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Economic analysis of Red Chittagong Cattle farming system in some selected areas of Chittagong district

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Abstract

The study was carried out in 5 Upazilas under Chittagong district with a view to analyze the present socio-economic status of RCC farming practices on 100 RCC rearers (Potiya, Raujan, Chandanaish, Anowara and Satkania Upazila). The study showed that, about 39.00 percent of RCC farm owners were landless, 31.00 percent were small and marginal farmers, 17.00 percent were medium and 13.00 percent were large farmers according to their landholding sizes. The cost of rearing RCC per cattle per year was found to be Tk. 17503.76, Tk. 15540.27, and Tk. 33044.03 as cash cost, non cash cost and total cost respectively. The study also revealed that, average daily milk yield, lactation yield and lactation length of RCC were found to be 2.71 liters, 581.61 liters and 215.41 days, respectively. The average per year per cattle gross return of RCC was found Tk. 25390.41. The gross returns over cash cost and full cost basis of rearing per lactation per cattle of RCC were found at Tk 8058.642 and Tk.-7501.53, respectively. The benefit cost ratio on the basis of cash cost and full costs per year per cattle was found 1.47 and 0.77, respectively. The study also revealed that, the rural farmers prefer RCC farming than other breeds due to high conception rate, each year calving, disease resistance, high milk fat per cent and cost effective farming.

Keyword: RCC, Cost, Return, Profitability, Disease Occurrences

Introduction

Livestock plays an important role in the agricultural economy of Bangladesh. The non-crop agriculture sector has registered significantly higher growth rate over the last few years. The share of this sector was 2.90 percent of GDP, which was 17.7 percent of agriculture and forestry sector in FY 2006-07. Among the sub-sectors of the broad agriculture sector, the growth of the livestock sub-sector was the highest. Though the share of the live-stock sub-sector in GDP is small, but it has immense contribution to meeting the daily protein requirements, cultivation, production and export of leather and leather goods. According to the estimates by the Ministry of Fisheries and Livestock the number of the livestock and poultry raised to 4 crore 75 lakh and 24 crore 60 lakh respectively in 2006-07. The production of milk, meat (beef, mutton and chicken) and egg have been on the increase over the past several years. In the year 2006-07, production of milk and meat were 2.28 and 1.03 million ton respectively (Bangladesh Economic Review, 2007). In terms of high density of livestock, the country suffers from an acute shortage of livestock products. The Government of Bangladesh therefore applied special emphasis on development of livestock sectors. In fact, about 90% of the cattle population in Bangladesh termed as low producing indigenous cattle. Among them some improved varieties such as Red Chittagong Cattle, Pabna Cattle, Munsiganj Cattle, Manikganj Cattle and North Bengal Grey Cattle are potential producers of milk, meat and are found in different localities of the country. The Red Chittagong Cattle is one of the improved and promising domestic animal genetic resource found all over the Chittagong district at varying concentrations. The Red Chittagong Cattle have distinct phenotypic characteristics (Hossain, 2005). The Red Chittagong Cattle are well adopted to adverse climatic condition and developed in disease resistance power, service per conception, lactation length, one calf per year production etc (Akhter *et al.,* 2002). Other breeds are well developed to meat and milk production (Deb*,* 2005). Most of the available studies of RCC rearing related to productive and reproductive performance based, the socio-economics of RCC farming practices are limited. Thus, the present study is the modest effort whether the RCC farming practices has any positive impact for improving livelihood of rural poor in Bangladesh. The objectives of the study are as follows: i) To describe the socio-economic characteristics of the RCC farm owners, ii) To estimate per lactation cost and return of the RCC farming, iv) To identify some reasons for preference of rearing RCC and give some recommendations for improving Red Chittagong Cattle in Bangladesh.

Materials and Methods

The present study was conducted at five upazilas of Chittagong district viz, Potiya, Chandanaish, Raujan, Anowara and Satkania. Data were collected during December 2007 to June 2008 covering 100 RCC farm owners from 5 Upazilas equally selected by using purposive sampling technique and questionnaire survey method having one dairy cattle was under milking per household. Collected data were organized, structured and analyzed by using tabular method as well as using simple descriptive statistical tools and techniques by using Microsoft Excel and SPSS program.

Results and Discussion

Socio economic profiles of RCC rearers

Age: Members of the whole family were classified into 4 age groups of less than10 years, 11-30 years, 31-50 years and 50 years and above. Considering all the age groups, Table 1 showed that, maximum male and female members were belong in 11-30 years age groups and the lowest number of farm family members lies in 50 and above year's age group.

Literacy level: Table 1 shows the literacy level of the family members of the RCC farm owners. Literacy level was classified into Illiterate, Primary, Secondary, Higher secondary, Honors and above respectively. Maximum 31.16 percent of the family member lies in secondary level and lowest 1.76 percent of the family member lies in Honors and above level.

Occupation: Occupation of the RCC farm family members was classified into five categories, which was also showed in the Table 1. It was showed that, highest 35.56 percent farmers involved in RCC farming with crop agriculture and lowest 13.89 percent farmers involved in RCC farming and others actives.

Table 1. Distribution and Socio Economic Profiles of RCC farm Families

General Characteristics	Categories		Number	Percentage
Age	<10 years	Male	21	5.27
		Female	25	6.28
	11-30 years	Male	90	22.61
		Female	78	19.60
	31-50 years	Male	73	18.34
		Female	63	15.83
	50 and above	Male	28	7.04
		Female	20	5.03
	Total		**398**	**100.00**
Literacy level	Illiterate		34	8.54
	Primary		124	31.16
	Secondary		155	38.94
	Higher Secondary		78	19.59
	Honors and Above		7	1.76
	Total		**398**	**100.00**
Occupation	RCC farming with crop agriculture		64	35.56
	RCC farming with service		52	28.89
	RCC farming with business		39	21.67
	RCC farming and others		25	13.89
	Total		**180**	**100.00**
Land Ownership	Land less farmers (0- 0.50 acres)		39	39.00
	Small (0.51- 1.50 acres)		31	31.00
	Medium sized (1.51-2.5acres)		17	17.00
	Large farmers (above 2.50 acres)		13	13.00
	Total		**100**	**100.00**
Yearly Income	Below Tk. 50,000		21	23.00
	Tk. 50,001- Tk.1,00000		25	25.00
	Tk. 1,00001- Tk.1,50000		24	24.00
	Above Tk. 150,000		30	30.00
	Total		**100**	**100.00**

Source: Field Survey, 2008

Land ownership: According to the size of land holdings, the RCC farm owners were classified into 4 groups. Table 1 shows that highest 39.00 percent of the farm owners were landless and the lowest 13.00 % farm owners were large farm sized.

Yearly income level: Yearly income level of RCC farm owners were shown in the Table 1. It revealed that, maximum 30 percent of the farmer's income above Tk.150,000 and the lowest 23 percent of the farmer's income below TK. 50,000.

Cost of rearing Red Chittagong Cattle

Cost may be classified as cash cost where direct cash expenditure incurred were calculated from daily records and non-cash costs were fixed and family supplied input costs. The cost and return were estimated from the collected data from 5 Upazila under Chittagong district. Table 2 showed that, yearly estimated total cost of the different groups of RCC farm owners. Total estimated full cost of rearing RCC per year at Potiya, Raujan, Chandanaish, Anowara, Satkania and all average from five Upazila were Taka 31520.51, 33450.56, 30448.73, 35333.51, 34466.88 and 33044.03 respectively which indicate that costs of rearing RCC at Anowara was highest because of lack of fodders and high prices of concentrate feeds knowing through close survey of the market price and land status of the study area during data collection.

Table 2 indicated that cash cost of all average from five upazilas, the major expenditure incurred by concentrate feed which was 38.40 percent and out of non-cash cost the maximum cost incurred by labour cost which was 14.80 percent of total cost.

Table 2. Rearing cost of Red Chittagong Cattle

Particulars	Upazila wise per year per cattle cost											
	Potiya (n=20)		Raujan (n=20)		Chandanaish (n=20)		Anowara (n=20)		Satkania n=20		All n=100	
	In Taka	%	In Taka	%	In Taka	%	In Taka	%	In Taka	%	In Taka	%
Cash cost												
Straw	2506.1	7.99	3511.4	10.54	3043.45	10.02	3275.65	9.32	3550.12	10.37	3177.34	9.66
Concentrate	14267.95	45.50	11738.5	35.22	10913.5	35.92	14591.4	41.50	11711.35	34.20	12644.54	38.40
Vet. Care	760	2.42	1087.5	3.26	772.73	2.54	755.55	2.15	850.72	2.48	845.3	2.57
A.I Cost	150	0.48	120	0.36	170	0.56	200	0.57	220	0.64	172	0.52
Others	501.45	1.60	920.5	2.76	524.5	1.73	624.95	1.78	751.51	2.19	664.58	2.02
Total (cash cost)	18185.5	57.70	17377.9	52.14	15424.18	50.77	19447.55	55.00	17083.7	49.88	17503.76	53.22
Non-cash cost												
Straw	3252.65	10.40	4286.1	12.86	3770.93	12.41	4016.23	11.40	4573.06	13.35	2432.44	7.40
Green Grass	2212.5	7.05	2196.5	6.59	2790.54	9.19	2919.5	8.31	3080.62	8.99	1505.31	4.58
Labor cost	7350.54	23.40	8352.62	25.06	7378.96	24.29	8156.5	23.20	8581.46	25.06	4877.02	14.80
Depreciation on housing	419.32	1.340	1102.15	3.31	996.49	3.28	695.5	1.98	1052.42	3.07	516.98	1.57
Dairy equipment cost	100	0.32	135.29	0.41	87.63	0.29	98.23	0.28	95.62	0.27	66.42	0.20
Total (Non cash cost)	13335.01	42.30	16072.66	48.22	15024.55	49.33	15885.96	45.00	17383.18	50.12	15540.27	47.00
Full cost	31520.51	100.00	33450.56	100.00	30448.73	100.00	35333.51	100.00	34466.88	100.00	33044.03	100.00

Source: Field survey, 2008

Return of rearing Red Chittagong Cattle

The cost and return of Red Chittagong Cattle rearers were estimated from collected data at 5 Upazilas under Chittagong district. Table 3 showed that, yearly estimated total return of the RCC farm owners per year in Potiya, Raujan, Chandanaish Anowara, Satkania and all average from five upazilas were Tk. 27070.84, Tk. 23862.23, Tk. 25077.15, Tk. 24460.17 Tk. 26481.65 and Tk 25390.41 respectively which indicate per year per lactation per cattle returns was highest at Potiya because of higher milk yield and milk prices. It was evident from the table that major portion of the income come from milk which was 69.45 percent and lowest income come from cow dung which was 8.18 percent of total return. Estimated benefit cost ratio on the basis of cash cost for Potiya, Raujan, Chandanaish, Anowara, Satkania and all average from five upazilas were 1.50, 1.38, 1.64, 1.27, 1.57 and 1.47 respectively. Benefit cost ratio on the basis of full cost for Potiya, Raujan, Chandanaish, Anowara, Satkania and all average from five Upazila were 0.86, 0.72, 0.83, 0.70, 0.77 and 0.78, respectively.

Table 3. Returns of rearing of Red Chittagong Cattle

Particulars of Return	Upazila											
	Potiya		Raujan		Chandanaish		Anowara		Satkania		All(average)	
	In Taka	%	In Taka	%	In Taka	%	In Taka	%	In Taka	%	In Taka	%
Income from milk	19490.29	71.99	16801.98	70.41	17162.38	68.44	16129.90	65.59	18581.45	70.17	17633.2	69.45
Income from calf	5450.00	20.14	5200.00	21.79	5650.00	22.53	6250.00	26.19	5850.00	22.09	5680	22.37
Income from cow dung	2130.55	7.87	1860.25	7.80	2264.77	9.03	2080.27	8.22	2050.20	7.74	2077.21	8.18
Total return	27070.84	100.00	23862.23	100.00	25077.15	100.00	24460.17	100.00	26481.65	100.00	25390.41	100.00
Return over cash cost	9035.34	-	6604.33	-	9822.97	-	5212.62	-	9617.95	-	8058.642	-
Return over full cost	-4299.17	-	-9468.33	-	-5301.58	-	-10673.34	-	-7765.23	-	-7501.53	-
BCR (Cash cost basis)	1.50	-	1.38	-	1.64	-	1.27	-	1.57	-	1.472	-
BCR (Full cost basis)	0.86	-	0.72	-	0.83	-	0.70	-	0.77	-	0.776	-

Source: Field survey, 2008

Reasons for preference of rearing RCC farming practices

The Red Chittagong Cattle are one of the improved and promising varieties of domestic animal found in greater Chittagong district of Bangladesh. It is very nice looking variety of cattle of red body color which is known as Red Chittagong Cattle, cows of this variety are potentially good producer.

Table 4 showed that the highest (95%) farmers preferring of rearing RCC for high fat percentage of milk. The next important reasons for preferring RCC are calving every year, high milk price, looking very nice, high market price of cattle and less disease incidence. The farmer also prefer rearing RCC due to the following reasons: delicious milk, higher adaptability of local environment, low death rate of calf, higher lactation period, cost saving farming and higher conception rate.

Disease Incidence of RCC

Table 5 showed that many diseases affected the Red Chittagong Cattle. It is evident from the table that foot and mouth disease was the main disease affected the different breeds. The next diseases affected the different breeds were mastitis, parasitic infestation, dystocia, pyometra, milk fever, uterine prolapse, abortion and black quarter etc.

Table 4. Reasons for preference of rearing RCC farming practices

Particulars of Preference	Number of farmers responds (N =100)	Percentage
Looking very nice	92	92.00
Less Disease incidence	90	90.00
Cost saving farming	75	75.00
Delicious of Milk	82	82.00
High fat % of milk	95	95.00
Low death rate of calf	80	80.00
Calving every year	94	94.00
High lactation period	75	75.00
High conception rate	70	70.00
High Market Price of Cattle	91	91.00
High Milk Price	93	93.00
High adoption on local environment	85	85.00

Source: Field Survey, 2008

Table 5. Comparative Disease Incidence of Red Chittagong Cattle

Particulars of Disease	Number of Cases	Percentage
Black Quarter	01	1.49
Foot and Mouth disease	37	55.22
Milk fever	02	2.99
Mastitis	08	11.94
Uterine prolapse	02	2.99
Dystocia	04	5.98
Abortion	01	1.49
Pyometra	02	2.99
Parasitic infestation	10	10.00
Total	67	100.00

Source: Field Survey, 2008

Conclusion and Recommendations

The study revealed that BCR on the basis of cash cost in Potiya, Raujan, Chandanaish, Anowara at Satkania were 1.22, 1.14, 1.47 and 1.00 respectively, which shows that the RCC farming is profitable. On the other hand, BCR on the basis of full cost in Potiya, Raujan, Chandanaish, Anowara were 0.39, 0.25, 0.33 and 0.27 respectively, BCR in full cost basis are lower than 1, which indicate that the RCC farming is not profitable but traditionally this is going on as a subsistence farming by using low cost easily available inputs of farm families and the farmer gave labour for their farm without any remuneration. Incase of full cost as we included cost of family labour and family supplied green fodder as per local market rate, so it comes as negative impact on return. If we exclude the costs of these two items then we may conclude the RCC farming will be a profitable subsistence farm business at rural condition under Chittagong district. Some recommendations were giving for better rearing of RCC.

- The Directorate of Livestock Services should expand their veterinary services and other facilities. Veterinary treatment facilities should be extended up to union level.
- The shortage of feeds and fodder may partially overcome by introducing high yielding variety fodder cultivation. The government and non-government organizations should play a vital role in disseminating HYV fodder cultivation.

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