

Meat Sector Outcome Report

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Innovation, Monitoring, Learning and Communications Division



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Acronyms

BGM	Business Group Member
CLP-2 (or CLP)	Chars Livelihoods Programme, Phase 2
IMLC	Innovation, Monitoring, Learning and Communications Division of CLP
M&E	Monitoring and Evaluation
M4C	Making Markets Work for the Chars
M4P	Making Markets Work for the Poor Approach

Executive Summary

Background

The market development component of CLP applies the Making Markets Work for the Poor (M4P) approach to facilitate change in livestock-related market sectors. These are the milk sector and the meat sector.

The market development project in the meat sector has been operational since September 2012, with the milk sector having been implemented since February 2013. The Innovation, Monitoring, Learning and Communications (IMLC) Division of CLP carries out regular monitoring of performance against outcomes indicators in each sector.

A baseline study was conducted in December 2012 and outcomes-monitoring surveys began in September 2013. The monitoring system used during the initial surveys caused difficulties with identification of the same cattle over different surveys and in the measurement of certain indicators. In response, the methodology was redesigned and the first survey using the new system was carried out in May 2014. The new system has proved successful in identifying the same cattle at different points in time and in measuring key indicators accurately. From May 2014 onwards, the surveys using this new system are being carried out every two months. These surveys allow measuring outcomes of the meat sector market development project against the baseline.

This report presents the summary of progress against outcome indicators in the meat sector to date. These indicators are presented in three categories;

1. Input Purchasing and Production Practices
2. Production and Productivity
3. Sales and Profits

This report presents the data collected through the first four surveys carried out using the new monitoring system, which were conducted in May, June, August and October 2014 respectively. Baseline data is also included to enable comparisons of results against the same indicator over time. The baseline data is drawn primarily from the December 2012 baseline survey, though for some indicators it has been taken from the December 2013 control group survey, either because data was not collected for these indicators in the December 2012 baseline survey or because it was measured differently and the methods used for the December 2013 control group survey data collection were more similar to the new system.

Key findings:

- % of Business Group Member (BGM) purchased ready feed has increased up to 42% compared to 9.9% of survey participants at baseline
- The mean amount of ready feed provided per cattle has increased to 485 gram per cattle per day from the initial baseline of 244 gram per cattle per day
- 57% of BGMs are purchasing deworming tablets for their cattle at appropriate intervals compared to the baseline of 8.2%
- The purchase of any type of vaccination by BGMs has increased to 6%, which is higher than the baseline of 2%
- The average rearing cycle per cattle in October 2014 is 5.7 months compared to the baseline of 5.1 months. However, constant decline in rearing cycle in other months of the year depicts a seasonality effect (Eid-ul-Azha) in October 2014 data

- Mean profit per cattle per month has increased significantly and has reached Tk. 1,749 per cattle per month compared to the baseline of Tk. 1,387
- Profit per BGM has increased and 38% have achieved the January 2015 milestone of 35% profit increase over baseline.

The following table summarises performance against key indicators in the meat sector.

Table 1: Summary of performance against key indicators

INDICATOR	Baseline	May 2014 survey	June 2014 survey	August 2014 survey	October 2014 survey	Baseline source
% BGMs purchasing Napier and/or Jumbo grass in the last 2 months	1.3%	0%	1.7%	1.0%	4.3%	December 2013 baseline survey
% BGMs purchasing ready feed in the last 2 months	9.9%	42%	44%	38%	42%	December 2013 control group survey
Mean quantity (g) of ready feed provided per head of cattle per day	244	835	567	378	485	December 2013 control group survey
% of bulls reared which are cross-breed	7.3%	9.3%	7.6%	6.9%	6.7%	December 2013 control group survey
% BGMs purchasing deworming tablets for male cattle during the last 6 months	8.2%	45%	75%	80%	57%	December 2012 baseline survey
% BGMs purchasing any vaccination for bulls during the last 6 months	2.0%	12.4%	15.5%	10.2%	5.8%	December 2012 baseline survey
Average length of rearing cycle for bulls (months)	5.1	4.2	4.4	5.1	5.7	December 2013 control group survey
Mean body weight gain (g) per head of cattle per day	300	NA	377	386	105	December 2012 baseline survey
Mean profit per head of cattle per month (taka)	1387	NA	1326	NA	1749	December 2012 baseline survey

1. Background

The market development component of CLP applies the Making Markets Work for the Poor (M4P) approach to facilitate change in livestock-related market sectors. These are the milk sector and the meat sector.

The market development project in the meat sector has been operational since September 2012, with the milk sector having been implemented since February 2013. The Innovation, Monitoring, Learning and Communications (IMLC) Division of CLP carries out regular monitoring of performance against outcomes indicators in each sector.

A baseline study was conducted in December 2012 and outcomes-monitoring surveys began in September 2013. The monitoring system used during the initial surveys caused difficulties with identification of the same cattle over different surveys and in the measurement of certain indicators. In response, the methodology was redesigned and the first survey using the new system was carried out in May 2014. The new system has proved successful in identifying the same cattle at different points in time and in measuring key indicators accurately. From May 2014 onwards, the surveys using this new system are being carried out every two months. These surveys allow measuring outcomes of the meat sector market development project against the baseline. However, there still lies some difficulties in measuring productivity that has been explained in a later section.

In the meat sector, from a total of 2,652 meat business group members (BGM), 984 were selected for the bi-monthly survey using the new monitoring system. A cluster sampling process was used, which ensured the sample represents the different districts the project is implemented in, in proportion to the number of meat BGMs they consist of. Over the four rounds of surveys, a total of 850 BGMs have been reached. (A full description of the methodology is described in the Market Development M&E plan, July 2013.)

This report presents the data collected through the first four surveys carried out using the new monitoring system, which were conducted in May, June, August and October 2014. Each survey collected data for a two-month period.

Table 2: Survey periods

SL	Survey Name	Survey Period
1	May 2014	1 February 2014 – 31 March 2014
2	June 2014	1 April 2014 – 31 May 2014
3	August 2014	1 June 2014 – 31 July 2014
4	October 2014	1 August 2014 – 6 October 2014

Baseline data is also included to enable comparisons of results against the same indicator over time. The baseline data is drawn primarily from the December 2012 baseline survey, though for some indicators it has been taken from the December 2013 control group survey, either because data was not collected for these indicators in the December 2012 baseline survey or because it was measured differently and the methods used for the December 2013 control group survey data collection were more similar to the new system.

This report presents a summary of progress against outcome indicators in the meat sector to date. These indicators are presented in three categories;

1. Input Purchasing and Production Practices
2. Production and Productivity
3. Sales and Profits

2. Input purchasing and production practices

2.1 Purchasing of improved fodder varieties by BGMs

Feeding cattle high quality fodder is crucial to increase the productivity of beef fattening. The project has placed significant emphasis on achieving this goal, by promoting the usage of two types of grass- Jumbo grass and Napier grass- which have significant potential on the chars. BGMs could access these types of fodder through two channels; the first is cultivating fodder, and the second is purchasing it. The table below summarises the percentage of beef BGMs purchasing either Napier or Jumbo.

Table 3: % BGMs purchasing Napier and/or Jumbo grass in the last 2 months

INDICATOR	Baseline December 2013	May 2014 survey	June 2014 survey	August 2014 survey	October 2014 survey
% BGMs purchasing Napier and/or Jumbo grass in the last 2 months	1.3%	0%	1.7%	1.0%	4.3%

It is important to note that the December 2013 control group survey (which represents the baseline in this case) gathered data about purchasing over the entire rearing cycle, compared to that of two months in the bi-monthly surveys. Given the fact that the mean rearing cycle for these cattle was 5.1 months, the December 2013 control group survey figures will be slightly inflated due to large recall period relative to those gathered in the regular surveys.

The results show that the percentage of BGMs purchasing improved fodder varieties has slightly increased. However, this does not mean that BGMs are reluctant to purchase fodder rather they have preferred the first route i.e. cultivating fodder themselves. Recent data shows an increase in cultivation of fodder among the BGMs.

Prior to the commencement of the three market development projects, there were very few fodder producers on the chars. However, the fodder sector market development project, which operated on the same chars as the meat market development project till October 2014, has dramatically increased the number of fodder producers in the chars, even within the BGMs. About 25% of BGMs have cultivated fodder at any point during the project period and 18% of them did this within the last 12 months. Many reported a loss in fodder production due to flooding, which is always a backdrop to fodder production in the chars, though 24% of BGMs still consider feeding Jumbo or Napier grass as an effective measure for beef fattening.

2.2 Ready feed purchasing and usage

The project has also promoted the use of ready feed¹, which is fed to beef cattle in the commercial farming sector as a 'nutrient top-up' to the beef animals main feed / diet of fodder in able to improve and accelerate daily live weight gain (DLWG) growth and to increase the productivity of beef fattening. Table 4 shows that the number of BGMs purchasing ready feed is significantly higher than the baseline figure, which in this case is based on the data gathered for the December 2013 control group survey. Compared to only 10% of beef cattle rearers in the control group purchasing ready feed, about 40% of BGMs purchase ready feed throughout the year.

Table 4: % BGMs purchasing ready feed in the last 2 months

INDICATOR	Baseline December 2013	May 2014 survey	June 2014 survey	August 2014 survey	October 2014 survey
% BGMs purchasing ready feed in the last 2 months	9.9%	42%	44%	38%	42%

It is also important to note that BGMs are included in the above percentages if they purchase any quantity of ready feed. As such, it is crucial to qualify the above results by analysing whether the amounts purchased and fed to cattle are meaningful. To achieve this aim, Table 5 presents the mean quantity of ready feed (g) provided to each head of cattle per day.

Table 5: Mean quantity of ready feed (g) provided to each head of cattle per day

INDICATOR	Baseline December 2013	May 2014 survey	June 2014 survey	August 2014 survey	October 2014 survey
Mean quantity (g) of ready feed provided per head of cattle per day*	244	835	567	378	485

* Mean quantity is calculated for those BGM who provided ready feed to their cattle

Taken alone, these results do not permit interpretation about whether each head of cattle is consuming the optimal quantity of ready feed for beef fattening, as this must be analysed at the level of the individual head of cattle and requires detailed information about other feeds provided particularly the quantity and quality of the fodder in the diet, animals age, weight and other production factors. However, these figures certainly indicate that the amounts fed to cattle (about half a kg per day) are meaningful as they are large enough to have a positive impact on beef fattening.

When interpreting these results, it is important to note that the December 2013 control group survey gathered data about purchasing over the entire rearing cycle, compared to that of two months in the bi-monthly surveys. Given the fact, the December 2013 control group survey figures will be slightly inflated. Additionally, the May 2014 survey was the first survey following the new M&E system. Therefore, May'14 data reports some input costs inconsistently higher which may be due to the participants' difficulty in recalling details of rearing practice and costs per cattle over a two-month period.

¹ **Ready feed:** feed pellets manufactured from various crop residues and cereal by-products, as well as tree leaves, grasses and aquatic plants. Mixtures are formulated to provide appropriate rations of specific nutrient groups required for optimal beef or milk production.

2.3 Cattle breed

The fattening of cross bred (hybrid) cattle which can grow to a bigger size and weight is another key route to increasing productivity and profits from beef fattening. For beef cattle fatteners this is achieved through procurement of an adequate supply of cross bred animals for sale at the local market (hat). The reality is that the supply and choice of improved-breed cattle for fattening is limited as majority of cattle for sale at markets are from indigenous cattle breeds (cows) which are smaller in size and weight than cross bred (hybrid) cattle.

Although individual cattle may be made up of varying percentages of each component breed and different breeds vary significantly in their characteristics, broadly speaking, an increase in the percentage of cross breed cattle would signify improvements in breed. With this in mind, the monitoring system collects data on the breeds of cattle reared by meat BGMs. Table 6 shows that the number of bulls reared which are cross-breed has remained low at 7%. The trend shows a rise in number of cross breed cattle during May 2014 survey and a constant decline onwards. The reason behind this decline is a higher percentage of cross breed cattle being sold than that was purchased since February 2014. Of all cattle sold during the year, 9.7% were cross breed which is higher than the stock of cross breed cattle (Table 6) at any point during this year. This shows that BGMs are becoming more interested in buying and selling fattened cross breed cattle.

Table 6: % of bulls reared which are cross-breed

INDICATOR	Baseline December 2013	May 2014 survey	June 2014 survey	August 2014 survey	October 2014 survey
% of bulls reared which are cross-breed	7.3%	9.3%	7.6%	6.9%	6.7%

2.4 De-worming and vaccination

Correct de-worming and vaccination practices are key to improving cattle health and increasing productivity of beef fattening. The table below presents the key results to date in relation to de-worming.

Table 7: % of BGMs purchasing de-worming tablets for bulls during the last 6 months and % of bulls de-wormed in the last 6 months

INDICATOR	Baseline December 2012	May 2014 survey	June 2014 survey	August 2014 survey	October 2014 survey
% BGMs purchasing de-worming tablets for male cattle during the last 6 months	8.2%	45%	75%	80%	57%
% of bulls de-wormed in the last 6 months	8.2%	61%	62%	56%	43%

The table shows that the percentage of BGMs purchasing deworming tablets peaked at 80% during August 2014 and since then dropped sharply. However, even after this steep decline, the figures still show a major increase against the baseline figure of 8.2%. This is an encouraging sign that new BGMs are adopting the practice of de-worming. Furthermore, it shows that de-worming services² are available for char-dwellers to purchase locally.

Correct practice involves de-worming cattle every 6 months. The table demonstrates that the majority of cattle are being de-wormed within the appropriate intervals. However, it also shows that there is still scope for further improvements in this area.

Table 8: % BGMs purchasing any vaccination for bulls during the last 6 months

INDICATOR	Baseline December 2012	May 2014 survey	June 2014 survey	August 2014 survey	October 2014 survey
% BGMs purchasing any vaccination for bulls during the last 6 months	2.0%	12.4%	15.5%	10.2%	5.8%

Table 8 shows that the percentage of BGMs purchasing any vaccination for bulls during the last 6 months is in decline, as is the case with deworming. However, a higher percentage of cattle being vaccinated in previous survey periods demonstrates that BGMs are gradually adopting the vaccination practices. Though again, it shows that there is a large proportion of BGMs that are still not purchasing any vaccinations for their cattle.

Table 9: % of bulls vaccinated against key cattle diseases in the correct interval

INDICATOR	Baseline December 2012	May 2014 survey	June 2014 survey	August 2014 survey	October 2014 survey
% of bulls vaccinated against foot and mouth disease in the last 6 months	No data	9%	6%	3%	2%
% of bulls vaccinated against anthrax in the last 12 months	No data	7%	6%	6%	7%
% of bulls vaccinated against black quarter in the last 6 months	No data	3.4%	2.9%	2.1%	0.3%
% of bulls vaccinated against hemorrhagic septicemia in the last 12 months	No data	1.6%	1.4%	1.3%	2.4%

² Cattle services are actually provided in a batch via CLP and DLS organised "Vaccination and De-worming Camps", i.e. whenever a Livestock Service Provider (LSP) visits an area, s/he provides services to all cattle in that area (if the rearer asks for it) and general services like deworming, any kind of vaccination etc. are provided simultaneously.

Table 9 provides a breakdown of the % of bulls vaccinated against key cattle diseases, at the correct intervals.

Correct practice involves vaccinating cattle against Black Quarter and Foot and Mouth Disease every six months, and against Hemorrhagic Septicemia and Anthrax every 12 months. The table demonstrates that any significant change is yet to be achieved and major improvements are required if all cattle are to be vaccinated with sufficient frequency.

3. Production and productivity

3.1 Rearing cycle length

Table 10: Average length of rearing cycle for bulls

INDICATOR	Baseline December 2013	May 2014 survey	June 2014 survey	August 2014 survey	October 2014 survey
Average length of rearing cycle for bulls	5.1	4.2	4.4	5.1	5.7

The project has promoted a beef fattening business model which involves fattening cattle intensively for shorter periods of time (2 to 4 months versus 8 to 12 months+). This model is more profitable than rearing for longer cycles due to the possibility of a higher financial turnover / number of sales of cattle within any 12 months period of time. However, among the BGMs that had sold cattle in this period, average rearing cycle is 5.7 months (median) which is slightly higher than that recorded in December 2013 baseline (5.1 months). Since the October 2014 data includes sale of cattle during Eid-ul-Azha when the demand for cattle reaches a high, many beef rearers might have withheld sale of their cattle a little longer to use the opportunity of this peak in sale price. This might have contributed in longer rearing cycle than that is common among the BGMs.

3.2 Body weight gain

Table 11: Mean body weight gain (g) per head of cattle per day

INDICATOR	Baseline December 2012	June 2014 survey	August 2014 survey	October 2014 survey
Mean body weight gain (g) per head of cattle per day	300	377	386	105

Measuring body weight gain of cattle requires availability of cattle during the survey. On the contrary, the cattle that have already been sold cannot be measured. This limits the extent to which productivity gain can be measured accurately.

Keeping that in mind, Table 11 shows that the mean body weight gain (g) per head of cattle per day (the daily live weight gain – DLWG) for the cattle which were available for at least two surveys and allows comparison at two different points. The data shows that body weight per cattle per day has

increased significantly up to August 2014 against the baseline figure. This is an important result, because increasing productivity, i.e. DLWG of cattle is critical towards increasing the financial turnover / number of sales of cattle within any 12 months period of time, and towards the profitability of beef fattening as a business. However, the surveys only permitted the weighing of the existing cattle stock, whereas most of the fattened cattle had been sold during the Eid-ul-Azha. Thus, the body weight gain in October 2014 does not reflect the productivity gain of cattle that have been sold during this time.

4. Sales and profits

4.1 Mean profit per head of cattle per month

Table 12 presents mean profit per head of cattle per month against the baseline December 2012 survey. It is important to consider that the methodology for the data collection of the December 2012 survey is likely to have resulted in a moderate inflation of the baseline profit figures. Specifically, estimated current value minus expenditure to date was used to calculate profit. In reality, these farmers had not sold their cattle at this point and many will have continued to rear their cattle for several months more. Rearing for longer periods reduces the profit per head of cattle per month significantly. It would not be accurate to estimate the inflation caused as a result, because the information required to do this accurately is not available, but it is important to bear in mind when comparing subsequent monitoring data against this baseline.

In October 2014, 323 BGMs sold 383 cattle with a profit (Tk. 1749) per cattle per month 26% higher than the baseline profit. Among the 323 BGMs, 28 (9%) made losses in the sale of 37 cattle. For the cattle that had been sold with any amount of profit, mean profit per cattle per month reaches Tk. 1997.

Against a January 2015 milestone of 40% of BGMs making a 35% profit increase over baseline, 38% of BGMs have achieved the target as of October 2014. Among the BGMs who have made any amount of profit, a 35% profit increase has been achieved by 43%, thus higher than the milestone. To illustrate further, the 38% of BGMs making a 35% profit increase have a mean profit of Tk. 4088, more than 200% profit increase over the baseline.

Table 12: Mean profit per head of cattle per month

INDICATOR	Baseline December 2012	Milestone January 2015	Achievement as of October 2014	Progress toward milestone (%)
Mean profit per head of cattle per month	1387	1872	1749	93.4%
% of BGMs achieving a 35% profit increase over the year	NA	40%	38%	95%