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Research Paper

Comparative study of organic and inorganic paddy with reference to yield, market price and returns

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ABSTRACT : Organic farming is practiced in India since thousands of years. The great Indian civilization thrived on organic farming and was one of the most prosperous countries in the world, till the British ruled it. In traditional India, the entire agriculture was practiced using organic techniques, where the fertilizers, pesticides etc. were obtained from plant and animal products. In this regard, the present study is an attempt of comparative study of organic paddy and inorganic paddy with that of yields, market prices and returns in Tungabhadra Command Area of Karnataka state. The study revealed that, in the study area farmers used the different types of inputs in the cultivation of paddy both organically and inorganically. About eight types of inputs were used in the cultivation of organic paddy whereas for inorganic only seven inputs were used. In the organic farms the less quantity of seeds were used than inorganic farms and cost involved in usage of seeds on organic farms was less than that of inorganic farms. Organic farmers used less quantity of machine labour, more quantity of human and bullock labour than that of inorganic farmers in various operations. Cost of paddy cultivation on organic farms per acre was less when compared to that on inorganic farms per acre. Average yield of paddy was low on organic farms as compared to inorganic farms. The average market price of organic paddy, main product per quintal and by product per tone was found to be higher than that of inorganic paddy, main product per quintal and by product per tone.

KEY WORDS : Organic farming, TCA, Inputs

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INTRODUCTION

Organic farming is practiced in India since thousands of years. The great Indian civilization thrived on organic farming and was one of the most prosperous countries in the world, till the British ruled it. In traditional India, the entire agriculture was practiced using organic techniques, where the fertilizers, pesticides etc. were obtained from plant and animal products. Organic farming was the backbone of the Indian economy and cow was worshipped (and till today done so) as a Godess. Green revolution (GR) technologies supported by policies, and fuelled by agrochemicals, machinery and irrigation, are known to have enhanced agricultural production and productivity. These technologies greatly helped to address the food security of India. Farmers using these technologies have to depend upon purchased inputs. The small farmers, who are short of cash, are therefore found to lag behind large farmers in adoption of technologies. Use of expensive energy sources like fossil fuels create environmental and health problems. It is perhaps owing to these issues and their negative impacts, that the Intergovernmental Panel on Climate Change (IPCC) has noted that agriculture as practiced today (conventional agriculture, modern agriculture or GR agriculture) accounts for about one fifth of the anthropogenic greenhouse effect, producing about

50 per cent and 70 per cent, respectively of the overall anthropogenic methane and nitrogen oxides emissions. Modern agricultural practices with irrational use of chemical inputs over the past four decades have resulted in not only loss of natural habitat balance and soil health but also caused many hazards like soil erosion, depletion of groundwater, soil salinization, pollution, genetic erosion, ill effects on environment, reduced food quality and increased the cost of cultivation, rendering the farmer poorer year after year (Ram Kumar *et al.,* 2003). Farmers do not find agriculture a viable proposition anymore and in fact, a large number of farmers have committed suicides (Deshpande, 2002). Some of the factors that contributed to the present crisis in farming could be the shooting-up of the price of factory-made external inputs and the government's slow withdrawal of investment as well as market intervention and more significantly, shifting of subsistence farming (mainly with home grown inputs) to commercial farming (largely with purchased inputs). In other words, local indigenous farm techniques have been wiped out and replaced by the modern techniques resulting in an unviable and unsustainable farming. It is in this context that alternative farm techniques and strategies for growing crops ought to be found in the larger interest. The principle of organic cultivation is attracting farmers world over due to its various advantages over modern agricultural practices. Essentially, it is a farming system which supports and strengthens biological processes without recourse to conventional remedies such as chemicals or genetically modified organisms. Organic agriculture is productive and sustainable (Reganold *et al.*, 1993). Hence, present study was conducted with the objective to study the comparative study of organic paddy and inorganic paddy with that of yields, market prices and returns in Tungabhadra Command Area (TCA) of Karnataka state.

MATERIALS AND METHODS

For analyzing the comparetive study of organic paddy and inorganic paddy with reference to yields, market prices and returns in Tungabhadra Command Area (TCA) of Karnataka state was purposively selected. The budgeting technique was employed to estimate the costs and returns in cultivation of paddy under both organic and inorganic farmings Comparetive study of organic paddy and inorganic paddy with that of yields, market prices and returns in Tungabhadra Command Area (TCA) of Karnataka state. Multistage random sampling technique was employed for selection of sample respondents. A sample of 60 farmers cultivating paddy under organic farming system and another 60 farmers cultivating paddy under inorganic farming system spread over the entire Tungabhadra Command Area in Karnataka were chosen for the study, and multistage random sampling technique was employed for selection of sample respondents. In the first stage, Tungabhadra Command Area (TCA) of Karnataka was selected purposively for the present study. In the second stage, three districts of TCA *viz.*, Bellary, Koppal and Raichur were selected. In the third stage, one taluk from each selected district having maximum paddy area under organic cultivation was selected. In the fourth stage for selecting respondents, 12 villages at the rate of four from each selected taluk having maximum paddy area under organic cultivation were selected. From each selected village, five farmers growing paddy under organic farming and another five farmers growing paddy under inorganic farming were selected. Thus, the total sample size was 120.

RESULTS AND DATA ANALYSIS

The type, level, pattern of inputs used and cost involved on each input are presented in the Table 1. It was observed that in the study area following inputs were used in the organic cultivation of paddy :

Seeds,
Farm yard manure,
Green manuring,
Vermicompost,
PSB/Rhizobium,
Jeevamritha,
Neem seed kernel powder (NSKP),
Biopesticides which included, neem seed kernel extract and Panchagavya.

Paddy seedlings were raised in the nursery and then transplanted to the main field. About 12.60 kgs seeds were used to raise the nursery required for an acre of area.

The farmers used about 2.56 tonnes of farm yard manure, which was applied to the field two weeks before the transplanting by the way of broadcasting method. In case of green manuring, about 14.57 kg seeds were used for an acre of area, which was applied 15-20 days before transplanting by the method of in situ application. In case of vermicompost, about 2.03 quintals per acre was applied at the time of transplanting by following the broadcasting method. PSB/ Rhizobium was used at the rate of 1.77 kg per acre, which was mainly applied at the nursery stage by the way of soil application and also at the time of transplanting by following the root dipping method. Jeevamritha was used at the rate of 23.18 litres per acre, which was applied to the field 20-30 days after transplanting by the way of spraying/through irrigation water. About 1.17 quintals of Neem seed kernel powder was applied at the time transplanting by following the broadcasting method (it is used as both manure and biopesticide to control the nematodes and root diseases). In case of biopesticides namely, neem seed kernel extract was used at the rate of 0.39 litres per acre, which was applied at 30 days interval after transplanting by the way of spraying to control incidence of sucking pests (like thrips, mites, aphids, jassids and white flies),

BPH (brown plant hopper), leaf minors, bugs and lepidopteron larvae. Panchagavya was used at the rate of 14.70 litres per acre, sprayed at 10-15 days interval after transplanting to control fungal diseases (like blast and brown leaf spot). The maximum per acre cost of inputs involved was in the use of FYM (Rs. 1421.23) followed by green manuring (Rs. 777.01), NSK powder (Rs. 768.69), vermicompost (Rs. 560.28), jeevamritha (Rs. 466.38), panchagavya (Rs. 331.13), seeds (Rs. 293.43), neem seed kernel extract (Rs. 88.46 and PSB/rhizobium (Rs. 72.76).

The type, level, pattern of inputs used and cost involved on each input in the inorganic cultivation of paddy are presented in the Table 2. It was observed that in the study area the following inputs were used in the inorganic cultivation of paddy :

Seeds,
Farm yard manure,
Urea,
DAP,
Potash,
Complex fertilizers.

Plant protection chemicals which included monocrotophos/imidacloprid, chloropyriphos/carbofuron, carbendazim/mancozeb and weedicides (pendimethalin and butachlore). Under the inorganic cultivation also, the paddy seedlings were raised in the nursery and then transplanted to the main field. About 24.58 kg of seeds were used to raise the nursery for an acre of area.The farmers used about 1.33 tonnes of FYM per acre which was applied to the field two weeks before the transplanting by the way of broadcasting method. In case of fertilizers application to the crop, 162.50 kg of urea per acre was used, in that 30 per cent was applied as a basal dose at the time of transplanting and remaining 70 per cent was top dressed at different stages of the crop, out of that 70 per cent, 30 per cent was applied at 15 DAT (days after transplanting), 20 per cent at 30 DAT and 20 per cent at 45 DAT by the way of broadcasting. In case of DAP, about 91 kg per acre was applied, in that 40 per cent was applied as a basal dose at the time of transplanting, 40 per cent at 15 DAT and remaining 20 per cent at 30 DAT of the crop by following the broadcasting method. About 52 kg of potash per acre was broadcasted at a one week interval after flowering stage of the crop. In case of complex fertilizers, about 89 kg per acre was used, in that 30 per cent was applied as a basal dose at the time of transplanting, 30 per cent at 30-40 DAT and remaining 40 per cent at 85-95 DAT (after flowering stage) by the way of broadcasting. In case of plant protection chemicals, monocrotophos/imidacloprid was used at the rate of 0.69 litre per acre to spray at three weeks interval after transplanting mainly to control brown plant hopper and lepidopteron larvae, carbendazim/mancozeb was used at the rate of 0.89 litre to spray for an acre area at 2-3 weeks interval after transplanting to control, blast and brown leaf spot diseases, chloropyriphos/ carbofuron was used at the rate of 0.57 litre to spray for an acre of area at two weeks interval after transplanting to control thrips, mites and defoliator insects and about 0.45 litre of weedicide was sprayed within the 4-5 days after transplanting to control the weeds. In all these inputs maximum per acre cost was involved was on DAP (Rs. 1570.66), followed by carbendazim/mancozeb (Rs. 1264.85), urea (Rs. 1228.50), complex fertilizer (Rs. 1147.21), monocrotophos/imidacloprid (Rs. 1011.80), FYM (Rs. 738.37), chloropyriphos/carbofuron (Rs. 725.04), potash (562.64), seeds (Rs. 513.96) and weedicide (Rs. 135). The results are in confirmity with the findings of

Table 1: Type, level, pattern of input use and cost involved in organic cultivation of paddy

Sr. No.	Type of input	Unit	Quantity used (per acre)	Time of application	Method of application	Used to control	Per acre cost of inputs (Rs.)
1.	Seeds	Kg	12.6				293.43
2.	FYM	Tonnes	2.56	Two weeks before transplanting	Broadcasting		1421.23
3.	Green manuring	Kg of seeds	14.57	15-20 days before transplanting	*In situ* application		777.01
4.	Vermicompost	Quintal	2.03	At the time of transplanting	Broadcasting		560.28
5.	PSB/Rhizobium	Kg	1.77	At the time of transplanting	Root dipping		72.76
6.	Jeevamrutha	Lit	23.18	20-30 days after transplanting	Spraying/with irrigation water		466.38
7.	NSK powder	Quintal	1.17	At the time of transplanting	Broadcasting	It is used as both manure and bio-pesticide	768.69
8.	Biopesticides						
(a)	NSKE	Lit	0.39	30 days interval after transplanting	Spraying	Sucking pest, leaf minors, BPH, Lepidopteron larvae	88.46
(b)	Panchagavya	Lit.	14.7	10-15 days interval after transplanting	Spraying	Blast, Brown leaf spot	331.13

Note: PSB-Phosphate solubalizing bacteria and NSK-Neem seed kernel

Kshirsagar (2006), Sujatha *et al.* (2006) and Sale and Yadav (2008).

The quantity of labour used, costs involved in the different operations of organic and inorganic cultivation of paddy for an acre area are presented in the Table 3. In case of organic cultivation of paddy, for ploughing about 1.10 hours

Table 2 : Type, level, pattern of inputs used and cost involved in inorganic cultivation of paddy

Sr. No.	Type of input	Unit	Quantity used (per acre)	Time of application	Method of application	Used to control	Per acre cost of inputs (Rs.)
1.	Seeds	Kg	24.58				513.96
2.	FYM	Tonnes	1.33	Two weeks before transplanting	Broadcasting		738.37
3.	Urea (N)	Kg	162.5	30% as basal , 30% at 15 DAT, 20% at 30 DAT and 20% at 45 DAT	Broadcasting		1228.50
4.	DAP (P)	Kg	91	40% as basal, 40% at 15 DAT and 20% at 30 DAT	Broadcasting		1570.66
5.	Potash (K)	Kg	52	One week interval after flowering stage	Broadcasting		562.64
6.	Complex (N:P:K)	Kg	89	30% at 10 DAT, 30% at 30-40 DAT, 40% at 85-95 DAT	Broadcasting		1147.21
7.	Plant protection chemicals						
(a)	Monocrotophos/Imidacloprid	Lit	0.69	3 weeks interval after transplanting	Spraying	BPH, lepidopteron larvae	1011.80
(b)	Mancozeb/Carbendazim	Lit	0.89	2-3 weeks interval at 30 DAT	Spraying	Damping off, PM, Blast, Brown leaf spot	1264.85
(c)	Chloropyriphos/Carbofuran	Lit	0.57	2 weeks interval at 20 DAT	Spraying	Thrips, mites and defoliator inseccts	725.04
(d)	Weedicide	Lit	0.45	Within 4-5 DAT	Spraying	Weeds	135

Note: DAT – Days After Transplanting

Table 3: Labour use pattern in the production of organic and inorganic paddy **(Per acre)**

Sr. No.	Particulars	Units	Paddy			
			Organic		Inorganic	
			Quantity	Cost	Quantity	Cost
1.	Ploughing	Machine hours	1.10	445.88 (4.46)	1.23	498.58 (5.73)
2.	Transportation of FYM	Machine hours	1.29	419.25 (4.20)	0.66	214.50 (2.47)
3.	Harrowing	Machine hours	0.45	148.61 (1.49)	0.48	158.52 (1.82)
4.	Spreading of FYM	Man days	2.39	299.25 (3.03)	1.28	179.51 (2.06)
5.	Seed bed preparation	Man days	2.37	310.83 (3.11)	2.24	311.44 (3.58)
6.	Transplanting	Man days	13.12	1449.76 (14.52)	14.90	1646.75 (18.94)
7.	Organic manure / Fertilizer application	Man days	3.78	522.26 (5.23)	3.35	527.62 (6.07)
8.	Hand weeding	Man days	23.52	2598.96 (26.03)	6.76	746.98 (8.59)
9.	Inter cultivation/puddling	Machine hours	1.45	704.42 (7.05)	2.19	1063.90 (12.24)
		Pair days	0.71	372.71 (3.73)	0.41	215.23 (2.47)
10.	Spraying of biopesticides/PPC	Man days	3.05	412.67 (4.13)	2.69	423.67 (4.87)
11.	Irrigation	Man days	1.35	209.25 (2.09)	1.65	259.87 (2.99)
12.	Harvesting	Machine hours	0.88	2089.76 (20.93)	1.00	2450.08 (28.17)
	Total	–	–	9983.61 (100)	–	8696.35 (100)

Note: Figures in the parentheses indicate percentage to the respective total

of machine labour was used for an acre, for transportation of FYM about 1.29 hours of machine labuor was used. In case of harrowing operation, about 0.45 hours of machine labour was used. About 2.39 man days of human labour was used for spreading of FYM. In case of seed bed preparation, 2.37 man days of human labour was used. In case of transplanting operation, about 13.12 man days, for organic manures and biofertilizers application 3.78 man days and for hand weeding about 23.52 man days of human labour was used. In case of intercultivation/puddling operation about 1.45 hours of machine labour and also 0.71 pair days of bullock labour were used. About 3.05 man days for spraying of biopesticides and 1.35 man days for irrigation were used. For harvesting 0.88 hours of machine labour (combined harvester) was used. The maximum cost involved was in case of hand weeding (Rs. 2598.96) followed by harvesting operation (Rs. 2089.76), transplanting (Rs. 1449.76), organic manures and biofertilizers application (Rs. 522.26), ploughing (Rs. 445.88), transportation of FYM (Rs. 419.25), spraying of biopesticides (Rs. 412.67), seed bed preparation (Rs. 310.83), spreading of FYM (Rs. 299.25), irrigation (Rs. 209.25) and harrowing (Rs. 148.61). In case of inorganic cultivation of paddy, for ploughing about 1.23 hours of machine labour was used for an acre, for transportation of FYM about 0.66 hours of machine labuor was used. In case of harrowing operation about 0.48 hours of machine labour was used. About 1.28 man days of human labour was used for spreading of FYM. In case of seed bed preparation, about 2.24 man days of human labour was used. In case of transplanting operation, about 14.90 man days, for chemical fertilizers application 3.35 man days and for hand weeding about 6.76 man days of human labour were used. In case of intercultivation/puddling operation about 2.19 hours of machine labour and also 0.41 pair days of bullock labour were used. About 2.69 man days for spraying of plant protection chemicals and 1.65 man days for irrigation were used. For harvesting 1.00 hour of machine labour was used. The findings of the study are in agreement with Sujatha *et al.* (2006) who reported that organic cultivation of rice and cotton was labour intensive than inorganic cultivation.The maximum cost involved was in case of harvesting operation (Rs. 2450.08) followed by transplanting (Rs. 1646.75), hand weeding (Rs. 746.98), chemical fertilizers application (Rs. 527.62), ploughing (Rs. 498.58), spraying of plant protection chemicals (Rs. 423.67), seed bed preparation (Rs. 311.44), irrigation (Rs. 259.87), transportation of FYM (Rs. 214.50), spreading of FYM (Rs. 179.51) and harrowing (Rs. 158.52).

The per acre cost of cultivation of paddy crop on organic and inorganic farms is presented in the Table 4. Perusal of the table indicated that the total cost of paddy cultivation on organic farms was less than that of inorganic farms. The average cost

Table 4 : Cost involved in paddy cultivation on organic and inorganic farms **(Rs./acre)**

Sr. No.	Particulars	Organic farms		Inorganic farms		Difference	
		Cost	Per cent to total cost	Cost	Per cent to total cost	Cost	Per cent
Variable cost							
1.	Seeds	293.43	1.03	513.93	1.62	-220.50	7.09
2.	Farm yard manure	1421.23	4.97	738.37	2.33	682.86	-21.94
3.	Green manuring seeds	777.01	2.72	-	-	777.01	-24.97
4.	Vermicompost	560.28	1.96	-	-	560.28	-18.00
5.	Biofertilizers	1307.83	4.56	-	-	1307.83	-42.03
6.	Biopesticides	419.59	1.47	-	-	419.59	-13.48
7.	Chemical fertilizers	-	-	4509.01	14.23	-4509.01	144.91
8.	Plant protection chemicals	-	-	3136.69	9.90	-3136.69	100.80
9.	Human labour	5846.60	20.45	4095.10	12.92	1751.50	-56.30
10.	Bullock labour	372.71	1.30	215.22	0.68	157.49	-5.06
11.	Machine labour	3764.30	13.17	4386.03	13.84	-621.73	19.98
12.	Irrigation charge	100.00	0.35	100.00	0.32	0.00	0.00
13.	Interest on working capital @ 7 per cent	1040.40	3.64	1238.60	3.91	-198.20	6.37
	Sub total (A)	15903.38	55.62	18932.95	59.75	-3029.57	97.37
Fixed cost							
1.	Land revenue	50.00	0.18	50.00	0.15	0.00	0.00
2.	Rental value of the land	10500.00	36.74	10500.00	33.12	0.00	0.00
3.	Depreciation	1025.44	3.59	1099.28	3.46	-73.84	2.37
4.	Interest on fixed capital @ 11 per cent	1106.79	3.87	1114.92	3.52	-8.13	0.26
	Sub total (B)	12682.23	44.38	12764.20	40.25	-81.97	2.63
	Total cost of cultivation (A+B)	28585.61	100.00	31697.15	100.00	-3111.54	100.00

of cultivation per acre of paddy on organic farm was Rs. 28585.61 as against Rs. 31697.15 on inorganic farms. The cost of chemical fertilizers and cost of plant protection chemicals on inorganic farms were the differing factors in the cost. In the total cost, variable costs accounted for a major share. The proportion of variable cost was Rs. 15903.38 and Rs. 18932.95 accounting for 55.62 per cent and 59.75 per cent of the total cost of cultivation of paddy on organic and inorganic farms, respectively. In the case of organic farms, the variable costs mainly comprised of cost of human labour, cost of organic manure (FYM, green manuring, vermicompost, biofertlizers and biopesticides) and cost of machine labour which were Rs. 5846.60, Rs. 4485.94 and Rs. 3764.30 accounting for 20.45 per cent, 15.70 per cent and 13.17 per cent of the total cost of cultivation, respectively. The expenditure on organic manure was found to be an important item in total cost of cultivation on organic farms. The other variable cost items such as cost of seeds, cost of bullock labour, irrigation charge and interest on the working capital accounted for 1.03 per cent (Rs. 293.43), 1.30 per cent (Rs. 372.71), 0.35 per cent (Rs. 100.00) and 3.64 per cent (Rs. 1040.40) of the total cost of cultivation of paddy on organic farms, respectively. In the cost of cultivation of paddy on inorganic farms, the variable cost mainly comprised of cost of chemical fertilizers, cost of machine labour, cost of human labour, and cost of plant protection chemicals which were Rs. 4509.01, Rs. 4386.03, Rs. 4095.10 and Rs. 3136.69 accounting for 14.23 per cent, 13.84 per cent, 12.92 per cent and 9.90 per cent of the total cost of cultivation, respectively. The expenditure on chemical fertilizers found to be an important item in the total cost of cultivation on inorganic farms. The other variable cost items such as cost of seeds, cost of FYM, cost of bullock labour, irrigation charge and interest on working capital accounted for 1.62 per cent (Rs. 513.93), 2.33 per cent (Rs. 738.37), 0.68 per cent (Rs. 215.22), 0.32 per cent (Rs. 100.00) and 3.91 per cent (Rs. 1238.60) of the total cost of cultivation of paddy on inorganic farms, respectively. The cost incurred on land revenue and land rent was similar in both organic and inorganic farms. The depreciation charge was relatively high on inorganic farms and low on organic farms because inorganic farmer's asset position was high. Similar results were observed by Singh *et al.* (2006), Sujatha *et al.* (2006) and Waykar *et al.* (2006). The share of fixed cost in total cost of cultivation of paddy on organic farms and inorganic farms was 44.38 per cent (Rs. 12682.23) and 40.25 per cent (Rs. 12764.20), respectively. Among the items of fixed cost, the rental value of the land had a maximum share in the total cost of cultivation on both organic and inorganic farms.

The average yield level, market price, marketing cost and net returns are presented in Table 5. The per acre average yield of paddy on organic farm (main product 26.96 quintals and by product 2.39 tonnes) was comparatively lower than that of inorganic farm (main product 32.93 quintals and by product 3.78 tonnes). The majority of the organic paddy growers sold their produce at different places of the market especially to Mysore (Mahadevpur-orgnic products processing unit) and Bangalore (Era organics) through the middle men/agencies and remaining organic paddy growers sold their produce locally/ local market. Where as in case of inorganic paddy growers more than 90 per cent of growers sold their produce to rice milling units and remaining 10 per cent of the growers sold their produce in regulated for their emergency need of money. The average market price of organic paddy was, for main product Rs. 1786.34 per quintal and for by product Rs. 833.17 per tonne. It was found to be higher than that of inorganic paddy, where for main product it was Rs. 1394.44 per quintal and for by product Rs. 485.50 per tonne. The marketing cost of organic paddy was Rs. 310.46 as against Rs. 417.14 per quintal of inorganic paddy. The organically produced paddy could fetch premium price in the distant markets but not in the local market. The return structure in paddy clearly revealed that the gross returns per acre were higher (Rs. 50152.77) on organic farms compared to that of inorganic farms (Rs. 47757.58) with a positive net return on both types of the farms. The net return on organic farm was Rs. 21256.70 per acre and was Rs. 15643.29 per acre on inorganic farms. Though the yield levels on organic farms were lower compared to inorganic farms, the net returns were higher because

Table 5 : Yield, market price and returns in paddy cultivation on organic and inorganic farms

Sr. No.	Particulars	Organic farms	Inorganic farms
1.	Yield/ acre :		
	a. Main product (quintals per acre)	26.96	32.93
	b. By product (tonnes per acre)	2.39	3.78
2.	Market price :		
	a. Main product (Rs. per quintal)	1786.34	1394.44
	b. By product (Rs. per tonne)	833.17	485.50
3.	Total marketing cost (Rs. per acre)	310.46	417.14
4.	Gross returns (Rs. per acre)	50152.77	47757.58
5.	Cost of cultivation (Rs. per acre)	28585.61	31697.15
6.	Net returns (Rs. per acre)	21256.70	15643.29
7.	B:C ratio	1.74	1.49

of the premium price received and lower cost of cultivation. The B:C ratio was also higher on organic farms (1.74) compared to inorganic farms (1.49). The study is in conformity with the results of the study, conducted by Suresh (2001), Jadhav *et al.* (2006), Naik *et al.* (2010) and Singh and Grover (2011).

Conclusion :

Comparative study was made of organic paddy and inorganic paddy with that of yields, market prices and returns in Tungabhadra Command Area (TCA). Farmers used different types of inputs in the cultivation of paddy both organically and inorganically. About eight types of inputs were used in the cultivation of organic paddy whereas, for inorganic, seven types of inputs were used. In the organic farms the less quantity of seeds were used than inorganic farms and cost involved in usage of seeds on organic farms was less than that of inorganic farms .The main reasons for this as expressed by the farmers were, the germination percentage was much higher in case of organic seeds and plant population maintained on organic farm was comparatively less than that on inorganic farm. The organic farmers used more quantity of FYM than that of inorganic farmers since the inorganic farmers used more of chemical fertilizers. Organic farmers used less quantity of machine labour, more quantity of human and bullock labour than that of inorganic farmers in various operations. Human and bullock labour use was more in organic cultivation of paddy compared to inorganic cultivation of paddy. The cost of paddy cultivation on organic farms was less when compared to that on inorganic farms. This difference in cost of cultivation was due to the higher cost incurred on chemical fertilizers as well as on plant protection chemicals by inorganic farmers. Average yield of paddy was low on organic farms as compared to inorganic farms. This was mainly due to the fact that most of the organic farmers practiced the organic farming from last four to five years only, since to build up soil fertility which takes more than five years and hence in initial four years there is yield loss in the organic farms compared to inorganic farms. The majority of the organic paddy growers sold their produce at different places of the market especially to Mysore (Mahadevpur-orgnic products processing unit) and Bangalore (Era organics) through the middle men/agencies and remaining organic paddy growers sold their produce locally/ local market. This was mainly due to organic paddy could fetch more premium price in Mysore and Bangalore markets (more than 30 % extra of inorganic prevailing paddy prices in the local market) than in local market of the organic paddy growers (less than 20 % extra of inorganic paddy prevailing prices in the local market). Whereas in case of inorganic paddy growers, more than 90 per cent of growers sold their produce to rice milling units and remaining 10 per cent of the growers sold their produce in regulated for their emergency need of money. This was mainly because owners of the rice milling units offered free bags for packing, free transportation and also credit facilities to the farmers for their family and farm fulfillments.

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