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IMPACT OF DUCK REARING TRAINING ON TECHNOLOGY DISSEMINATION AND INCOME OF WOMEN UNDER MICRO-FINANCE AND TECHNICAL SUPPORT (MFTS) PROGRAMME OF SELECTED AREA OF BANGLADESH

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Abstract

A total of 80 duck farms were randomly chosen from three selected districts for survey during the period of January to March 2006. Evidence shows that most of the respondents (93%) received training from Micro-Finance and Technical Support (MFTS) partner organization in Kishoregonj, Brahmanbaria and Habigonj district. It is evident that the respondents adopted duck rearing farming technology about 60-80% which varie from area to area. The dissemination of duck rearing took place in the MFTS project areas due to interventions of MFTSP through training followed by production credit. The duck farming was found profitable and on an average Tk. 3318 earned which was about 14% of the net change of income due to duck rearing technology in the MFTS project areas. This improved the socio-economic and livelihood status. Finally a set of recommendations were made for making MFTS project activities more effective.

Key words : Duck rearing, Adoption, Dissemination, Sustainability, Profitability, MFTS, Livelihood

Introduction

Bangladesh is an agro-based developing country in the South Asian region. The economy of Bangladesh is predominately poor and a vast population (49.9 per cent) live below the poverty line and the number of landless poor has recently been increased by 65.00 per cent. About 76.6 per cent of population live in rural areas (BBS, 2003). Their per capita income is only US$ 444 (Economic Review, 2004). Poultry rearing is an integral component of the rural farming system providing a considerable family income to the small, marginal and landless farmers. In Bangladesh, poultry is kept by 70-90 per cent of the households, while fewer households keep goats and cattle. Poultry is sometimes used as the first investment for a livestock ladder (move from poultry to cattle or goat/sheep etc.) to increase income and get out of the poverty. The World Bank's decision to target poor women was a major factor in the future course of development of this initiative. About 89 per cent of the rural households keep poultry with an average of 6.8 birds per holding under scavenging system (Amin 1999). There are about 183 million chickens and 37 million ducks in our country (DLS, 2005). About 86 per cent of the poultry meat and 78 per cent poultry eggs come from village poultry reared in scavenging system by the small and landless farmers (Alam, 1995).

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About 98 per cent of ducks in Bangladesh are traditionally reared under the existing scavenging system (Salauddin *et al.*, 1991), of which 90 to 95 per cent are of *Desi* (native) type (Ahmed, 1985; Arboleda, 1990). Indigenous ducks are well adapted to poor management and rural condition of Bangladesh (Hussain, 1989; DLS, 1990). The prospects of duck raising in Bangladesh lies in the fact that there are large areas of low lying and coastal lands with little or no supplementation. Farmers can keep duck flocks throughout the year allowing them to scavenge on the available water bodies at least for six months. Ducks also require inexpensive simple housing, little attention and less space for rearing. In addition, duck eggs are larger and more nutritious than chicken eggs (Islam, 1978). In rural areas ducks are reared by women mostly as scavengers. Duck rearing is an important source of self-employment for landless and small household in Bangladesh. For poverty reduction this plays a significant role in the *HAOR* areas. *Haor* areas consist of small farmers and the potential of increasing income and employment on these farms is quite limited. Therefore, one has to look for alternatives to get regular income and employment throughout the year. Many people have no idea about the profitability of small scale duck farming. Duck farming is generally practiced for domestic consumption and very little commercial motives persist in raising ducks in Bangladesh.

Palli Karma-Shahayok Foundation (PKSF) financed by International Fund for Agricultural Development (IFAD) initiated Micro-Finance and Technical Support (MFTS) project to train about duck rearing technology followed by financial support for enhancing production of duck and other livestock income generating activities (IGAs) in 13 districts of Bangladesh. The main objective of MFTS project is to involve rural women in rearing of livestock enterprise for poverty reduction. It is found that the MFTS project tremendously developed women beneficiaries through their involvement into livestock IGAs in Bangladesh (Akteruzzaman *et al.*, 2007). No systematic economic study has yet been conducted, more particularly, considering duck farms in Bangladesh. The present study is a modest attempt to find out the impact of income of women and adoption status of duck rearing technology resulting from training in some selected *Haor* areas among the MFTS project beneficiaries' households.

Methodology

A two-stage random sampling was drawn for conducting the study. In the first stage, three districts (Kishoregonj, Brahmanbaria, Habigonj) and six upazila, three from Kishoregonj, two from Habigonj, one from Brahmanbaria were purposively selected. For collection of primary data from farmers, three upazila Tarail, Nikli, Hossainpur, were chosen from Kishoregonj district, Nabinagar upazila from Brahmanbaria district and Habigonj sadar upazila, Chunarughat upazila from Habigonj district were purposively selected. In the second stage, a database of duck rearers including their other livestock IGAs were maintained by each of the partner NGOs of PKSF. From that population, a total of 80 duck farmers were randomly selected of which 44 from Kishorgonj, 21 from Brahmanbaria, 15 from Habigonj district respectively. Data were collected before joining MFTS project and at present situation of the selected respondents. Keeping in view the objectives of the study, an interview schedule was prepared to collect the expected information.

The interviews were made individually in the house of the selected households. Desired rapport was established with the respondents. All possible efforts were made to explain the purpose of the study to the respondents. The information supplied by the women was recorded directly on the interview schedule which was prepared and pre-tested before final data collection. After completion of data collection, efforts were made to scrutinize, check, edit and correct the ambiguity in recording data if

there be any in the schedules and then considered ready for final analysis. Data were carefully analyzed with a view to achieving the objectives of the study. Tabular technique was applied for the analysis of data using simple statistical tools like average, sampling and percentage, etc.

Results and Discussion

Adoption and dissemination of duck rearing technology

It is evident that out of 80 selected respondents, 74 received training of which 52 respondents received training from MFTS project partner organizations and 22 from other organizations. It is evident that most of the respondents in all areas argued that they have poor idea (1-2 out of score 10) about livestock technology (Table 2). The reception of knowledge during training about duck rearing technologies ranked 8-10 (out of score 10). It means that the reception during training was more or less 80 to 100 per cent in all areas. On the other hand, the rate of adoption of different technologies was ranked 8-9 i.e. they adopt 80 to 90 per cent which they learnt from training.

Table 1. Training exposure of duck farming respondents

District	N	Training received from MFTSP		Training received from others		Total	
		No.	%	No.	%	No.	%
Kishoregonj	44	25	48.1	15	68.2	40	54.1
Brahmanbaria	21	17	32.7	5	22.7	22	29.7
Hobigonj	15	10	19.2	2	9.1	12	16.2
Total	80	52	100	22	100	74	100

Source : Field Survey, 2006

Table 2. Extent of adoption of duck farming technologies by the women beneficiaries

Technologies	Parameters	Area (average score out of 10)			
		Kishoregonj	Brahmanbaria	Habigonj	Average
Housing of duck	Idea about the concept	1.3	1.3	1.4	1.3
	Reception during training	10	12	5	9.0
	Adoption	9	6	4	6.3
Feeding of duck	Idea about the concept	2	2	1.8	1.9
	Reception during training	10	11	7	9.3
	Adoption	9	8	7	8.0
Treatment of duck	Idea about the concept	1.5	1.6	1.8	1.6
	Reception during training	10	8	7.5	8.5
	Adoption	9	8	6	7.6
Breeding of duck	Idea about the concept	0.4	0.2	0.3	0.30
	Reception during training	9.0	9.0	8.0	0.85
	Adoption	9.5	9.0	8.5	9.00
Marketing of products	Idea about the concept	1.0	1.1	1.2	1.10
	Reception during training	10	6	4	6.6
	Adoption	9	5	3	5.6

Source : Field Survey, 2006

Profitability of duck rearing technology

It is found that that the average cost of labour before training under MFTS project was 33.03 per cent and after training it was calculated 30.86 per cent of total cost (Table 3). The average feed cost was 26.16 per cent but after training it is changed to 24.58 per cent for all districts. There were mainly three types of duckling, which were Khaki Cambel, Indian Runner and Jinding in Brahmanbaria, Habigonj and Kishorgonj districts. All types of duckling were sold at Tk. 16, 15, and 17 per duckling for Brahmanbaria. Habigonj and Kishoregonj district respectively. The transportation cost included the expenses of carrying duckling, feed, veterinaries services, eggs and ducks. Most of the farmers sold their ducks at farm place. They did not need to carry the eggs and birds from farm to market for sale. The transportation cost were Tk. 2700, 2800 and 2750 respectively in Brahmanbaria, Habigonj and Kishorgonj districts and the average cost of transportation was Tk. 2750.

The average cost of egg producing duck farm was estimated on the basis of variable and fixed cost. The average variable cost was estimated after training was Tk. 30750, 31385 and 32385 respectively for Brahmanbaria, Habigonj and Kishoregonj districts of which the average fixed cost was Tk. 2910, 2915, 2985 of Brahmanbaria, Habigonj and Kishoregonj districts respectively. The gross cost was found Tk. 28690, 28325 and 28814 before receiving training by the beneficiaries of Brahmanbaria, Habigonj and Kishorgonj respectively (Table 3).

Table 3. Cost of producing duck per farm in the study areas

Item	Brahmanbaria		Hobigonj		Kishoregonj		All districts	
	Before	After	Before	After	Before	After	Before	After
Labour cost	9550	9855	9450	9785	9354	9845	9451.33	9828.33
	(33.29)	(31.04)	(33.36)	(31.18)	(32.46)	(30.4)	(33.03)	(30.86)
Feed cost	7455	7750	7650	7865	7350	7865	7485	7826.67
	(25.98)	(24.41)	(27.00)	(25.06)	(25.51)	(24.3)	(26.16)	(24.58)
Veterinary cost	435	495	425	485	410	475	423.33	485
	(1.52)	(1.56)	(1.50)	(1.55)	(1.42)	(1.47)	(1.48)	(1.52)
Duckling cost	6000	7000	5500	7500	6500	8500	6000	8000
	(20.91)	(25.2)	(19.42)	(23.9)	(22.56)	(26.20)	(20.97)	(25.13)
Transportation cost	2550	2700	2650	2800	2500	2750	2566.67	2750
	(8.89)	(8.50)	(9.35)	(8.92)	(8.68)	(8.49)	(8.97)	(8.64)
Wastage cost	2700	2950	2650	2950	2700	2950	268333	2950
	(9.41)	(9.29)	(9.36)	(9.40)	(9.37)	(9.11	(9.38)	(9.26)
Total	28690	30750	28325	31385	28814	32385	28609.67	31840
	(100)	(100)	(100)	(100)	(100)	(100	(100)	(100)

Before = Before training; After = After training, Figures in parentheses indicate % of total cost

Source : Field survey 2006

The amount of gross returns of individual farm mainly depended on the value of its transaction of eggs during the year 2006. In the present study, the total value of consumed and sold out eggs was taken into account as benefits to the farms considering the prevailing market prices of the relevant products. It is evident that the changes of gross return from duck farming were 12.21%, 14.38% and 9.23% in Brahmanbaria, Habigonj, and Kishorgonj districts respectively (Table 4) after receiving training. The net returns from egg producing duck farms were obtained by subtracting per farm gross cost of production to per farm gross returns. The changes of net return after receiving training were respectively 15.66%, 19.96% and 5.48% of Brahmanbaria, Habigonj and Kishoregonj districts. Like net return the net change of gross margin was also observed positive in all the selected districts after

training under MFTS project. The changes of gross return over per Taka investment (total return divided by total cost) were found 3.36, 2.77 and 1.55 for Brahmanbaria, Habigonj and Kishoregonj districts respectively.

Suggestions for sustainable and proper functioning of MFTS project

The study indicated that the input availability, market price of input, market demand etc. may affect on sustainability of duck farming (Table 5). The other factors such as, social conflict, diseases and natural calamities are also responsible for sustainability of duck farming. In case of all area average it was observed that quality of input followed by institutional support, input availability and input price were major factors affecting sustainability of duck farming. In this study, the factors addressed which are responsible for proper functioning of the MFTS project. These were seasonal loan, fortnightly repayment of loan, co-operative marketing and skill training etc. (Table 6).

Table 4. Net change of income in duck farming after and before training

Items	Brahmanbaria		Hobigonj		Kishoregonj		All	
	Net change	% net change	Net change	% net change	Net change	% net change	Net change	% net change
Gross return	6915	12.21	8475	14.378	5525	9.22	6971.67	11.92
Variable costs	3060	10.67	3060	10.80	3571	12.39	3230.33	11.29
Fixed cost	165	6.08	195	7.17	275	10.15	211.67	7.80
Total cost	2060	7.18	3060	10.80	3571	12.39	3230	11.29
Gross margin	3690	14.63	5220	18.71	1679	5.92	3529.66	12.99
Net return	3525	15.66	5025	19.95	1404	5.47	3317.99	13.57
Gross return/ Tk. investment	3.36	-	2.77	-	1.55	-	2.16	-

Source : Field Survey, 2006

Table 5. Factors affecting sustainability of training and transfer of duck technology to the farmers (Max. Score : 10)

Technologies	Kishoregonj		Brahmanbaria		Habigonj		All average	
	House hold	Average score	House hold	Average score	House hold	Average score	House hold	Average score
Input price	15	3.7	6	5.0	1	10.0	7.3	6.2
Input availability	29	6.4	6	6.7	1	8.0	12.0	7.0
Quality of input	29	9.9	6	7.0	8	10.0	14.3	9.0
Institutional support	25	7.0	6	7.0	8	10.0	13.0	8.0
Market demand	29	9.4	6	5.3	0	0	11.7	4.9
Market price of output	29	9.6	6	5.3	0	0	11.7	5.0
Social conflict	28	7.6	4	3.5	0	0	10.7	3.7
Prevalence of diseases	28	5.7	6	4.7	3	2.0	12.3	4.1
Natural calamities	29	5.7	6	6.2	2	2.0	12.3	4.6

Source : Field Survey, 2006

Table 6. Factors responsible for proper functioning of duck farming (score out of 10)

Factors	Kishoregonj		Brahmanbaria		Habigonj		All average	
	House hold	Average score	House hold	Average score	House hold	Average score	House hold	Average score
Skill training	29	9.7	6	6.0	0	0	11.7	5.2
Larger loan	29	8	6	7.2	0	0	11.7	5.1
Lower interest rate	28	5.7	6	7.0	6	5.8	13.3	6.2
Seasonal loan	5	8.2	6	8.5	8	6.8	6.3	7.8
Fortnightly repayment	14	5	6	6.7	8	9.8	9.3	7.2
Co-operative marketing	27	6.5	6	4.3	2	10	11.7	6.9

Source : Field Survey, 2006

Conclusion and Recommendations

Training plays a vital role for increasing knowledge and skill of MFTS project beneficiaries. Most of the respondents argued that they have poor idea about the technology and increased knowledge after training about duck rearing technologies which influenced on increased productivity and reduced cost in duck farming. The variable and fixed costs were considered where the largest item of variable cost in egg producing duck farm was labour and the second largest cost was the cost of feed and the cost of feed alone contributed about one fourth of the total cost followed by cost of duckling.

The net changes of net return as well as the return over per Taka investment are two indicators to examine the profitability of duck farming under MFTS project and found that there was a positive change of both net return and return over investment. The factors affect on sustainability of duck farming was also analyzed and these were availability of input, quality input, fare prices of input and output etc. Finally, the study addressed the factors which are responsible for proper functioning of the MFTS project. These were seasonal loan, fortnightly repayment of loan, co-operative marketing and skill training etc.

On the basis of the above information the following recommendations are made :

i. The study shows that training increased the capacity of the beneficiaries in duck rearing, thus, the extension of training is suggested in other areas too.

ii. The small scale duck rearing is profitable and needs money for purchasing feed and duckling. Thus the credit facilities should be provided to duck rearers with short term training on farm management, duck rearing as well as some fundamental disease control measures.

iii. The sustainability of duck farming is dependent on the input availability and quality and prices of inputs. Thus, there should be provision of ensuring quality feed and input supply with fair price.

iv. The concerned authority like DLS and other service providers should pay an immediate attention and should take effective measures against duck diseases like Duck cholera, Duck plague, and other diseases.

v. Price of egg should be kept in a reasonable stage through the policy making of concerned authorities.

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