ANALYSIS OF LIVESTOCK (DAIRY, BEEF CATTLE AND POULTRY) VALUE CHAINS FOR POTENTIAL FINANCING OPPORTUNITIES

Draft Report

September 2014
Report of Value Chain Analysis for Livestock (Dairy, Beef Cattle and Poultry) for Potential Financing Opportunities

This report was prepared by Asaph Besigye and was produced for review by Centenary Bank. The author’s views expressed in this report do not necessarily reflect the views and opinion of the Bank or those of its partners.
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### Abbreviations and Acronyms

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<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>aBi</td>
<td>Agribusiness Initiative Trust</td>
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<tr>
<td>AI</td>
<td>Artificial Insemination</td>
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<tr>
<td>ARI</td>
<td>Average Return on Investment</td>
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<tr>
<td>CBPP</td>
<td>Contagious Bovine Pleuroneumonia</td>
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<tr>
<td>Danida</td>
<td>Danish Development Agency</td>
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<td>DDA</td>
<td>Dairy Development Authority</td>
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<tr>
<td>DRC</td>
<td>Democratic Republic of Congo</td>
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<td>DSIP</td>
<td>Development Strategy and Investment Plan</td>
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<td>EADDP</td>
<td>East Africa Dairy Development Project</td>
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<td>FAO</td>
<td>Food and Agricultural Organisation</td>
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<td>FIs</td>
<td>Financial Institutions</td>
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<td>FMD</td>
<td>Foot and Mouth Disease</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<tr>
<td>MAAIF</td>
<td>Ministry of Agriculture Animal Industry and Fisheries</td>
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<tr>
<td>MCC</td>
<td>Milk Collection Center</td>
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<tr>
<td>MOU</td>
<td>Memorandum of Understanding</td>
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<tr>
<td>NARO</td>
<td>National Agricultural Research Organisation</td>
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<tr>
<td>RNE</td>
<td>Royal Netherlands Embassy</td>
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<tr>
<td>NGO</td>
<td>Non-governmental Organization</td>
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<td>PO</td>
<td>Producer Group</td>
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<tr>
<td>ROI</td>
<td>Return on Investment</td>
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<tr>
<td>SACCO</td>
<td>Savings and Credit Cooperative</td>
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<tr>
<td>SNV</td>
<td>Netherland Development Organisation</td>
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<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
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<tr>
<td>UCCCU</td>
<td>Uganda Crane Creameries Cooperative Union</td>
</tr>
<tr>
<td>UShs/UGX</td>
<td>Uganda Shillings</td>
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<tr>
<td>VAT</td>
<td>Value added Tax</td>
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ACKNOWLEDGEMENTS

Centenary Bank acknowledges the consultant (author of this report) and the respective individuals who participated in the field research and completing the analysis and recommendations for this livestock value chain analysis report. The tremendous effort put in by the sub-contracted field enumerators and the several staff members of the Bank to collected the highly enriched data from the diverse geographical locations in the country the analysis of which adequately informed the findings and recommendations in this report is particularly appreciated, for without their tireless engagement with the different respondents, the completion of this activity would not have been possible. The Bank also acknowledges the financial support of the World Bank’s Agrifin Project which enabled the successful initiation and accomplishment of this activity.
EXECUTIVE SUMMARY

The livestock value chain is one of the specific value chains Centenary Bank is considering to prioritize for potential financing. Although the bank has been financing this sector under its agricultural loan product, it has identified a number of gaps in terms of structuring the credit and also in properly categorizing its credit to some of the livestock value chain actors such as veterinary drug dealers, cattle traders, cattle and milk transporters, etc. which it requires to address provided it has clearer understanding of what these actors actually need and how they operate.

Achieving the above required a deeper analysis of the levels of efficiency at each transactional level in the three livestock value chains (dairy, beef cattle and poultry) with a view to identify the financing opportunities and risks therein. This analysis should enable the bank to properly align the delivery of specific low-risk financial products to the needs and priorities of identified actors in the value chain. The ultimate goal of the livestock value chain analysis study is therefore to inform the Bank of the potential financing opportunities along the entire value chains of the enterprises researched and to recommend sound potential financial products to underpin the proper and systematic financing of the identified creditworthy commercial actors engaged in these enterprises in a sustainable manner.

It is in the pursuit of the above goal, and with the funding support of the World Bank’s Agrifin Project, that Centenary Bank hired a consultant to research and carry out an in depth analysis of the levels of efficiency of the actors within the three livestock enterprises. This report is therefore an outcome of the consultancy engagement.

The rationale for the selection of the three livestock enterprises is because these enterprises operate in a high growth market with many commercially-oriented value chain actors and are thus generating robust and regular cash flows that should support low-risk, viable and sustainable commercial financing if the operations and transactional relationships amongst their respective value chain actors are efficient and are properly understood. The dairy value chain in particular generates daily cash inflows of relatively big amounts for the majority of its actors (producers, milk vendors and traders, transporters, processors, wholesalers and retailers). Similarly, beef cattle generate incomes on regular basis and in many instances involve transactions of relatively big monetary value. For poultry chicken (broilers and layers), there is certainty of income over a known period of time as their production is under controlled environment. These characteristics can be harnessed by the bank to strengthen its agricultural lending portfolio and, increase its agricultural financing market share and rural outreach provided appropriate financial products for the respective enterprises’ actors are put in place.

The field data collection by the field enumerators and backed by the staff from the credit section of selected bank branches for the respective livestock enterprises was carried out in the districts listed below.
1. Dairy: from the districts of Mbarara, Kiruhura, Ibanda, Sheema, Bushenyi, Isingiro, Ntungamo and Sembabule;

2. Beef cattle: from the districts of Lyantonde, Mbarara, Isingiro, Kiruhura, Ntungamo, Gomba and Mubende; and


The methodology for the value chain analysis study adopted a high level financing lens that focuses on establishing the value chain actor’s profitability and return on investment as key indicator of existence of transactional efficiency that is desirable for creditworthiness. This is because, under normal circumstances, the value chain operates optimally and efficiently when all the principal actors therein operate profitably. In other words, if all the actors are realizing sustainable levels of profitability, it minimizes potential bottlenecks in the flow of products throughout the chain and increases demand for commercial finance to step up operational volumes. This then provides opportunity for low-risk and low-cost lending since only profitable actors can be creditworthy and are thus capable of effectively demanding and absorbing financial services.

The key findings from the analysis of field data collected from the several principal actors for all the three livestock enterprises, and backed by field observations, are outlined below.

1. Veterinary drug dealers for both cattle and poultry realize averagely thin margins and are thus currently not creditworthy. Their monthly transactional volumes are still very small mainly due to the high competition in this sector. If it is possible to increase the volumes (and if possible the rate of stock turnover) then the creditworthiness of these actors can be stepped up. With the current stiff competition, it is difficult to predict the role of commercial financing in resolving the issue of volumes and stock turnover.

2. Producers for the cattle livestock (dairy and beef cows) realize very good levels of profitability and thus high return on investment (inspite of the low productivity levels for the dairy enterprises). Therefore they have capacity to demand commercial finance and are thus creditworthy. Besides, the dairy producers have continuous liquidity of fairly known cash inflow levels. This dairy value chain level can therefore potentially sustain reasonable level of formal savings if the producers are well mobilized and sensitized about the benefits of savings.

3. Poultry producers are only profitable beyond a given minimum threshold of production operations in terms of the number of birds reared per batch. This minimum threshold has been established by the data analysis to be 500 birds in either case of broilers and layers.

4. Long haulage and bulk milk transporters are highly profitable (with an annual return of 443%) and therefore are very creditworthy although they have no actual demand for
commercial financing because of the nature of their operations that require low levels of liquidity for working capital.

5. Beef cattle traders are adequately profitable and can sustain commercial financing under the current operational situation. Their high levels of profitability are particularly enabled by the short tenure of their transactional cycle.

6. Cattle transporters are equally profitable with average annual return of 106% which makes them creditworthy. They also have the advantage of cross-selling their transport services for non-cattle transportation.

7. Dairy processors are accessing commercial finance already and are not keen to openly discuss their operations. However, the fact that they want more milk to step up their operational capacities and also being in position to determine the prices for upstream actors means that they are operating efficiently.

8. There are many actors whose operations are accomplished in a manner that can’t incentivize consideration for financing. These include village level cattle traders, milk vendors, short haulage milk transporters, poultry traders and transporters and traders in livestock finished products.

9. The inherent risks in some of the value chain enterprises such as livestock production and beef cattle trading provide opportunity for innovative financing such as insurance-backed lending.

On the basis of the value chain study findings above, four new financial products have been recommended for the livestock value chain enterprises, in addition to highlighting another thirteen financing opportunities and strategies that are highly compatible and thus can be integrated and implemented with existing bank’s financial products without substantial further action on product development. The four recommended new financial products and financing strategies are least compatible with the existing financial products and should only be considered for implementation after further action, in terms of financial product development or after major revisions of relevant existing products have been done.
INTRODUCTION

Background

During the past few years, and specifically with funding support of the World Bank’s Agrifin Project, Centenary Bank has been engaging in several initiatives to streamline and enhance its agricultural financing strategy and approach. The ultimate goal is to increase the Bank’s agricultural finance portfolio, increase its rural outreach in line with its mission and vision, and consolidate its market share. These initiatives include, inter alia;

1. Establishing a well-functioning and appropriately staffed agricultural credit department; and
2. Refocusing its financing approach to target specific agricultural value chains with clear and appropriately tailored financial products that match the financial services needs of the different actors in these value chains.

The second task requires, among others, a deeper analysis of the levels of efficiency in the value chains with a view to properly identify the financing opportunities and risks therein. This should therefore help the Bank to align the delivery of its financial products to specific needs of the clients in the identified respective levels of the value chains that should ensure the realisation of a low-risk and low-cost agricultural financing portfolio.

The livestock value chain for which this analysis report addresses is one of the specific value chains Centenary Bank is considering to prioritize for potential financing. Although the bank has been financing the livestock sector under its agricultural loan product, it has noted a number of gaps in terms of structuring the credit and also in properly categorizing its credit to some of the livestock value chain actors such as veterinary drug dealers, cattle traders, cattle and milk transporters, etc. These gaps are constraining the effective delivery of financial services to this important agricultural value chain. Besides credit, the Bank feels it has not harnessed to opportunities that are likely to be provided by the highly liquid dairy transactions such as for milk marketing.

In order to appropriately finance the livestock value chain actors and thus minimize and/or plug the gaps mentioned above, it is imperative for the Bank to properly understand the transactional relationships and volume of business of the various actors in this value chain and which actors are creditworthy and thus capable of supporting commercial financing in order for the Bank to properly target its credit for the sector. The understanding of the transactional relationships should also provide the Bank a better understanding of the risk profiles and magnitude at each transactional point in the value chain and how to best mitigate them.

In pursuit of the above, and with funding support of the World Bank’s Agrifin Project, Centenary Bank hired a consultant to research three principal livestock enterprises (dairy, beef cattle and poultry) to identify potential financing opportunities and to recommend appropriate financial products and financing mechanisms for identified actors in these enterprises. Accomplishment of this value chain analysis would supplement analyses of other value chains (sunflower, maize, coffee and rice) that were completed in the past and thus broaden the coverage of prospective agricultural value chains the Bank will target to finance under its remodeled approach.
The purpose of the livestock value chain analysis study is therefore to inform the Bank of the potential financing opportunities along the entire value chain of the enterprises researched and recommending sound potential financial products to underpin the proper and systematic financing by the Bank of the identified creditworthy commercial actors engaged in these enterprises on a sustainable manner that should enable the realization of a viable livestock financing portfolio.

The consultancy engagement tasks entailed, among others, conducting data collection\(^1\) and analysis for identified key principal value chain actors in the three livestock enterprises, including: inputs suppliers, producers, producer organizations, transporters, traders and processors from selected geographical locations of the country in districts with critical mass of value chain actors for the respective livestock value chains. The accomplishment of this activity is expected to positively contribute to the realization of the bank’s agricultural lending portfolio targets within the mandate of its mission and vision.

**Rationale for selection of livestock value chain**

The selection by the bank of the three livestock enterprises for this value chain analysis study was underpinned by their strategic relevance, both at national and household levels, in increasing income and employment and thus their valued contribution to improved livelihoods and national GDP. Dairy, beef livestock and poultry are specifically earmarked among the twelve prioritized agricultural enterprises in the Ministry of Agriculture Animal Industry and Fisheries’ Development Strategy and Investment Plan (DSIP).\(^2\) Thus the decision was principally informed by their current levels and growth prospects of commercialization and therefore the potential for the actors therein to demand and support reasonable commercial financing levels on a sustainable basis.

The three livestock enterprises operate in a high growth market with many commercially-oriented value chain actors and therefore generate robust and regular cash flows that should support low-risk, viable and sustainable commercial financing if the operations and transactional relationships amongst their respective value chain actors are efficient and are properly understood. The dairy value chain in particular generates daily cash inflows of relatively big amounts for the majority of its actors (producers, milk vendors and traders, transporters, processors, wholesalers and retailers). Similarly, beef cattle generate incomes on regular basis and in many instances involve transactions of relatively big monetary values. For poultry chicken (broilers and layers), there is certainty of income over a known period of time as their production is under controlled environment. These characteristics can be harnessed by the bank to strengthen its agricultural lending portfolio and, increase its agricultural financing market share and rural outreach provided appropriate financial products for the respective enterprises’ actors are put in place.

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\(^1\) Under the supervision of the author of this report (consultant), the data collection was accomplished by the subcontracted field enumerators and Bank credit staff from the branches in the areas where the market survey was carried out.

\(^2\) MAAIF Development Strategy and Investment Plan (2009/10 – 2013/14)
Specifically for dairy, the transactional nature under the formal milk marketing channel, there ought to be opportunities for low risk and low cost financing through structured mechanisms, in addition to providing potential for collaboration with dairy producer cooperatives and processors for other financial services such as savings, payments and transfers that can be tailored for the identified value chain actors. Similarly for poultry, the production activity is not constrained by accessibility to land as is the case in the majority of other agricultural production enterprises and also involves relatively lower levels of investment. Thus the poultry production can be achieved with facilities on very small land holdings and is therefore able to engage many actors thereby providing to the bank broadened opportunity to expand its clientele base.

In addition, there are several initiatives by multiple donor and NGO Programmes that target the development of the livestock sector. These include USAID, Land O’ lakes, aBi Trust, DDA, NARO, SNV, Danida, East African Dairy Development Project, FAO and RNE). Their interventions mainly focus on improving efficiencies by stepping up productivity, strengthening market access and strengthening producer organizations. Also there are several government initiatives to increase livestock production and productivity such as by NARO and DDA. These programmes and initiatives should provide additional leverage for viable and low risk financing of the livestock value chain actors if opportunities are identified and properly assessed. Improved operational efficiencies and access to the market, and thus profitability of the actors is critically important for anchoring commercial financing and therefore existence of initiatives to address any efficiency gaps should provide opportunity to mitigate the financing risks and lower the financing costs.

The selection of the geographical coverage for the collection of the data to inform the analyses of the value chains was principally underpinned by the level of concentration of operations of the value chain actors for the respective livestock enterprises. This is because such concentration provides opportunity to generate representative samples of respondents for the value chain actors and thereby enabling the collection of data that should have high probability of being statistically significant.

Accordingly the field data collection for the respective livestock enterprises was carried out in the districts listed below.

4. Dairy: from the districts of Mbarara, Kiruhura, Ibanda, Sheema, Bushenyi, Isingiro, Ntungamo and Sembabule;

5. Beef cattle: from the districts of Lyantonde, Mbarara, Isingiro, Kiruhura, Ntungamo, Gomba and Mubende; and


The above geographical stratification focused on the producer level of the value chain while the data collection for the inputs suppliers, traders, transporters and processors (where applicable) for all the enterprises cut across all the locations surveyed as in the majority of the cases the actors were not confined to a specific locations. For instance cattle traders and transporters rotate their operations in several locations where they are able to derive viable business levels.
In order to stay the course of realizing the goal of this value chain analysis study that focuses on (using a financing lens) identifying the financing opportunities and recommending potential financing strategies for the Bank, some of the actors such as small scale village level cattle traders, milk vendors, small truck and short distance milk transporters, dairy and beef products wholesalers and retailers, and poultry traders and transporters were omitted from the data collection and analysis as their transactions were deemed either to be too small or heavily intertwined with other businesses and thus not capable of adequately informing recommendations for financing their respective livestock value chains.

The financial value chain analysis approach for the livestock study

The approach to accomplishing the livestock financial value chain analysis sought to overcome the shortcomings under the conventional value chain analysis approach which often assumes that: 1) transactional relationships between the buyers and sellers within a given value chain are continuously sustainable; and 2) the ancillary service providers (non-principal actors in the value chain) are available and easily accessible in the market. Because these assumptions seldom hold, usually some value chains collapse as some actors exit the value chain especially if they are not realizing the desired profits and/or ancillary services such as quality inspection are not accessible in the market.

Therefore the methodology adopted for the three livestock value chains/enterprises studied, and also applied in the past for similar value chain analyses for Centenary Bank and others, shifted the center of the value chain analysis from just concentrating on analysis of the transactional relationships between the various actors in the value chain to focus on the financial efficiencies in the entire value chain. Accomplishing this required the focusing of the lens of analysis to carefully capture the dimensions and magnitude of profit and risk, while at the same time ensure the understanding of the transactional relationships between the actors within the value chain, including the tenure of the transaction cycle. The financial value chain approach that was adopted, therefore, not only analyses the transactional relationships between value chain actors but further establishes both the profitability levels and the risks at each stage in the chain.

The above approach should enable the bank to objectively assess whether the prospective value chain borrowers are profitable and therefore creditworthy and their transactions present low risk for financing, and also if the other levels of the value chain are efficiently operating and therefore support the efficient functioning of the particular value chain level that may be targeted for commercial financing. Thus the approach puts clear emphasis on the two main qualifiers for financing of profit and risk. Without an objective understanding of these qualifiers, financiers often either avoid financing the value chain or finance it inappropriately (with terms and structuring not matching the characteristics of the actors’ business operations) with a danger of increasing the risk of that financing.

OBJECTIVE

The ultimate goal of accomplishing the livestock value chain analysis activity was to generate appropriately evaluated and adequately-informed specific recommendations for developing potential low-risk and high-return financial products and financing mechanisms for consideration.
by the Bank in order to properly direct financial services to the identified actors within the respective value chain levels. This would be achieved through collection and analysis of statistically significant data from all the relevant principal value chain actors in the three researched livestock enterprises. The analysis of the data, together with the field observations made during the field data enumeration, would help to identify the key constraints in the value chains that financial services can help to unlock and thus enhance the efficiencies of the value chain actors in a profitable and creditworthiness manner. The data analysis also aimed at establishing the exact transactional relationships between the buyers and sellers within the value chains; quantifying the volumes, revenues and costs, and thereby determine profit and return on investment for each transactional point; and establishing the tenure and seasonality of the cash flows for the respective value chain actors that should help to guide the development of appropriate financial products that properly match the needs of the target actors.

The above elements are very important if the Bank is to properly target its financial services delivery to the value chain in a low-risk and cost-effective manner. Thus overall the livestock value chain analysis is intended to provide the Bank a better and objectively understood functioning mechanism of the value chain levels with a purpose of targeting the financial services to the analyzed creditworthy value chain levels.

Therefore the broad analysis of and recommended financial products and financing mechanisms should best inform the Bank to properly target and step up cost-effective (with reasonably measurable and manageable risk) delivery of financial products to the researched livestock value chains, with clearly tailored and market-responsive financial products. The value chain analysis should also enhance the capacity of the Bank to explore sustainable collaboration and partnerships with different entities and stakeholders that may be actively engaging in supporting the efficient functioning of the livestock value chains for broader, deeper and (where possible as in case of accessing credit guarantees) lower risk financing impact.

**METHODODOLOGY OF ACCOMPLISHING THE LIVESTOCK VALUE CHAIN ANALYSIS**

From mid-August 2014, the engaged consultant, in close liaison with the Bank’s Chief Manager and Manager in charge of Agricultural Lending, developed a working strategy and schedule to collect and analyze the data for the identified three principal livestock enterprises. Thereafter the consultant developed the field data collection tools\(^3\) that addressed both qualitative and quantitative parameters that were considered to be highly relevant for the objective analysis of the efficiencies in the value chains and, recruited field enumerators with strong background in rural and agricultural field activities (including previous engagements with livestock value chain interventions where feasible) and with adequate grasp of the local languages of the target respondents in the respective geographical locations for the data collection activity. Besides the recruited field data enumerators, the bank fielded a number of agricultural credit staff from its branches in each of the respective geographical locations where the field data was collected to participate in and beef up the data collection activity.

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\(^3\) The questionnaires for the data collection for the all the actors in the three livestock value chains are provided separately
To enhance the effectiveness of the data collection activity, the consultant executed field enumeration induction trainings for the field enumerators (including bank staff) in the respective geographical areas to explain the objective of the value chain analysis activity and to disseminate the data collection methodology and tools. The induction training also provided an opportunity to clarify issues that would otherwise affect the successful realization of actionable data from field interviews, agreeing the field data collection plans and daily workload targets, and harmonizing the required field enumeration logistics.

Beside the field data collection from statistically significant samples of the principal value chain actors for the respective livestock enterprises (inputs suppliers, producers/farmers, traders, transporters, producer groups and processors), more information was collected from other entities actively supporting the improved efficiencies of the actors in the different value chains, including donor projects and farmer umbrella organizations such as Dairy Development Agency (DDA) and Uganda Crane Creameries Cooperative Union (UCCCU) both at field level and also those based in Kampala. Among others, the interviews with the non-actor stakeholder entities were intended to validate the data collected from the principal value chain actors and also to ascertain the opportunities for potential collaboration on the delivery of financial services to the value chains. Overall, the interview coverage realized the respondents’ outreach summarized below.

1. Dairy: 163 producers, 8 producer groups/producer dairy cooperatives, 7 artificial insemination/vet care service providers, 4 transporters/traders, and 3 processors;
2. Beef cattle: 61 producers, 18 traders, 6 transporters, and 1 butcher;
3. Poultry: 9 inputs (vet drugs and poultry feeds) suppliers and 47 producers; and
4. Crosscutting actors for dairy and beef cattle: 13 inputs (veterinary drugs and vet care services) suppliers

As noted earlier however, certain actors in the specific value chains were omitted from the data collection activity as their transactions were outrightly evaluated to have limited consequence on the meaningful analysis of the value chain in terms of informing the analysis if they can provide qualified demand for commercial financing. These included poultry and poultry products traders and transporters, informal dairy products traders and retailers such as restaurants, petty transporters of milk, and village level small scale cattle traders. Though these actors exist and impact the value chains to some degree, their transactional relationships tend to be very small and are often mixed up with other businesses and thus not capable of yielding realistic data analysis that is of substantial relevance for the financial value chain analysis.

However, seven questionnaires (2 for dairy, 1 for beef cattle and 4 for poultry) were discarded at the data analysis stage because of either inadequate information or being outliers with inconsistent data that would not fairly inform meaningful and actionable analysis.

On the basis of the collected data, value chain maps and analyses of quantitative data were completed using pre-designed Microsoft excel spreadsheet templates that enabled the analysis to
determine the degree to which the respective value chains functioned efficiently in terms of levels of profitability of the respective actors and the return on investment for each level of the value chain that should impact the qualified demand for commercial financing. The data analysis also helped to pinpoint the critical levels of the value chain and, the respective activities therein that would require financing and their potential financing requirements, the relevant financing approaches for these levels and thus the potential financial products to tap into such opportunities identified. The analysis of qualitative data was done on the basis of statistical analysis of responses and field observations and comments on the key parameters that are impacting the efficient functioning of the value chain. This report, with the recommendations therein, is therefore principally informed by the completed analysis of the data that was collected from the principal value chain actors and non-actor stakeholders.

In order to collect data that would adequately inform the analysis of efficient functioning of the respective livestock enterprises value chains, facilitate identification of reasonable potential financial product and recommend realistic potential financing strategies, the sampling strategy used ensured the realization of a statistical significant number of respondents that fairly represent the population of the actors in these value chains in the geographical locations surveyed. Accordingly the size of sample was selected to statistically comply with the normal distribution principles. The sizes of the sample and the data collected were centered upon the producers of the respective researched livestock enterprises. The sampling was anchored to producers because they are the real movers of the value chains as they buy the inputs and demand other production-related services such as veterinary and artificial insemination services, and also sell the livestock enterprise output that is subsequently handled by the upstream actors in the value chain.

Data Collection Methodology

With a total of 10 field data enumerators that were carefully recruited in the respective locations where the field data collection was conducted, and supported by a total of 5 Bank’s credit staff, the 343 field level value chain actors were interviewed, including veterinary drugs and poultry feeds suppliers, veterinary and artificial insemination services providers, producers, producers cooperatives, traders, transporters, butchers and processors. The recruited field enumerators, using their past engagement contacts, were able to identify farmers and farmer cooperatives, key livestock traders and processors, and inputs suppliers in the focus geographical areas. Also the dairy cooperative union (UCCCU) provided useful contacts for its dairy primary cooperatives from which subsequent contacts for producers, traders, transporters and veterinary drugs suppliers were got. Similarly, the day-old chick poultry suppliers that were interviewed provided useful contacts for the various poultry farmers which facilitated ease of access to the respective respondents.

Unlike many other commodity value chains, the transactional relationships between the actors in the livestock value chains are very systematic. Actors very well know whom they buy from and whom they sell to and also know many of their colleagues in the same level of the value chain. As such, identifying the contacts of both the upstream and downstream actors, and also of actors in the same level of the value chain from interview respondents provided an effective avenue for reaching more respondents and this facilitated the realization of the desired number of
respondents and successful interviews that were conducted using the predesigned questionnaires for each level of the value chain. The interviewed dairy processors and poultry stock suppliers were easy to identify as they are few and therefore well known. The interviewed processors also provided useful contact details for the transporters and traders and thus further enhancing the efficiency of the data collection activity. In addition, the data collection exercise for dairy benefited from the useful guide and contacts provided by aBi Trust for its key dairy value chain actor partners.

Data Analysis Methodology and its rationale

As earlier mentioned, the analysis of qualitative data was done on the basis of statistical analysis (analyzing frequency of responses) and other field observations on the key variables at each level of the value chain that were considered relevant to impact the efficient functioning of the chain. On the basis of this, the key issues that constrain the efficiency of the value chain (for each level of the value chain) that present opportunities for developing appropriate financial products and for recommending other non-financial services offering were ascertained and qualified.

Besides the analysis of qualitative data, a comprehensive analysis of quantitative data was successfully executed using Microsoft Excel Spreadsheets for each level of the respective value chains. Principally, the quantitative analysis focused on determining the profitability levels (and the resultant transactional and annualized return on investment) for all the actors interviewed at the different levels of the value chain. The emphasis on establishing the level of profitability (and the return on investment) is because profitability is a good and objective measure of transactional efficiency while the realized return on investment is a clear parameter for ascertaining the creditworthiness of the actor and thus a qualifier for existence of effective demand for commercial financing as the two measures critically determine the level of appetite for further reinvestment in the transactional activity by the relevant actors. The outcome of the quantitative analysis of the respective livestock value chains principally helped to derive the conclusions and recommendations of potential financial products in this report.

Starting from analyzing the volume (stocking and productivity levels, operational volume, etc.) in each transactional cycle, the paid costs of accomplishing the entire transaction cycle by each respondent for the respective value chain levels were determined. The transactional costs were then offset from the transactional revenue to ascertain the profit margin realized on the transactional volume or cycle by the respective individual respondents in a given transactional completion tenure. The transactional return on investment (gross margin divided by total cost and expressed as a percentage) were calculated which enabled the determination of annual return on investment (transactional return on investment divided by the transactional tenure in months and multiplied by 12 – months in a year). The overall averages of the analyzed data for all the respondents in the respective value chain points were thereafter determined. The rationale for determining the average annual return on investment (ARI) was aimed at enabling the assessment of the creditworthiness of the relevant value chain actors by comparing the realizable ARI with the Bank’s average lending rate. The above analysis was done for each transactional level of the value chain and thus rendering easy assessment of financing opportunities for the respective levels. The omission of non-paid costs in the analysis is for obvious reasons as such
costs (for example non-paid family labour, family land, etc.) do not substantially impact the financing decision.

The systematic analysis of the value chain actor’s profitability and return on investment (ROI) helps to ascertain the functioning efficiency of the value chain. This is because, under normal circumstances, the value chain can only operate efficiently when all the principal actors in that chain realize profitable operations. The realization of reasonable levels of profit by the value chain actors helps to curtail instances of bottlenecks in the flow of products throughout the chain and should ultimately step up the demand for commercial finance to further increase the transactional efficiency through increased transactional volumes, thus providing opportunity for low-risk financing of the identified value chain actors.

In simple terms, if a particular level of the value chain is not profitable, it renders the functioning efficiency and sustainability of the value chain to be unpredictable as the unprofitable actors will ultimately either completely exit from the value chain to re-invest elsewhere or will reduce their transactional volumes in order to minimize their losses. Under such circumstances, any move to finance the other value chain levels whose transactions are profitable at that particular time can be both risky and unsustainable. In other words the financier must have reasonable confidence that not only the potential value chain actor borrower is creditworthy but also that the markets in which that potential borrower buys from and sells into are also efficient (with actors therein realizing profitable operations) and are thus able to absorb the increased volumes of the products that may be enabled by the increased levels of financing. Illustratively, this means that before deciding to lend to, for example, dairy producers which is bound to increase milk production, it is imperative to understand that the producers’ inputs suppliers and, output buyers/transporters and processors are profitable and thus capable of absorbing the additional volumes of inputs demanded and milk output produced and offered on the market.

The quantitative analysis of both profit margins and return on investment realized by the respective actors in the livestock value chains should enable the Bank to distinguish between profitable and creditworthy potential clients when deciding to finance these value chains. This is because lending to actors that are realizing low levels of annual return on investment, albeit with profitable operations, is not only very risky but is also highly unsustainable.

For each level of the value chain, a clear basis for the analysis that has capacity to quickly inform lending consideration was determined. These were respectively as follows: 1) Input supply level (veterinary drugs and feeds) – was on transaction volume for the inputs sales per month; 2) production level – was on annual milk production volume from the number of lactating cows for the dairy value chain, number of beef cattle reared per production cycle for beef livestock value chain and number of birds per production cycle for the poultry value chain; 3) milk transporter/trader level - was on per trip and the number of trips in a month’s transaction volumes; 4) beef cattle transporter level – was on per transport trip and number of trips accomplished in a month, beef cattle trader level - was on the number of beef cows bought and sold per transaction; and 5) dairy processor level - was on the basis of milk volume procured and processed per month. For the dairy producer group/producer cooperatives level, only qualitative data was considered to be relevant as these entities are operating to render not-for-profit services to their members and only levy transactional commissions that are only sufficient to meet
operational costs such as generator fuel, cleaning and maintenance, workers’ remunerations and other overhead costs.

For each level of the respective livestock value chains analyzed, important transactional parameters were identified and their averages calculated for the entire sample. The summaries of these parameters are included in the section on research findings. For example, at the beef cattle trader level the key parameters considered to be of high relevance to inform lending decisions for this point of the value chain are average number of cows bought and sold per transaction, total revenue, total purchase cost (cost of beef costs, transport, licenses, taxes, movement permits, labour and other overheads) and the tenure/period of accomplishing the transactional cycle.
LIVESTOCK VALUE CHAIN ANALYSIS FINDINGS

FINDINGS – CROSS SELLING VALUE CHAIN ACTORS

Broader Discussion

The livestock value chains, unlike many other commodity value chains, have majority of the actors therein having distinct and easily discernible transactions. For instance milk transporters can only transport milk (specifically with tankers manufactured for bulky and long distance milk haulage) while veterinary drug dealers are also required to transact in veterinary drugs in premises separate from other non-vet drug items. Also actors such as beef cattle traders and artificial insemination services providers engage in transactions that are very distinct and are thus offering clear trail of costs and revenues for the specific level of the value chain. However, the livestock veterinary drugs and veterinary services offering cut across and thus are cross-sold for all the three livestock enterprises that are analyzed in this report. In other words the actors in these two segments do not exclusively handle only livestock enterprise-specific inputs or services but rather combine them for all the three livestock enterprises at any one particular time.

Also certain inputs items such as for tick control, deworming and, vaccination against and treatment of livestock diseases are applied for both dairy and beef cattle livestock. In the latter case the sellers may find it very difficult to know the quantities sold for the respective livestock enterprises but rather know the quantities sold in a given period. Even some of the transactional costs such as for transportation are aggregated and thus not easily assigned to specific items. The respective value chain transactional levels with cross-sold operations are discussed in the next sections.

Veterinary Drugs Input Supply Transaction Point

As observed above, veterinary drugs are highly cross-sold for the different animal livestock enterprises for similar usage/application and also within the same operational units. In other words it is not tenable to have vet drug dealers for dairy cattle drugs or for beef cattle drugs only but dealers rather handle veterinary drugs for multiple livestock enterprises and even non-drug items such as sprayers and pumps, ear tag applicators, syringes and needles, salt licks, etc. sold alongside the veterinary drugs in the same premises and by the same personnel.

The veterinary drugs inputs supply value chain transactional level is extremely competitive with dealers and stockists’ operations widely spread in many locations that have reasonable levels of cattle keeping. Besides the veterinary drug shops, the inputs are also accessible from the widely located regular cattle markets where the vendors often transact parallel activities besides those in the drug shops. Also veterinary service providers (both vet professionals and Para veterinary personnel) can deliver the drugs to the farmers on the latter’s request. These multiple and robust vet drug availability options are enabling the convenient and cost-effective access by the farmers who demand them. The items sold range from those for tick control, de-worming and, vaccination against and treatment of various livestock diseases, and non-drug items such as salt leak bricks, sprayers, tag applicators, castrating pliers, etc.
Because of the big number and high level of competition amongst actors at this level of the livestock value chains, the average volumes purchased and sold are relatively low (except in the case of importers and distributors) leading to thin margins realized. However, unlike in the case of inputs for crop commodities whose sales are largely seasonal, the demand for the livestock drugs is fairly continuous as their application tends to be continuously repetitive and regular in majority of the cases. Also the rate of adoption of use of veterinary drugs by the livestock farmers is reasonably high compared to their counterparts engaging in crop production. This therefore provides opportunity for regular operational cash flows that should impact the potential financing mechanisms for this transactional point. However, this potential is to some degree diminished by the drugs retailers’ ability to access short term trade credit from the bigger dealers. The summarized data analyses for the average profitability at the inputs supply level of the dairy and beef livestock value chains is presented on the right in the next paragraph.

From the analysis, it is clear that the profits on the veterinary drugs inputs supply for the dairy and beef cattle livestock enterprises under the current levels of operation and market conditions are very thin and thus presenting low potential to support commercial financing at the current levels of commercial lending rates. The realized annual return on investment of 17% renders the actors at this level of the value chain not to be creditworthy as they are realizing below break-even operations once imputed lending costs at the current commercial lending rates are factored in.

There are also challenges at this level of the value chain that constrain demand for specific veterinary drugs and thereby limiting the potential demand and hence impacting the risk for commercial financing for this transactional point. These challenges relate to the effectiveness of the given drug items. Some items though targeting same application have variability in effectiveness such as tick control and thus have varied preferences amongst farmer users. Thus increasing the volume of any given veterinary drug through commercial financing may not necessarily imply that this item can generate matched demand and thus being self-liquidating to ensure the successful recovery of the loan. Therefore ascertaining the reliability of supply of good quality veterinary drugs must be an essential ingredient in lending for this level of the livestock value chain. The analysis in this report did not specifically address the parameters of determining the reliable suppliers as this was outside the scope of the engagement TOR and was therefore not specifically targeted during the data collection activity.

Further, the introduction of taxes on agricultural inputs by the government in the 2014/2015 national budget will certainly push up the prices which may further constrain the effective demand for the veterinary drugs inputs and may also push the farmers to seek for cheaper unreliable sources.

On the basis of the above analysis and field observations, the potential for livestock drugs actors to support some level of commercial financing can be explored if the actors can pay attention on low cost sourcing to facilitate low priced inputs, increasing the rate of stock turn over and ensuring timely and adequate stocking to maximize sales. Although the analysis did not cover...
the larger dealers such as importers and distributors, it is highly probable that they are creditworthy. If this is possible and can be established, financing mechanisms such as trade finance to facilitate importation, letters of credit, bank guarantee, inventory credit, etc. can be explored.

**Veterinary Care Services (Including Artificial Insemination) Transaction Point**

Veterinary Care (and artificial insemination) services have a highly constrained demand and are thus not competitive. Majority of the would be veterinary care services users handle most of the cases such as deworming, vaccination and treatment for minor cases by themselves through their artisan skills that are mastered overtime as they carry on their routine transactional operations. They only demand for paid veterinary care services in the extreme (but rare) cases that are beyond their capability.

Similarly the adoption of artificial insemination (AI) livestock production technology has not taken off at good pace to reasonably impact the demand for the service in a commercial perspective. Indeed only seven livestock producer (for both dairy and beef cattle) respondents reported using AI services. Even in these cases the respondents were not very satisfied with the realized benefits. They still perceive it as a cost that can be foregone and would like it to be accessed free either from government or from NGOs.
SPECIFIC VALUE CHAIN FINDINGS – DAIRY VALUE CHAIN

Broader Discussion:

The dairy livestock value chain in the researched geographical locations is fairly dynamic with commercial levels of milk transacted daily on both formal and informal basis. The formal transactional channel embrace the milk trading that focuses on improved quality for the terminal consumer market through proper cold chain management and eventual pasteurization and/or powdering, and clearly discernable value addition such as for ice cream, yoghurt, cheese and flavoured milk. The informal milk marketing channel is largely dominated by non-cold chain operations and is very short in order to minimize spoilage levels as such milk can’t be handled for a long time or transported over long distances. Thus the two milk marketing channels present different levels of actors in the value chain, with the formal channel involving several bulking activities and also requiring relatively high levels of investment to realize and maintain the high quality requirements for the terminal market such as milk coolers, refrigerated milk haulage trucks, milk testing equipment and processing facilities.

The input supply level (veterinary drugs and, veterinary equipment and materials) is very robust with any demanded item readily available and accessible within reasonable proximity of producers. This is largely because of the high adoption levels of use of veterinary drugs by the livestock farmers compared to their counterparts that engage in crop production. Majority of the livestock farmers are adequately sensitized on the benefits of tick control, deworming and, vaccination against and treatment of common diseases and as such do demand the requisite veterinary inputs. However, the key challenge at this level of the value chain remains the quality and thus the effectiveness issue of the veterinary drugs. This has led to preferences by the users of specific brands which to some level distorts the veterinary drugs market.

At the producer level, milk productivity is still very low with an average of 3.5 litres per cow per day (from the statistical analysis of data collected for this report). The key ingredients for milk productivity are basically feed and breed. The better the feeding practice the higher the milk production levels. Similarly the better the dairy cattle breed the higher the milk production levels. The reverse equally holds for the two parameters. From the field observations, dairy cattle breeds continue to be dominated by cross breeds of multiple generations with continuously declining milk yielding capacities.

Besides feed and breed, water, animal health through proper disease control, and other best practices that ensure non-stressed conditions are extremely important for higher milk production levels. Milk production being a daily continuous activity throughout the dairy cow’s lactating period ought to provide added motivation for the farmers to pay adequate attention to realize adequate levels of milk productivity as such activity should be financially self-liquidating.

The feeding approach continues to be purely open pasture grazing with extremely low levels of application of supplementary feeds. This feeding system not only requires, among other things, access to sizable grazing land which is highly constrained in many areas in Uganda but also can’t ensure realization of balanced livestock nutrition which is essential for optimal dairy.
Livestock productivity. The data collection activity identified areas with acute land shortages such as in Sheema, Bushenyi and Mbarara districts which are severely limiting the dairy production holding capacity and thus rendering dairy expansion through extensive farming untenable. The farmers in such areas need to (and actually indicated so during the data collection activity) intensify production through pasture improvement, stocking better and high yielding dairy cattle breeds and adopt dairy supplementary feeding practices. These warrant access to commercial financing and thus provide financing opportunity. However, in areas like Sembabule, Kiruhura, Isingiro, Ntungamo and Lyantonde there is relatively good access to reasonable sizes of grazing land which is still making extensive dairy production possible. Actually the research findings indicate existence of big number of dairy cows and also higher levels of milk production per farmer in these areas than in the former case. Dairy production being a non-seasonal activity requires ownership of grazing land or lease/hire of land of a reasonably long tenure.

The other critical issue at the producer level is animal health. Livestock diseases, if not controlled not only impact the milk production levels but may also constrain dairy (livestock and livestock products) marketing in cases of specific disease epidemics that lead to livestock quarantine with ban on movement of animals and livestock products from the quarantined areas. The outbreak of livestock epidemic diseases such as foot and mouth disease (FMD), contagious bovine pleuroneumonia (CBPP), lumpy skin and anthrax automatically call for imposition of quarantine in the affected area which impairs the livestock economic activity in such areas. Under such situations the risk of commercial financing increases as the repayment capacity of the borrowers becomes constrained.

In addition, and most important for financing considerations, milk production is greatly affected by drought which not only severely reduce the availability of feeds under the open pasture grazing system but also increases animal stress through excessive temperatures and increased animal movement in search of the little available pasture and water. Thus the level of milk production increases during the rainy season when there is adequate flush of pasture and substantially declines (to as low as 20% of the normal volume in many cases and depending on the severity) during the drought period. In the Ugandan cattle corridor, drought takes an average of five months though this pattern has of late been changing with prolonged drought periods being experienced due to climate change. Also associated with the drought period is the increase in the prevalence of livestock diseases largely due to diminished control of movement of animals which increases the risk of contact with other infected animals. Under these circumstances, the costs of disease prevention and treatment increases.

Besides the production-related aspects discussed above, expediency in milk evacuation from the farm gate to collection and marketing points that ensure maintenance of good quality is a key prerequisite. This means that the mode of transport must not only be appropriate but also reliable. Also the container in which the milk is transported should enhance the quality standard required. Given the dominance of the smallholder dairy production, transportation by bicycles continues to dominate the mode of milk transportation from the farm gate to the bulking and or primary marketing points. Similarly milk cans are the desirable equipment in which the milk is transported from the farm gate though there are still incidences of transportation in plastic

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4 Many dairy farmers in areas with highly constrained access to grazing land are resorting to zero grazing that has limited scope for commercialization.
jericans that are quite being discouraged by the milk processors, MAAIF and the Dairy Development Authority. Thus as the milk production increases and also as need to expedite the primary level transportation, demand for better transport options such as with motor cycle (including tricycles) and more milk cans should become evident.

Beyond the dairy production level, dairy producer cooperatives (where they exist) are fairly functioning in terms of bulking (through primary bulk cooling) dairy farmers’ milk for eventual marketing to the buyers. The cooperatives also play a vital role of providing the conduit for receiving the milk sales proceeds on behalf of the farmers as well as for dairy outreach support initiatives. These two functions can play a significant role in leveraging the lending risk and minimizing costs for this level of the value chain through structured lending mechanisms and easing access to member farmers. Also the structure of the dairy producer cooperatives that provide for progression from the lowest level primary dairy producer cooperatives to district level dairy cooperative unions and eventually to the higher level (regional in most cases such as UCCCU) cooperative unions offer diversified options of financing the dairy value chain such as for primary cooperatives through the district or higher level union or for farmer members through their primary cooperatives. Of course a noteworthy characteristic of the dairy cooperatives is that their operations are not for profit but rather a members’ service provision with only operational costs recouped from commission on milk sales. This therefore renders the non-existence of financing opportunities for the dairy cooperatives as stand-alone entities but can rather be achieved on behalf of their members.

In the case of milk transport level beyond the primary transport from the farm gate, the formal milk marketing channel involves a mix of use of both refrigerated and non-refrigerated trucks. In the case of terminal marketing point (such as processors) being located in proximity to the producers, transportation by non-refrigerated trucks is still feasible and permissible. However, for more bulky and long distance haulage as for milk deliveries to Kampala destination transportation by refrigerated truck-mounted milk tankers is the only feasible option. Though the trucks under the two options are available and accessible in the market, the unresolved dilemma is their single trip operation in a day which renders the farmers to market only the milk for the morning production and either resort to informal selling channel or no selling at all for the evening milk production.

In terms of trading, dairy farmer cooperatives who handle the bulking function at their milk collection centres (MCCs) act as de-facto primary traders for the farmers’ milk while the private transporters also double as secondary milk traders that provide the link between the MCCs and processors. The informal milk marketing channel is the one that involves conventional traders commonly referred to as milk vendors. Many of such traders operate on very small scale basis with daily sales to multiple buyers who equally buy in very small quantities. Because of low and highly disaggregated volumes transacted under the informal marketing channel, opportunities for financing such milk vendors rarely exist. In addition the milk vendors often buy from the farmers on credit and pay either on the appearance for the next milk collection or after an agreed period of time and yet they transact their sales primarily on cash basis. This further diminishes their demand for commercial financing as their working capital requirements are adequately

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5 For example UCCCU has 128 member primary dairy farmers’ cooperatives with a total membership of 18,000 all operating in the SW milk shed.
taken care of under supplier credit. A possible exception that may provide opportunity for financing may be for the case of the vendors’ transportation equipment requirements.

Besides transportation and trading functions value chain operations, the effectiveness of formal channel marketing of milk is highly determined by the available milk processing capacity. If the capacity is small, low volumes can be marketed and the reverse applies. In the past years constrained marketing of milk especially during the rainy seasons when production volumes would go up was a common feature. However, there has been a steady increase in the installed processing capacity, notwithstanding the demise of a number of processing operations such as Country Taste, Alpha dairies, etc. and or drastic reduction in processing volumes such as for GBK dairy in Mbarara.

The recent entrants in milk processing, particularly in the SW milk shed, include Pearl Dairies and Amos Diary and these have increased opportunity for increased production of milk through a market pull effect. Also the Kampala-based Sameer has gradually been improving its processing capacity, including diversification into powered milk processing and increasing the range of non-milk products. The increasing milk processing operations are rendering this level of the value chain to be very competitive which directly impacts the efficiency of the entire dairy value chain. Also the increased per capita milk consumption and greater sensitization on the benefits of consumption of formal channel processed milk is further underpinning the momentum for increasing the processing capacity. All the milk processors interviewed indicated that they are still operating much below their installed capacities and do require more milk volumes (of course of the required quality standard). The other key characteristic of the dairy processors is that they are the price makers. As the terminal bulk buyers they dictate (often at short notice) the prices at which they buy the milk.

Another major challenge to be surmounted, and especially providing opportunity for commercial financing, is the constrained primary processing/cooling capacity at the MCCs. Many primary cooperatives either have inadequate cooling equipment or completely lack them. In such cases, bulking and marketing of the member producers’ milk is problematic. With the daily production of milk by the member producers that should ensure regular cash inflows, financing such requirements should be feasible and of low risk.

The other observed aspect that impacts operations across the dairy value chain, and thus capable of impacting opportunities to finance the value chain, is the existence of many non-actor entities that have keen interest and active involvement in supporting the dairy sector in Uganda. These include aBi Trust, SNV, Land O Lakes, East African Dairy Development Project (EADD) funded by the Bill and Melinda Gates Foundation, Dairy Development Authority, Send a Cow, Hunger Project Uganda and Heifer International. Their initiatives that mainly focus on technical assistance for improved productivity and marketing through heard improvement, better animal health and nutrition, strengthening the dairy marketing channels and producer association/cooperatives strengthening should not only provide opportunity for leveraging the delivery of financial services for the value chain but should also provide added opportunity for risk sharing and operational risk minimization such as through credit guarantee, product development and bank staff skills enhancement if such initiatives can be appropriately harnessed.
These initiatives can substantially mitigate risks and minimize cost of lending to the dairy value chain if the bank can explore partnerships with the relevant entities.

Besides the opportunities for credit for the specific levels of the value chain, diary production provides immense opportunity for formal savings. Its cash flows are regular and fairly continuous with robust liquidity. The farmers are very well versed with being paid (currently on bi-weekly basis) through formal financial institutions though no sufficient evidence was adduced during the data collection as to whether any reasonable proportion of the milk sales proceeds is held for reasonable time as savings. With well thought savings products, a good savings mobilization strategy and functioning collaboration with the key value chain actors and stakeholders it is probable that substantial volumes of savings can be harnessed at this highly liquid level of the value chain. The key issues for consideration of targeting to step up formal savings in the dairy sector should include cost and convenience of access, financial and non-financial benefits on the savings and of course safety of the savings mobilized.

**Discussion of Specific Value Chain Levels**

The results of the analysis of the respective dairy value chain transaction levels are discusses in the sub-sections that follow. The data presented in the production level of the value chain represent operational requirements and results relating to dairy lactating cows. Thus as much as has been possible and feasible apportionment of costs that relate to joint activities such as for herdsmen of both lactating and non-lactating cows which are grazed together, farm equipment and farm improvement activities, general veterinary care services, etc. has been ensured.

For very clear reasons that particularly relate to the fungible nature of the trading transactions that limits any assessment of effective demand for financial services for the dairy transactions, the value chain study could not be extended beyond the processor level to consider wholesalers and retailers of processed milk and milk products. Also, the adoption of non-profit approach by the dairy producer cooperatives necessitated exclusion of quantitative data collection and analysis for this level of the value chain.

**Input Supply Transaction Point:**

As earlier noted, there is strong and qualified demand for veterinary drugs amongst livestock producers including those engaging in dairy production which is rendering the transaction point to be highly competitive provided issues relating to the quality and effectiveness of the drugs are carefully addressed by the actors. Livestock disease prevention and treatment through chemical control of ticks, de-worming, vaccination against and treatment of majority of known livestock diseases is a regular and common activity executed by the livestock farmers. More attention is being paid in the case of improved and exotic cattle breeds that are more common with the diary production as such animals are more vulnerable to diseases.

Anchored by the existence of strong demand for the inputs from the livestock producers, an existence of a proven competitive, widespread and robust livestock drugs market was observed. There are many stockists who are accessible and in good proximity to the livestock farmers.
However, the cross-selling of livestock drugs, as discussed in the previous sections, means that it is difficult to specify opportunities for financing only dairy-specific inputs.

Related to veterinary drugs dealership would be dairy feeds transactions. Milk production positively responds to adequate feeding, including with manufactured supplementary dairy feeds. However, the feeding regime for dairy in the researched geographies is principally on the growing fresh pasture with very few dotted incidences of supplementary feeding of very low volumes of bought feeds. This situation is not helping the development and functioning of a diary feeds sector that may render reasonable consideration for commercial financing. Comparatively though the feed sector for poultry and piggery is quite vibrant as the producers in these livestock enterprises have adequately embraced the feeding practices.

The data analysis for the average profitability at the inputs supply level of the livestock value chain (including for dairy) under the obtaining transactional scenario of comignled drugs for the several livestock enterprises is adequately represented by the analysis in the cross cutting inputs supply transaction level earlier presented in this report.

**Veterinary Care and Artificial Insemination (AI) Services Transaction Point**

Although the analysis study established the existence of these service providers, the inadequate demand from the producers for this service is critically impairing the efficiency of these actors. In order to remain sustainable, these actors resort to cross-selling the veterinary drugs. Therefore there is no opportunity for financing the veterinary care and AI service providers as stand-alone enterprises. Because of this challenge, no actual data analysis was accomplished for this transactional point.

**Production Level Transaction Point:**

The summarized quantitative analysis for the dairy production level of the value chain (from a sample of 172 interviewed farmers) is presented on the right. From this analysis, key parameters that should point to the opportunities and potential targeting of commercial financing are clearly highlighted. The analysis identifies three sources of revenue for the dairy farmers namely milk sales (a continuous activity that averagely subsists for eight months of lactating tenure per cow), sale of culled dairy cows (after 5 to 10 calving cycles) and sale of mature calves to maintain adequate holding capacity and also to avoid in-breeding problems.

The analysis also establishes very clearly that farmers realize commercially profitable operations (with annual return on investment of 164%) and are therefore highly creditworthy, their current low productivity levels and high milk price fluctuations notwithstanding. It is however important to note that the profitability analysis excludes such sunk costs such as for land acquisition or
access (except for rare cases of hiring the grazing land) and initial land improvements though all other costs are adequately taken care of. Since the analysis is underpinned by a financing angle, consideration of land acquisition costs would serve a limited consequence on the research objective of identifying the financial services opportunities and recommending potential financial products for the value chain.

It is important to note the producer level profitability and therefore creditworthiness of the actors is highly dependent on;

1. Average milk yield (or productivity) per cow which as earlier mentioned is a function of breed and feed, and other good agronomical practices;

2. The volume of milk produced and marketed that impacts the level of overhead costs. This is either dependent on the number of lactating cows reared or the productivity per cow as in 1; and

3. The strength and stability of the dairy market.

Indeed the analysis established that the farmers producing and marketing relatively big volumes of milk realize more profitable operations than their counterparts that produce low and market volumes of milk.

It is also important to note that the current average dairy cow milk productivity of 3.5 litres per day is extremely very low. Dairy farmers with better breeds, supplementary feeding and good agronomical practices such as Jesa Farm and also in the neighbouring countries such as Kenya and Rwanda are realizing much higher productivity levels. This therefore means that financing the Ugandan dairy producers under the current production characteristics may not substantially improve the efficiency of this level of the value chain. Thus the financing that targets productivity enhancement such as acquisition of better breed, supplementary feeding, farm pasture improvement, etc. would make a desirable impact on the value chain and also provide better opportunity to lower the lending risk through structured financing mechanisms. This recommendation is further supported by the increasing shortage of land to permit extensive dairy production. However in areas where accessible grazing land is not a hindrance, financing to increase production under the existing dairy production of lower breed and natural pasture grazing can still be considered. In such cases, verifying the unconstrained access to land such as through proof of ownership or long term leasing would be an essential ingredient in lending to such dairy production actors.

In addition, the dominance of smallholder dairy production (with an average of 12 lactating cows and thus relatively low levels of operation) poses further challenge of financing for infrastructure investments at the dairy production level such as dip tanks, big water dams or value addition facilities. The smallholders would not consider such investments as they would not be viable at all with their operational levels. Cases for the few large scale dairy producers who wish to undertake such investments can be considered separately but under existing financing mechanisms and therefore should not warrant engaging in developing new financial product.

Livestock Value Chain Analysis Report
**Producer Group/Dairy Producer Cooperatives Point:**

As discussed earlier, this level of the dairy value chain principally focuses on bulking and marketing the farmer members’ milk. They thus operate on not-for-profit basis though they must ensure cost recovery by levying a commission on each litre of milk bulked and sold. The commission levied (currently UGX 50 per litre) is used to meet costs for outward transport, utilities, rent, fuel for generator, repairs and maintenance, staff salaries, casual labour, security, sundry supplies, etc. Any surplus is either invested as may be recommended by the members or is paid out to members as dividend.

Because of this operational mechanism, there was no profitability analysis for this level of the value chain as such analysis would serve no consequence at all. Thus the realistic measures of efficiency for this level include the volumes bulked and marketed per month or per annum, size of membership and existing collaboration with other entities. In other words the quality of the service rendered by the producer group to its members reflects its operational efficiency. Because of the continuous contact between the members and the group management/executive which is enabled by the regular deliveries of milk, there is a reasonable level of transparency within the dairy cooperatives which further enhance their operational efficiency.

It should however be noted that the dairy producer cooperatives provide opportunity for financing for increased cooling capacity and transport requirements for the cooperative as they act as key points for milk bulking and marketing. Recovery of such financing in this case would be from the agreed portion offset from proceeds of milk for the producers accessing the financed facilities. In addition these cooperatives can be used as a base to finance the producers for specific requirements as they should provide a good opportunity for structured financing.

**Dairy Milk Transport Transaction Point:**

Besides the producer level milk transport needs that were discussed under the production transaction point, the other dairy transport requirements relate to; 1) short distance haulage to either the processing point or to the decentralized bigger bulking points for the large processors such as Sameer; and 2) long distance haulage to processing points that are located very far from the production areas especially those in Kampala.

For the short haulage, transportation trucks are available and accessible and this market is very competitive. Many dairy producer cooperatives own pickups for this purpose while those without easily access private long term hire services. Also the working capital costs are very low and manageable as the hire service payments are very regular and often paid in advance. Besides, the non-customized nature of the transport trucks for this particular purpose renders their usage to be versatile and cross sold as they are also used in other transport ventures.

In the case of long distance dairy haulage, milk tankers of bigger capacities mounted on trucks are a prerequisite. Many processors operate with own trucks which they supplement with privately hired ones. For financing opportunities at this level of the value chain, the private transporters are the ones meriting consideration since the processor-owned transport requirements would normally be aggregated under processing operations. Thus the analysis for
this level focused on the long haulage dairy transporters. Besides, processors also buy milk delivered by privately contracted transporters, often giving them a price margin from the MCC price. Essentially, the long distance milk haulage trucks are owned and not hired.

The profitability analysis for private transporters at this level of the value chain is presented on the right. From the analysis it is clear that milk transporters are realizing very good profit margins on the milk delivered to the processors in Kampala with a monthly return of 37% or annual return of 443% which makes them highly creditworthy. The key elements that affect the level of profitability for these value chain actors are principally the realized milk tank capacity and the differential between the MCC and factory gate milk prices.

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<th>SUMMARY (AVERAGE PER MONTH BASIS)</th>
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<td>Factory gate price per litre</td>
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<td>Total monthly revenue</td>
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<td>Purchase cost of milk</td>
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<td>Total purchase cost of milk</td>
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<tr>
<td>Total operating costs</td>
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<td>Margin</td>
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<td>Return per month</td>
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<td>Return per annum</td>
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As the sourcing of milk to be transported is normally predetermined (even in many cases contracted) the realization of truck capacity is not problematic at all. During the flush season for milk production the transporters realize full capacity and only operate below full capacity during the low season for milk production. Also the processors are offering generous price differential for the transporters in a bid to boost the processing volumes and minimize their unit processing costs.

Although these actors are creditworthy, there is no clear indication that there is qualified demand for additional financing for this transactional point. The general sense is that there are many trucks for milk transport in the market. However, as earlier mentioned, the value chain study couldn’t get realistic answers as to why there is no return transport trip in a day that would even encourage the delivery of the evening milk. Nonetheless, it is probable that as processors continue to step up the processing capacities and therefore demand more milk, the situation may change and thus provide potential for financing milk transportation. The other notable phenomenon is that the milk transported is sourced on credit and paid for on a bi-weekly basis and thereby constraining and suppressing any potential demand for working capital to procure the milk.

**Processing Transaction Point:**

As is characteristic of many actors at this point of the commodity value chain, the dairy processors were cagy and could not provide reasonable data to inform meaningful analysis of the profitability of their processing operations. Many of them cited operational privacy (inspite of the assurance on the confidentiality) while others claimed the people handling such data were unavailable at the time of the interviews. This is not uncommon at all as many processors think that providing such information may compromise their competitive strengths. However, the fact that the processors interviewed indicated that they want more milk and also the fact that the processors determine the prices at which they buy the milk provide a good pointer that they should be profitable. Also the differential between the current terminal market price for the
processed milk and the producer level and MCC prices should be sufficient to render the processors to be profitable.

However, as earlier mentioned, the puzzle to be resolved (and if done it would enhance the demand for commercial financing of the value chain) is that the processors want more milk yet the bulkers and transporters can’t fully maximize the usage of their facilities such as bulking the evening milk or making repeat transportation trips. If this is achieved, farmers can be able to put more milk on the market. It is probable that as more processors come on board, the obtaining scenario will change and thus opening new opportunities for financing.

For purposes of financial services delivery to the dairy value chain, the processors have an important role to play. They remit substantial amounts of money for the milk purchases on a systematic regular basis (largely bi-weekly). These payments are done to the producer cooperatives or private sellers through their accounts maintained with identified financial institutions. Thus it should be worthwhile for the bank to pursue such accounts in order to leverage low cost liabilities. Besides this, the processors should provide strategic and beneficial collaboration for financing upstream dairy value chain actors such as cooperatives, producers and transporters through structured financing mechanisms when opportunities become available. Many of the processors interviewed expressed eagerness to engage in such collaboration as it should enhance the volume and quality of milk they require for their processing operations.

Of course a number of dairy processors are clients of Centenary bank. The bank should therefore leverage on this relationship to explore opportunities of providing cost effective and low risk financial services both to their dairy suppliers and non-dairy services providers. As for the working capital needs for the processors, opportunities are highly diminished as these processors mainly buy on credit and pay after two weeks and yet their processing operation tenure is extremely short (just one day) and largely sell their products on cash basis.
SPECIFIC FINDINGS – BEEF CATTLE LIVESTOCK VALUE CHAIN

Broader Discussion:

As is the case with dairy livestock, the beef cattle value chain is a multi-transactional level value chain principally comprising of veterinary drugs inputs dealers, veterinary care service providers, producers, beef cattle traders, transporters and, slaughter houses and butchers. The prime mover of business at each level of the beef cattle livestock value chain (as is the case with many other commodity value chains) is the level or volume of operation. Where the volumes are low profitability or returns are also low and vice versa and this has direct impact on the motivation to do more business and thus on the qualified demand for financial services. Some of the actors such as veterinary care and artificial insemination service providers, village cattle traders and village-level butcheries operate on such low scale that are of limited consequence to impact the qualified demand for commercial financing. As such a meaningful analysis (as the one adopted for this report) should emphasize a minimum threshold of respective operations and thus should concentrate on the medium to large scale actors.

Again as previously discussed, the livestock inputs supply operations that are cross-sold not only for other livestock enterprises such as dairy, goats, sheep and piggery but also across other inputs and veterinary services are typical for the beef cattle value chain. Thus the analysis in the cross sold livestock transactional levels (including the challenges that constrain demand) applies for beef livestock veterinary inputs and veterinary care services as well.

The production level characteristics and challenges are fairly similar to those for diary except for cash flow patterns. Livestock producers (including for beef cattle) must stock the cows, ensure good animal health through undertaking tick control, deworming, vaccination and treatment of identified diseases (in addition to meeting vet care service costs where required). Also the labour costs for herding and farm maintenance are similar, with the only variation in labour costs between dairy and beef livestock being for milking and milk transportation in the latter case. The issues of open feeding system (with the attendant challenges of access to adequate grazing land) and livestock quarantine that impact the financing risk cut across all the cattle livestock enterprises and therefore abound for the beef cattle value chain. They are as discussed in the section on the dairy value chain.

Commercial beef cattle producers basically procure cattle either from other farmers or from cattle markets, move them to their own farms, fatten them over a reasonable period of time and sell them off to cattle traders at farm gate or in the cattle markets. The fattening period varies depending on the breed and age of the cows stocked and also on the adequacy of pasture and water at the fattening points. Some farmers stock weaned off bullocks which take relatively longer time (minimum of one year) while others stock thin mature cows that are either sold by other farmers that have inadequate pasture or those specifically culled off and are not fat enough to attract good prices from the cattle traders. The latter take a shorter time (average of 6 months) to fatten and attract good prices. Also some producers have preferences for specific cattle breed such as cross breeds (Boran, Brahman, Bonsmara, etc.) which fatten quickly and therefore can fetch good profit while others prefer to stock local breeds that require minimum care as they are more tolerant to diseases and adverse weather conditions.
In terms of cash inflow pattern which is particularly important for commercial financing considerations, the beef cattle producers (unlike their counterpart dairy producers) realize income on sale of fattened animals only and often on irregular basis. As indicated earlier, the pattern of cash inflows depend on the adopted stocking system and thus on the fattening period. Accordingly if financing is to be provided for this level of the value chain adequate grace periods that match the fattening period should be given priority. Also the repayment structuring that ensures balloon recovery at marketing to minimize recovery risk becomes critical.

The other notable characteristic of the beef livestock value chain is that drought does not severely affect the animals as long as access to water is ensured. Therefore drought has limited impact on the cash flow pattern as is the case with dairy livestock. In other words, there is no noticeable volatility in the market for beef cattle associated with weather patterns. Also beef cattle producers with limited grazing land can rent/hire grazing land as their cattle fattening enterprises are of a defined tenure. This is happening in many areas and is particularly predominant in government owned land such as game and forest reserves.

As for producer groups, there are no active beef cattle associations or cooperatives in the researched areas. The producers transact on stand-alone basis with no need for collective marketing or collective sales proceeds remission. This therefore means that there are no opportunities for structured financing through producer groups of cooperatives for this livestock value chain.

In terms of beef cattle trading, the value chain level is highly robust with many actors of varying operational scale present in the market and thus rendering the transactional level to be very competitive. At the lowest point in the value chain level are several village-based cattle traders who buy one or few heads of cattle for subsequent sale to either farmers intending to fatten them or rear them for multiplication purposes or to big buyers for aggregation to raise necessary transactional volumes such as truck loads prior to their haulage to the terminal markets. The transactional mode is mainly by cash basis and this is of increasing concern to both buyers and sellers as cases of cash robberies associated with cattle sales are on tangential increase in many areas. In fact cash handling risk is a major concern for the cattle producers and traders.

Related to the cattle trading transaction is transportation of traded cattle to the intend destinations such as the farms of the producer buyers (where distance may limit the conventional physical movement of cattle by foot), cattle markets or slaughter houses/abattoirs. Unlike in the dairy value chain where customized transport of milk over long distances is a necessity, beef cattle transport is by ordinary trucks. Such trucks are available and are readily accessible in all the parts of the country in a competitive manner if required. In addition, the cattle transport business is highly cross-sold for transportation of other merchandise and is thus not exclusively available for cattle only. Because the truck transportation sector is oversupplied, the actors reported existence of a lot of idle transport capacity as they are realizing fewer transport trips (for example per month) than they would ordinarily accomplish if adequate demand for transport hire services existed.

6 However there is an umbrella association (Uganda Beef Producers Association - UBPA) though not very dynamic
From the farms and cattle markets beef cattle are transported to the slaughter houses. The principal destinations are the Kampala-based abattoirs and other slaughter houses in towns such as Mukono, Entebbe and Jinja. At the slaughter houses transactions are mixed up. In some cases the owners of the slaughter houses provide slaughter services and sell the slaughtered caucuses to the butchers operating in both the slaughter houses and in the food markets which are widely spread throughout the towns while in other cases butchers buy directly from the traders and only pay hire charges to the operators of the slaughter facilities. The transaction cycle in the slaughter houses is typically of a very short duration of an average of one day though of a repetitive nature on daily basis, in majority of the cases including on Sundays and public holidays because of the continuous demand for the beef cattle products (especially fresh meat).

As far as beef processing, there are no meaningful commercialized operations in Uganda. Beef marketing continues to be dominated by fresh meat. Only isolated cases of processing by a few entities (quality cuts, Imperial Gourmet, Your Choice and Lubowa Investments) for such products like beef sausages, minced meat and others are currently identifiable. The majority of processed beef products available in the market are mainly imported. Again at the existing levels of operation, there are no clear opportunities for commercial financing for beef processing.

**Specific Value Chain Level Profitability Analysis**

The performance of the specific actors in the beef cattle livestock value chain which is indicative of the total data collected for value chain analysis study in the 8 districts in the Ugandan South Western and Mid-Western cattle corridor is as presented in the next sub-sections. The data presented for the respective actors represent beef cattle value chain actors’ operations under the current transactional environment of open pasture grazing by the producers in the surveyed geographical locations and, low to moderate levels of beef cattle trading and transportation. As earlier observed (and for reasons mentioned in the observations), there was no study of the value chain beyond the beef cattle slaughter houses. Also, the actors with extremely low scale of operations such as village level cattle traders and butchers that were assessed to be of minimal consequence to impact the objective and purpose of the study were omitted from the study and are thus not constituting elements of the analysis in this report.

**Production Level Transaction Point:**

The summarized results of the analysis for the beef cattle production level of the value chain is presented on the right. From the analysis it very clear that the beef cattle producers realize commercially profitable operations (with a fattening cycle return of 45% and annualized return on investment of 82%). These actors are therefore creditworthy as their profitability levels favourably compare with the commercial borrowing costs. As was noted in the analysis of dairy value chain producer level, the profitability analysis for the beef livestock production level.
excludes such sunk costs like for land acquisition and initial land improvements. As such the major elements of the analysis are stocking costs for the beef cattle and other paid costs associated with fattening the cows, including veterinary drugs, veterinary care services, labour costs and amortized cost of materials and equipment such as sprayers, ear tag applicators, drench guns and injection syringes and needles.

The analysis also helps to pinpoint potential activities on which commercial financing should be targeted and potential average financing level if opportunities for financing are identified. Specifically the stocking/procurement cost should make relevant sense for financing as it constitutes the biggest proportion of the beef fattening costs and is normally expendable as a single lump sum while the other costs are of low amounts and are incurred gradually over the fattening tenure and therefore ought to be manageable by the farmer. Further the average tenure of cattle fattening should help in the structuring of the credit, including grace and loan periods, and repayment installments.

One of the key challenges for this level of the value chain is the low quality local breed in majority of the cases which requires a relatively longer fattening period and thus necessitating incurring of higher fattening costs compared to the exotic and cross breeds. However, these local breeds have a competitive advantage of commanding good market preference and therefore are on high demand as was confirmed by the traders and slaughter house respondents. In additions, as earlier noted in this report, the local breeds are tolerant to cattle diseases and harsh weather conditions such as drought and thus have lower mortality rates than the exotic and cross breed cattle.

The analysis findings for this level of the value chain reflected a consistently uniform trend throughout all the geographical areas covered for this analysis study. Basically there are no marked variations in the fattening period. Also the cost structures have a close and similar pattern and therefore any attempt to disaggregate the analysis could not serve any added value.

If this value chain has to merit consideration for financing, three ideas need to be explored and fairly settled. These are;

1. **Ease of access to adequate grazing land:** this is a major variable as producers with constrained access to grazing land can’t raise the minimum threshold number of cattle to underpin qualified demand for cost-effective financing;

2. **Verifying the quality of beef livestock for stocking and fattening:** The farmer respondents identified two principal sources for beef livestock seed cattle as from other farmers and from cattle markets. These sources should therefore permit reasonable possibilities of vetting and/or verification of the animals prior to purchase to minimize the risk of acquiring poor quality beef cows that would not only require longer time to fatten but also would involve higher fattening costs.

3. **Exploring feasibility and practicability for structured financing mechanisms:** Exploring the mechanisms for structured financing such as for disbursement on acquisition of the cattle for fattening where the sourcing may permit such a mechanism should be given priority.
**Inputs Supply Transaction Points**

As earlier observed and discussed in this report, the operations at this level of the value chain cut across for both dairy and beef cattle livestock and embed a lot of cross-sold transactions not only for the two livestock enterprises but also for other livestock rearing activities such as for goats, sheep and piggery. The profitability analysis for this transaction point of the beef cattle value chain that applies for the dairy value chain as well is as earlier presented.

**Trader Transaction Point**

The beef cattle trading transaction point is very competitive with many traders of varying scale of operation existing in the market. The trading operations at this level of the value chain comprise of; 1) Small scale cattle traders that buy one or two cows for either selling to local slaughter houses\(^7\) or sale to other farmers and traders either directly or through the various cattle markets; and 2) Medium to relatively big scale cattle trades who buy many cows that raise a minimum of one truck load at a time for subsequent haulage to bigger slaughter houses (especially in towns and in Kampala) and bigger cattle markets such as in Bwera in Kasese for sale. Some of the traders in this category engage in cross-boarder regional cattle trade to Juba in South Sudan, Rwanda and DRC.

The data for the analysis of this transaction point was collected from medium and big traders only as the small cattle traders have very limited relevance for commercial financing given their intermittent and very low levels of operation.

Because of the high competition and very good market for the beef livestock, the trader level is highly liquid and is not constrained at all as the traders are readily available and accessible at any point where there is need to sell beef cattle that meet the minimum market standard, including at farm gate. The beef cattle trading transactions are on cash basis of spot transactions, and are of very short tenure that stretches from one day for the small traders to a maximum of two weeks for the big traders. The short tenure of the transactions is particularly dictated by the continuously available and growing market with steady prices that do not encourage any speculation.

The summarized analysis of profitability for this level of the value chain is presented on the right hand side. The figures relate to the volume or number of cows bought and sold by the medium traders in a single transaction (often a truck load). The costs of completing the transaction (including purchase costs, transport and other overheads) are offset from the transactional revenue to generate the realized transactional profit margin. The margin is then divided by the total transactional costs to derive the return per trading cycle (a truck load trip). The

\(^7\) Some of the small scale cattle traders also double as butchers and thus manage own slaughter operations.
transactional return on investment is thereafter used to generate the annualized return on investment. From the analysis, it can be clearly observed that the beef cattle traders are realizing a very thin average profit margin of 4% albeit in a relatively short transaction tenure of a maximum of two weeks which translates into a monthly return of 8.8% or annual return of 106%).

The above profitability levels render the analyzed actors in this value chain level of the beef livestock enterprises under the current trading conditions to be highly creditworthy as the annualized return on investment is clearly far higher than the obtaining commercial lending rates and thus ought to motivate the borrower to increase the level of operation as well as the lender as it presents a low risk lending probability. With a properly structured lending that reasonably match the characteristic short term trading transaction window, credit risk for this value chain level can be substantially managed. It is also important to note that the transactional tenure can be reduced (especially with better access to commercial financing) as there is stable and continuous market for the beef livestock. This would further increase the return on investment and make the actors more creditworthy.

During the interviews, many respondents in this level of the value chain expressed the need to access finance to boost their operational efficiency in terms of expanded volumes and also for expedience in accomplishing their transactions. The major financing requirement particularly highlighted is for procurement of the fattened cows as this transaction involves a lot of competition and therefore requires adequate liquidity. The other key financing requirement is for transportation as the transporters require a bigger proportion of the transport hire cost to be paid upfront in order to meet their operating costs requirements. Indeed these are the primary activities for this level of the value chain and any commercial financing should specifically target them. The other cost elements are minor and can be easily handled by the traders.

As is the case with any other commercial transactions, beef cattle livestock trading involve risks which to a degree impact the lending risk. Principally there are three risks at this level of the value chain. These are: 1) livestock quarantine that lead to a ban on the movement of cattle arising from outbreak of specific epidemic diseases such as FMD, CBPP and others; 2) accidents while cattle is in truck transit to selling points; and 3) rejection of animals at the selling point by the buyers especially on animal health grounds. The first and last risks are highly manageable by the traders. In the case of quarantine, the traders can quickly source the animals from non-quarantines locations or even temporarily halt their operations until the ban is lifted. For the last risk, traders can adequately manage them by experience as they can quickly identify a diseased cow. Also there are stringent veterinary regulations that require only healthy animals to be sold and this is further enhanced by the presence of veterinary personnel at all cattle markets. Thus the relatively complex risk is that of accidents during transit. None of the traders interviewed insures the cattle in transit to the selling point though many indicated that they would do it if adequately sensitized and also if insurance companies can be responsive to insure this type of transaction.
**Transporters Transaction Point**

The beef cattle transportation level of this value chain is highly competitive and not constrained at all with many trucks (especially owner-operated transport services) being available for cattle transport business, and even cross-sold for other transport operations. Owing to the operational nature of the cattle traders that hire the transport services, the transport business in this case is mainly of a spot and one-off undertaking with rare cases of short term contracts by the larger traders that may want to execute several transportation trips at the same time or over a short period of time. Because the cattle are transported in live form there are no requirements for specialized or customized trucks. Any lorry truck that has metal rail reinforced trailer body that ensures safe transportation of cattle can serve the purpose and these types of trucks are available in all the geographical locations of the country and therefore are easily accessible on demand.

The summarized profitability analysis at the transporter level of the beef cattle livestock value chain is presented on the right. From the analysis summary, it is very clear that beef cattle transporters are highly profitable, realizing average monthly and annual return on investment of 8.8% and 104% respectively for the beef cattle transport only, albeit under a tightly competitive transport hire business, making them highly creditworthy. Ordinarily, the high return on investment that is permitted by the short transactional tenure should provide impetus for re-investment and business expansion and thus increasing qualified demand for financing for this level of the value chain. However, it is highly skeptical that increasing investment in transport hire business can be matched with increased level of cattle and other transport hire businesses. The actors are in the know of this and are of the view that the trucking sector is currently over invested into with supply exceeding demand and thus with enormous excess capacity and idle trucking time.

The volume of cattle transport business (in terms of number of trips realizable per month) is an important consideration as it is the prime mover of the business at this level of the value chain. The higher the number of trips executed the higher the overall profitability realized. Conversely, the lower the number of trips accomplished, the lower the profitability. With lower number of trips, the high overhead costs such as salaries, repairs and maintenance, taxes, etc. adversely impact the profitability levels. With the stiff competition, the transport charges per animal transported can’t be stepped up at will. Therefore the transporters have to optimize their operational costs, though they can achieve little in this endeavor as the major costs such as fuel and repairs which are continuously on the upward trend are outside their control.

The other notable characteristic in the cattle transport business is the ability of the transporters to access advance payments either in full or in part from the cattle traders and also to access fuel from filling stations on credit on a trip or weekly basis. These, to a high degree, diminish the
demand for working capital from formal financial sources by the actors in this level of the value chain.

Besides, the versatility of the truck transport services with no exclusivity to cattle transport, it becomes highly constraining to identify opportunities and thus recommend financing of transport for beef cattle only. In fact the interviewed transporters contended that cattle transportation may constitute a maximum of 10% of their businesses and particularly the volume of cattle transport business depends on the soundness of the mechanical condition of the vehicle and the closeness of collaboration with the cattle traders. Thus it is realistic to look at the entire spectrum of transportation business these actors engage in for any realistic recommendation for any financing opportunities in this sector.

Generally, it is possible that there is demand for cross-sold transportation sector rather than value chain specific transport both for long term (for acquisition of transport trucks) and short term for working capital. Some of the transporters interviewed expressed the need to increase their vehicle fleet and or improve their operational efficiencies through acquisition of better or bigger vehicles. This however may not warrant development of specific financing product but should be feasible with existing financing products of the bank. In addition, owner-operated transport business provides an opportunity for the bank to cross-sell other financial products with the transport trucks providing desirable collateral and also transport hire revenue providing a dependable cash flow that may underpin realistic credit appraisal and credit repayment structuring even in cases where such credit may not be for the transport-related activity. For example, with an owner-operated cattle transport truck, a borrower may present lower credit risk for say a mortgage loan.

**Processing Transaction Point:**

Basically real beef processing operations are non-existent in Uganda. The only processing is by slaughter for sale of meat. The few operations of beef processing such as for beef sausages, minced meat, etc. by entities such as quality cuts, fresh cuts and Your Choice are best categorized as nascent and can’t generate volumes that can reasonably underpin meaningful value chain level-specific financial product development.

The cattle slaughter houses interviewed provided scanty information for this study. A number of them just hire out the service and charge per cattle slaughtered therein but these could not provide the associated costs such as taxes, utilities, maintenance, etc. This therefore limited the capacity to analyze their profitability. In any case under such operation, the demand for commercial financing by the slaughter house operators is highly diminished. Even so, the slaughter facilities are continuously the same with no initiates to expand or modernize them which would open any opportunity for financing. Also the butchers in this case are able to buy the cows from the traders slaughter them and sell the meat and pay for the cows bought from the meat sale proceeds and the cycle revolves. Accordingly there was not only limited scope to analyze the profitability of this transaction point but also clear limited opportunity for meaningful commercial financing.
For the lower level butchers (at the local trading centres) opportunities for small scale or micro financing can be possible where reasonable demand for meat may exist and thus warranting procurement of a number of cattle heads at ago. Again such cases identified during the field data collection were very few and may not warrant specific product development but can rather be handled under the subsisting financial products, with modifications to take care of the short transactional cycle if necessary.
SPECIFIC VALUE CHAIN FINDINGS – POULTRY LIVESTOCK VALUE CHAIN

Broader Discussion:

Unlike in the case of the two cattle livestock value chains, the production for the poultry livestock value chain operates under controlled environment of in-house rearing and very careful handling of the birds for both broilers and layers. Again, as earlier mentioned in this report a number of actors in the poultry value chain (transporters, live and slaughtered chicken traders in several markets and trading centres, and chicken muchomo roasters) operate in a manner that does not reflect serious commercialization perspective which can reasonably inform financing decisions. The transactions of these operators are mainly of informal nature with highly fluctuating volumes and costs. Therefore three principal value chain actors merited consideration for this value chain study. These are producers, poultry drugs dealers and poultry feed dealers. Though the actors engaging in poultry breeding for the supply of day-old chicks operate on a commercial scale, they are still few and are currently accessing commercial financing. Thus they were not fully forthcoming in providing information that would render realistic analysis of this transactional level possible.

Although poultry production and marketing are carried out in all the areas throughout the country, the production is predominantly in the central region because of the proximity to the metropolitan market and access to adequate and reliable production facilities, including reliable supplies of day-old chicks, feeds and poultry drugs. Accordingly, the data collection for the poultry value chain analysis study (cutting across all the targeted principal value chain actors) was mainly carried out in the districts of Kampala, Mukono, Wakiso and Mpigi. Very few respondents were interviewed in Mbarara and Sheema districts.

The poultry value chain production is still mainly dominated by small level operators many of them women and youth. The low levels of operation have direct implication for commercial financing not only in terms of financing levels but also in regard to the creditworthiness of the actors. Because of the peculiar production environment that require continuous access to water and, lighting and heating facilities, the production operations are mainly carried out in urban and peri-urban locations with ease of access to these facilities. The main characteristics for poultry production that should have direct relevancy for lending risks are outlined below.

1. Feeding: Poultry producers must buy feeds as the production activity is carried out indoors. The feeding levels must be observed to the dot lest growth of the birds is retarded and/or productivity for eggs in case of layers may drastically decline with a negative impact on the enterprise profitability. Such occurrences affect production cost and revenue levels and thus impact repayment of commercial credit. There are many feed dealers (many of them manually mix the feeds and thus can’t ensure the right composition or quality). Indeed the issue of poor quality and adulterated feeds is a major concern amongst poultry farmers. Also poultry feed prices highly fluctuate depending on the availability of the main ingredients (brand, seed cake and fish) which are highly dependent on the seasonal production of their source crops and also on their demand in the regional markets especially in Kenya.

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8 Exception to this is the free range poultry production which is outside the scope of this value chain analysis
2. Poultry breed: The quality of poultry breed highly affects and therefore determines the quality and productivity of the birds reared. If the source of the day-old chicks is good and reliable, the performance of the birds will be good and viable. Thus the quality of any old-day chick on the market is only as good as its breeding source. Although they are few known good poultry breeders and suppliers of day old chicks such as Ugachick Poultry Breeders and Biyinzika Poultry International Ltd, the market for day old chicks is awash with several dealers whose source may not be clearly identified. Further, the most reliable breeders are based in Kampala and have weak distribution networks. This constrains the effectiveness of proximity to, and convenience of access by, the farmers.

3. Drugs and hygiene conditions: Producers must not only carry out vaccination against particular diseases such as new castle, gumboro and fowl pox as may be recommended or prescribed but also must ensure good hygienic conditions that call for high level of cleanliness and, careful sourcing and handling of feeds and drugs, etc. Without timely vaccination of the birds and any compromised hygiene situation, the risk of disease outbreak and spread can be very high. In such instances poultry mortality can be very high (in extreme cases it can wipe out the entire flock being reared). This means that the poultry production activities can’t be compromised at all. The producers must demonstrate real commitment and also ensure that their workers clearly understand and properly perform their roles.

4. Poultry raring facility: The (housing) facility must meet minimum standard in terms of bird holding capacity to avoid over congestion, good ventilation, lighting, warmth, etc. Therefore aspects such as use of coffee husks, access to reliable source of power, heating accessories and charcoal, etc. are vital.

Of particular note is the fact that although poultry veterinary care services are available in the market, their demand is highly constrained. Many producers think (and actually do so) they can handle the veterinary services such as vaccination and treatment by themselves and often seek explanations over the counter in the poultry drug shops or on phone. This is very risky, unlike in other animal livestock enterprises, because any omission or inappropriate application of vet care in poultry production can have devastating consequences. Also professional vet care is important for the regular evaluation of the performance of the birds and recommendation on adjustments in feeding, warmth control, feed supplements, etc.

As previously discussed in this report many of the poultry drug dealers do cross-sell poultry and other veterinary drugs, in addition to providing veterinary care services. However, a number of poultry drug items such as vaccines are value chain-specific and thus enabling a realistic analysis of this transactional level of the value chain. This transactional level requires high levels of careful handling of the drugs, including maintaining the cold chain conditions for the vaccines. As the producers must inevitably buy the drugs, there are many drug dealers which is rendering the value chain transactional level to be very competitive and reasonably robust.
Livestock Value Chain Analysis Report

The feed dealers are available in areas where reasonable production activities exist and thus access to feeds is not constrained at all. However, as mentioned in the previous sections, the key issue is that of quality of feeds that is highly related to the circumstances under which they are produced and also on the quality of the ingredients used to manufacture the feeds. Of course, many poultry drug shops stock items for mixing poultry feeds such as calcium, premix, vitamins, salt, meat and egg boosters, etc. and also other ingredients such as cotton and sunflower seed cake, silver fish, shells and, maize and rice brand are available in the market and are readily accessible although with a lot of market fluctuations as their availability is related to the timing of the season for the relevant item and the demand for them in the neighboring countries.

In terms of financing opportunity for this value chain transactional level, the feed producers/manufacturers actually want to increase their stock level for the seasonally available ingredients (brand, sunflower and cotton seed cake and fish) during the time of their peak supply when the prices are low to ensure the realization of continuous production activity at lower cost.

The other actors such as live and slaughtered chicken, traders engaging in selling eggs, etc. are available and robust in the market although with highly fluid and less organized operations. The most pertinent issue for these transactional actors is the relevance of their operations with the timing of marketing for the producers. For example if the demand at the time of marketing is low it means producers may have to incur additional feeding costs with no certainty of recouping the incremental costs from higher prices. Similarly if the demand is very high the producers can sell off the chicken ahead of full maturity and thus realize cost-saving that should help to boost their profitability.

Beyond the selling of eggs and slaughtered chicken, there are no identified local commercial processing of poultry products such as poultry sausages, chicken cubes, etc. Thus opportunities to extend the value chain and diversify potential opportunities for financing are still constrained.

As for the cash inflow pattern which is particularly important for commercial financing considerations, the poultry value chain actors generate income on regular basis. The producers for broiler chicken are able to make sales (often on lump sum basis) within two months of stocking day old chicks while producers of eggs start realizing income after an average of four months when the birds start laying and these income flows can be sustained for the next fifteen month before the birds are sold as off-layers. The other value chain actors continuously operate as the poultry production is not a seasonal activity but rather a continuous one with different producers having different timing for their production activities.

As is the case with other commodity value chains, the volume and pattern of cash inflows is highly relevant in mitigating the risks and reducing costs of lending to the poultry value chain and therefore on the decision to finance that value chain. As such the cash inflow pattern (including the short tenure of production for the broiler chicken) should provide motivation to finance the poultry value chain as long as the transactional relationships between the actors and the actors’ creditworthiness are clearly ascertained and properly analyzed. Accordingly, if financing is to be provided for the production level of the value chain, grace periods matching the respective enterprises (same as repayment period for the broiler producers) cash inflow generating potential must be considered. Also there are minimal opportunities for structured financing (only possible for disbursements to suppliers in case of bigger supply-related transactions). Further, financing should be considered where the rearing facilities (a major
prerequisite) are in place or are a constituent of the required funding. Similarly the relatively low levels of average operational volumes may warrant low levels of financing and thus inevitable domiciling of the portfolio in micro financing.

Specific Value Chain Level Profitability Analysis

The analysis of profitability for the commercial financing of relevant actors in the poultry value chain is presented in the next sub-section and is indicative of the total data collected for the analysis of the poultry value chain analysis. Because of the marked differing characteristics of broiler and layer poultry production operations that present differing levels of risks and rewards, the analyses for the production level for the two categories are presented separately. As earlier mentioned in this report, only three value chain levels (poultry drugs dealers, feed dealers and producers) were considered to be relevant for meaningful financial analysis.

Input Supply (Poultry Veterinary Drugs and Feeds) Transaction Points

The summarized profitability analysis for the poultry drugs and feeds dealers’ value chain operations is presented on the right. From the analysis results, the poultry drugs and feeds dealers (specifically those not engaging in importation and distribution) are not adequately profitable to be considered creditworthy. At the current operational levels they are realizing a return of 16% over a transaction period of six months which translates into annualized return of 32%. This annualized return does not provide adequate motivation for borrowing from the commercial finance market.

In order to enhance their profitability, many poultry drugs and feeds dealer cross-sell these operations with the cattle drugs business. In most cases, the combination of cross-selling veterinary drugs is a creditworthy activity. Indeed a good number of respondents with cross-sold veterinary drugs for poultry and cattle do access credit from several financial institutions.

Besides the cross-selling, the profitability of the poultry drugs and feeds transactional level has a potential of being stepped up in two possible ways (which may have relevance for commercial financing). These are;

1. Increasing the rate of turnover which should help to increase the transactional volumes. This is quite tricky scenario given the high level of competition but can be achieved if dealers pay particular attention on the quality of the inputs they sell and also engage in other innovative approaches that can enhance outreach to their market.

2. Lowering the cost of inventory such as for the raw materials for feed manufacturing by stocking the inputs at the time they are in big volumes and at lower prices such as for brand,
seed cake and fish. Also with right sourcing and in large volumes the poultry veterinary 
drugs may be procured at lower unit cost.

**Production Level Transaction Point:**

The production level of the poultry livestock value chain comprises actors of differing levels of 
operation from very small scale (as low as 50 birds) to medium and large scale commercial 
operations. This situation obtains for both broiler and layer activities and it had implications for 
financing risks. Accordingly, the analysis for the production level of the value chain is based on 
the number of chicken reared in a given batch of production.

The summarized profitability analysis for 
broiler poultry production is presented on the 
right. From the analysis results the producers 
for this particular transaction level are 
realizing very low profits with a transactional 
return of 1.8% for a tenure of two months 
which translates into an annual return of 11%, 
thus rendering the actors to be non- 
creditworthy as this level of return is far lower 
than commercial lending rates.

Principally the low profitability realized by 
these actors is a result of two observable 
issues. The first is the average small levels of 
operation which leads to increased unit cost per bird for the overhead expenses and drug costs as 
the drug packs on the market such as for vaccines target a specific quantity of birds and thus necessarily must be wasted in case of fewer birds reared. The second is the high cost of feeds 
which also lead to a high per unit cost of feeding. At the time of this research the costs of 
poultry inputs had gone up because the season for the key ingredients had run out and also the 
government had just introduced 18% VAT on the agricultural inputs which had led to an increase 
in prices. Because of the nature of the product, the producers have limited capacity to raise the 
prices of chicken and neither can they hoard the chicken for better prices but have to dispose 
them off to avoid the continuous additional costs.

In actual fact the case of low levels of operation must be of serious concern as it critically 
impairs the capacity of the actors to lower the unit cost of production which is very relevant for 
profitability. In all the cases where the stocking was less than 200 birds the analysis established 
that the farmers were incurring losses. Cases of more than 200 birds registered progressive 
profits as in accordance with the stocking levels\(^9\). This means that financing consideration for 
this transactional level must emphasize a minimum production threshold that ensures reasonable 
levels of creditworthiness of the actors. The analysis findings put such threshold level at 500 
birds at the current production cost, revenue and mortality levels.

\(^9\) For example the analysis of a farmer rearing 50 broiler chicken revealed an annualized loss of 255% while the 
analysis of a counterpart with 500 birds established annualized return of 56%.
The comparative profitability analysis for the layer poultry producers is presented on the right hand side. The analysis reflects a trend not much different from the broiler poultry production operations. The average operational capacity of 264 birds is very small which is not assisting the producers to realize lower unit cost of production. From the analysis, layer poultry producers realize profitability of 23% per production batch of a production period of 20 months which translates into an annual return of 14%.

This level of profitability renders the producers of layer poultry under the current production characteristics not to be creditworthy as the rate of return adversely compare with the current commercial lending rates. The analysis established that as the stocking levels (level of operation) increase, the profitability levels correspondingly go up. For example the analysis for a 500 layer birds operation yielded an annualized return of 35% which is above the break-even levels under commercial financing. Similarly an analysis of a production operation with 23,000 layer birds established an annualized return of 66% which makes this particular actor adequately profitable as this level of profitability can sustainably absorb commercial financing costs.

Therefore, as in the case of broiler poultry production, the scale of operation for the layer production must be of concern and critical consideration for financing to minimize the risk. The similar pattern of profitability also establishes the threshold stocking levels per batch for low risk financing at 500 layer birds under the current levels of cost, prices for eggs and off-layer birds and mortality level.

Ironically, many actors at this level of the value chain are fearful of stepping up the scale of operation in an attempt to minimize the mortality risk. They think that by engaging in small to medium level of operation they are hedging the risk of big losses arising from potential poultry diseases but not knowing that they are incurring losses.

Nonetheless, as mentioned earlier, poultry production can be easily managed as most of the requirements are commercially and competitively available and accessible in the market, including poultry vet care services.

For emphasis, the production level of the poultry livestock value chain should present opportunity for financing as long as a minimum threshold for stocking (for both broiler and layer operations) is observed. In such instances, financing should focus on stocking of the day-old chicks and feeds as these are the critical elements of poultry production enterprise. Also the targeting of these components can provide opportunity for structured disbursement to the suppliers as long as volumes adequately underpin such a mechanism.
Besides credit, this level of the value chain has good opportunity for savings as it has elaborate cash inflows with clear timing predictions. However, to enhance the uptake of savings financial services it may be important to qualify the savings financial services for this value chain with a clear emphasis on the use of the savings. Such emphasis may be on reinvestment for subsequent production operation and may target aspects such as acquisition of day-old chicks or feeds, etc. and if such acquisition can be underpinned by the Bank’s efforts. For example, under MOU, the bank can partner with poultry breeders such as Ugachick to supply its savers with day old chicks and feeds at preferential terms, including access to free outreach poultry veterinary care services.

**Summary of the Value Chain Analysis Findings**

The results of the data analysis for the actors in all the transactional levels of the three livestock value chains throughout the entire geographical areas surveyed for the livestock study show consistent trends outlined below.

1. Veterinary drug dealers for both cattle and poultry realize averagely thin margins and are thus currently not creditworthy. Their monthly transactional volumes are still very small mainly due to the high competition in this sector. If it is possible to increase the volumes (and if possible the rate of stock turnover) then the creditworthiness of these actors can be stepped up. With the current stiff competition, it is difficult to predict the role of commercial financing in resolving the issue of volumes and stock turnover.

2. Producers for the cattle livestock (dairy and beef cows) realize very good levels of profitability and thus high return on investment (inspite of the low productivity levels for the dairy enterprises). Therefore they have capacity to demand commercial finance and are thus creditworthy. Their production transactional tenures are clearly identified and thus with good predictability of cash inflows which should help in proper structuring of financial services. Besides, the dairy producers have continuous liquidity of fairly known cash inflow levels. This dairy value chain level can therefore potentially sustain reasonable level of formal savings if well mobilized and sensitized about the inherent benefits of savings.

3. Poultry producers are only profitable beyond a given minimum threshold of production operations in terms of the number of birds reared per batch. This minimum threshold has been established by the data analysis to be 500 birds in either case of broilers and layers.

4. Long haulage and bulk milk transporters are highly profitable (with an annual return of 443%) and therefore are very creditworthy although they have no actual demand for commercial financing because of the nature of their operations that require low levels of monetized working capital.

5. Beef cattle traders are adequately profitable and can sustain commercial financing under the current operational situation. Their high levels of profitability are particularly enabled by the short tenure of their transactional cycle and a stable market for beef cattle products especially fresh meat.
6. Cattle transporters are equally profitable with average annual return of 106% which makes them creditworthy. They also have the advantage of cross-selling their transport services for non-cattle transportation.

7. Dairy processors are accessing commercial finance already and are not keen to discuss their operation. However, the fact that they all want more milk to step up their operational capacities and also being in position to determine the prices for upstream actors means that they are operating efficiently.

8. There are many actors whose operations are accomplished in a manner that can’t incentivize consideration for financing. These include village level cattle traders, informal channel milk vendors, short haulage milk transporters, poultry traders and transporters and traders in livestock finished products.

9. The robust trading transactions across all the three value chains are ensuring high liquidity that should provide opportunity for savings financial services if strategic linkages are explored. The constrained availability and accessibility to formal savings financial services is critically rendering the reinvestment and income smoothing for low-season financing requirements to be highly fragile.

10. The inherent risks in some of the value chain enterprises such as livestock production and beef cattle trading provide opportunity for innovative financing such as insurance-backed lending.

The analysis of the field data and the field observations in the respective levels of the livestock value chains signal an apparent challenge for Centenary Bank if it has to streamline and consolidate its financing of the livestock value chain. Obviously if producers have to be financed, the bank must have reasonable certainty that access to inputs and output markets do not constrain their capacity to pay the loans. The low profits currently earned by the inputs dealers do not necessarily indicate that as demand for inputs from the farmers increase, dealers will stock and supply more inputs to meet the demand. Similarly, the low profits earned by the poultry producers do not necessitate that they will purchase more inputs if the latter’s supply increases.

**FINANCIAL PRODUCTS RECOMMENDATIONS**

From the analysis findings in the preceding sections and also from the field observations made during the field data enumeration activity for the respective livestock value chains, the recommended financial products and financing mechanisms for the specific dairy, beef cattle and poultry value chain actors are summarized in the table below. For consistence of the recommendations in regard to the other value chain studies that were previously completed by the Bank, the identified potential financing opportunities for the livestock value chains have been classified as either highly compatible or least compatible. In the same way, products and financing strategies referred to as *highly compatible* can be pursued with the existing Bank’s financial products, either as they are or with minor revisions to accommodate specific
peculiarities and needs of targeted value chain actors and therefore without substantial further action on product development. However, pursuance of financial products and financing strategies categorized as least compatible warrant further action, in terms of financial product development, before they can be implemented.

<table>
<thead>
<tr>
<th>DAIRY VALUE CHAIN</th>
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<tbody>
<tr>
<td><strong>Value Chain Level</strong></td>
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<tr>
<td><strong>Production</strong></td>
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<tr>
<td><strong>Producer Groups</strong></td>
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<tr>
<td><strong>Milk Traders / Transporters</strong></td>
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<tr>
<td><strong>BEEF CATTLE VALUE CHAIN</strong></td>
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<tr>
<td><strong>Traders</strong></td>
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<tr>
<td></td>
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<tr>
<td><strong>Transporters</strong></td>
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**POULTRY VALUE CHAIN**

| **Feed dealers** | Working capital for stocking key feed ingredients at harvest and marketing time of relevant crops (maize/rice brand and, sunflower and seed cake). | ✓ |  
| **Producers** | Working capital loans of short to medium term for acquiring day old chicks and stocking feeds. | ✓ |  

**ALL VALUE CHAINS (CROSS-CUTTING)**

| **Inputs Supply** | Short term working capital loans for small to medium scale veterinary drugs dealers/stockists (disbursed direct to suppliers where possible) | ✓ |  
| | Structured trade finance for importers and large distributors (with disbursements to suppliers and collateralized inventory) | ✓ |  
| | Simple inventory credit mechanism for the large dealers to enable them maintain regular flow of inventory | ✓ |  
| **Producers** | Production loan anchored by livestock insurance (mortality, theft and mysterious disappearance) | ✓ |  

The above list of potential products and financing mechanisms is not necessarily exhaustive for the three livestock value chains that were researched but at least should provide a good base to steer the financing of the actors in these value chains under the subsisting operational scenarios. Like any other commodity value chains, the livestock value chains are dynamic and are thus liable to be impacted by any emerging circumstances. For example the on-going lobbying and advocacy to restrict and eventually eliminate the informal milk sales is likely have substantial impact on the operations of the actors within the formal milk marketing channel such as increased demand for cooling equipment, refrigerated trucks, additional processing capacities and, enhanced and streamlined wholesale operations of processed dairy products, in addition to providing opportunity for producer contracts as side-selling problems would be reduced. Such developments may lead to emergence of new low-risk opportunities for financing. Therefore, the continuous validation and updating of this livestock value chain analysis should be of strategic relevance for the Bank to enable it to stay the course of the emerging and/or changed opportunities that may warrant development of new financial products or making adjustments in the financial products and financing mechanisms that may be under implementation.
The brief discussion of the respective recommended financial product and financing mechanisms that have been categorized as least compatible with existing Bank products is presented below and summarized in the tables that follow the discussion of each recommended financial product and/or mechanism. In regard to implementation of products and financing mechanisms that have been considered to be highly compatible, it will be important for their delivery to be clearly underpinned by review of the relevant existing products to enable proper structuring that takes into account, among others, the levels of operation, grace periods matching the gestation periods, cash flow timing, and tenure of the transactions of the relevant level of the value chain for which financing is being considered. The findings in this report should sufficiently guide this process.

In addition, the training of Bank staff that engage in the appraisal and recommendations on agricultural credit requests on the identified opportunities and relevant financial products, including any new adjustments or features on these products, will be essential. Also the recommended non-financial products/services require to be given high priority by the Bank as the field data collection activity encountered many cases of respondents being ignorant not only of the financing opportunities with Centenary Bank but also of the bank charges and how they can be aligned with actors’ operational performance structures. For instance, many producers do not know that a production activity that is accomplished in 2 months (say for broiler chicken) with a financing interest at 24% p.a. actually incurs a cost of 4% in interest if the borrowing is properly matched with the activity tenure. Such producers still complain of very high interest rate of 24%. Even many value chain actors still do not know why they normally want longer loan periods than the duration of their transactions which really overburden their operations. Furthermore the actors that have in the past accessed credit from the bank (including Centenary Bank) do not comprehend charges such as for loan insurance and generally have a feeling of having been fleeced.

1. Dairy breed and feed improvement structured finance loans

The analysis of the production transactional level of the dairy value chain established the existence of extremely low levels of current milk productivity at only 3.4 litres per cow per day (excluding the meager volume reserved for the domestic use and of course the unknown volume suckled by the calf). As was highlighted in the findings, the main causes of the low productivity are poor dairy cattle breeds and also poor or inadequate feeding. This is in spite of the fact that good dairy cattle breeds are available and accessible from known reliable dairy cattle breeders and also the feeding can be substantially stepped up with improved pasture management practices and supplementary feeding with dairy feeds that are accessible in the market. The major reason advanced by the farmers is constrained financing to stock good breeds, improve pasture and buy supplementary feeds.

From the above findings, opportunity to improve the milk productivity exists and this creates opportunity for financing to step up the producers’ demand for the relevant items. The farmers are aware of the benefits realizable from increased diary productivity and therefore any financing for activities to realize this should be able to generate reasonable uptake provided it is appropriately structured and properly delivered. It is important to note, for financing purposes, that for optimal milk productivity the two aspects of breed and feed are not independent but
rather are mutually exclusive and should be simultaneously pursued. Therefore the financing of these items should embrace this dimension.

The structure of this product should be underpinned by the following key terms/parameters;

1. Medium-term dairy production loan that targets acquisition of improved and high yielding dairy in-calf cows and a specific volume of dairy feeds to last for a reasonable period until the financed cow produces good volume of milk to sustain purchase of additional feeds. Also the funding can address costs of on-the-farm pasture improvement;

2. Minimum transactional volume (in terms of number of dairy cows and amount of feeds to be purchased) that should render the delivery of the loan to be cost-effective;

3. Structured disbursement where feasible and practical (to dairy cattle and dairy feed sellers/suppliers) and recovery from milk buyers’ remittances through the Bank under a clearly functioning MOU;

4. Grace periods matching the gestation period of the in-calf cows to be purchased with the loan;

5. Loan repayment installments taking into account the seasonal patterns for milk production;

6. Strategic collaboration with non-client entities such as dairy cattle breeders, dairy feeds suppliers, dairy producer cooperatives/unions, dairy processors, donor programmes, etc.

7. Good accessibility to veterinary care services;

8. Except for new operations, clear track record of farmer’s past milk sales through identified dairy cooperative;

9. Existence of dairy grazing land of adequate holding capacity for the dairy cattle to be acquired; and

10. Where possible, loan to be provided in combination with savings from existing milk sales proceeds.

The proposed summary of the product’s key parameters is in the table below.

<table>
<thead>
<tr>
<th>Financing Opportunity</th>
<th>Dairy breed and feed improvement loans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Provide medium term structured loans (supplemented by savings where feasible) to dairy farmers for purchasing improved and high-yielding dairy in-calf cows and feeds for a specified period of time.</td>
</tr>
</tbody>
</table>
2. Milk sales receivable credit (for milk delivered to processors)

Currently the milk processors pay for the delivered milk on bi-weekly arrears basis, in other words twice a month. Though there are no identified cases of default on remittances, the dairy producers certainly have continuous financial needs not only for the dairy production activities but also for other household expenditure requirements whose timing may not match the timing and pattern of the milk sales remittances. The non-cash on delivery of milk at the milk collection center was cited to be the main cause of many farmers’ decision to sell the milk through the informal marketing channel even in instances where prices may be lower.

| Loan can also incorporate the improvement of farm pasture. The loan product would be marketed to dairy farmers with discernable commercial operations and who are members of identified diary cooperatives through which they sell their milk. |
| Potential Market | Many small, medium and large scale dairy farmers in the Ugandan cattle corridor areas who have adequate awareness of the benefits of improved dairy breeds and feed and thus having qualified demand to invest in them if commercial financing is accessible. This demand exists in all the geographical areas surveyed. It is also increasing as the available cattle grazing land continues to be problematic. |
| Potential geographical locations | The product can target all dairy producing areas throughout Uganda though initially the current milk sheds with the highest milk production levels (e.g. South West Milk Shed) may be considered and the product later rolled out to other milk shades in the country. |
| Potential Impact | By focusing on improved dairy livestock productivity the financing should be able to have impact of increasing the revenues and profits of the dairy producers and also impact the operational performance of the other actors in the dairy value chain. For the Bank operations, the product should be able to increase the agricultural clients’ base and thus contribute to the Bank’s increased agricultural credit market share. |
| Potential portfolio | With proper structuring and good collaboration strategies, there is high probability for the Bank to build a reasonable portfolio for this potential financial product. For example, at the current UCCCU outreach coverage with 128 primary dairy producer cooperatives and 15,000 dairy farmer members and taking a conservative estimate of 20% of the members accessing an average loan of UGX 10 Million each, the bank can realize a portfolio of UGX 30B for these UCCCU dairy farmer members only. |
| Timing | The uptake of this financial product can be as immediately as it is made available by the Bank as the stocking of dairy livestock does not have any particular season or timing. Also repayment recoveries would be continuously robust throughout the lactation period of the acquired dairy cows. |
The above situation therefore provides opportunity for innovative low-risk financing. Such financing would entail providing credit of up to a determined percentage of the expected milk sales proceeds (say 80%) for the exact tenure of the expected proceeds. The Bank would, under a memorandum of understanding (MOU) receive the sales proceeds from the processor from which it recovers its credit principal amount and interest and rebate the balance on the farmer borrower’s account maintained with the Bank. Under this financing product, the farmers would be able to meet their financing needs in a less burdensome manner and also without hampering their marketing activities through informal milk sales.

The structure of this product should be underpinned by the following key terms/parameters;

1. Short-term structured financing credit against clearly verified deliveries that is recoverable from sales proceeds directly remitted by the milk processor to the bank;

2. Revolving credit (akin to overdraft) that should not warrant borrowers to complete application for each batch of milk sales receivable;

3. Minimum transactional value (even if it means joint marketing by the dairy producers with smaller volumes of milk) to render the credit transaction to be cost-effective; and

4. Strategic collaboration with dairy producer cooperatives/unions and dairy processors for enhanced borrower screening and credit repayment comfort/commitment.

The proposed summary of the product’s key parameters is in the table below.

<table>
<thead>
<tr>
<th>Financing Opportunity</th>
<th>Milk Sales Receivable Credit</th>
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<tbody>
<tr>
<td><strong>Description</strong></td>
<td>Short-term receivable credit for verified milk deliveries with pending payment from the processor. The credit should be up to an agreed percentage of the expected proceeds value.</td>
</tr>
<tr>
<td><strong>Potential Market</strong></td>
<td>All the dairy farmers that market their milk through dairy cooperatives who may be keen to receive cash on delivery rather than waiting for the existing payment period to elapse. Many small, medium and large scale dairy farmers that market their milk through their dairy cooperatives under the formal milk marketing channel would provide potential clientele for this product.</td>
</tr>
<tr>
<td><strong>Potential geographical locations</strong></td>
<td>The product can target all dairy producing areas throughout Uganda that have active diary cooperatives which market the farmers’ milk to known processors.</td>
</tr>
<tr>
<td><strong>Potential Impact</strong></td>
<td>Financing the milk proceeds receivable should enable the farmers to adequately and timely address their reinvestment as well as other family expenditure requirements and thereby contributing to increased dairy production and household livelihoods. For the Bank, this low risk and low cost structured finance product can greatly boost agricultural portfolio revenues and increase rural outreach.</td>
</tr>
<tr>
<td><strong>Potential portfolio</strong></td>
<td>With proper structuring and good collaboration strategies, there is</td>
</tr>
</tbody>
</table>
3. Asset finance for cooling equipment for dairy producer cooperatives

Currently many dairy producer cooperatives use coolers belonging to Sameer\(^\text{10}\). They are very old and the cooperatives complained of the high costs of operating these coolers. Further, the cooperatives using Sameer coolers must necessarily sell their milk to Sameer even when the latter’s terms (price and credit tenure may be bad). This to some level strains the transactional relationship between the cooperatives and Sameer.

Because of the above the dairy producers have for a long time had desire to acquire and own their own coolers through their cooperatives so that they can make commercial decisions on their milk sales without any fear. For example when aBi Trust early this year came up with a proposition of availing the dairy cooperative coolers on a 50-50 cost-share basis, the cooperatives upheld the proposition fully. However, there are many cooperatives which have not benefited from this opportunity and would want to acquire coolers even if they don’t access any grant funds. Also some cooperatives which have coolers still want to add on more cooling capacity to meet the ever growing supply of milk by their farmer members. This therefore means there exists qualified demand for more cooling equipment.

For effective functioning, the coolers need complementary generators as many cooperatives are off the electricity power grid. Also many of them need milk cans as these complement the cooling operation.

The above demand for additional cold chain equipment creates opportunity for a medium to long term asset financing product. This may be by loan or by lease whichever makes better product delivery less risky and more profitable. The loan or lease should be made available to registered dairy cooperatives with demonstrable capacity to mobilize repayment from the milk proceeds of their members that access the cooling services. The regular inflows from the daily milk sales should adequately anchor the repayment capacity for such loan or lease. In order to further lower the lending risk under this product, the financing can be under structured mechanisms that ensure recovery from the milk proceeds that should be directly remitted by the buyer/processor to the bank through an MOU. The proposed summary of the product’s key parameters is in the table below.

\(^{10}\) Sameer inherited these coolers from Diary Corporation and were being used by the cooperatives
4. Production loan anchored by livestock insurance

High levels of mortality (especially in poultry but also in cattle livestock enterprises), thefts and mysterious disappearance of animals are major setbacks in livestock production and in many
cases are inflicting heavy losses for the farmers. With such a situation commercial lending becomes constrained either because;

a. The bank has to lend cautiously to minimize risk or it has to resort to liquidation of any collateral should the borrower encounter repayment challenges as a result of losses realized under the above misfortunes; and/or

b. The potential borrower may not be motivated to borrow in fear of making heavier losses in the circumstances that the mishaps mentioned materialize. This is highly possible and often happens.

The above production risks can be insured, as their probability of occurrence can be statistically determined, and thereby permitting increased investments in the production levels of the livestock value chains as any losses encountered would be compensated. However, many insurance companies are not having agricultural insurance products and even those which have them often handle fewer risks. If well understood and may be with some level of support and collaboration, some insurance companies can innovate to provide insurance coverage for the risks of livestock mortality, theft and mysterious disappearance of animals.

Therefore the proposed financial product should target to incorporate insurance in lending for these levels of the livestock value chains. This would also require the bank to explore collaboration with an insurance company that may be willing to provide such insurance cover. Also it may require collaboration with other entities such as donor projects that may be interested to support such innovative product especially with a view to lower the potential premium costs in order to increase the attractiveness of the product. Thus this potential product may need to be considered in the medium term rather than immediately.

The other important consideration for this potential product should be some level of innovation as to how the cattle farmers can successful pay the insurance premiums in order to increase the uptake of credit. Options such as structured savings from milk sales to be set aside to pay for an agreed insurance premium, use of part of the loan proceeds, payment from other sources of income, etc. can be explored.

If successful, such product can be extended to other actors such as cattle traders to cover cattle transit accidents and also to other non-livestock enterprises. The proposed product’s key tenets are in the table below.

<table>
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<tr>
<th>Financing Opportunity</th>
<th>Production loan anchored by livestock insurance</th>
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<tbody>
<tr>
<td><strong>Description</strong></td>
<td>Under collaboration with an insurance company and other entities, offer livestock production loans that are insured against livestock losses through mortality, thefts and mysterious disappearance of animals. A suitable mechanism rendering the payment of the insurance premium should be innovatively worked out by the bank.</td>
</tr>
<tr>
<td><strong>Potential Market</strong></td>
<td>Many farmer respondents for the three livestock enterprises in all the areas surveyed are eager to take up insurance for livestock production</td>
</tr>
</tbody>
</table>
and thereby be able to minimize production losses while also increasing appetite for investment expansion in this activity.

| Potential Impact | From the field data enumeration responses, fear of livestock losses (and worse still of the other losses arising from the livestock losses in case of production activities that may have been externally funded) is a formidable challenge for livestock producers and if this fear can be subdued through the proposed product, the impact on production and productivity that is enhanced by financing is likely to be substantial. Similarly the impact on the operational efficiency of the other actors is equally likely to be positive. On the bank side, the immunizing of the lending risk through insurance should increase the lending appetite and thus help to build a vibrant livestock credit portfolio. Also this product, if successfully piloted and rolled out, it can be replicated for other non-livestock commodities. |
| Timing | Implementation of this potential product must necessarily be underpinned by functioning collaboration and partnerships that must be carefully discussed and crafted. Realizing this would certainly take time. Thus the implementation of this product would be in the medium term despite the existence of qualified demand for it that can ensure good uptake on its being introduced. |

**Recommendation for technical assistance to support the financing of the value chains**

Although some of the recommended financing opportunities that have been categorized as being highly compatible with existing financial products currently offered by the bank can be easily integrated in the existing financial products, a number of other opportunities in this category may require revisions in the existing products (especially in terms of structuring) to properly match them with the needs of the value chain actors they will target and also strengthening their delivery mechanisms. Also some of these products may require structured mechanisms for disbursements and/or recovery. This may warrant dialogue and concluding MOUs with the prospective parties such as diary producer cooperatives, processors, inputs dealers, etc.

In addition, the bank staff that will handle the integrated livestock financing initiatives by way of appraisal, approval and monitoring may require to be trained in order to have sufficient grasp of the revised features and delivery procedures. In other words, the staff will need to be reoriented to the changed approach to handle livestock value chain actors though under the same existing financial products.

The above activities will require some reasonable level of technical assistance. The bank will, therefore, need to explore partnerships for technical assistance for the effective integration of the recommended compatible financial products and financing strategies.

In regard to the financial products that have been considered to be least compatible and for which the development of new products will be inevitable as has been recommended in this report, these will require some level of technical assistance to enable the bank to successfully develop,
pilot and roll out appropriate financial products that will appropriately match the needs and characteristics of the value chain actors they will target.

Conclusion

The analysis of the three livestock value chains and, the financing opportunities identified and the respective potential financial products recommended should help Centenary Bank to refocus its approach to financing the livestock value chains in order to ensure that any financing to them impacts its strategy and portfolio targets for agricultural financing. The financing opportunities for both the compatible and non-compatible identified potential financial products and financing mechanisms for the respective actors in the value chains can substantially broaden the scope of the bank’s agricultural and rural outreach initiatives.

Furthermore, the recommended financial products and financing mechanisms are replicable with many other agricultural enterprises and thus efforts to implement them can be leveraged on to significantly impact the realization of the Banks agricultural portfolio targets.