



From	Agri Knowledge Centre
To	EMT Members, Agri Commercial Officers
Location	Kigali
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Subject	Sector Document for Banana – Final
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1. Summary – Quick Guide Banana Sector

Fact and figures:

	Fresh	Beer and Wine
Yield in tons per ha	19 per year	
Total hectare	170.000	
Total production	3 mln kg	
Cost in RWF	85 / kg	555/litre
Price in RWF	60 -160 /kg	750/litre
Plants per ha	1600	
Harvest	Feb-Mar and Sept-Okt	

- 90% of the households in Rwanda grow bananas on small plots.
- The most important varieties of banana are the green banana (95%) for cooking and processing and sweet banana (5%) for fresh consumption.
- Banana plants are planted in the rain seasons. It takes 12 to 16 months to harvest for the first time. Every 6 months a new sprout can be kept.

Main risks:

- Lack of professionalism among small scale banana growers
- Too many small players lacking market power.
- Multiple diseases (bacterial wilt, fusarium and viruses)
- Heavy rain and wind can damage the crops.
- Lack of bottles and faults in processing

Financing opportunities:

For the small growers and cooperatives the financing opportunities are limited. However, more professional cooperatives and processors who can improve the performance of the sector arise fast, increasing the financing opportunities.

Some cooperatives with processing activities need finance for raw material collection and asset finance. However, they are too small to provide these products, but a working capital facility could be a solution.

Save for a Loan: Individual banana growers who work on a small scale and need working capital can use this type of loan.

Input finance: Professional banana growers and cooperatives may need input finance for plants, fertilizer, labour and costs of land.

Asset finance: Processors need buildings and equipment. Cooperatives or processors may need vehicles for collecting and transporting.

Raw material collection finance: can be an opportunity when cooperatives professionalise and start selling to reputable traders and processors.

2. Introduction

Banana is one of the major crops in horticulture in Rwanda used as cash and food crop. The consumption of bananas in Rwanda is one of the highest in eastern Africa, it was around 258 kg per capita per year in 2000 (MINagri 2012).

Bananas are grown by 90% of the households mostly at small plots and not in a professional way. It is difficult to get the exact figures about the total area with bananas but is roughly 170.000 ha and occupies 19% of arable land in Rwanda. From 2004 to 2010, production of banana reported a modest increase of 1.8 per cent per year (RAB, 2012).

Although banana cultivation occupies a lot of land, average yields of banana are low (19 tons per hectare per year) and bananas are cultivated in subsistence systems with low input and output (RAB, 2012).

The total production (3mln tons / year) is not enough for the national consumption of bananas, so there is some import of bananas from neighbouring countries (RAB, 2012).

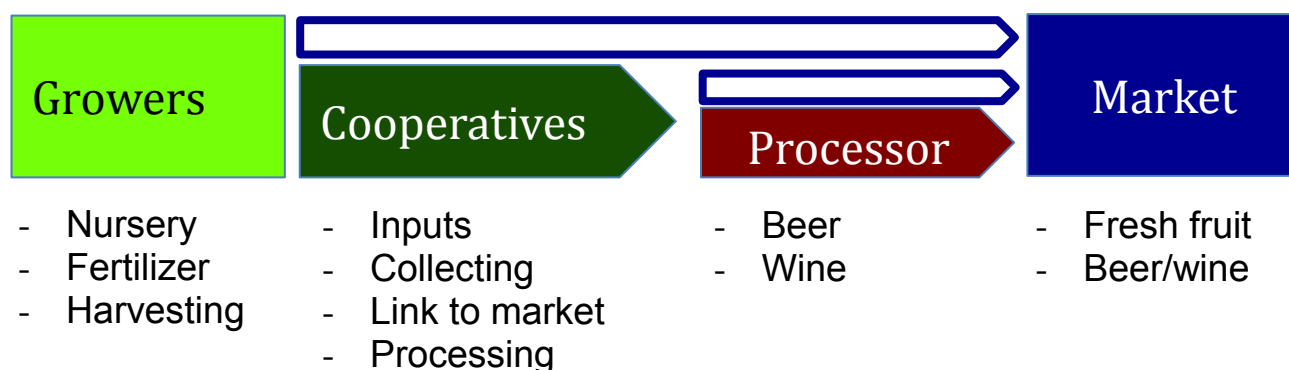
Bananas are grown all over the country but mostly in the eastern region and in the western and northern parts (RDB, 2010).

Considering the importance of the banana crop and its potential for production and marketing, the Ministry of Agriculture and Animal Resources are committed to develop a national banana Programme with emphasis to improve production, marketing and diversify use of banana in Rwanda.

Many varieties of bananas are grown in Rwanda. The most important are the green banana for cooking and processing into wine and beer and the sweet banana for fresh consumption and even exporting. The total production is divided in 5% sweet bananas and 95% green bananas. NAEB stimulates to increase the production of sweet banana for export. To protect the quality standard the growers needs a certificate of the Rwandan Bureau of Standard to export.

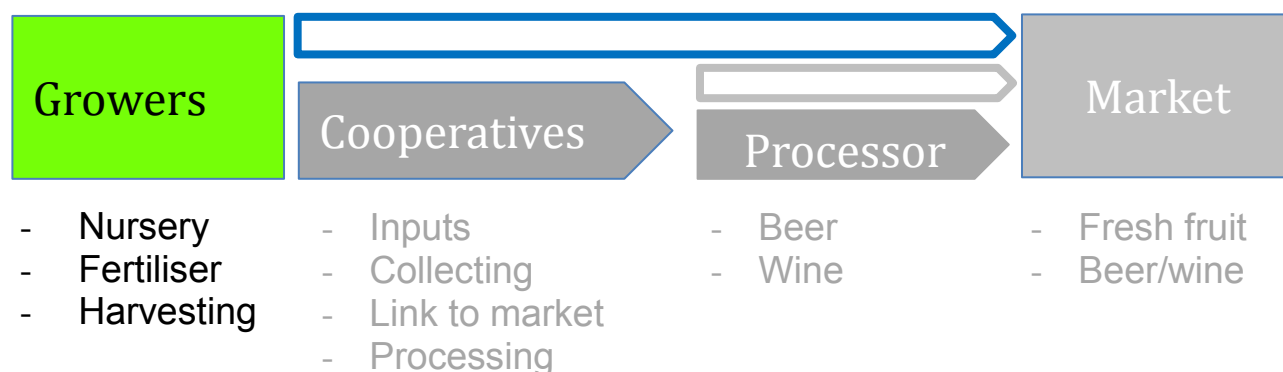
This sector document mainly pertains to green banana. At this moment the scale of growing sweet banana is too small. There is a certain potential for sweet bananas, especially for the export market.

3. Banana Value chain



The banana value chain is in general very simple and short. Many of the small growers sell their bananas on the local market. Some growers are united in cooperatives as well. These cooperatives link the growers to a processor or the local market and there are cooperatives that process the bananas to wine or beer themselves. Only a small part of the sweet bananas are exported to the Middle East and Europe.

a) *Banana growers*



Bananas are grown by 90% of households mostly at small plots and not in a professional way. In this document we focus on the bigger grower, although most of them are still small farmers (2-3ha.). The standard for growing bananas in general is still very poor with low inputs and low outputs. Some bigger farmers grow bananas in a more professional way and with the right inputs they multiply the average yield.

The crop:

To start a new crop of bananas, most growers take splits of existing plants. Another way is to start with seedlings or even tissue culture. The tissue culture is a new development. In 3 – 4 years there will be sold 3 – 4 mln of these plants every year. That's enough to plant 2200 ha. The advantage of tissue culture is a disease free start and exact copies of the wanted variety.

The distance between plants typically varies from 2,5 m x 2,5 m to 3 m x 4 m. and the amount of plants varies between 830 to 1600 per ha. Less plants per

ha means less but bigger and heavier bunches from each plant. More plants means more but smaller bunches. Also the variety could make a difference in the optimal number of plants per ha. The total production per ha could be the same in both distances between the plants.

Planting bananas can be done around the year, but the best time is in the rain seasons. A banana plant makes continues new sprouts, which should be eliminated. After six month only one sprout will be kept. This will be the new plant. It takes 12 till 16 months to harvest for the first time. After harvest the first plant dies and the sprout will be the new plant. Six months after keeping the first sprout another sprout will be kept. So every six months there will be a harvest. There is no real harvest season, but the production in the dry season is higher than in the rain season.

The lifetime of this cycle of growing bananas in this way could be 20 – 30 years. Even when the plants are maintained perfectly, production will decrease and there will be better varieties on the market. To keep the plant fertile and gain better varieties the lifetime of the cycle of growing bananas should be limited. There are good production figures reported by a farmer that replace the banana plants every 24 months (after 4 times harvest).

The yield varies extremely from 2 tons per ha per year to 60 tons per ha per year. The average yield for the whole country is 19 tons / ha per year. The difference in production is a good indication of the professionalism in the banana growing. Bigger farmers in eastern province have an average yield of 20 tons / ha / year and in other parts of Rwanda 12 tons / ha / year. The main reason for this difference is maintenance of the banana crop. Especially the care for the soil (covering with grass) and the use of fertilizer are very important. A farmer can use organic fertilizer (manure) and / or chemical fertilizer (NPK). Per ha 15 - 25 tons manure can be used. Besides this, the focus of the farmer is important. Sometimes farmers combine the banana crop with cultivating beans, this decreases the banana production. Well maintaining the crop strongly reduces the chance of diseases.

The cost price is mainly formed by cost of land, labour, maintain the soil, fertilizer and transport and is approximately RWF 85 per kg.

Key issues in growing bananas are:

- Focus and professionalism of the grower
- Maintenance of the soil
- Use of fertilizer

Key risks in growing bananas are:

- Risk: diseases
 - Bacterial wilt
 - Fusarium
 - Virus
 - Mitigant: keep the crop healthy. Every RWF spend at fertilizer or pesticides gives 20 RWF more yield.
- Climate: heavy rains and wind damages the crop

b) Cooperatives



There is an enormous diversity in banana cooperatives. The cooperatives vary from small cooperatives only processing wine or beer to very big cooperatives that provide their members with services like offering inputs, collecting harvest, training, advising and linking growers to market.

There are also cooperatives who process the harvest from their members. They make beer or wine. These cooperatives buy the whole harvest of their members and pay their members a fixed price for this harvest.

Other cooperatives provide other services to their members. Some provide seeds to their members for free and thereby obligate the growers to supply their harvest to the cooperative. Other cooperatives also provide training and advice to their members to help them increase their yield.

The most important role is linking the grower to the market. In contrast with the role of cooperatives in some other crops, cooperatives in bananas don't collect the total harvest and don't sell it to the market. The cooperatives only link the growers to the market and negotiate the price. The cooperative is known for quality and quantity, so off takers come to the cooperative and then the cooperative brings the off taker to the individual farmer. The off taker pays the cooperative who, in turn pays the farmer. The most important role for the cooperative is fixing the price so the farmers are not competing with each other. The cooperative earns RWF 5 / kg for their services.

It's interesting why banana cooperatives don't collect and sell the whole production of their members, like cooperatives in other crops. Linking the growers to the market only, give the cooperatives less power to the market. The reason why the banana cooperatives act like this, can be found in the lack of big processors and traders. So the cooperatives have to deal with a lot of small off takers and it is difficult for the cooperatives to increase their bargaining power in the market. In the future this can change and may result in opportunities for the cooperatives to increase their bargaining power and to work with off-take contracts.

Key issues for banana cooperatives are:

- Contact with the market
- Negotiate the price

- Lots of small traders
- Quality of supply by the members

Key risks for banana cooperatives are:

- Lack of bargaining power in the market
- Quality of supply

c) Processing



Processors of bananas are mostly small cooperatives that process bananas into banana wine and beer. The processor is supplied by the cooperative members or other growers mostly for a fixed price (RWF 60 – 100 / kg).

A small size banana beer processing machine costs approx. RWF 6,5 mln. Processors organise transport of fresh bananas to the factory and the transport of the beer and wine to local markets.

Producing banana wine takes approx. 6 months and banana beer approx. 3 months and the main difference between banana beer and wine is the percentage of alcohol. 100 kg of fresh banana gives 60 litres of banana beer.

The total cost of production banana beer per bottle (33ml) is RWF 185
One bottle (33ml) sells for around RWF 250 (1 ltr is RWF 750)

The market for banana beer and wine is good. At this point in time, the processors don't have any problems to sell their production on the market. Processors can get a quality certificate of the Rwandan Bureau of Standards to improve their position vis-à-vis other competitors and to be able to export their produce.

One of the main problems for processors is the availability of bottles. There is no bottle factory in Rwanda and importing bottles is too expensive for most processors. As a solution processors collect and wash regular beer bottles from other companies, this is not legal and some cooperatives have already been taken to court by a major beer producer.

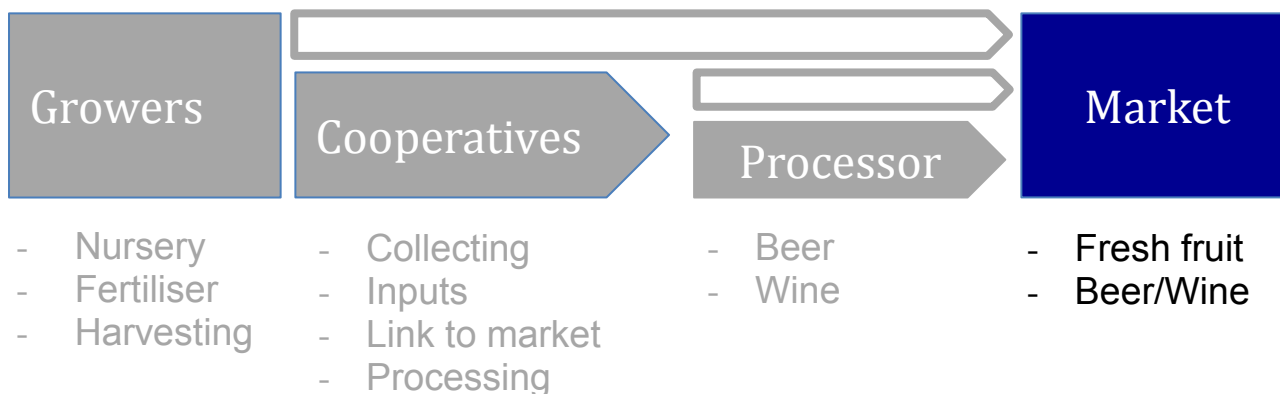
Key issues for banana processors are:

- Availability of bottles
- Quality of the beer and wine

Key risks for banana processors are:

- Hygienic faults in processing
- Comply to hygiene standards
- Limited availability of bottles

d) Market



Market for fresh bananas.

At this point in time, the main market for selling fresh bananas is the local market. People use bananas for cooking as part of their daily meals.

The total consumption of bananas in Rwanda is higher than the total production, so Rwanda imports bananas from neighbouring countries.

The selling price of fresh bananas on the local market varies a lot between seasons. During the wet season the price on the local market can be high as RWF 130 to 160 / kg and in the dry season the price drops to RWF 60 to 100 / kg. Storage of fresh bananas is difficult and needs special treatments. These treatments are mainly used in other countries where they transport bananas by boat to export markets. In Rwanda are no storage facilities for bananas known, but storing can give extra profit when cooperatives gain the price difference between the dry and wet season provided the quality can be maintained.

Farmers who supply cooperatives for processing bananas into beer and wine get a fixed price of RWF 100 / kg. For fresh bananas there are many producers / sellers and buyers and almost none of them work with contracts. If cooperatives develop themselves into larger and more professional cooperatives they can increase market power.

There is some export of the sweet banana to the Middle East and Europe. It's difficult to export a good quality, because of the thin peel of the sweet banana.

Key issues for fresh banana market are:

- Many producers / sellers and many buyers so it's difficult to become some market power
- Still some import of fresh bananas

Key risks for fresh banana market are:

- Too many players
- Transportation (costs and decrease of quality)

Market for banana beer and wine.

The local market for banana beer and wine is good. Processors can't fulfil the demand of the local market. There is almost no export of banana beer. Some banana wine is exported to Belgium, France and the Netherlands.

Main problem for the small cooperatives in increasing the production of beer and wine is working capital to pay farmers for their products and to buy bottles.

The quality of beer and wine is important for competition. Processors can get a quality certification of the Rwandan Bureau of Standards.

Key issues for banana wine and beer

- Strong market for banana beer and wine
- Many providers and many buyers (many growers work individually and therefore do not have much market power).

Key risks for banana wine and beer

- Transportation cost

4. Financing Needs

Today the banana sector consists of lots of small players, in growers, cooperatives and also processors and traders. This means that the financing opportunities are limited at this moment, but development seems to go fast. The banana sector needs an upscale to more key players to improve the performance of the sector and get more bargaining power on the banana market. Stronger cooperatives are necessary. Furthermore, collaboration between growers, cooperatives, processors and traders will increase the possibilities of financing. Growers with larger banana plantations and even more important cooperatives need input finance. More professional cooperatives can use raw material collection finance. Processors need asset finance and possibly inventory finance. If the development of storage of fresh bananas is profitable, there are opportunities for asset and inventory finance.

All financing opportunity in the banana business should be considered on the basis of the cash flow that will be generated.

a) Save for a Loan

Small scale farmers continue to struggle for the finance they need to increase the yield. Small scale farmers, who require finance to buy inputs, are often required to borrow against collateral, which they simply do not have. As a solution BPR has developed a finance solution: Save for a Loan, to provide small farmers a working capital facility. For more information read the product proposal: Agriculture Save for a Loan.

b) Input finance

For a start-up project there is an opportunity to finance input. The first yield is probably not enough to pay the input finance complete back and is also needed to bridge the input costs to the second harvest, 6 months later. So there could be a need for input finance with two pay back moments: the first half after 12 – 16 months and the second half after 18 – 22 months. Larger banana plantations and more professional growers need input finance for plants, fertilizer, labour and costs of land.

c) Asset finance

For processing bananas into beer and wine there are asset needs. At factory level, asset finance requirement can be very significant for buildings and equipment. A cooperative or processor can also need transport vehicles for collecting bananas, transport to the factory and transport beer and wine to their off takers.

d) Raw material collection finance

When development in serious and more professional cooperatives takes shape and they start to collect bananas to sell them to larger and therefore more important counterparties like traders or processors, there are opportunities for raw material collection finance.

5. Strength, Weaknesses, Opportunities & Threats (“SWOT”)

<u>Strengths</u> <ul style="list-style-type: none">- Suitable soil & climate- All-year round production- Introduction of tissue culture (free of diseases)- Bananas are important part in daily meals	<u>Weaknesses</u> <ul style="list-style-type: none">- Lots of small producers- Role of cooperatives is limited to linking grower and market- Lack of “cooperative” experience and professionalism- Using (recycling) regular beer bottles- Low yields of fresh bananas
<u>Opportunities</u> <ul style="list-style-type: none">- Total consumption is more than total production- Possibilities to export sweet bananas- Increase export banana wine and beer- Easy possibilities to increase yields- High demand market for banana wine and beer	<u>Threats</u> <ul style="list-style-type: none">- Transport costs to market- Import from neighbouring countries

6. Risks

The risks related to the banana sector financing depend on the stage of the value chain being financed. The tables below summarises the main risks and some of the possible mitigants for each type of financing.

a) Save for Loan

The save for loan system is fully automatic and there should be no need to add extra mitigants next to the normal precautions. See product description.

b) Input Finance

Risk	Description	Mitigants
Usage	- Risk that the funding is not used for the purchase of inputs in the agreed manner.	- Financing of only professional growers with a good track record - Pay supplier directly - Visit the grower regularly
Performance	- Risk that the banana plantation does not achieve expected yields and quality levels (e.g. no good farm management or external sources).	- Assume conservative performance figures based on track record of past years. - Financing of only professional growers with a good / adequate track record
	- Climate risk	- Input insurance
Market	- Risk that the grower is unable to sell its bananas	- Off-take agreement between grower or cooperative and trader. - Member of a cooperative and proven success of this cooperative to link growers and market - Possibility to sell to other buyers
Price	- Risk that the price of fresh bananas is lower than expected	- Off take contracts with fixed price
Payment	- Risk that the financing is not repaid as agreed	- Repayment should be on basis of payments for fresh bananas received from the cooperative or trader through a BPR client account

b) Asset Finance

Risk	Description	Mitigants
Usage	- Risk that the funding is not used for buying the assets.	- Disburse on the basis of the invoice value on basis of showing the invoice.
Performance	- Risk that the banana	- Financing of professional

	plantation (or processing factory) does not achieve expected yields/production and quality levels (for instance due to mismanagement or unforeseen external reasons).	plantations or processing factories with an acceptable track record - Assume conservative performance figures based on track record of past years.
Market	- Risk that the cooperative / processor is unable to sell its bananas / wine or beer	- Off-take agreement between cooperative and trader. - We feel this risk for bananas is relatively low since the market for bananas is extensive and it's easy to find another trader.
Price	- Risk that the price of fresh bananas, wine or beer is lower than expected	- Off take contracts with fixed price
Payment	- Risk that the financing is not repaid as agreed	- Payment must be made through borrower's account with BPR

c) Raw material collection finance

Financing solution for cooperatives (large scale buyers), which have a trade relationship with a reputable off-taker and / or a credible reputation on past records.

Risk	Description	Mitigants
Usage	- Risk that the funding is not used in the agreed manner.	- Financing of only professional cooperatives with a creditable track record. - Payment to cooperatives and growers must be done on BPR accounts
Performance	- Risk that cooperative is not managed correctly and is not successful in collecting the banana's and selling it to their off-taker	- Only provide these facilities with cooperatives with a good track record - Assume conservative performance figures based on track record of past years.
Market	- Risk that the cooperative is unable to sell its fresh bananas	- The market for bananas is extensive and it's easy to find another trader
Price	- Risk that the price for the fresh bananas is lower than expected	- Cooperative should work with an off-take contract - Conservative financing on the basis of the price of the off-take contract.
Payment	- Risk that the financing is not repaid as agreed	- Payment to cooperatives and growers must be done on BPR accounts

