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VALUE CHAIN ANALYSIS

MAPPING MAIZE, SUNFLOWER AND COTTON CHAINS

FINAL REPORT

October, 2005

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Rural SPEED

Rural Savings Promotion & Enhancement of Enterprise Development

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The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

Rural SPEED

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BACKGROUND

Introduction

USAID/Uganda's 2002-2008 strategy calls for expanded sustainable economic opportunities for rural growth, promoting a connection between productive strategies by the private sector in rural areas and expansion of financial services. Rural SPEED (Savings Promotion & Enhancement of Enterprise Development) was designed to help meet this goal.

Rural SPEED's objective is to deepen and strengthen Uganda's financial sector in response to demand for financial services in the rural economy. Increased availability of financial services would result in the growth necessary to achieve the goals of GoU's Poverty Eradication Action Plan. Rural SPEED is engaged in four key activity areas: 1) savings mobilisation; 2) service delivery mechanisms; 3) agriculture finance; 4) new product development. This report is concerned with agricultural finance.

In spite of agriculture's being the main occupation of the majority of Ugandans and a principal engine of potential rural growth (services are also important), rural areas, and farming in particular, are not well-served by the financial sector. Currently agricultural credit accounts for less than ten percent of the total formal financial institutions' loan portfolio. Agriculture finance has largely remained a poorly understood concept within the financial institutions. Furthermore, few actors in the financial sector realize that the full scope of agricultural finance extends beyond production to include, input supply, post harvest processing, transport, packaging, marketing, etc. Further even when considering production alone, there has been remarkable improvement in agricultural sectors, notably cotton, grains and oil seeds, over the past decade. This progress has been catalyzed by adoption of new technologies by the farmers through the past and on-going technical assistance support by development projects, improved market linkages, infrastructural improvements and better access to inputs. However, both regulated and self-regulated financial institutions largely continue to maintain the view that agriculture is risky and are thus reluctant to venture into, or reintroduce, agriculture finance products in their portfolios. This knowledge gap is largely perpetuated by the inadequate exposure to the costs and risks embedded at different points in the value chain of the agricultural commodities. Also, these institutions lack appropriate tools and mechanisms to adequately assess, mitigate and manage agriculture finance risks. With these tools agricultural finance may well become attractive, viable and sustainable.

Objective

The objective of mapping these commodity value chains (maize, cotton and sunflower) is to demystify and quantify the associated risks and costs. The result of this should facilitate the introduction of focused, viable and sustainable agriculture finance products within institutions that stretch beyond the bounds of production finance.

In addition to this objective the authors were tasked to prepare a spreadsheet tool to aid financial institutions in creating their own value chain analyses for other commodities.

Methodology

The analysis in this report started from cost of production (COP) data compiled by Rural SPEED from its own field surveys, cross checked with data from its sister project APEP1 and organisations such as Kapchorwa Commercial Farmers' Association (KACOFA), Uganda Grain Traders Ltd. (UGTL - maize), Mukwano Ltd. (sunflower), the Cotton Development Organisation (CDO), a sample of commercial farmers producing the various commodities and from cotton ginneries. The cost of borrowing is based on Centenary Rural Development Bank's (CERUDEB) successful agricultural loan product for maize production for some scenarios and on average commercial loan costs for other scenarios.

¹ Agricultural Productivity Enhancement program – formerly IDEA

There is, of course, no unique, definitive cost of production. Conditions, circumstances and costs vary from district to district, farmer to farmer, season to season. The figures used are Rural Speed's average estimate of a representative figure, overall, for farmers using a moderately advanced level of technology (improved seed, fertilisers and pesticides). However, when using the generic spreadsheet tool, financial institutions will be able to generate very precise estimates of costs and benefits because, rather than the average case, they will be analysing a potential loan opportunity.

The Costs of Production used for this report are annexed. Beyond the costs of production, other costs (transport, handling, etc.) are representative of what the actors in this sector actually pay under the circumstances of the value chain described. The basis of analysis is UGX/kg, with conversions made from data expressed in per acre or per ton terms to arrive at UGX/kg. The aim is to show the value added, in UGX/kg, at each financial transaction in the chain. The analysis does not attempt to follow the chain to final, consumer demand but rather to the local wholesale market. This decision was made because financing beyond the wholesale market (retail, export, etc.) is beyond the scope of rural finance and beyond the mandate of Rural SPEED.

VALUE CHAINS AND ANALYSES

This section presents the final value chain maps and analyses for maize, sunflower and cotton. Each value chain is mapped based on a current case scenario (reflecting current financing practices without correcting for their shortcomings) followed by a moderate case example (reflecting improved financing practices).

Maize Value Chain Analyses.

The following map is based on Kapchorwa commercial farmers in their first loan cycle, financing similar to CERUDEB terms, Kapchorwa input suppliers and World Food Programme wholesale purchasing. Figures are quoted in UGX/kg of maize.

Maize Value Chain Map					
Based on newly-financed Kapchorwa commercial farmers, CERUDEB financing, Kapchorwa input suppliers and World Food Programme wholesale purchasing.					
Category of transaction	Value (UGX/kg)	Value Added (UGX/KG)	Return on Investment	Months	Annual Return on Investment
1. Input Retail					
Maize Seed (transport included)	(8.0)				
DAP	(13.0)				
Urea	(12.0)				
Transport	(4.0)				
Handling	(0.1)				
Overhead (rent and utilities)	(0.5)				
Commercial Finance (1.83%/month + 2% Commitment Fee)	(0.8)				
Total Cost of Inventory	(38.4)				
Input Price	40.7	2.3	6%	1	72%
2. Production					
Hired Labor	(62.0)				
Ploughing Services	(13.0)				
Purchased Inputs	(40.7)				
Commercial Finance (50% of production costs, 4%/month + 2% Commitment Fee)	(26.0)				
Total Costs of Production	(141.7)				
Farmgate Price	170.0	28.3	20%	12	20%
3. Transport and Handling Local Traders					
Transport	(20.0)				
Handling	(2.0)				
Trade Finance (no finance)	0.0				
Subtotal Transport and Handling Local	(22.0)				
Total Farmgate, Transport and Handling Local	(192.0)				
Price in Store (Kapchorwa)	220.0	28	15%	0.5	350%
4. Transport, Processing and Handling Regional Traders					
Transport	(30.0)				
Processing (drying, cleaning, fumigating, packing)	(48.0)				
Handling	(2.0)				
Trade Finance (Total costs, 1.83%/month)	(11.0)				
Subtotal Transport, Processing and Handling Regional Traders	(91.0)				
Total Kapchorwa, Transport, Processing and Handling Regional Traders	(311.0)				
Price to World Food Programme	367.5	56.5	18%	2	109%

Notes:

- Input Supply Trade Finance is based on average commercial lending rates of 22% per annually or 1.83% monthly plus a 2% commitment fee.
- End-market price is based on a recent WFP tender of US\$ 210/ton; \$1 = UGX 1,750. This price may vary depending on the tender.
- Commercial production finance is based on CERUDEB’s current lending product for new borrowers of relatively small amounts. The loan product covers 50% of production costs, is priced at 4% monthly (2% interest and 2% monitoring fee), requires an up front 2% commitment fee from the borrower and is repaid at the end of 12 months.
- Transport and Handling by Local Traders is sometimes undertaken by the farmers themselves. In this case, they would capture the return on investment.
- Trade Finance for Regional Traders is based on average commercial lending rates of 22% per annually or 1.83% monthly. There is no consideration of a commitment fee as borrowing is normally long term and the commitment fee is likely amortized to the extent that it is insignificant.
- Annual Return on Investment is meant only as a reference point in order that the reader will understand what the periodic investment corresponds to in annual terms. Rural SPEED is not advocating annual lending for these transactions.

Maize Value Chain for credit worthy farmer scenario in Kapchorwa

The following map is based on seasoned Kapchorwa commercial farmers who, based on their credit repayment history, should qualify for normal commercial loans, average commercial financing, Kapchorwa input suppliers and World Food Programme wholesale purchasing.

The only critical differences to note in the following map are that financing to the producers is at a lower cost and is extended for only 8 months, instead of 12, which is consistent with the production and marketing cycle for maize. Other aspects of the scenario (inputs supply, local traders and regional traders) are the same as the previous scenario.

Figures are quoted in UGX/kg of maize as in the previous map.

Maize Value Chain Map					
Based on Kapchorwa commercial farmers with a good credit history, Uganda average financing, Kapchorwa input suppliers and World Food Programme wholesale purchasing.					
Category of transaction	Value (UGX/kg)	Value Added (UGX/KG)	Return on Investment	Months	Annual Return on Investment
1. Input Retail					
Maize Seed (transport included)	(8.0)				
DAP	(13.0)				
Urea	(12.0)				
Transport	(4.0)				
Handling	(0.1)				
Overhead (rent and utilities)	(0.5)				
Commercial Finance (1.83%/month + 2% Commitment Fee)	(0.8)				
Total Cost of Inventory	(38.4)				
Input Price	40.7	2.3	6%	1	72%
2. Production					
Hired Labor	(62.0)				
Ploughing Services	(13.0)				
Purchased Inputs	(40.7)				
Commercial Finance (50% of production costs, 1.83%/month + 1% Commitment Fee)	(9.7)				
Total Costs of Production	(125.4)				
Farmgate Price	170.0	44.6	36%	8	53%
3. Transport and Handling Local Traders					
Transport	(20.0)				
Handling	(2.0)				
Trade Finance (no finance)	0.0				
Subtotal Transport and Handling Local	(22.0)				
Total Farmgate, Transport and Handling Local	(192.0)				
Price in Store (Kapchorwa)	220.0	28	15%	0.5	350%
4. Transport, Processing and Handling Regional Traders					
Transport	(30.0)				
Processing (drying, cleaning, fumigating, packing)	(48.0)				
Handling	(2.0)				
Trade Finance (Total costs, 1.83%/month)	(11.0)				
Subtotal Transport, Processing and Handling Regional Traders	(91.0)				
Total Kapchorwa, Transport, Processing and Handling Regional Traders	(311.0)				
Price to World Food Programme	367.5	56.5	18%	2	109%

Notes:

- Input Supply Trade Finance is based on average commercial lending rates of 22% per annually or 1.83% monthly plus a 2% commitment fee.
- End-market price is based on a recent WFP tender of US\$ 210/ton; \$1 = UGX 1,750. This price may vary depending on the tender.
- Commercial production finance is based on current average finance of 22%/annum or 1.83%/monthly. The loan product covers 50% of production costs, is priced at 4% monthly, requires an up front 1% commitment fee from the borrower and is repaid at the end of 8 months.
- Transport and Handling by Local Traders is sometimes undertaken by the farmers themselves. In this case, they would capture the return on investment.

- Trade Finance for Regional Traders is based on average commercial lending rates of 22% per annually or 1.83% monthly. There is no consideration of a commitment fee as borrowing is normally long term and the commitment fee is likely amortized to the extent that it is insignificant.
- Annual Return on Investment is meant only as a reference point in order that the reader will understand what the periodic investment corresponds to in annual terms. Rural SPEED is not advocating annual lending for these transactions.

Comparison of Scenarios

For the production lending, the first scenario would seem preferable – it maximizes finance charges. However, the loan is outstanding for four months beyond the marketing season, a fact that carries with it high risks of funds being diverted into non-liquid assets or consumption. The second scenario, models repayment in 8 months, appropriate to production and marketing cycles for maize and enables the lender to recover immediately, reinvest if possible and minimize default risk.

The other point to observe with respect to production lending is that the second scenario uses conventional average commercial lending rates of 22%/annum and a 1% commitment fee. These assumptions are likely valid for commercial farmers with an established credit history. Of course, a financial institution wishing to enter the lucrative market presented in scenario 1, could lend at a rate between 4%/month and 1.83%/month and competitively capture many quality loan opportunities at reasonable rates of return.

Commercial Financing for Input Suppliers, Local and Regional Traders

Clearly, financing of these operations should be based on their business viability. The value chain maps for the two scenarios identify the existence of commercially viable businesses. Given the nature of these maps, the reader only observes a punctual, one time transaction. The reality however, is that for traders, as distinct from farmers, trade transactions are revolving and hence are more liquid, less risky and potentially more profitable.

Transaction Points, Risks and Opportunities

The table below indicates many of the risks at each transaction point along this value chain and proposes opportunities for analysing and mitigating these risks in order to make sound lending decisions and enable the capture of profit opportunities.

Transaction Point: Input Supply	
Risks	Opportunities
Retail price fall due to competition because margins are thin.	Short-term lending product of only one to two months to limit the exposure of the lender.
Transaction Point: Production	
Risks	Opportunities
Inputs for production are late or inadequate.	Monthly phased disbursement lending product to limit the exposure of the lender.
Farm gate price is below COP.	Forward contracting by major buyers, for example WFP, guaranteeing price and quantity prior to planting. Price insurance products (not yet developed) compensating for low price years from earnings of high price years through a commercial insurer. Donor financed credit guarantee facilities.
Loan term is longer than production and marketing	Adjust the term of the loan product to match the seasonal production and marketing cycle (an 8 month loan for maize is less risky than a 12

cycle.	month loan though it is less profitable).
Yield is lower than expected.	Design the loan product to pre-finance only a portion of the total COP (the examples above reflect 50% financing of all production costs). Opt for loans based on warehouse receipts so as to lend only post harvest.
Operational acreage borrowed for is not realized.	Design the loan product to disburse in phases where financing is only released as key tasks in the production and marketing cycle are realized.
Transaction Point: Local Traders	
Risks	Opportunities
Transport is inadequate.	Offer finance and/operating leases for trucks. Make contracted transport a prerequisite for the loan contract.
Price is below cost of procurement.	Finance only against forward contracts provided in advance of borrowing from regional traders. Price insurance products (not yet developed) compensating for low price years from earnings of high price years through a commercial insurer. Opt for loans based on warehouse receipts so as to lend only post delivery.
Transaction Point: Regional Traders	
Risks	Opportunities
Transport is inadequate.	Loan only to trader who own or contract their transport.
Price is below cost of procurement.	Finance only against forward contracts provided in advance of borrowing by terminal buyers and processors. Loan only to traders who have a healthy equity position. Donor financed credit guarantee facilities.
Regional Traders may default wilfully.	Finance only borrowers who assign their sales contracts with their buyers to the lender for deduction of repayment.
Quality (moisture content, foreign matter, etc.) may be below contract specification.	Finance only regional traders who have verifiable access to proper cleaning and drying machinery; or, Finance cleaning and drying facilities in addition to trade finance.

Sunflower Value Chain Analyses

Current case scenario in Lira

The following map is based on small Lira commercial farmers, financing similar to CERUDEB terms, Mukwano Industries providing seed and other input suppliers supplying herbicides and fertilizer, Mukwano purchasing all output. Figures are quoted in UGX/kg of sunflower seed.

Sunflower Value Chain Map					
Based on small Lira farmers, CERUDEB type financing, Mukwano and other input suppliers and Mukwano wholesale purchasing.					
Category of transaction	Value (UGX/kg)	Value Added (UGX/KG)	Return on Investment	Months	Annual Return on Investment
1a. Input Supply Seed (Mukwano)					
Hybrid Seed (transport and handling included)	(14.0)				
Commercial Finance (sourced off shore)	0.0				
Seed Price	14.0	0	0	1	0
1b. Other Inputs (Stockist)					
DAP	(19.5)				
Urea	(36.0)				
Round Up Herbicide	(6.7)				
Transport	(1.0)				
Handling	(0.3)				
Overhead (rent and utilities)	(0.5)				
Commercial Finance (1.83%/month + 2% Commitment Fee)	(1.3)				
Total Cost of Inventory	(65.3)				
Input Price	72.5	7.2	11%	1	132%
2. Production					
Hired Labor	(84.0)				
Ploughing Services	(55.0)				
Purchased Inputs	(86.5)				
Commercial Finance (50% of production costs, 4%/month + 2% Commitment Fee)	(20.3)				
Total Costs of Production	(245.8)				
Farmgate Price	350.0	104.2	42%	4	127%
3. Transport and Handling (Mukwano Agents)					
Transport and Handling	(20.0)				
Trade Finance (prefinance from Mukwano)	0.0				
Subtotal Transport and Handling Local	(20.0)				
Total Farmgate, Transport and Handling Local	(370.0)				
Price in Store (Mukwano)	400.0	30	8%	0.5	195%

Notes:

- Inputs are in two categories, the first is seed provided by Mukwano Industries at cost; the second is pesticides and fertilizers sold by private stockists.
- End-market price is based on Mukwano Industries forward contracted price of 350 UGX/kg. This price is guaranteed to producers by Mukwanon contract before planting and is paid out in cash at time of delivery to Mukwano's buying agents.
- Production finance is based on CERUDEB's current lending product for new borrowers of relatively small amounts. The loan product covers 50% of production costs, is priced at 4%/monthly, requires an upfront 2% commitment fee and is repaid after 4 months. This loan scenario is largely hypothetical because CERUDEB does not currently lend for this crop.

- Transport and handling are done by Mukwano agents for a fixed commission of 30 UGX/kg. Farmers have the option of delivering directly to Mukwano warehouses and capturing this 30 UGX/kg themselves.

Commercial case scenario in Lira

The following value chain is identical to the previous value chain except that financing terms are based on prevailing commercial rates versus conventional CERUDEB agricultural lending rates.

Sunflower Value Chain Map					
Based on Lira commercial farmers with a good credit history, Uganda average financing, Mukwano and other input suppliers and Mukwano wholesale purchasing.					
Category of transaction	Value (UGX/kg)	Value Added (UGX/KG)	Return on Investment	Months	Annual Return on Investment
1a. Input Supply Seed (Mukwano)					
Hybrid Seed (transport and handling included)	(14.0)				
Commercial Finance (sourced off shore)	0.0				
Seed Price	14.0	0	0	1	0
1b. Other Inputs (Stockist)					
DAP	(19.5)				
Urea	(36.0)				
Round Up Herbicide	(6.7)				
Transport	(1.0)				
Handling	(0.3)				
Overhead (rent and utilities)	(0.5)				
Commercial Finance (1.83%/month + 2% Commitment Fee)	(1.3)				
Total Cost of Inventory	(65.3)				
Input Price	72.5	7.2	11%	1	132%
2. Production					
Hired Labor	(84.0)				
Ploughing Services	(55.0)				
Purchased Inputs	(86.5)				
Commercial Finance (50% of production costs, 1.83%/month + 1% Commitment Fee)	(9.4)				
Total Costs of Production	(234.9)				
Farmgate Price	350.0	115.1	49%	4	147%
3. Transport and Handling (Mukwano Agents)					
Transport and Handling	(20.0)				
Trade Finance (prefinance from Mukwano)	0.0				
Subtotal Transport and Handling Local	(20.0)				
Total Farmgate, Transport and Handling Local	(370.0)				
Price in Store (Mukwano)	400.0	30	8%	0.5	195%

Notes:

- Inputs are in two categories, the first is seed provided by Mukwano Industries at cost; the second is pesticides and fertilizers sold by private stockists.
- End-market price is based on Mukwano Industries forward contracted price of 350 UGX/kg. This price is guaranteed to producers by Mukwano on contract before planting and is paid out in cash at time of delivery to Mukwano's buying agents.
- Production finance is based on average commercial lending rates. The loan product covers 50% of production costs, is priced at 1.83%/monthly, requires an upfront 1% commitment fee

and is repaid after 4 months. This loan scenario is hypothetical but presented for review and consideration.

- Transport and handling are done by Mukwano agents for a fixed commission of 30 UGX/kg. Farmers have the option of delivering directly to Mukwano warehouses and capturing this 30 UGX/kg themselves.

Transaction Points, Risks and Opportunities

As in the value chain analyses for maize above, there is a table of transaction points, risks and opportunities covering the sunflower value chains. However, to better explain the opportunities, the authors will take some time here to present more thoroughly this under-financed, yet high profit and low risk financing opportunity.

Agribusiness is, by nature, a risky investment. There are several conditions, which once met, mitigate the risks to a reasonable degree. These conditions include: guaranteed market, reliable input supply, skilled production management and short production and marketing cycle. Sunflower production for Mukwano's out grower scheme fulfils all of these conditions. Mukwano provides hybrid seed to farmers at cost, offers a forward contract which is paid in cash on delivery, offers transport for the product and has its own extension agents. Other than seed, the required inputs are not unusual and are widely available from local stockists. The producers themselves have been trained in sunflower production. The cycle for production and marketing is a short 4 months and eliminates the need for temporal arbitrage by the producers because the crop is sold forward.

The value chain for this crop is both short in numbers of actors and short in time. This creates both positive and negative factors in comparison to other crops. On the positive side, the scope of control is much tighter as one of the input suppliers, the transporters and the final buyer are all identified and are, in fact, the same strong body. The negative aspect of this is that there are few opportunities to finance along this value chain with the exception of input suppliers and producers.

One problem that requires careful consideration is the problem of producer scale. In general, producers of this commodity are working on a scale between one and five acres. Treated as individual units, the loan size to any given farmer would be between 100,000 and 500,000 UGX (based on financing 50% of the production costs). This is commercially uninteresting as the costs to administer such a loan would be prohibitive for the lender. However, producers cultivate contiguous plots, access inputs and provide deliveries in clusters, and moreover 50% of the loan is meant to be expensed on inputs and mechanized ploughing. This creates an opportunity whereby the lender could lend to the producers in kind as a group, by financing large input dealers and large tractor rental services. The fact that producers are clustered creates an easy opportunity for a large input or service provider to service them efficiently. Farmers can then assign their forward contracts to the lender; Mukwano will deduct the repayments from the cash payments due producers, repay the lender and then pay the balance due to producers in cash.

The table below indicates many of the risks at each transaction point along this value chain and proposes opportunities for analysing and mitigating these risks in order to make sound lending decisions and enable the capture of profit opportunities.

Transaction Point: Input Supply	
Risks	Opportunities
Retail price fall due to competition because margins are thin.	Short-term lending product of only one to two months to limit the exposure of the lender.
Transaction Point: Production	
Risks	Opportunities
Inputs for production are late or inadequate.	Short-term lending product of only one to two months to limit the exposure of the lender.
Farm gate price is below COP.	Forward contracting by major buyers, for example Mukwano, guaranteeing price and quantity prior to planting. Donor financed credit guarantee facilities.
Loan term is longer than production and marketing cycle.	Adjust the term of the loan product to match the seasonal production and marketing cycle (a 4 month loan for sunflower is less risky than a 12 month loan though it is less profitable).
Yield is lower than expected.	Design the loan product to pre-finance only a portion of the total COP (the examples above reflect 50% financing of all production costs).
Output may be sold to a non-financing buyer, leading to loan default.	Lend only to producer where there is only one buyer for their product (such is the case with Mukwano).
Financed inputs are purchased and provided but, producers don't produce sunflower and the loan cannot be recovered.	Lend only to producers who are monitored by buying agents whose income is tied to sourcing the producer's product (such is the case with Mukwano).

Cotton Value Chain Analyses

The following two scenarios are unique in approach from those presented earlier in this document. The previous examples vary the cost of finance to the producer (conventional CERUDEB rates versus conventional commercial rates when the risk profile justifies lower cost finance). The cotton scenarios both consider CERUDEB type rates but the comparison is between the existing value chain and a value chain that considers reducing ginnery subsidy and passing that subsidy to producers in order to make producers more bankable.

Commercial case scenario in Nyakatonzi (Kasese)

This map is based on small Nyakatonzi commercial farmers, financing similar to CERUDEB terms, cotton seed being provided free by ginners, and other input suppliers providing fertilizers and pesticides. Figures are quoted in UGX/kg of cotton.

Cotton Value Chain Map-Nyakatonzi					
Based on newly-financed Kasese commercial farmers with CERUDEB financing					
Category of transaction	Value (UGX/kg)	Value Added (UGX/KG)	Return on Investment	Months	Annual Return on Investment
1a. Input Retail (supplied by Ginners)					
Cotton Seed (provided free from previous harvest)	0.0				
Roundup, Cypermethrin, Dymethoate	(25.2)				
Commercial Finance (1.83%/month + 2% Commitment Fee)	(0.5)				
Total Cost of Inventory	(25.7)				
Input Price	27.6	1.9	7%	1	89%
2. Production					
Planting Labor	(15.0)				
Thinning Labor	(5.0)				
Weeding Labor	(40.0)				
Spraying Labor	(7.5)				
Harvesting Labor	(50.0)				
Ploughing Services	(50.0)				
Purchased Inputs	(119.6)				
Transport to Buying Center	(6.0)				
Commercial Finance (50% of production costs, 4%/month + 2% Commitment Fee)	(38.1)				
Total Costs of Production	(331.2)				
Farmgate Price	350.0	18.80	6%	8	9%
3. Transport and Handling Ginners Agents					
Transport	(10.0)				
Handling	(2.0)				
Trade Finance (3%/month flat)	(0.5)				
Subtotal Transport and Handling Local	(12.5)				
Total Farmgate, Transport and Handling Local	(362.5)				
Price in Store (Kasese)	400.0	37.46	10%	1.5	83%
4. Ginneries					
Buying price for raw cotton	(400.0)				
Ginning Loss for lint (3 kg raw = 1 kg lint)	(800.0)				
Ginning Handling	(31.1)				
Ginning Overhead	(75.8)				
Ginning Financing	(57.2)				
CDO Cess	(12.4)				
Development Fund	(50.0)				
Subtotal Transport, Processing and Handling	(1426.5)				
Income from cotton seed (3 kg raw = 2 kg seed)	240.0				
Government subsidy (50 UGX/kg raw cotton)	150.0				
Net cost to Ginnery	(1036.5)				
Price to Ginners for Lint (FOT Ginnery)	1,631.9	595.4	57%	2	345%

Notes:

- Inputs are in two categories, the first is seed provided free by ginners and the second is fertilizers and pesticides sold by private traders.
- End market price is based on last year's guaranteed minimum of UGX 350/kg and is paid out in cash upon delivery to ginners' agents.
- Production finance is based on CERUDEB's current lending product for new borrowers of relatively small amounts. The loan product covers 50% of production costs, is priced at 4%/monthly, requires an upfront 2% commitment fee and is repaid after 8 months. This loan scenario is largely hypothetical because CERUDEB does not currently lend for this crop. This, of course, makes sense when viewing the extremely thin margin.
- Transport and handling are managed by buying agents who receive a flat UGX 50/kg for providing this service.

Commercial case scenario in Nyakatonzi (Kasese) with Cess and Development Fund Levy Eliminated

In the previous scenario it is relatively clear that cotton production was unbankable under the current financing strategies and the 2004 pricing policies. Setting prices approximately equal to the costs of production creates a serious disincentive for producers to grow and further limits input (and hence scale efficiencies) to ginners.

The following scenario adjusts the price for raw cotton from the producer to the ginner; eliminates the cess and development fund levy; and adjusts the ginners' price and the exchange rate to reflect 2005 pricing. The financing strategy for producers is the same as the previous scenario.

Cotton Value Chain Map-Nyakatonzi					
Based on newly-financed Kasese commercial farmers with CERUDEB financing					
Category of transaction	Value (UGX/kg)	Value Added (UGX/KG)	Return on Investment	Months	Annual Return on Investment
1. Input Retail (supplied by Ginners)					
Cotton Seed (provided free from previous harvest)	0.0				
Roundup, Cypermethrin, Dymethoate	(25.2)				
Commercial Finance (1.83%/month + 2% Commitment Fee)	(0.5)				
Total Cost of Inventory	(25.7)				
Input Price	27.6	1.9	7%	1	89%
2. Production					
Planting Labor	(15.0)				
Thinning Labor	(5.0)				
Weeding Labor	(40.0)				
Spraying Labor	(7.5)				
Harvesting Labor	(50.0)				
Ploughing Services	(50.0)				
Purchased Inputs	(119.6)				
Transport to Buying Center	(6.0)				
Commercial Finance (50% of production costs, 4%/month + 2% Commitment Fee)	(38.1)				
Total Costs of Production	(331.2)				
Farmgate Price	440.0	108.80	33%	8	49%
3. Transport and Handling Ginners Agents					
Transport	(10.0)				
Handling	(2.0)				
Trade Finance (3%/month flat)	(0.5)				
Subtotal Transport and Handling Local	(12.5)				
Total Farmgate, Transport and Handling Local	(452.5)				
Price in Store (Kasese)	490.0	37.46	8%	1.5	66%

4. Ginneries					
Buying price for raw cotton	(490.0)				
Ginning Loss for lint (3 kg raw = 1 kg lint)	(980.0)				
Ginning Handling	(31.1)				
Ginning Overhead	(75.8)				
Ginning Financing	(57.2)				
CDO Cess	0.0				
Development Fund	0.0				
Subtotal Transport, Processing and Handling	(1634.1)				
Income from cotton seed (3 kg raw = 2 kg seed)	240.0				
Government subsidy (50 UGX/kg raw cotton)	150.0				
Net cost to Ginnery	(1244.1)				
Price to Ginneries for Lint (FOT Ginnery)	1,953.6	709.5	57%	2	342%

Notes:

- Inputs are in two categories, the first is seed provided free by ginneries and the second is fertilizers and pesticides sold by private traders.
- End market price is based on last year's guaranteed minimum of UGX 350/kg and is paid out in cash upon delivery to ginneries' agents.
- Production finance is based on CERUDEB's current lending product for new borrowers of relatively small amounts. The loan product covers 50% of production costs, is priced at 4%/monthly, requires an upfront 2% commitment fee and is repaid after 8 months. This loan scenario is largely hypothetical because CERUDEB does not currently lend for this crop.
- Transport and handling are managed by buying agents who receive a flat UGX 50/kg for providing this service.

Comparison of Scenarios

The two scenarios taken together necessitate a discussion of equity in the existing value chain. It is clear from the first scenario that under the current norms for farm gate pricing and production finance, cotton production is unbankable. Artificially thin margins lead to disincentives to produce, low volumes of raw cotton delivered to ginneries; and ultimately, to high per unit ginning costs. Input retailers, output buying agents/transporters and ginneries all enjoy excellent to extraordinary profits. Producers, on the other hand, barely cover costs.

The ginnery members of the Cotton Development Organization (CDO) pay a cess and a development levy on each kg of raw cotton that is equal to UGX 62.4. This cost is passed on to producers and, logically, depresses their farm gate price by the same amount. Arguably producers receive no benefit for paying this cost and ginneries are better positioned to pay the cost (or even forego the cost).

The second scenario demonstrates that by eliminating this cost; adjusting the FOT Ginnery Price to reflect current 2005 prices and exchange rates; raising the farm gate price by UGX 90, leads to exactly the same margins for input suppliers and ginneries while raising the return on investment from producers from 6% to 33%. This effectively makes these producers bankable, encourages production and increases scale efficiencies for ginneries. The reader will note that buying agent/transporters return decreases but the margins remain the same (UGX 50/kg).

Transaction Points, Risks and Opportunities

Having explained the two scenarios and the logic behind them, the table below indicates many of the risks at each transaction point along this value chain and proposes opportunities for analysing and mitigating these risks in order to make sound lending decisions and enable the capture of profit opportunities.

Transaction Point: Input Supply	
Risks	Opportunities
Retail price fall due to competition because margins are thin.	Short-term lending product of only one to two months to limit the exposure of the lender.
Transaction Point: Production	
Risks	Opportunities
Inputs for production are late or inadequate.	Monthly phased disbursement lending product to limit the exposure of the lender.
Farm gate price is below COP.	Monitor minimum prices announced by CDO. Donor financed credit guarantee facilities.
Loan term is longer than production and marketing cycle.	Adjust the term of the loan product to match the seasonal production and marketing cycle.
Yield is lower than expected.	Design the loan product to pre-finance only a portion of the total COP (the examples above reflect 50% financing of all production costs). Opt for loans based on ginnery receipts so as to lend only post harvest.
Operational acreage borrowed for is not realized.	Design the loan product to disburse in phases where financing is only released as key tasks in the production and marketing cycle are realized.
Transaction Point: Buying Agents/Traders	
Risks	Opportunities
Transport is inadequate.	Offer finance and/operating leases for trucks. Make contracted transport a prerequisite for the loan contract.
Price is below cost of procurement.	Finance only against forward contracts provided in advance of borrowing from regional traders. Price insurance products (not yet developed) compensating for low price years from earnings of high price years through a commercial insurer. Opt for loans based on warehouse receipts so as to lend only post delivery.
Transaction Point: Ginneries	
Ginneries secure financing at low rates against international, dollar denominated, forward contracts. Few, if any, financing opportunities exist.	

CONCLUSIONS

Clearly, financing agriculture is perceived by most as a risky proposition. Each of the previous value chains have given two scenarios, the first reflecting current reality and the second reflecting feasible changes that would make financing more feasible and less risky. The basic concepts are: 1) each step in the chain must be capable of earning a reasonable return in order to merit financing; 2) each higher level in the value chain relies on adequate supply coming from the previous level; and 3) predictable terminal markets should give comfort to lenders for financing previous steps in the chain.

It is worth noting that there exist many low risk, short term lending opportunities in transport, processing, marketing, input supply, etc. that have until now received little attention from legitimate lenders. These opportunities are not farmer-financing but by increasing efficiencies in input and output markets, production is clearly encouraged. Risks are further lowered by the fact that many of these opportunities are self-collateralized and would-be borrowers are capable of securing loans with fixed assets.

It is further worth noting that there exist several opportunities to finance production where input and output markets are both well-understood and guaranteed. Clearly, the case of sunflower producers in Lira merits a closer look by legitimate lenders.

Much scope exists for financing innovations such as warehouse receipts for maize producers and traders, structured finance for sunflower producers and, potentially, forward contracts for cotton producers. Such opportunities for innovation likely also exist for other crops not covered under the scope of this brief study.

Principal guarantees exist from donor programs, such as Rural SPEED and DANIDA ASPs to encourage agricultural finance. As such, perceived risk profiles of loan opportunities reviewed in this document can be improved with guarantees.

Finally, in order to appropriately ensure a sound, private sector approach to agricultural finance, this study must recommend that some policy changes are necessary. The Government of Uganda has made a good first step by eliminating taxation on income derived by lenders from agricultural finance. Other steps would encourage greater levels of credit to all points in the agricultural value chain such as: re-evaluating the price setting and subsidy mechanisms for cotton; revisiting the leasing laws to pass tax benefits to lessors; and, avoiding prescriptive low cost, and unsustainable, subsidized financing to agriculture which can undermine the existing sustainable efforts by lenders already engaged in these markets.