 (3.79)
Plant protection		1200 (2.6)		1350 (2.78)		1650 (2.92)		1400 (2.81)		1000 (2.45)		1480 (3.27)		1500 (3.03)		1326 (2.93)
Irrigation		5000 (11.2)		5500 (11.32)		6000 (10.65)		5500 (11.04)		5000 (12.27)		5200 (11.49)		5600 (11.31)		5266 (11.66)
Weeding	35.68	7136 (16.0)	40.72	8144 (16.77)	45.44	9088 (16.13)	40.33	8122 (16.30)	33.76	6752 (16.57)	36.89	7378 (16.30)	40.65	8130 (16.42)	36.33	7420 (16.43)
Harvesting		5800 (13.0)		6000 (12.35)		6500 (11.53)		6100 (12.24)		5300 (13.01)		5950 (13.15)		6380 (12.89)		5876 (13.01)
Transportation charges		4500 (10.1)		4800 (9.88)		5000 (8.87)		4750 (9.53)		4000 (9.82)		4550 (10.05)		4790 (9.67)		4378 (9.69)
Total operational cost		44552 (100)		48552 (100)		56334 (100)		49812 (100)		40724 (100)		45240 (100)		49485 (100)		45149 (100)
A. Material cost																
Seeds	13.85	20770 (55.9)	14.32	22912 (55.60)	15.29	25993 (56.23)	14.46	23226 (55.94)	12.21	18550 (56.40)	13.23	19845 (60.33)	14.36	24421 (56.98)	13.67	20938 (55.97)
Manures	5.00	6000 (16.16)	5.55	7150 (17.35)	6.43	8030 (17.37)	5.64	7060 (17.00)	4.2	5040 (15.32)	5.21	6252 (17.15)	5.93	7412 (17.29)	5.11	6234 (16.66)
Fertilizers		5850 (15.75)		5940 (14.41)		6350 (13.73)		6046 (14.56)		5100 (15.50)		5580 (15.30)		6020 (14.04)		5566 (14.88)
Plant protection chemicals		4500 (12.12)		5200 (12.62)		5850 (12.65)		5183 (12.48)		4200 (12.76)		4800 (13.15)		5000 (11.66)		4666 (12.47)
Total material cost		37125 (100)		41202 (100)		46223 (100)		41516 (100)		32890 (100)		36477 (100)		42853 (100)		37406 (100)
B. Other cost																
Depreciation		580 (4.04)		850 (5.75)		1040 (6.67)		823 (5.52)		530 (2.76)		630 (3.13)		980 (4.54)		713 (3.52)
Land revenue		60.43 (0.42)		65.92 (0.44)		70.21 (0.45)		65 (0.43)		60.23 (0.31)		65.67 (0.32)		70.73 (0.32)		65.76 (27.63)
Rental value of owned land		10000 (69.73)		10000 (67.70)		10000 (64.22)		10000 (67.14)		10000 (52.38)		10000 (49.81)		10000 (46.40)		10000 (49.41)
Intrest on fixed capital		550 (3.83)		600 (4.06)		1030 (6.61)		726 (4.87)		500 (2.61)		850 (4.23)		1500 (6.96)		950 (4.69)
Intrest on working capital		3150 (21.96)		3255 (22.03)		3430 (22.09)		3278 (22.01)		8000 (41.90)		8530 (42.48)		9000 (41.76)		8510 (42.04)
Total other cost		14340 (100)		14770 (100)		15570 (100)		14893 (100)		19090 (100)		20075 (100)		21550 (100)		20238 (100)
Total cost (A+B+C)		96017		104524		118127		106222		92704		101792		113888		102794
Yield (qt/ha)	195	136500	210	157500	230	184000	211	159333	190	123500	200	150000	221	165750	203.66	146416
Gross income		136500		157500		184000		159333		123500		150000		165750		146416
Net income		43796		52976		65873		54215		30796		48208		51862		43622

Adequacy of credit and Credit gap analysis

The adequacy of credit and credit gap analysis was calculated for both KCC and non KCC farmers. The average cost of cultivation was taken into consideration and compared with average amount sanctioned. The credit gap is worked out as the difference between cost of cultivation and amount sanctioned, which shows the adequacy of credit. For this, four major crops of the study area were considered.

Adequacy of credit for KCC and non KCC holders for Tomato

The average cost of cultivation and amount of loan sanctioned under KCC and non KCC for different categories of farmers

are presented in Table 5. It is revealed from the table that credit gap under both the KCC and non KCC farmers was positive which implied that the credit was moderately adequate in KCC and inadequate in non KCC farmers for tomato cultivation. The average credit gap for KCC holder farmers was higher (Rs.5251 /ha) as against non KCC holder farmers (Rs.8478 /ha). It was evident that in KCC farmers credit gap was more in non KCC farmers of small farmers (Rs.9235/ha) followed by medium farmers (Rs. 9174 /ha) and large farmers (Rs.7027/ha). In case of KCC farmers credit gap was more in case of small farmers (Rs.8404/ha) followed by medium farmers (Rs.5766/ha) and large farmers (Rs.1585/ha).

Table 5: Adequacy of credit for KCC and non KCC holders for Tomato. (Rs./ha)

Particular	Type of farmers	Average cost of cultivation	Amount sanctioned	Credit gap	Credit gap as per cent of amount sanctioned
KCC	Small	108404	100000	8404	8.4
	Medium	120766	115000	5766	5.0
	Large	131585	130000	1585	1.2
	Average	120251	115000	5251	4.5
Non KCC	Small	104235	95000	9235	9.7
	Medium	114174	105000	9174	8.7
	Large	122027	115000	7027	6.1
	Average	113478	108333	8478	7.8

Adequacy of credit for KCC and non KCC holders for Maize (Rs./ha)

The estimated adequacy of credit in maize cultivation is showed in Table 6. A close perusal of table reveals that the average per cent of credit gap was less for KCC farmers Rs.1987/ha (2.9%) as compared to non KCC farmers of Rs.5644/ha (9.5%) It was evident that in non KCC farmers credit gap was more in small farmers of Rs. 5805 /ha.(11.1%) followed by medium and large farmers. In KCC farmers the

credit gap is more in small farmers farmers Rs. 2724/ha (4.5%) followed by marginal farmers (Rs. 1605 /ha) and large farmers Rs.1634 (2.1%). It shows that the credit gap was low for KCC farmers but it was high for non KCC farmers. Hence credit for maize cultivation was inadequate for non KCC farmers compared to KCC farmers. From this it is cleared that, inadequacy of credit was higher in non KCC holders as against the KCC holders.

Table 6: Adequacy of credit for KCC and non KCC holders for Maize (Rs./ha)

Particular	Type of farmers	Average cost of cultivation	Amount sanctioned	Credit gap	Credit gap as per cent of amount sanctioned
KCC	Small	63224	60500	2724	4.5
	Medium	69605	68000	1605	2.3
	Large	77134	75500	1634	2.1
	Average	69987	68000	1987	2.9
Non KCC	Small	57805	52000	5805	11.1
	Medium	65357	60000	5357	8.9
	Large	70770	65000	5770	8.8
	Average	64644	59000	5644	9.5

Adequacy of credit for KCC and non KCC holders for Groundnut.(Rs./ha)

The adequacy of credit in groundnut is showed in the Table 7. The credit gap for KCC farmers was Rs.1194/ha (2.12 %) and for non KCC farmers was Rs.4624/ha (9.21).under the non KCC farmers the credit gap is more for small and medium

farmers Rs.4788/ha and Rs.5065/ha followed by large farmers of Rs. 4029/ha. The credit gap for KCC farmers was more for small farmers Rs.1823/ha followed by medium farmers from the above table we can say that credit gap for non KCC is more than tha KCC farmers. The credit is adequate for KCC farmers in potato crop.

Table 7: Adequacy of credit for KCC and non KCC holders for Groundnut. (Rs./ha)

Particular	Type of farmers	Average cost of cultivation	Amount sanctioned	Credit gap	Credit gap as per cent of amount sanctioned
KCC	Small	50823	49000	1823	3.72
	Medium	57496	56500	996	1.76
	Large	63663	62900	763	1.21
	Average	57327	56133	1194	2.12
Non KCC	Small	49788	45000	4788	10.64
	Medium	55065	50000	5065	10.13
	Large	59520	55500	4020	7.24
	Average	54791	50166	4624	9.21

Adequacy of credit for KCC and non KCC holders for potato (Rs./ha)

The estimated adequacy of credit in potato cultivation is showed in Table 8. The table reveals that the average per cent of credit gap was less for KCC farmers Rs.1402/ha (1.33 %) as compared to non KCC farmers Rs.5461/ha (5.61%). The credit gap for non KCC holder farmers was high for small farmers Rs.7704/ha(9.0) followed by medium farmers Rs.4792/ha and large farmers of Rs.3888/ha In case of KCC

farmers credit gap large farmers was (Rs. 1402 /ha) and medium farmers (Rs.1524 /ha) and small farmers (Rs. 1017/ha). It shows that the credit gap was low for KCC farmers but it was high for non KCC farmers. Hence for potato cultivation was adequate for KCC farmers compared to non KCC farmers. From this it is cleared that, inadequacy of credit was higher in non KCC holders as against the KCC holders. These results collaborated with the results obtained by Sajane (2011) [25].

Table 8: Adequacy of credit for KCC and non KCC holders for potato (Rs./ha)

Particular	Type of farmers	Average cost of cultivation	Amount sanctioned	Credit gap	Credit gap as per cent of amount sanctioned
KCC	Small	96017	95000	1017	1.07
	Medium	104524	103000	1524	1.47
	Large	118127	116500	1667	1.39
	Average	106222	104833	1402	1.33
Non KCC	Small	92704	85000	7704	9.0
	Medium	101792	97000	4792	4.94
	Large	113888	110000	3888	3.53
	Average	102794	97333	5461	5.61

To evaluate the impact of KCC on profitability of crops

The impact of KCC was studied in terms of input use pattern of different crops, costs incurred and returns obtained from the major crops for KCC farmers and over non-KCC farmers.

Input use pattern of different crops

The Table 9. shows the input material cost of different crops grown in the study area for both KCC and non KCC farmers. For the crop tomato the percentage change of KCC over non KCC farmers for seedlings, manures, fertilizers, plant

protection chemical and stacking operation were 10.83, 15.3, 6.92, 43.0, -2.1 for small farmers, -9.3, 10.58, 2.91, 39.62, -1.1, for large farmers -9.38, 16.27, 11.94, 38.5, -1.96. This reveals that the cost of input materials for KCC farmers was more than the non KCC farmers. The Table 9. reveals the percentage change of KCC over non KCC for maize, groundnut, potato the cost of input materials such as seeds, manures, fertilizers, and plant protection chemicals was high for KCC farmers.

Table 9: Input use pattern of different crops

Crops	Particulars	KCC			Non KCC			Percent change of KCC over non KCC		
		Small	Medium	Large	Small	Medium	Large	Small	Medium	Large
Tomato	Seedlings	4500	4070	4440	4060	4500	4900	10.83	-9.5	-9.38
	FYM	4500	4700	5000	3900	4250	4300	15.38	10.58	16.27
	Fertilizers	6950	7050	7500	6500	6850	6700	6.92	2.91	11.94
	Plant protection chemical	7150	7400	7900	5000	5300	5700	43.0	39.62	38.59
	Stacking material	9000	9350	9150	9199	9455	9333	-2.1	-1.1	-1.96
Maize	Seeds	3050	3700	4076	3005	3532	3741	1.49	4.75	8.95
	FYM	5682	6722	8321	2800	4924	5600	102.	36.51	48.5
	Fertilizers	4200	4400	5300	3800	4500	4445	10.5	-2.22	19.23
	Plant protection chemical	150	150.56	200.67	103	150	200.3	45.63	0.003	0.001
Ground nut	Seeds	9500	11000	12650	9000	10500	11000	5.55	4.76	15
	FYM	3200	4587	5000	3000	3600	5200	6.66	27.41	-3.84
	Fertilizers	3500	4200	4500	3000	4000	4450	16.66	5.00	1.12
	Seeds	20775	22912	25993	18550	19845	24421	11.99	15.45	6.43
Potato	FYM	6000	7150	8030	5040	6252	7412	19.04	14.36	8.33
	Fertilizers	5850	5940	6350	5100	5580	6020	14.70	6.45	5.48
	Plant protection chemicals	4500	5200	5850	4200	4800	5000	7.14	8.33	17.00

Costs incurred and returns obtained from the major crops

Table 10. shows the cost of cultivation and returns of KCC and non KCC farmers for major crops grown in study area. For Small farmers, the total cost of cultivation of KCC farmers for tomato (Rs. 108404 /ha), maize (Rs.63224 /ha), ground nut (Rs.50823 /ha) and potato (Rs. 96017/ha) was higher by 3.99, 9.37, 2.07, 3.75 per cent, respectively as compared to non-KCC farmers. In case of medium farmers, the total cost of cultivation of KCC farmers for tomato (Rs. 120766/ha), maize (Rs. 69605 /ha), ground nut (Rs. 57496 /ha) and potato (Rs. 104524 /ha) was higher by 5.77, 6.49, 4.36, 2.68 per cent, respectively as compared to non-KCC farmers. Whereas in large farmers, the total cost of cultivation

of KCC farmers for tomato (Rs.131585 /ha), maize (Rs. 77134/ha), ground nut (Rs. 63663 /ha) and potato (Rs. 118127 /ha) was higher by 7.83, 8.99, 6.96, 3.72 per cent, respectively as compared to non-KCC farmers. It is showed in the Table 10. that for small farmers, the average yield of KCC farmers for tomato, maize, ground nut, potato were higher by 2.27,14.27,3.09,2.63 per cent, respectively as compared to non-KCC farmers. For medium farmers, the average yield of KCC farmers for tomato, maize, ground nut, potato were higher by 1.12,12.69,6.45,5.0 per cent, respectively as compared to non-KCC farmers. Whereas for large farmers, the average yield of KCC farmers for were higher by 5.55, 16.39, 7.36, 4.07 per cent, respectively as compared to non-

KCC farmers. The net returns per hectare of KCC farmers of small, medium, large farmers for tomato crop was 11.72,13.20,19.28 per cent for maize was 34.40,53.10,14.2 percent for ground nut was 2.77,7.72,10.66 as compared to non- KCC farmers. The returns per rupee spent for major crops of KCC farmers of small, medium, and large farmers for tomato crop was 1.63,1.42,2.8 per cent, for maize crop

was 3.41,5.26,0.15 and for potato was 6.76,0.006,6.89 per cent were higher than non KCC farmers. The obtained results are in conformity with Bista *et al.* (2012)^[5]. Jainuddin *et al.* (2013)^[10] observed that the cost of cultivation per hectare and gross returns per hectare was higher for KCC farmers than non KCC farmers. It is due to application of higher amount of purchased inputs facilitated by the borrowed money.

Table 10: Cost and returns structure of KCC holders and non KCC holders for major crops

Crops	Particulars	KCC			Non KCC			Percentage change in KCC over non KCC farmers		
		Small	Medium	Large	Small	Medium	Large	Small	Medium	Large
Tomato	Average yield (qt/ha)	135	180	190	132	178	180	2.27	1.12	5.55
	Cost of cultivation (Rs./ha)	108404	120766	131585	104235	114174	122027	3.99	5.77	7.83
	Gross returns (Rs./ha)	135000	167400	190000	128040	160200	171000	3.09	4.49	11.11
	Net returns (Rs./ha)	26596	46634	58415	23805	46026	48973	11.72	13.20	19.28
	Returns per rupee spent	1.24	1.38	1.44	1.22	1.40	1.40	1.63	1.42	2.8
Maize	Average yield (qt/ha)	57.73	62.24	70.23	50.32	55.23	60.34	14.72	12.69	16.39
	Cost of cultivation (Rs./ha)	63224	69605	77134	57805	65357	70770	9.37	6.49	8.99
	Gross returns (Rs./ha)	76873	83760	102360	67960	74602	81190	13.11	12.27	26.07
	Net returns (Rs./ha)	13649	14155	25226	10155	9245	10420	34.40	53.10	142.0
	Returns per rupee spent	1.21	1.20	1.32	1.17	1.14	1.14	3.41	5.26	0.15
Ground nut	Average yield (qt/ha)	14.67	16.5	18.23	14.23	15.5	16.98	3.09	6.45	7.36
	Cost of cultivation (Rs./ha)	50823	57496	63663	49788	55065	59520	2.07	4.36	6.96
	Gross returns (Rs./ha)	59384	66550	74074	58118	63470	68928	2.17	4.85	7.46
	Net returns (Rs./ha)	8561	9054	10411	8330	8405	9408	2.77	7.72	10.66
	Returns per rupee spent	1.16	1.15	1.16	1.16	1.15	1.15	0.00	0.00	0.008
Potato	Average yield (qt/ha)	195	210	230	190	200	221	2.63	5.0	4.07
	Cost of cultivation (Rs./ha)	96017	104524	118127	92704	101792	113888	3.57	2.68	3.72
	Gross returns (Rs./ha)	136500	157500	184000	123500	150000	165750	10.52	5.00	11.01
	Net returns (Rs./ha)	43796	52976	65873	30796	48208	51862	42.21	9.89	27.01
	Returns per rupee spent	1.42	1.44	1.55	1.33	1.47	1.45	6.76	0.006	6.89

Conclusion

The total number of KCCs issued in Karnataka was 508.82 lakhs and total amount sanctioned was 298496 (Rs.cr). The commercial banks issued the highest number of KCCs with 250.08 lakhs (49.14%) followed by co-operative banks with 200.32 lakhs (39.36%) and RRBs with 116.3lakhs (22.85%).

The total cost incurred for tomato by the KCC beneficiaries was Rs. 120251 which was marginally high compared to non KCC beneficiaries (Rs. 113478). The net returns realized from tomato cultivation of KCC beneficiaries was Rs.43881 /ha, which was lower than that for non KCC beneficiaries Rs.39601/ha. The cost of cultivation of maize crop under KCC beneficiary and non KCC beneficiary was Rs. 69987 and Rs. 64644 respectively. The net returns of KCC beneficiary was Rs.17676 was high as compare to non KCC Rs.9940. The total cost incurred by the KCC beneficiaries for ground nut was higher Rs. 57327 as compared to non KCC beneficiaries Rs.54791 The net returns realized from ground nut cultivation by KCC beneficiaries was Rs.9342/ha, for non KCC Rs.8714/ha. The total cost of potato incurred by the KCC beneficiaries were (Rs. 106222/ha) as compared to non KCC beneficiaries (Rs. 102794/ha). The net returns realized from potato cultivation by KCC beneficiaries was Rs. 54215/ha, which was higher than that for non KCC beneficiaries Rs.43622/ha.

The average credit gap in tomato for KCC holder farmers was higher (Rs. 5251 /ha) as against non KCC holder farmers (Rs.8478 /ha). In case of KCC farmers credit gap was more in case of small farmers (Rs. 8404/ha) followed by medium farmers (Rs.5766/ha) and large farmers (Rs. 1585/ha). It shows that the credit gap was low for KCC farmers but it was high for non KCC farmers. Hence credit for maize cultivation was inadequate for non KCC farmers compared to KCC

farmers. The credit gap for ground nut under KCC farmers was Rs.1194/ha (2.12 %) and for non KCC farmers was Rs.4624/ha (9.21). In KCC farmers the credit gap is more in small farmers farmers Rs. 2724/ha (4.5%) followed by marginal farmers (Rs. 1605 /ha) and large farmers Rs.1634 (2.1%). The credit is adequate for KCC farmers in potato crop. The average per cent of credit gap was less for KCC farmers Rs.1402/ha (1.33 %) as compared to non KCC farmers Rs.5461/ha (5.61%). In case of KCC farmers credit gap large farmers was (Rs. 1402 /ha) and medium farmers (Rs.1524 /ha) and small farmers (Rs. 1017/ha).

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