AN ASSESSMENT ON BEEF FATTENING AND COW REARING IN CONTEXT OF FOOD SECURITY PROGRAM

A thesis
By

SHAMIMA AKTER

Semester: Summer

Registration No. 1005041

Session: 2010-11

MASTER OF SCIENCE (M.S.)

IN

ANIMAL SCIENCE

DEPARTMENT OF

GENERAL ANIMAL SCIENCE AND NUTRITION

August, 2011

HAJEE MOHAMMAD DANESH
SCIENCE AND TECHNOLOGY UNIVERSITY, DINAJPUR–5200.

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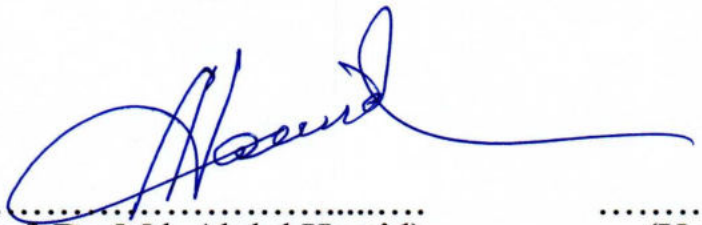

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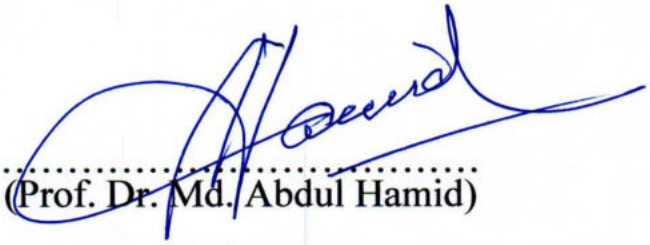

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Dedicated to my parents

ABSTRACT

In rural area of Bangladesh, poor people start income generating activities (micro enterprises) either by their own initiatives or support from development initiatives (GOs, projects etc). But in most cases, these poor people can not manage properly and expand their businesses efficiently and effectively, due to lack of their own analytical and management capacities. As a result, in some cases they take high risk, which causes huge losses and in other cases take less risk, which causes low profit. Therefore, it is very difficult for large market actors and MFI to make a sustainable relationship with these micro enterprises which inhibits the growth of entire potential sectors in Bangladesh. Business plan & management services and providers at local level are essential for the growth of any sector in Bangladesh. Most of the poor people in the rural areas purchase cattle whether for beef fattening and for cow rearing. They do not analysis what is more profitable or what is applicable for them in context of their environment. So most of cases they face loss. From this study it may be suggested for a poor women, beef fattening is more reliable business than cow rearing and this pay back quickly return and from this profit they can maintain their livelihood. So everyone have to consider the factors relating the business and then select that is more preferable to one.

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LIST OF ABBREVIATIONS

UMS	Urea Molasses Straw
MDG	Millennium Development Goal
IGA	Income Generating Activities
HH	House Hold
SEEUP	Social and Economic Empowerment of Ultra Poor
LSP	Local Service Provider
FGD	Focus Group Discussion
GO	Government Organization
NGO	Non Government Organization
MFI	Micro Finance Institution

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CHAPTER I

INTRODUCTION

Livestock has an important role to play in the economic development of Bangladesh. It provides milk, meat, hide and skin in addition to providing of non-human farm energy needed for ploughing, crushing, and transportation. There are approximately 23.4 million cattle in the country of which about 10 million are dairy cattle.

Around 90% of the total milk comes from cows and the remaining 10% from buffalo and goats. About 52% of the bull, 62% of cow and 61% of cattle less than three years old are raised by small- and medium-sized farms. The large farms with landholding more than 7.5 acres who account for 8.4% of the total country's population own 32.4% of the total cattle population. The number of cattle reared by types of farm size households vary significantly (DLS 2002).

Saadullah and Hussain (2000) found the overall average herd size per livestock farm household was 3.5 cattle which was 2 cattle for the landless farm, 2.9 cattle for the small farm, 3.7 cattle for medium farm and 4.4 cattle for the large farm households. Patterns of utilization of labour on dairy farms (Alam, 1994) show that each mini dairy farm creates the opportunity for employment of 1.78 person-days of which 1.07 person days for male and 0.71 person days for female labour. The use of female family labourers was highest in the case of small farms (l person-days for female against 0.5 person-day for male).

Increase in domestic production is an option to meet the greater demand of meat. To this end, better feeding and management of the of existing farm animals, pure breeding of native beef animal development and cross breeding of local cattle with agro-ecologically potential tropical beef breeds are the options for increasing beef production .

In Bangladesh most of the farmers (71.5%) reared native male cattle of <2.0 years on procurement from the local markets. They fattened usually in a batch annually. Double, triple or quadruple batches of animals were also reared in different regions. An average diet containing 34.1% of concentrate and roughage of mostly of straw and native grass were used. The average share of the feed cost was 27% of the total cost of cattle fattening. The rest

comprised 61% for animal procurement, 6.0% for labour, 2.0% for housing and 4.0% for health management (DLS 2002)..

Change in demand pattern for meat and their value added products due to swelling population, higher income, globalization, trade liberalization, urbanization and mushrooming of super markets has given impetus to grow their marketing. All these positive attributes of beef meat production may open windows for livelihood development of millions of rural households to raise fattened cattle. This may be achieved through encouraging private sector investments for production of beef meat and establishment of their value chains.

Animals are of great importance for the landless and small farmers. Landless and small farmers depend largely on livestock for their subsistence. The self-employment generation and total income share of the animals tend to increase where the farmers resources, especially land area decreases. Most of the NGOs work for poverty alleviation emphasis small-scale livestock and poultry rearing for improving the livelihoods of landless farmers and smallholders.

OBJECTIVES

The Objectives of the study were as follows:

1. To identify appropriate enterprise for ultra poor household.
2. To assess cost benefit analysis of cow rearing and beef fattening.
3. To compare profit analysis of cow rearing and cattle fattening.
4. To identify the problems and prospects regarding these enterprise.

CHAPTER II

REVIEW OF LITERATURE

Asadduzzaman, (2000) reported that the livestock sector contributes largely to rural poor through income and employment generation. It offers sustained employment opportunities particularly for the rural poor. Small-scale livestock farming during 1993–2002 provided self employment to approximately 3 million poor women.

Singh and R.S. Pundir (2001) stated that Management is been the key factor in the success of smallholder dairying. This has been evident through the experience of Bangladesh and many other successful dairy development projects in other countries. The future of smallholder dairying will also rely on the continued adaptation of management techniques to suite markets, environments and socio-economic conditions of the country.

Ng-Tuan-Tee (1984) observed that by collecting data on production system, diseases, feeds and the marketing helps in analysis of the livestock farm which formulates a comprehensive strategy for the total development of the farm.

Saha, (2002) stated that Dairy farming seems to have emerged as a profitable enterprise over the recent past years. In the Fifth Five Year Plan, the government set objectives to develop appropriate technologies for livestock production, generate income, and alleviate poverty through livestock development. Involvement of private sector and NGOs in the production of cattle, milk processing, input supplies and marketing of livestock products was also another objective in the overall development of the livestock sector.

Alarakhia (2005) reported that a key objective of the Food security programme to assist the ultra poor is the development of sustainable livelihoods, through the transfer of assets and skills to specially targeted ultra poor members for income generation. The range of enterprises offered to project members differ in some important ways. These differences affect the ability of project members to sustain the enterprises, based on their individual, household and social circumstances. Risk was found to be a key factor determining enterprise profitability. The difference appears to be explained largely by enterprise related risks that occur in practice as project members operate their respective enterprises, and reduce profitability.

CHAPTER III

MATERIALS AND METHODS

Methodology:

Primary data was collected through in-depth interview with enterprise specific project members, desk information review; Focus Group Discussion (FGD) with targeted and non-targeted beneficiaries.

FGDs with the project members and structured discussions with the technical staffs. In total 36 interview, 8 FGDs were conducted covering the two types enterprise. During the discussions, project members were asked to relate their experience with their given enterprise including daily or seasonal routines, time spent on enterprise activities, costs incurred, patterns of income, and problems faced. Both qualitative and numerical data was collected through the interview and FGDs for comparative analysis. Additionally, staff discussions were conducted across the areas studied to supplement data from FGDs. Part of these discussions was a ranking exercise in which staffs were asked to compare those enterprise offered in their respective areas. Some case studies were collected bearing the two enterprises.

Experimental Areas:

The study was conducted at SEEUP project areas. in Panchbibi and Joypurhat in joypurhat district..

Experimental Period:

5 months (From April/2011 to August/2011)

Materials used:

- Individual interview form.
- IGA plan format.
- Feed formulation for cattle with price
-.Questionnaire for focus group discussion.

CHAPTER IV

RESULTS AND DISCUSSIONS

Poverty in Bangladesh and its alleviation

Poverty is acute in Bangladesh which does not need to be told. Bangladesh has the unfortunate label of a case of endless poverty and deprivation. The proportion of the rural population living below the poverty line in the early 1990s has been estimated to be between 38 percent (Sen, 1995), 48 percent (BBS, 1995) and 55 percent (Hossain, 1995). These single index measures hide a wide range of variation among the poor: the household food intake is gender biased with the females' consumption levels being between 71 and 90 percent of the males' (Khondakar and Chowdhury, 1995). The per capita food intake (1980 k.cal. in 1990-91) remains below the requirement (2273 k.cal.). The literacy rate is still low at 35 percent (for females it is 29% and for males 45%) (Hamid, 1995). Another indication of poverty is the real wage rate, i.e. kg. of course rice a day's money wage will purchase in rural areas, which has declined from 3.84 in 1987 to 3.24 in 1990 (Hossain, 1995a). Land, which is the single most important resource in the rural areas, is distributed very uneven with 50 percent of the households owning none or less than 0.50 acre. At the same time, for around 60 percent of the rural households agriculture (cultivation and source of employment) is the primary source of income (Sen, 1995).

Access to credit has been identified as a major mechanism with which a household can improve its economic condition (Rahman, 1989; Khondakar and Chowdhury, 1995). The rural households in general and the landless in particular have very little access to institutional credit. In the late 1980s less than seven percent of the landless and 14 percent of all rural households had access to institutional credit including NGO programmes (Rahman, 1989). Given this, it is not surprising that the women in rural areas virtually had no access to institutional credit until the 1980s.

Since the beginning of 1980s some specialised programmes were launched to provide financial support on credit basis to women, who in their turn have proved themselves to be "bankable" (Rahman 1989; Hossain and Afsar, 1989). Along with the expansion of credit

availability in rural areas and for women in particular through expansion of commercial banks and non-governmental programmes, other positive changes are worth noting. One of these is the expansion of safe drinking water to 87 percent of all households (Sen, 1995b). An important change is the improvement in the nutritional status of children under five years of age : the figures for stunting and wasting have declined from 74 % and 22 %, respectively in 1975 to 43% and 13 % in 1991 (Khondakar and Chowdhury, 1995).

The main causes of poverty in Rajshahi division are the lack of economic opportunity, compounded by insufficient skills to capitalize on market opportunities. In this context, the poor were extremely vulnerable to shocks and crises, the majority living below the poverty line. On this basis, the following hypothesis was made:

"Lack of marketing knowledge of community and its members is the major constraint in rural areas for exploiting market opportunities. A greater understanding of functioning markets and the actors, while participating in identifying the economic opportunities at field level, could reinforce their self-confidence to negotiate with market actors. Ultimately, becoming more proactive in undertaking new income generating activities and businesses would increase their incomes in a sustainable way".

Based on the above mentioned hypothesis, the poor should be allowed to gradually acquire knowledge and skills and finally join in marketing activities independently and confidently.

Poverty reduction is a crucial challenge for Bangladesh. The poor and extreme poor households have very limited land ownership as well as access to land. Consequently, these households have a very limited and sometimes no scope to grow crops to maintain their livelihood. To encounter the challenge of poverty reduction, non-land based activity like livestock rearing plays a vital role for poor and extreme poor households. These households are rearing animals and poultry birds with little or sometimes no knowledge on management techniques. By adopting appropriate livestock management practices, this sector can make substantial contribution to increase productivity and income of poor and extreme poor households.

General context of the study

28.6 % of the population of Bangladesh is ultra-poor. They consume less than 1,805 kcal per day. Based on the local knowledge, consultations and statistics of WFP and the Bangladesh Bureau of Statistics, 2 Upazilas with high incidence of ultra-poor people were selected, with up to 38.64 % ultra-poor, and up to 4.61 % Adibasis population. 64% of Adibasis population are landless, 23% families have no own land for their shelter. Exploitation, social and legal discrimination and deprivation by Non-Adibasis is deteriorating livelihoods of Adibasis Region specific constraints: in Joypurhat-strong discrimination of Adibasis and weak local economic activities lead to lack of income sources. The ultra-poor are not adequately addressed by mainstream development programmed, neither of the Government nor of NGOs.

With a view to reduce poverty the project started in January 2007 co-financed by European Commission and NETZ-Bangladesh and ASHRAI implementing the project at Panchbibi and Joypurhat Sadar upazila under Joypurhat district to contribute to the eradication of extreme poverty and hunger (MDG 1) in Bangladesh. A total of 1603 ultra-poor families have been identified as project beneficiaries. For income generation, productive assets are transferred with necessary inputs and skills e.g. livestock, agricultural inputs, rickshaw, van and small business etc. Women organize themselves in groups in village level and union level organization that deal with social economic related vulnerabilities and access to various services of service providing agencies. So that they could break the vicious cycle of extreme poverty and improve their livelihoods.

Problems encountered/faced in project implementation:

Though there was no major obstacle to implement SEEUP but still the project had faced some problems which are mentioned below:

- Recipients kept cows in their very small room, where they sleep. Hence, the room environment becomes unhygienic. Also there is a chance for injury caused by the cows.

- Some group members sell their "productive assets" to meet up their crucial family needs i.e. disease, marriage of daughter, and buying food.
- The Adibasis do not bother about care of their live assets, so they do not feed UMS of cattle regularly, vaccination in due time and put the cattle in safe place in hot sunny time.
- Many of them are not capable to handle the cattle due to their physical weakness, so they were compelled to sell their cattle before it could maximum profit. There are instances that cattle caused damages the houses for many cattle rearers.
- Some beneficiaries could not take care of their asset properly as they go for work early in the morning and come back in the evening, and some of them had no stock of fodder (straw) for feeding livestock.
- All the Para-vets are not active because, they could not meet up their daily needs from their services.

Cattle fattening

The basic principle of cattle fattening technology is a four steps process consisting i) collection mostly of emaciated cattle considering their frame score and body conditions, ii) deworming of the animals, iii) feeding effectively up to a profitable live weight gain 4. marketing. This was developed by Bangladesh Livestock Research Institute (BLRI) in 1992/93 is repletion of lost weight by flash feeding of depleted cattle traditionally used for draft and other purposes. Increased use of mechanical power for cultivation of agricultural land allowed farmers to use their growing male cattle for fattening. Feedlot beef production system of the developed countries, on the other hand, is supported with the availability of beef type breeds, genotypic uniformity of the animals, improved housing and management, and feeding diets containing >70.0% grain based concentrate, and availability of uniform animals from breeding farms. Huque and Sultana (2007) found that the average ratio of roughage (mostly of straw) and concentrate (mostly of brans and oil cakes) in the diets fed to native cattle in Bangladesh was 78.4:21.6, and a minimum ratio of the same for feedlot diet was 30:70. The roughage of the later consisted mostly of silage or good quality hay, and the concentrate was mostly dominated by grains.

The demand of meat has been increasing due to increase in population and income, globalization, trade liberalization, urbanization, etc. Cattle fattening and beef breed development through crossing native animals with agro-ecologically potential tropical breeds is the option for increasing production of beef meat. Moreover, mushrooming super markets, people's awareness on food quality and safety standards and handling food from farm to market, emerging disease threats and environment consciousness has opened windows to raise cattle. The activity has significant contribution in livelihood improvement of the rural households. Nonetheless, the access to markets depends on the private sector investments. In order to rapid growth of meat industry, the public sector should be more proactive. The development of this sector is an instrument in lessening poverty, and food and nutrition insecurity through increasing economic activity of the poor and extreme poor of the country.

Health and weight of beef cattle is increased through improved methods of feeding and maintenance. The livestock resources of Bangladesh are mainly based on cattle, goat, sheep, buffalo, and poultry. Although cattle concentration per unit area is high, their productivity is

low mainly due to inadequate feed supply and low genetic potentiality. As a result their growth performance is very poor. Planned beef fattening programmed are usually not practiced in Bangladesh, although adopting such programmed is essential to meet the need for animal protein Moreover, being a Muslim country, Bangladesh experiences a seasonal demand of beef cattle during Eid-Ul Azha. About 1.8 million cattle are sacrificed at this time each year (Saha and Haque 2003).

Beef in Bangladesh usually comes from unproductive old aged bullock, cows, culled animals of the farm, and partly, animals brought from India. Some 10-12% of total beef comes from growing animals. During Eid-ul Azha people generally prefer sacrificing healthy animals. Recently, many farmers have setup mini-dairy farms with improved (native cattle crossing with exotic) animals. Simultaneously, some farmers have taken advantage of planned beef fattening programmes to have improved breed male calves developed by a scientifically improved feeding system.

Information on beef fattening programme in Bangladesh is rather scanty. Generally, using conventional and non-conventional feed ingredients on yearling bull calves results in a daily weight gain of about 1.0 kg for the cattle. On the other hand, yearling local cattle of approximately 98 kg body weight shows a growth rate of 450g/day when fed urea molasses based on straw technology developed by the Bangladesh livestock research institute (BLRI). Although, beef fattening activities in Bangladesh are increasing day by day, productivity in existing feeds, feeding and management systems are not yet well established.

Socio-economic importance

Most of the people of the country live in the rural areas (74.43%). But continuous migration of people from rural to urban areas reduced rural farming and increased urban non-farming population. The number of total households in the country is about 17.83 millions consisting 6.03 millions non-farm (33.8%) and 11.8 millions farm households (66.2%). The pattern of distribution of cattle or households according to farm categories differs due to skewed distribution of the latter at small and non-farm levels and major sharing of the former by small and medium farms. Farm households having limitations in

land availability (landless, marginal and small farmers) gradually increase their dependency on other resources including livestock, fisheries and forestry. It was found that livestock and small farmer keep 62.6%, 75.8% and 69.0% of the total large, small bovine animal and poultry population of the country, respectively (GOB 2008). So the potential of these available resources is one of the major keys for food security and poverty alleviation of the country.

The country experiencing a plateau in population growth of 1.48% during the period of 2001 to 2006 and now a total population of 142.4 millions in 2007/08. The employment and unemployment trend during 1990/91 to 2005/06 shows that the unemployment increased from 1.0 millions in 1990/91 to 2.1 millions in 2005/06 (Bangladesh Bureau of Statistics, BBS, 2007). This is mainly due to a declining trend in employment in agriculture sector as a whole (33.3 million in 19909/91 to 22.8 million in 2005/06). Increase in employment in non-agricultural sector (16.9 million in 19909/91 to 24.6 million in 2005/06) failed to make an impact on unemployment trend in the country. Thus rural employment generation through manipulation of available resources to farmers is urgently needed. Farm animal production may be one of the potential options for it. Moreover, socio-economic and cultural changes due to migration of people to cities, towns or abroad to find works have increased the demand of animal produces at the consumer level. On the other hand, these changes have declined the number of producers.

About 46.3% of the peoples remained under absolute poverty in 2005. Without improving calorie and protein intake of the landless and marginal farmers of the country, their poverty may not be alleviated (Bangladesh Economic Review, 2008). Moreover, income disparity (the per capita income of the richest 5.0% of the population was 84.0 times higher than the per capita income of the poorest 5.0% in 2005, Huque et al. 2009) has made people more prone to poverty. According to Food and Agriculture Organization (FAO) and United States Agency for International Development (USAID), rapid agricultural growth is the major answer for economic growth and food security. Open up of potential of animal agriculture in the country may be one of the ways for achieving it.

Cost and profit analysis

Required start-up capital: In this study, it has been estimated Tk 11,000 for a 1.5 year old cross bred as the standard for the project so that the beneficiary can get the return from the asset in about 6 months. The cost of shade and other costs necessary for the initial start up accounted based on current practice and market price. The initial cost of investment might go down by Tk 3,000-4,000 if the beneficiary opts to buy a 8 months to 1 year old bull which would cost around Tk 8,000-9,000 but would take more than 12 months to mature to be sold in the market. The expenses would thus accrue to the same amount.

Day to day costs and maintenance: feed cost account for the most of the cost incurred over the 6 month period. It has been taken Tk.30-40 as a standard cost per day with straw, husk, and concentrate feeds (rice bran, wheat bran, molasses, oil cake) as the regular feed. This can go up to Tk.70 if the beneficiaries opt for rapid fattening involving a 8 months to 1 year old bull. Cost of vaccines and medicines are accounted for as periodic costs.

Cost of labor: Most of beneficiary is not involved in any professional labor. However, the findings suggest that the beneficiary, if currently involved in other labor, will have to to forego 2 hours of working time per day for the maintenance of the bull.

Income: the cost of the fattened bull will depend on the market price at the time of marketing and also on the achieved size, weight, color and fitness of the bull. We have accounted for a conservative market price of Tk. 17,000 based on historical prices and experience of the beneficiaries. Another source of revenue for project member is from the sale of cow dung, which is not included in the original enterprise economics analysis, but has been included in updated program estimates. It has been found that many project member use dung to meet their own fuel needs, thereby saving on fuel costs. Some also manage to sell dung, either by forming sticks or by piling and selling to local farmers for fertilizer. Project member can make approx. 300 Tk per year through the sale of cow dung, from one cow.

Liquid asset: since the project will share an asset valued Tk. 11,000 the beneficiary will actually Tk. 17,000 once the fattened cattle is sold in the market. Henceforth, Tk 11,000 should be reinvested for continuity of the IGA. The project should train the beneficiaries such that they account for the seed capital shared by the project as a rolling working capital.

Table 1: Cost for cattle fattening over a period of 4 months

Items	Particulars	Unit/ Number	Unit cost (Tk)	Total cost (Tk)	Total expenditure
Cost of basic asset (One time investment)	Cattle	01	11,000	11,000	12,300
	Shade (CI sheet, jute stick)	01	1,000	1,000	
	Others (Manger, waterpot)	01	300	300	
Initial investment					12,300
Cost of feed (daily expenses)	Wheat bran (Kg/day)	0.3	18	670	2,020
	Rice polish	0.3	5	230	
	Oil cake (Kg/day)	0.2	20	580	
	Molasses (kg/day)	0.2	10	280	
	Straw (kg/day)	2	2	660	
	Green grass (kg/day)	10	0	0	
Health care expenses	Vaccines	4	5	20	540
	Deworming	2	20	40	
	Vitamin (kg)	1	260	260	
	Medicine	01	300	300	
Marketing cost	Transportation	01	300	300	480
	Hat tax	01	180	180	
Cost of labor	Own labor				00
Total expenses					3,040
Total expenditure (Initial investment + expenses)					15,340

Table 2: Income from cattle fattening

Item	Number of units sold	Sales price per unit (BDT)	Income (BDT)
Fattened cow	01	18,000	18,000
Cow dung	-	-	1,200
Total income			19,200

Table 3: Profit from cattle fattening

Total income (Tk)	19,200
Expenses (Tk)	15,340
Profit (Tk)	3,860
Liquid asset (Tk)	12,000

Variations

There was some variation in sale price of bulls among project members. The performance of individual project members varies, due to the low investment cost, management difficulty and other facilities required for beef fattening.

Cattle fattening package and its benefit:

Cattle fattening package is a four-steps rearing program of male and/or infertile female emaciated cattle for harvesting their compensatory growth within a period of 60 to 120 days. Collection of animals considering their body characteristics followed by deworming and feeding cost effectively up to a profitable rate of live weight gain and marketing them readily are the four major factors to make the fattening package profitable. It is an easy and profitable system of cattle rearing to alleviate poverty, unemployment and generate income both for the rural women and youth.

Depending on feed price, marketing facilities, and types of animals net benefit per animal in a period of 90 days may vary from TK. 800 to TK. 1,800.

Mass media should be used regularly to build peoples awareness on cattle fattening and its role on nutrition. Livestock entrepreneurs may organize contact rearing and marketing system of fattened cattle and, thus, small-scale beef industry targeting both local and international markets may be developed.

DAIRY SECTOR IN BANGLADESH

The dairy sector in Bangladesh is characterized by small-scale, scattered and unorganized milch animal holders; low productivity; inappropriate animal feeding and health care; lack of assured year-round remunerative producer price for milk; inadequate basic infrastructure for procurement, transportation, processing and marketing of milk; and lack of professional management. Other important characteristics of the dairy sector are the predominance of mixed crop–livestock.

Farming and the fact that most of the milch animals are fed on crop by-products and residues, which generally has lower nutritive value. Additionally, dairy development policies and programmed followed in the country including those relating to trade are not congenial to the promotion of sustainable and equitable dairy development. Milch cow keeping has been practiced for centuries by millions of rural households in Bangladesh. Livestock have been an integral part of the farming system from time immemorial. During the British reign, dairy farming was conducted both commercially and at subsistence level. Commercial production of milk was done by a professional group called Ghosh who used to rear large herd of dairy cows and produce milk and milk products commercially. Most of these entrepreneurs either left this profession or left the country due to changes in various socioeconomic and political conditions in the country. Dairy farming seems to have emerged as a profitable enterprise over the recent past years. In the Fifth Five Year Plan, the government set objectives to develop appropriate technologies for livestock production, generate income, and alleviate poverty through livestock development. Involvement of private sector and NGOs in the production of cattle, milk processing, input supplies and marketing of livestock products was also another objective in the overall development of the livestock sector (GOB 2000). A lot of private initiatives are in place to exploit the potentials of the livestock sector in the country.

Recent trend in dairy sector growth and its implications

The livestock sector currently accounts for about 3% of GDP and 15% of employment. During 1996-2006, livestock output grew at the rate of 4.1% compared to 3.4% for crop and horticulture and 4.6% for fisheries (Table 2.1). The share of milk in the total value of livestock sector output increased from 26% in 1990-91 to 30% in 2000-01 then decreased to

24% in 2005-06, primarily because the share of meat, especially poultry meat and eggs, increased. These changes have been prompted by rapid growth in demand for livestock products due to income and population growth and urbanization. The income elasticity of demand for milk was estimated to be 1.62 compared to 1.19 for meat and eggs in 1995-96, and these were projected to be 0.65 and 0.63 respectively in 2020 (Hossian and Bose, 2000). Expenditure elasticity of demand for milk and meat only in the urban areas in 2007 was estimated as 0.95 and 1.36 (Islam and Jabbar, 2009). Such demand led pattern of growth in the livestock sector is part of phenomena called 'Livestock revolution' observed throughout the developing world (Delgado et al., 1999).

Cow rearing

Even though dairy has been a preferred IGA but we propose to exclude it from the most potential IGA. This is prompted due to the following:

Long pay back:

Cost for purchasing cattle and maintenance is beyond the project's limit: the project can provide up to TK 11,000 as seed capital. If it is stretched to TK 17,000 the beneficiary would be able to purchase a 1.5 year old heifer which would start to lactate after another 2 year. This means if the beneficiary is provided with the heifer in January 2010, the heifer would conceive in June 2011. The calf would be delivered in April 2012. This means the beneficiary would be able to earn from selling milk from April 2012. By that time would have to invest around Tk. 16,482 to feed and vaccinate the cows. This was well beyond the project's limit and the capacity of the targeted ultra poor beneficiary.

Cost and profit analysis:

Costs

The main cash costs of cow rearing are purchased feed and vaccination/medicine. The projected expenditure on concentrated feed, such as bran and salt- was Tk. 1,200 per year. In practice, we found most project to rarely purchase feed, only in case of severe scarcity of straw and grass, due to flooding or heavy rain. Thus we would reduce the actual cash feed cost to Tk. 600, on average. Cash expenses for cow rearing are generally low. The main costs

of cow rearing are in time and labour needed to collect feed. On average project members were found to spend 2 hours per day on this activity.

Project member's effort and care in feeding cows is a key determinant of their profitability.

Revenues

Dairy cows provide three main sources of revenue- sale of milk, sale of dung and sale of calves. With regard to milk sales, the original projections assume that each cow will produce 2 kg of milk per day for approx. 11 months over a two- year period. Both the quantity of milk production and duration of milk production were found to be overestimated. These estimates seem to be based on yields by "healthy" cows, and implicitly assume project cows will be well grazed/fed on a daily basis, and regularly fed

Concentrate in times of scarcity. In reality, we found milk yields to be considerably lower. Milk yields are not constant throughout the milking period, however on average; project cows give 0.5 kg of milk per day, over an average of 7 months.

Another source of revenue for project member is from the sale of cow dung, which is not included in the original enterprise economics analysis, but has been included in updated programmed estimates. We found that many project member use dung to meet their own fuel needs, thereby saving on fuel costs. Some also manage to sell dung, either by forming sticks or by piling and selling to local farmers for fertilizer. Project member can make approx. 300 Tk per year through the sale of cow dung, from one cow.

Lastly, the original projections expected project members to be able to sell their calves at a price of Tk. 7,000 after one year. In our FGDs, most project members planned to wait 2-3 years before selling calves, and only wanted to sell male calves. Even after this length of time, project and staff estimated that the calves could be sold for average 12,000 Tk. The reason for the low price of TUP member's calves is again that project members cows are generally small and weaker than cows that are able to graze freely all day and are regularly fed concentrate.

Variations

There was some variation in milk production and sale price of calves among project members. Milk price also varied considerably, seasonally and between areas. An average milk price of 25 Tk per kg, as estimated in the original proposal seems appropriate. There

was also variation in when project member's cows gave birth, with most project members cows having given birth 1 year after project members received the cow and others over 6 months later. Though the performance of individual project member varies due to the low investments.

Table 4: The cost calculation for a cow rearing over 4 months

Items	Particulars	Unit/ Number	Unit cost (Tk)	Total cost (Tk)	Total expenditure
Cost of basic asset (One time investment)	Cattle	01	11,000	11,000	12,300
	Shade(CI sheet, jute stick)	01	1,000	1,000	
	Others (Manger, water pot)	01	300	300	
Initial investment					12,300
Cost of feed(daily expenses)	Wheat bran (Kg/day)	0.25	18	860	5,080
	Rice polish	0.25	5	280	
	Oil cake (Kg/day)	0.13	20	580	
	Molasses (kg/day)	0.10	10	280	
	Straw (kg/day)	3	2	660	
	Green grass (kg/day)	8	0	0	
Others	Vaccines	4	5	20	1,100
	Deworming	6	20	120	
	Vitamin (kg)	1	260	260	
	Medicine	01	500	500	
	A.I	01	200	200	
Marketing cost	Transportation	01	300	300	500
	Hat tax	01	200	200	
Cost of labor	Own labor				00
Total expenses					6,680
Total expenditure (Initial investment + expenses)					18,980

Table 5: Income from a cow rearing

Item	Number of units sold	Sales price per unit (BDT)	Income (BDT)
Cow	-	-	-
Cow dung	-	-	1,200
Total income			1,200

Table 6: Profit from a cow rearing

Total income (Tk)	1,200
Expenses (Tk)	18,980
Profit (Tk)	- (Calf not born yet)
Liquid asset (Tk)	15,000 (Price of the cow)

CONSIDERATIONS WHEN PURCHASING ANIMALS

Condition - If purchasing cattle one should avoid cattle with excess fat as they gain poorly for the first month. Cattle should be healthy but lean and avoid cattle that may not have performed well elsewhere. We will be able to purchase them for less money but they probably won't achieve an acceptable performance.

Health – Before purchasing animal we should consider some points. Does the animal look healthy? Is it alert and bright eyed? Is its breathing normal and does it move about vigorously? Does it have a dull hair coat and look emaciated? What has it been vaccinated for and when?

Frame Size - Cattle with a small frame will finish at a light weight while cattle with a large frame will finish at a heavy weight. Cattle with different frame sizes require different feeding programs.

Breed - In most situations frame and conformation are more important than breed in relation to cattle performance. However, there are some things to consider. Holsteins will work well in a feeder or finishing enterprise. They require different management and sell in a different market category. Animals with a high percentage of Brahman genetics do poorly in cold winter conditions. The disposition of the cattle can be an important factor which can be a breed characteristic. Cattle with high-strung or aggressive should be avoided. Cross bred animal are more appropriate for the poor household for easy management and for expectable profit.

Barriers to the growth of livestock:

- Lack of practical research and propagation of knowledge.
- Lack of breeding programs.
- Lack of capital

- Lack of knowledge
- Incorrectly targeted subsidies.
- Inadequate supply of high quality feed.

Facilities required establishing cattle farms:

- Availability of good quality fodder and feeds.
- Marketing facilities.
- Adequate cattle breeding facilities.
- Adequate technical support and guidance.
- Veterinary and animal health cover.

Overall comments on cow rearing and beef fattening:

The indigenous cows found in Bangladesh are of the small Zebu type with a mature body weight of 150 to 180 kg, having a production capacity of about 250 litres milk per year, with only about 5 months lactation period. The first calf is born when the dam is three or four years old. Thereafter calving intervals are around 18 months. If adequate nutrition is not provided or if the cow is used for draught purpose the calving interval may be delayed.

Cattle fattening is a profitable activity in poverty alleviation. It brings quick return within 3-4 months. The net profit amount TK 4,500-7,000 per fattened catlle 1n 3-4 months. Thus NGO and banks are encouraged in providing short term loans. The farmers have rapidly expanded their activities in cattle fattening. This has changed their livelihood noticeably the line agencies also consider it as their main stream activity.

Comparing project member enterprises: a framework

In the pilot phase of the project, project members were offered a choice of enterprises for which appropriate assets and inputs were transferred. The six selected enterprises were cage rearing of poultry, beef fattening, dairy cow rearing, goat rearing, crop cultivation and non-farm enterprises among which beef fattening and cow rearing are most owners.

The selected project enterprises vary along dimensions of profitability, risk, pattern of income, capital investment requirements, level of skill, time and labour intensity, and social problems faced, with implications for enterprise sustainability. This section outlines a framework for comparing project enterprise, identifying and describing a set of key criteria related to enterprise sustainability.

Framework for comparing project member enterprises

To sustain a given enterprise, project members must invest a combination of their time, labour and capital. Each enterprise is exposed to a set of risks both within and beyond the control of project members. Depending on the level of skill of a given project member and the occurrence of risks, she can expect to earn a pattern of income and level of profit from her investment. Based on the outcome of experience in consecutive cycles of investment in the enterprise, project members determine whether they are willing or able to reinvest in another cycle. Success in sustaining an enterprise is encouraged by a combination of favorable enterprise specific characteristics and an enabling environment consisting of positive institutional and social support.

The selected enterprises were compared according to the following criteria:

Profitability

In evaluating profitability, we looked at three characteristics of the income earned by project members in each enterprise. Firstly, we considered the reported *net* income from each enterprise over one and two years (where applicable). An estimate of the costs was made from information gathered by project members, who were continuing a second un-subsidized cycle of operating their enterprise, and confirmed by staff reports of average investment/operating costs for each enterprise.

Profitability is ranked as follows:

- Highly profitable: Profit of more than Tk. 6,000 per year.
- Medium profitability: Profit between Tk 3,000-6,000 per year.
- Low profitability: Profit of less than Tk. 3,000 per year.

In assessing profitability, both potential profitability, assuming members experiences few problems in operating the enterprise, as well as expected profitability that factor in the occurrence of enterprise related risks is considered. The occurrence of problems and risks further leads to variability in profits between project members operating a given enterprise. Based on information gathered in discussions with project members and staff, it also considered observed variability of profitability.

Lastly it has been considered the time horizon of income generation- whether there is a difference in profitability (potential) over the short, medium and long term. Short-term refers to 6 months-1 year, medium term refers to 2-3 years and long-term more tha n 3 years, in this case.

Riskiness

Enterprises were compared according to the nature and level of risk faced. project enterprises were found to face two types of risk- external and internal- that directly affect their profitability. Enterprises faced other types of problems, which may influence sustainability, but not profitability directly.

External risks are outside the control of project members, and thus not dependent on a member's ability or behavior in operating a given enterprise. Such risks include climatic conditions, local market conditions, quality of available inputs, etc. Internal risks, by contrast, are considered as factors related to project members' ability to manage their enterprises. Internal risks include lack of attention to feeding and caring for poultry/livestock and physical inability to perform required tasks. Classifications of risk were based on the number of risks (internal and external) associated with an enterprise, the likelihood of these risks occurring and the impact on profitability. Thus, high-risk enterprises would face many risks, which are commonly realized and significantly affect profitability. Low risk

enterprises, on the other hand, would face few or mostly uncommon risks that have little impact on profits.

Patterns of income

Income patterns of each enterprise were classified based on both the flow of income normally earned- daily, weekly or irregular/intermittent- as well as the level of earnings. Level of earnings- small, moderate or large- in turn, were viewed according to the frequency at which they occur.

Investment needs

The amount of cash investment (either from savings or other sources) needed on hand to refinance a cycle of each enterprise's production was compared across enterprises. Investment needs are ranked as follows:

o High investment: More than Tk 12,000

o Moderate investment: Tk. 6,000-11,000

o Low investment: Less than Tk. 6,000

Level of skill

Enterprises were compared on level of technical difficulty and thus skill required of project members to successfully operate the enterprise and realize optimal profits. Classifications of skill were based on complexity of managing the enterprise and the likelihood of lack of skill affecting profitability. In assessing skill requirements we relied primarily on staff reports of interaction with project members while providing ongoing technical assistance and the frequency with which staffs were needed to provide such support for each enterprise. The number and complexity of tasks associated with operating each enterprise also should be considered.

Time and labour intensity

Enterprises were compared by the amount of project members' time taken up in running the enterprise and labour requirements. Time consuming enterprises, leave little time for other income generating activities by project members, which affects overall household profit due

to higher opportunity costs. Thus in evaluating time, we considered not only the net time or hours per day needed to operate each enterprise, but also the scheduling of enterprise activities, which may constrain project members ability to participate in other income generating activities. Labour or manpower requirements were compared by whether helping hands were needed, or if the enterprise could be successfully managed by a single project member alone. Physical difficulty of labour was also noted for enterprises where it was a key factor in project member's ability to sustain the enterprise.

Social externalities and other problems

Other problems particular to each enterprise were highlighted, in the case that they were Common problems faced, that affect project members' interest or ability to continue with the enterprise successfully. These include social problems that may arise in operating a given enterprise such as affects on relations with neighbors or others. Problems that may constrain enterprise growth in future were also considered alongside sustainability concerns.

An overall attempt at assessing the sustainability of each enterprise is finally made, based on project members' reported experience and observed changes in each enterprise, and by incorporating the likely combined affect of each of the criteria listed above on enterprise sustainability. However, in order to make such an assessment it is first necessary to consider and evaluate the relative importance of each of these enterprise characteristics as a determinant of enterprise sustainability.

Profitability is invariably a key outcome to be considered. Profitability however, is determined by factoring in both inputs by project members (which in turn determine internal risks) and the occurrence of external risks. The following section focuses on profitability and risks and explores the relationship between these two important determinants of enterprise sustainability

Enterprise Characteristics for Comparison:

-Enabling Environment
-Household and Social Support
-Time and Labor
-Skill
-Capital Investment

-Internal Risks
-External Risks
-Social externalities
-Pattern of Income
-Profitability
-Reinvestment Decision
-Institutional Support

Ranking project enterprises

A ranking exercise was done with staff. Staffs were asked to rank enterprises offered to project members at their location based on a set of predetermined criteria. These criteria were profitability, stability of prices (inputs/outputs), risk and level of skill, assistance required from staff and manpower needed.

In conducting this exercise, the purpose was to generate discussion and critical analysis of comparative project member performance across enterprises. The study was to gather qualitative rather than quantitative data; therefore the methodology used was not intended to provide data for precise quantitative analysis. What were derived from the rankings though, are important trends in staff perceptions of project enterprises.

Table below present a summary of enterprise rankings according to risk, skill, time required, manpower needed and capital investment required. These criteria were finally selected for determining overall rankings as they were clearly and homogenously defined by staff, with strongly correlated rankings across project enterprise.

Table 7: Ranking of enterprise (staff basis):

Basis for ranking	Cow rearing	Bull rearing	Remarks
Profitability	Least profitable	Most profitable	
Stability of Prices	Most stable	Least stable	
Risk	Most risk	Least risk	
Level of Skill	Least skill	Most skill	
Assistance from PO	Most assistance	Least assistance	
Manpower	Most manpower	Least manpower	
Time consuming	Most time consuming	Least time consuming	

Beef fattening was consistently given the highest overall rank by staff, outranking other enterprises by a considerable margin in both upazilla. Other enterprise rankings were mixed. The discussion generated during the ranking exercise revealed much about staff opinions of which enterprises are most suitable for project members to succeed and why. Staff generally expressed a preference for low risk and low investment enterprises, for project members. Though there is potential for high returns, it is not certain, and depends on many factors, corresponding to what we identified as external and internal risks.

Essentially, according to staffs the key factors that affect sustainability of project enterprises are the amount of cash a project member must invest and risk in the enterprise, the number of risks the enterprise faces, the level of skill required of project to manage the enterprise successfully and how much time and labour project members need to put into the enterprise.

Enterprise comparison matrix

Characteristics	Cow rearing	Beef fattening
Profitability	- Low to Medium profitability, Short term. - Long-term likely to be highly profitable, due to appreciation and multiplication of asset plus Ongoing sale of milk/dung. - Profitability varies slightly between project members Depending on management.	- Low to Medium profitability, Long-term. - Short term likely to be highly profitable. - Profitability varies slightly between project members depending on the skill and management.
Riskiness	- High risk - External risks are scarcity of feed in rainy season, as well as theft and disease. - The main internal risk is lack of feeding by project members, resulting in low milk production (long term loss).	- Low risk - External risks are scarcity of feed in rainy season, as well as theft and disease (uncommon) - The main internal risk is lack of feeding by project members, resulting in low profit.

Characteristics	Cow rearing	Beef fattening
Pattern of income	- Small daily income from milk sales (Milk production lasts on ave. 6 months per cow, followed by gestation of 10 months unproductive). - Large lump sum at time of sale of offspring. - Ave. income 20-25 Tk/day during milking - Use of dung, saves project members' fuel costs.	- Large lump sum at time of sale of fattening bull. -Use of dung, saves project members' fuel costs.
Investment needs	- High investment costs. -Main investment of project is feed, time and labour,	- Moderate investment costs. -Main investment of project is time and labour and cash.
Level of technical difficulty	- Low skill - Cows are easy to manage; lack of proper management likely to affect profitability	- High skill - Not easy to manage; need technical knowledge for proper management..
Time and labour intensity	- 4-6 hours work per day allowing for other work. - Can be managed by single member, but helping hands are useful for collecting grass/straw, milking and managing calf.	- 2-3 hours work per day allowing for other work. - Can be managed by single member.
Social externalities and other problems	- As cows multiply, member Lack space to accommodate them, particularly if living in others' homes.	- Sometimes disturb other people.
Sustainability	- It is kept for long term and payback after long time.	- It is kept for short term and payback within short time.

Lessons learned and critical points of success

-Together with the existing source(s) of income for subsistence, beef fattening enterprises can more effectively generate a good level of income. These which can quickly generates significant profit and income than other types of enterprises.

-Some project member wants to rear dairy cow to get calf and milk from cow without analyzing profit or loss.

-Most of the dairy owner has no capacity to supply the concentrate feed to the cow daily and thus feeding management hamper that affect the health of the cow.

-Fattening through adopting improved technologies can increase more profit margins compared to conventional practices. The cross bred cattle can bring more profit.

-The selection of the animals is an important step in the beef fattening business. Animals having ideal characteristics bring more profit margins than wrongly selected animals.

-As these enterprises required short term fattening cycle (3-4 months), possibilities of disease infestation is significantly less.

-Beef fattening required very limited movement of animals. Feeding is the main task in fattening, which could easily be managed by household members.

-An increase in involvement of extreme poor in beef fattening was possible through soft and flexible loans and asset transfer program.

-An increase in profit from beef fattening was possible through joint purchase of inputs, joint selling of cattle and establishment of functional linkages with national markets.

-The profit margin was bigger in case of big investments in large animals than of small investments for small animals while 3-4 months fattening cycle could bring more profit.

-Other than service selling, the LSPs can involve themselves in beef fattening activity through contractual agreement with the cattle owners and could earn additional income.

- The beneficiaries tend to prefer beef fattening than to dairy as it provides quick cash back.

Recommendation for further scaling up

-Strengthening collaboration between public sector (both research and extension) and private sector (SPA, companies etc.) to establish beef fattening villages in order to extend this enterprise.

-Making separate financial services (soft and flexible) from different finance institution available for poor and extreme poor in order to enable them to contribute to this enterprise. Focuses should also be given on transfer of assets and provision of subsidies to the extreme poor.

- Sustainability of project enterprises is determined by numerous factors, many of which are enterprise specific characteristics such as risks and levels of skill and capital, time and labor investment required of project members. However, an enabling environment in the form of positive household and social support, as well as supportive institutions including the role played by staff in allocating assets and providing ongoing individual support to project members is also crucial.

-Making available and ensuring the delivery of different technical services especially animal health and vaccination services at community level. Emphasis should be given to make these services available by the DLS offices through LSPs and SPAs.

-Supporting CBOs to develop business plans on beef fattening enterprises and to share them with different stakeholders to get implementation support.

-Taking steps to make high yielding beef producing cattle breeds available through public and private sector involvement.

-Encouraging exchange of beef fattening information and successes among the producers.

-Developing and strengthening MSE networks to access to services and to big markets.

-To arrange skill development training for the poor people.

Training and technical assistance

Training of both project members and Technical staff is a final important factor, where learning is evident. In both cases, it appears that the learning process of operating enterprises successfully occurs over time with knowledge gained during formal training sessions crystallizing over time, with practical experience. It is observed that male members should also be trained to help the female to operate the management of the livestock.

To promote smallholder beef fattening and dairy development

Promoting smallholder beef and dairy development is important for agricultural diversification, poverty reduction, food security and employment generation. In particular, the sector needs supports for (i) quality feed at an affordable price, (ii) promoting fodder production, (iii) supply chain development through group marketing, (iv) processing and value addition, and (v) a community-based vaccination on program.

CHAPTER V

SUMMARY AND CONCLUSION

The overall results indicate that beef fattening enterprise has potential and is an effective option for poor and extreme poor for breaking the poverty shell. However, still there are some challenges for a wider involvement of the extreme poor in general with this enterprise. The coordinated efforts of Government, non government and private sector even microfinance institution could address these challenges. In addition, possible linkages with export markets of meat in the Middle East or other countries could be explored in order to increase the market. To promote and strengthen this value chain public private partnership (PPP) could be the right approach. Considering the success and potentials of this enterprise, this could be launched or extended in South Asian countries like Bangladesh.

Backyard livestock rearing for milk or beef production is an important income generating activity for poor people who have relatively less access to land. They consider the advantage of lower cost of production and prospects for using family labour and therefore prefer smallholder dairy activities. Almost all households in Bangladesh rely on raising livestock. It provides them an opportunity to generate income, create employment and improve nutrition; all of which contribute to livelihoods. However, constrained by remoteness and low incomes, they have difficulties in accessing inputs, service and markets.

The development of livestock and poultry in Bangladesh like other developing countries is constrained by poor management practices; feed scarcity, inefficient and poorly coordinated support services and lack of information on which to base to make decision. There is no doubt that individual and collective, the obstacles facing the small farmers in the country is formidable. Below is an outlined potential guideline for poverty alleviation and to improve the life style of small farmers-centered growth in livestock and poultry in Bangladesh. Small farm systems combining crop and animals are the important categories especially in Bangladesh. The value of crop-animal systems lies in their positive contribution to sustainability and economic growth. A central goal of the small farm is to generate a minimum target income and a sustainable systems which widely practiced in the country

where livestock and poultry is integrated with crop production, fish farming and vegetable production. The backyard systems raising livestock and poultry in Bangladesh has been practiced for centuries and will continue to exist in the years ahead. There are a range of factors associated with the development of back-yard livestock and poultry. To improve the management system that is pertinent to livestock and poultry on small farm, a specific approach and analysis of the existing problems is required. Small-scale enterprise and small-scale processing units by the rural poor have to be encouraged through appropriate policy and institutional support.

Women constitute more than half of the total population in the country. Given the crucial role, women play and will increasingly play in agriculture especially livestock and poultry rearing, any effort at poverty alleviation must address the needs of women as producers and income earners than merely as consumer of social services. Feeding of livestock and poultry in efficient process on small farms. Although improved feed both in quality and quantity is essential to increase their productivity. Therefore, the option left to develop economically effective feeding systems based on on-farm available non-conventional and indigenous feed resources. Native animals require comparatively little inputs and therefore, research on these animals should be directed towards the management with least cost/minimum inputs. This type of study needs to be evaluated economically at on farm level. Research relevant to small farm production has been shockingly deficient. For small holders, technological change must serve to increase resource productivity as well as labour productivity. Low cost and low external input requirements to facilitate its adoption should characterize it by small farmers. Research approach needs to be directed to the improvement of feed technologies and storage facilities.

Beef fattening is preferable than to dairy as it provides quick cash back. Beef fattening enterprise has potential and is an effective option for poor and extreme poor for breaking the poverty shell. However, still there are some challenges. The coordinated efforts of Government, non government and private sector even microfinance institution could address these challenges.

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APPENDICES

Appendix-1: Individual interview form

Name : .....Father/Husband' name.....

Village: .....Union.....Upazilla.....

Family member:.....Male.....Female.....

Source of family income:.....
Monthly income of the family:.....(Tk).

Asset status of the household:
Land .....House.....Others.....

Sanitation: Good.....Fair .....Bad.....

Drinking water: From tube well- yes.....No.....

Food cost (monthly):

Item	Amount	Price	Remarks

IGA status:

IGA	Number	Present price	Remarks
Bull			
Cow			

Start up cost of the IGA:

IGA	Cost	Remarks

From where you manage the cost: Own.....NGO.....Govt.....

When you start this IGA:.....

Plan for sale: After.....month

Requirements for the maintenance of IGA (Monthly):

Items	Amount	Price	Remarks

Labor cost (if applicable):.....
Profit of the IGA after 4 months:.....

Training received:

Name	Duration	Sponsored by	Remarks

Any savings in the bank:.....if yes amount of savings.....

What are the risk associated with your IGA.....
.....

Any kind of disease affected:.....if yes recovery.....death.....
Disease treated by.....
Deworming .....vaccination .....

Social support regarding the IGA: .....

Any kind of incidence you ever forget:.....

.....
Signature of the household

.....
Signature of the data collector

Appendix-2: IGA Plan Format

Beneficiary name:
Father/ Husband's name:
ID no:
Group's name:
Village: Post:
Upazilla: District:

Name of business:
Duration: 6 month

1. Production & marketing plan:

Required Permanent Benefit	Required Elements
1.Cow	1.straw 2.Husk 3.Green grass 4.Salt 5.Molasses 6.Rice bran 7.Mustered oil cake 8.Pae (Khesari) 9.Urea 10.Medicine/Vaccine/Vitamine/Anthelmentic 11.Rice husk 12. 13.
2.Shade	
3.Chari	
4.Food pot	
5.Pail	
6.Net	
7.Roop	
8.	
9.	
Required Labor	3 hours per person everyday(himself)
Initial Production to Expected time	6 month/---------/---------/
Amount of Expected Production	-----no of Bull/Cow
Market	
Customer	Local Customer Slaughterer, Retailer

2. Permanent Capital & Required element Collection plan

Capital/Elements(permanent & current)	Cost per head(Tk)	Source/Representatives address
No of Cow-------		Local Market,----------
Shade		
Chari+Food Pot+Pail+Net		
Straw		
Mustered oil cake		
Husk		
Salt		
Bran		
Molasses		
Urea		
Pea		

3. Required Training/Design to get nursing

Type Nursing	Dose	Place of service
Anthelmentic	2 dose	Upazilla Livestock Hospital--------Market
Vaccine(BQ, FMD, Anthrax)	1 dose 1 time(each vaccine)	Upazilla Livestock Hospital--------Market
Medicine/Vitamin	As require	Upazilla Livestock Hospital--------Market
Training	3 days for 2 times	Upazilla Livestock Hospital, FSUP Project
Advise	As require	Upazilla Livestock Hospital, FSUP Project
Treatment	As require	Upazilla Livestock Hospital--------Service provider

4. Risk reduction and management plan

Types of risk	Riskness time	Removal technique
Disease(Anthrax, BQ, FMD etc)		Vaccination in proper time
Excessive flood		Keep them in safety place
Fire/Steel		Be alert
Excessive cold		Be aware

5. Financial plan

Fund design	Monthly income/time of acquaintance	
	Income by month/by production	Requital(Tk)
	Monthly profit=500x	
Hand cash(him self/borrow)	By sell=	
Others-----		

6. Income and cost expenditure (For every month)
Sells technique

Income in expected time	Amount of sells in expected time	Price per unit(Tk)	Total amount(Tk)
Monthly income			
Income by production(month/year)	Bull/cow no.--------		

Item	Amount	Cost per unit(Tk)	Total(Tk)
Permanent/Initial investment			
1.Cow	No.-------		
2.Cow shed	1		
3.Shed,food pot, pail	1+1+1		
4.Spade,Cutter,Cord	1+1+1		
Total initial cost			
Equipment cost			
Straw			
Oil cake			
Wheat bran			
Salt			
Bran			
Molasses			
Urea			
Pea husk			
Rice bran			
Vaccine(BQ, FMD, Anthrax)			
Medicine/Vitamin/Anthelmentic			
Marketing Cost			
Labor cost			
Total current cost			

Total cost=

Income	Sells amount	Cost per unit(Tk)	Total income(Tk)
Bull/Cow sell	No.--------		
Other-------			
Total income:			
Benefit(income—Cost)			

Note: .....

Beneficiary name: Facilitator's name: Upazilla manager's name

Signature: Signature: Signature:

Date: Date: Date:

Apendix-4: Questionnaire for focus group discussion

Name of group (if applicable): .....

Address: .....

Village: .....Union.....Upazilla.....

Do you have any livestock basis IGA in your house: Yes.....No.....

Having cattle:.....Beef fattening.....Cow rearing.....

What is the more profitable IGA: Beef fattening..... Cow rearing.....

Which requires more capital: Beef fattening..... Cow rearing.....

Have you received any training?

In case of beef fattening owner.....out of .....

In case of cow rearing owner.....out of .....

Manpower required: Beef fattening..... Cow rearing.....

Major risk involved:

Beef fattening	Cow rearing

Profit of the last 6 month: Beef fattening.....(Avg) Cow rearing.....(Avg)

Are you food secured: Yes.....No.....

Prepared by

.....
.....
.....