



THE PEOPLE'S BANK

Banki yacu, Hafi yacu.

|                 |  |
|-----------------|--|
| <b>From</b>     | <b>Agri Knowledge Centre</b>                         |
| <b>To</b>       | <b>EMT Members, Agri Commercial Officers (ACO's)</b> |
| <b>Location</b> | <b>Kigali</b>  |
| <b>Date</b>     | <b>1 August 2012</b>                                 |
| <b>Subject</b>  | <b>Sector Policy for Beans 2012 – Final</b>          |

## 1. Summary – Quick Guide

### **Value chain:**

- Production cost RWF 100-120/kg or RWF 100-120,000/ha for traditional varieties.
- Average yield are 700 to 1,000kg/ha for traditional varieties.
- Farmers using selected improved climber varieties with adequate stakes and production techniques can reach yields of 2,5 – 3,5MT/ha, but they are exceptional.
- Market value is relatively stable (dependant on seasonality of production and overall crop performance but limited influence of neighbouring countries due to competitive cost of production of Rwanda) RWF 260-320/kg for consumption beans and RWF 400-450/kg for seed material. For current prices please refer to commodity data spreadsheet.

### **Main risks:**

- Crop yield sensitive to farming practise, especially for improved varieties
- High levels (30%+) of post-harvest losses
- Seasonality of market prices and variability in prices from one region to another
- Informal market, farmers selling directly vs. through cooperative

Most of the above risks can be mitigated through adequate farmer selection, storage access, off-take arrangements and market price monitoring.

| Key risks  | Mitigants   |
|--|---|
| Yields of high yield varieties more sensitive to farming practices | Farmer selection, input availability and use      |
| Post harvest losses  | Access to storage, drying and fumigation          |
| Price risk and variations from region to region                    | Off take agreements and market price monitoring   |
| Large informal market  | Integrated value chains, contracts counterparties |

### **Financing opportunities:**

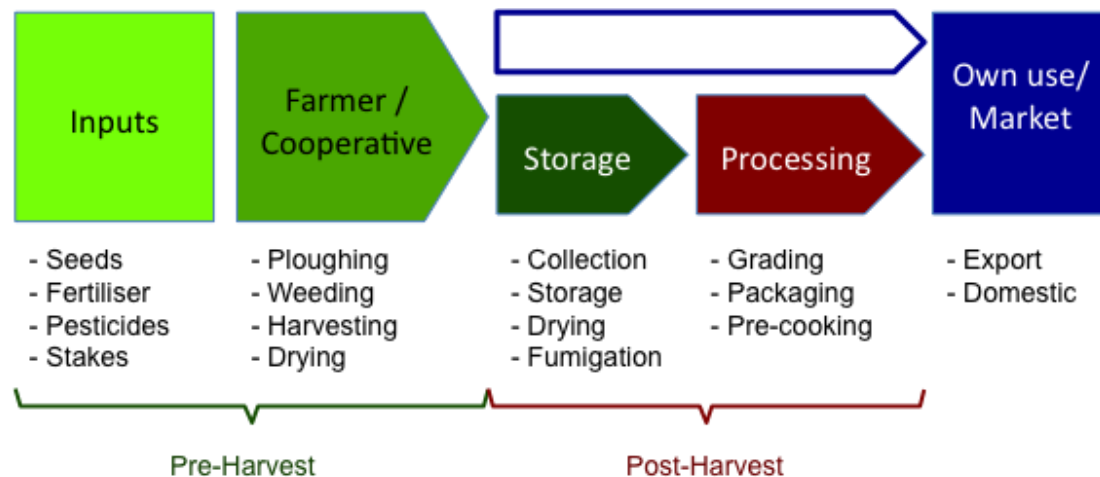
- Pre-harvest (input) finance opportunities are limited for the traditional varieties. Farmers generally retain seeds from one season to the next and little or no fertilisers are used as beans are binding nitrogen and are generally speaking planted in rotation with other crops that do receive fertilizers. Main pre-harvest cost for traditional varieties is labour. In case of improved bean varieties, there may be opportunities in input finance as the seeds are more expensive and adequate fertilizers are needed. Furthermore, as improved varieties generally are climbing varieties, solid stakes are required and in some regions these need to be bought due to limited availability of suitable wood.
- (Post-harvest) raw material collection finance is the main financing opportunity in beans.  
Requires:
  - o Adequate storage facility (at cooperative level or trader),
  - o Off-take contract with acceptable counterpart
  - o Tri-partite agreement between cooperative or trader, off-taker and BPR
  - o Financing limited to X%<sup>1</sup> of market value of commodities stored in warehouse
- (Post-harvest) inventory finance is possible.  
Requires:
  - o Adequate storage facility (preferably independently managed)
  - o Reliable market price data source
  - o Warehouse / store management agreement, for example with double lock system
  - o Periodical quantity and quality control
  - o Financing of Y%<sup>2</sup> of market value or based on the seasonal low in the market prices (typically in the first half of the year) of stored grains
  - o Top-up or partial loan repayment in case of market price decline

<sup>1</sup> Please refer to Raw Material Collection Finance Policy

<sup>2</sup> Please refer to Inventory Finance Policy

- Asset finance may be used for equipment, transport or storage finance
- Trade finance opportunities with import and/or export flows of beans.  
(Ref. Trade finance product description)

## 2. Bean Value Chain



When considering financing the bean sector, it is essential to understand the value chain structure and its related risks.

Beans are a traditional commodity in Rwanda, where it is widely produced and consumed and represents the main protein source across the country. Rwanda is one of the most competitive producers of beans in region, with exports going to neighbouring countries such as Uganda, Tanzania and RDC.

Beans are a popular food crop generating good profits for farmers, as it grows relatively well with little fertiliser, has a short production cycle and can be grown in association with other food crops such as cassava or maize.

Beans are one of the priority crops in Rwanda under the Ministry of Agriculture crop intensification program (CIP), however it does not benefit from any specific financial support for fertilizers such as maize and wheat. While RAB organises the multiplication and distribution of bean seeds, most of the farmers, however, seem to retain part of their own production for the next season's sowing.

Various initiatives are being taken by the government to support the development of bean production ranging from fertiliser and seed distribution, to land consolidation and market access. In association with HarvestPlus, RAB is also distributing new bean varieties with higher nutrition value. Increasing production yields, in particular, is seen as essential to ensure food security and avoid import dependency. Better yields are promoted by the dissemination of better varieties and farmer training.

According to the ministry of agriculture, the area under bean production is estimated to be between 300 and 400,000 hectares. However, as many farmers will mix their bean crops with other productions, these numbers are difficult to verify. For example it is not uncommon to find beans growing in maize fields, before the maize has been harvested, or in young cassava fields.

There are two main types of beans grown in Rwanda, runner beans with a production cycle of 2-3 months and climbing beans with a production cycle of 3-5 months. Improved varieties of climbing beans can achieve yields up to 3 times higher than runner beans. Bean yields in Rwanda have been relatively stable between 700 and 1,000 kg per hectare (2011 according to Minagri). Some producers however report yields close to 2 MT per hectare using improved seeds under good farming conditions.

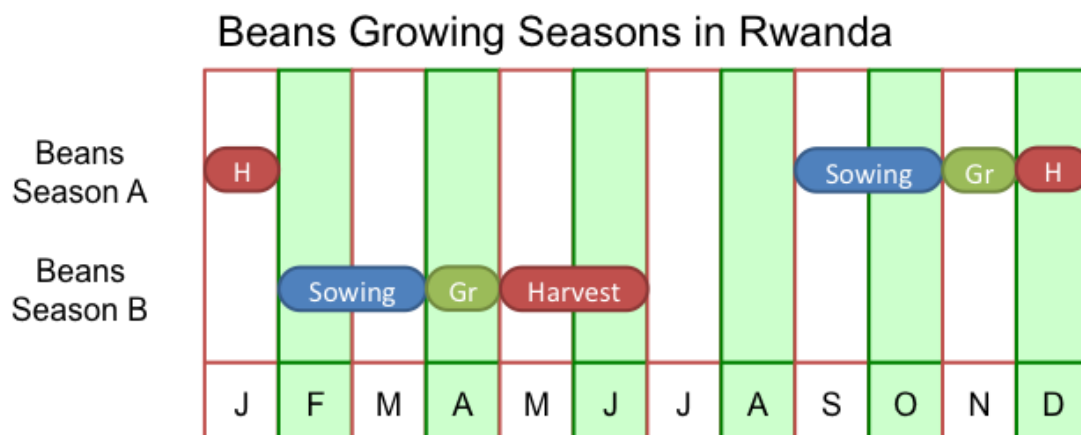
Table 1: bean production areas and yields

|               | Area (ha)      | Yield (kg/ha) | Total (MT)     |
|---------------|----------------|---------------|----------------|
| Nyamagabe     | 9,919          | 809           | 8,024          |
| Nyanza        | 8,382          | 933           | 7,820          |
| Ngororero     | 9,638          | 1,124         | 10,833         |
| Gakenke       | 12,280         | 1,208         | 14,834         |
| Bugesera      | 12,762         | 845           | 10,783         |
| <b>Rwanda</b> | <b>319,252</b> | <b>1,026</b>  | <b>327,553</b> |

Source: Minagri 2010

The production costs of beans are considered competitive within the region and Rwanda is exporting beans to most of the neighbouring countries, despite production being insufficient to meet the domestic demand and beans also being imported. Production costs are relatively low as farmers purchase only small quantities of seeds and little or no fertilisers for this crop.

Fig. 1: Bean growing seasons in Rwanda



There are two main growing seasons for beans in Rwanda, however due to the relatively short production cycle for beans (2<sup>1/2</sup> to 5 months) it is possible to stagger sowing and harvesting over a longer period of time than other crops. In areas where the dry season is less pronounced, it is possible to have 3 bean growing seasons.

The government of Rwanda has recently set up the Rwanda Grain and Cereals Corporation (RGCC), a private-public partnership to support the grains and cereals market in Rwanda. The RGCC is proposing to offer off-take contracts at pre-agreed prices based on the farmer's productions costs and distance to market for maize, beans and rice.

At the time of writing this sector policy (2012), the value chain is very fragmented and still poorly integrated in the cooperative structures, which do not yet fully embrace their roles and potential in this sector. No cooperative is set up with beans as its main production objective.

Finally, the bean value chain is relatively fluid as a significant portion of the bean crop is consumed locally or sold directly to middle-men and traders on an informal basis thereby also limiting the role of the cooperatives in collecting the beans from the farmers.

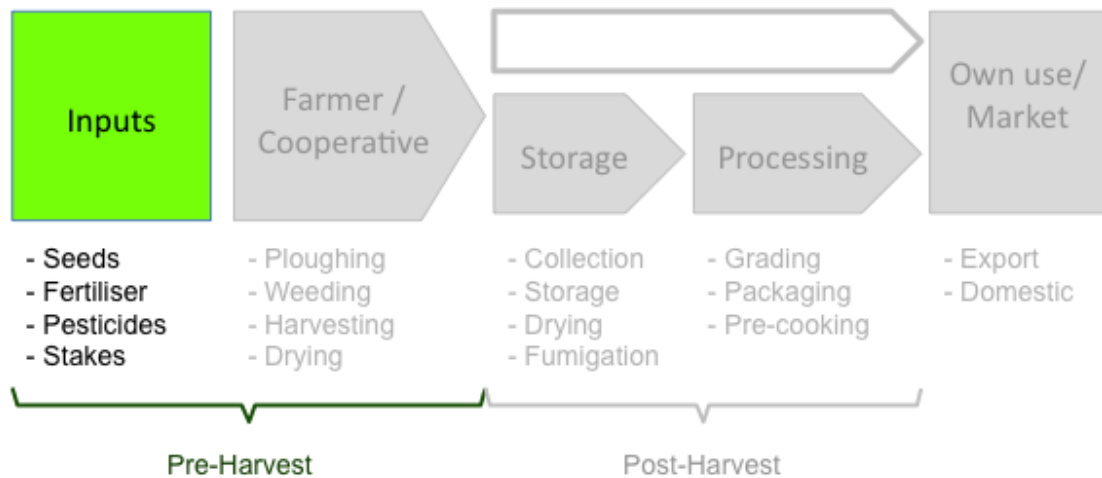
The challenges are a) access to adequate inputs (seeds, fertilisers and stakes), b) the development of adequate storage facilities to reduce the post-harvest losses and c) improve access to market. The increased use of inventory finance systems will increase the linkages within the value chain, however the infrastructure remains to be developed first.

There are financing opportunities for BPR in the bean sector, such as Raw Material Collection Finance for cooperatives and Equipment Finance for commercial farms.

Other financing opportunities may be considered in inventory finance (warrantage or warehouse receipt finance) as beans are one of the commodities with a clear seasonality pattern (carry) in their price.

With the growing development of commercial bean production, purchase of seeds, fertilisers and stalks requires financing that could be given through cooperatives in the form of input finance.

## a) Inputs



Inputs needed for bean production are mainly seeds as there is limited or no use of fertiliser by smaller farmers as beans are binding nitrogen and are generally speaking planted in rotation with other crops that do receive fertilizers. Pesticides, used in the field, are distributed by the government free of charge and mechanisation is still relatively limited, except on larger commercial farms and cooperatives that have been part of the land consolidation efforts.

Farms and cooperatives, that are certified by RAB to act as seed multipliers, buy their seeds from RAB and sell a large part of the harvested seeds back to RAB as seed material. The cost of seeds can be quite significant, however revenues for the sale of seeds is almost double that of consumption beans and therefore a quite profitable activity.

Seeds for production of consumption beans are generally retained by the farmer from one season to another or purchased from another farmer in the region.

Improved seeds are quite expensive at about RWF 500/kg and will require adequate fertilisation and solid stakes to achieve potential yields of 2.5 to 3.5 MT/ha. According to HarvestPlus, in the Eastern province stakes may cost as much as RWF 300,000 per hectare.

In addition to the significant returns, these improved climbing beans have the advantage of offering a higher nutritious value.

Except for organic matter, fertilisers are hardly used by farmers in bean production, because (i) the bean crop usually follows maize or another crop having been fertilised and uses the residual fertiliser and (ii) as a legume beans produce their own nitrogen. Some farmers may apply organic matter to their bean crop, but it is not a widespread practice.

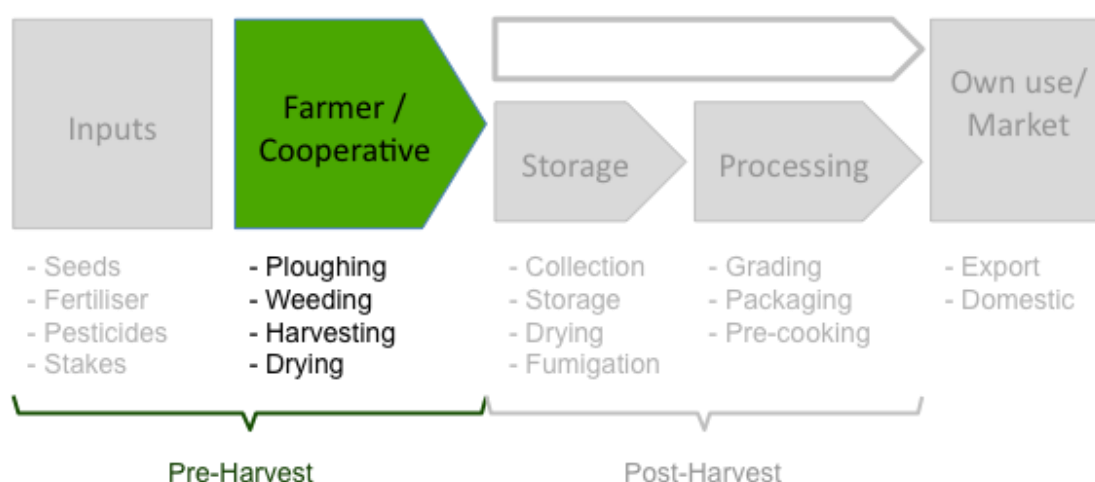
The type of bean produced will depend on the ultimate usage, for rural consumers there is a preference for red or mottled beans (provide colour to the meals), while in urban areas white or yellow beans receive a premium.

*Key issues for inputs:*

- *Availability and quality of seeds*
- *Fertiliser need availability*
- *Type of bean cultivation (runner or climbing)*



## b) Farmer / Cooperative



Bean farming is a traditional crop in Rwanda and is widely produced across the country:

- Improved bean seed availability is limited and most bean produced are local varieties carried over from season to season
- The bean production cycle is relatively short ranging from 70 to 90 days for runner beans and 100 to 150 days for climbing beans, making it possible to have several production cycles per year
- Most of the beans are grown with no or very limited fertiliser input in a rotation with maize, sorghum, cassava or other staple crops

Table 2: Illustration of bean production costs calculation (please note calculation is based on yield of 1.18 MT/ha)

| Item   | Unit          | Value        |
|--|---------------|--------------|
| Average yield  | MT/ha         | 1.18 MT/ha   |
| <b>Average production cost</b>                             | <b>Rwf/kg</b> | <b>113.8</b> |
| Field rent   | Rwf/kg        | 6.5          |
| 1 <sup>st</sup> ploughing and 2 <sup>nd</sup> ploughing    | Rwf/kg        | 39.0         |
| Organic manure   | Rwf/kg        | 10.0         |
| Seeds  | Rwf/kg        | 13.6         |
| Small equipment (bucket, basin, basket, sack...)           | Rwf/kg        | 2.0          |
| Sowing labour  | Rwf/kg        | 6.5          |
| Fertilizer (NPK, DAP, Urea)                                | Rwf/kg        | 3.2          |
| Labour 1 <sup>st</sup> weeding and 2 <sup>nd</sup> weeding | Rwf/kg        | 14.4         |
| Labour for spreading of fertilizer                         | Rwf/kg        | 1.2          |
| Crop protection products                                   | Rwf/kg        | 0.4          |
| Labour for applying crop protection products               | Rwf/kg        | 2.5          |
| Harvest and transport                                      | Rwf/kg        | 7.2          |
| Labour for post harvest processing                         | Rwf/kg        | 3.1          |
| Depreciation of equipment (hoe, pump, watering can ...)    | Rwf/kg        | 3.3          |
| Other : stakes for climbing beans                          | Rwf/kg        | 0.9          |

Source: FIDA - Minagri

With traditional seeds, the total production cost of beans is estimated at about RWF 100 to 120/kg based on a yield of about 1,000 kg/ha. At such cost the production of beans is quite profitable for farmers with a sales' price of RWF 230 to 300/kg.

The key bottlenecks to improved yields in bean production are:

- financing (needed to acquire seeds, fertiliser and stakes)
- seeds (availability of improved seeds is limited and can be expensive)
- fertiliser (adequate fertilisation is crucial to achieve good yields)
- stakes (high yields varieties are climbing beans that require solid stakes to ensure optimal performance)

Cooperatives, encouraged by programs such as P4P, IFDC, HarestPlus and USAID, have started building improved storage facilities in which beans produced by its members can be stored and fumigated to meet the market demands.

The role of cooperative however remains rather modest in the bean sector. No cooperative is set up with beans as its main production objective and the limited amount of inputs used for this crop also restricts the role of cooperatives for input supplies.

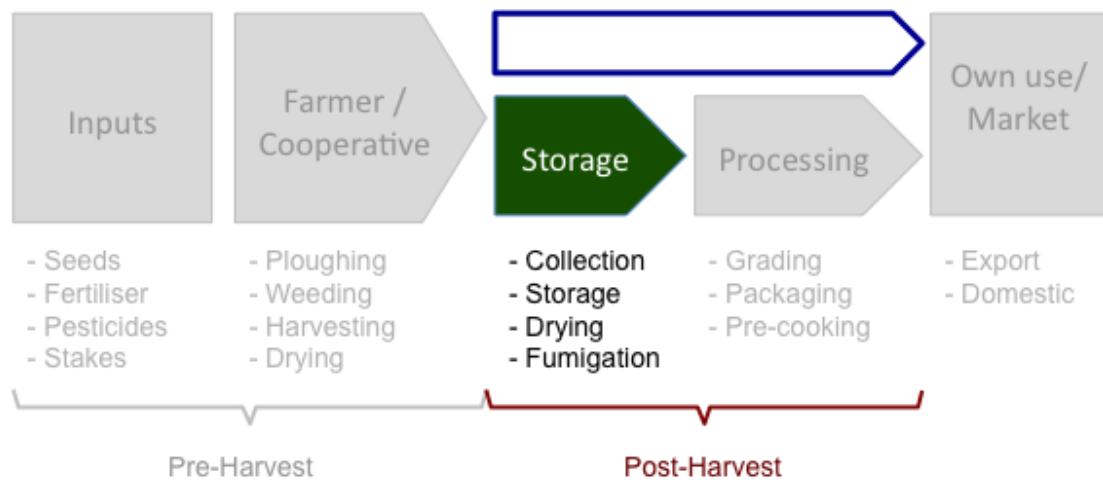
The cooperatives main role in the bean value chain is collection of harvest product, provide storage facilities and fumigation of collected goods.

Except for raw material collection on the back of off-take contracts, the cooperatives role in marketing beans is also still very modest. Farmers retain a significant part of their production for own consumption and seeds and surplus is relatively easy to sell given the widespread consumption of this food. The level of side-selling is very significant in the bean sector.

*Key issues for farmer / cooperative:*

- *Production cost per kg or per hectare*
- *Yield per hectare*
- *Off-take contract or expectations*
- *Storage capacity*
- *Transport capabilities from field to storage*

### c) Storage



Storage facilities are being developed by cooperatives (for aggregation and fumigation), private investors (ENAS) and institutional bodies (Minagri) to provide adequate collection and storage points and to improve access to markets.

The P4P program of the UN World Food Program is also actively purchasing beans in Rwanda to meet the WFP's own needs in the region. P4P's bean purchases are done on an import price parity, which means that P4P will only buy from producers in Rwanda if the price is not more expensive than neighbouring countries (taking transport into account).

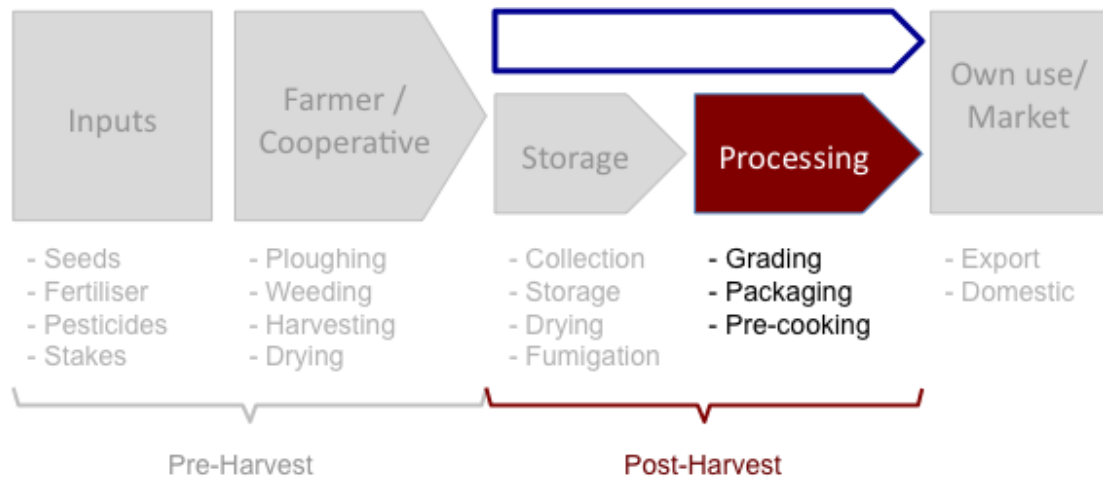
Some storage facilities, such as the Enas – Kirehe Project, are equipped with grading and drying equipment. However according to P4P they have never experienced quality or moisture related problems with beans in the East Province, because of the relatively dry weather, if the beans are purchased soon after harvest.

The main bottleneck in collecting the beans at harvest is the financing capacity of the cooperative or warehouse, as farmers will generally need cash immediately and may choose to sell their surplus crop to middle-men or traders rather than delivering their harvest to the cooperative warehouse.

*Key issues for storage:*

- *Storage capacity*
- *Transport capacity*

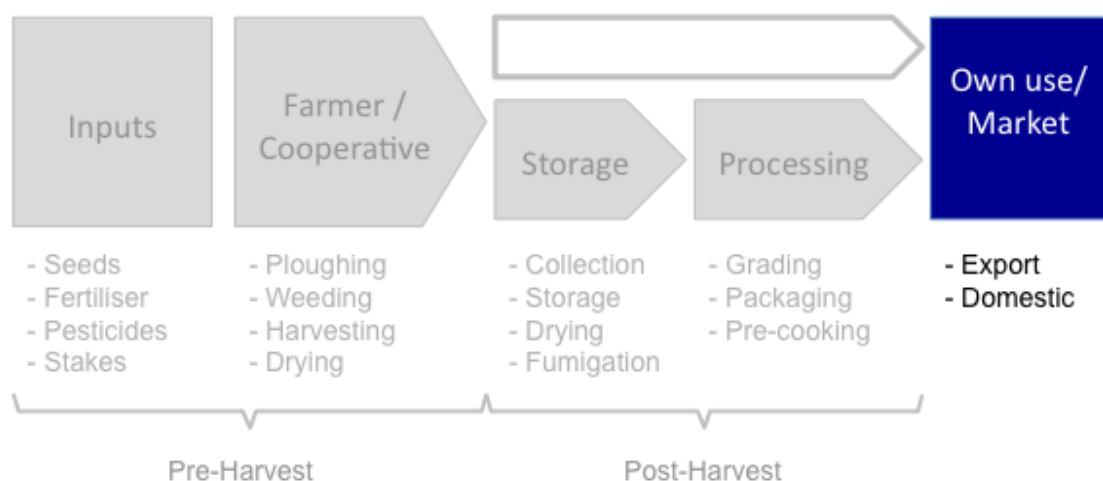
#### d) Processing



Bean processing is very limited in Rwanda, except for one plant producing pre-cooked bean products for urban markets. Demand for processed beans appears to be very limited at this stage. However, officials of Minagri have indicated that the Rwandan government wishes to promote pre-cooked beans in order to reduce the cooking time and therefore consumption of fuel at household level.

Bean grading and packaging may be considered as a form of processing, however this is usually part of the post-harvest process executed by the producer and requires no or little resources as it is essentially done by hand on an ad-hoc basis.

#### e) Market

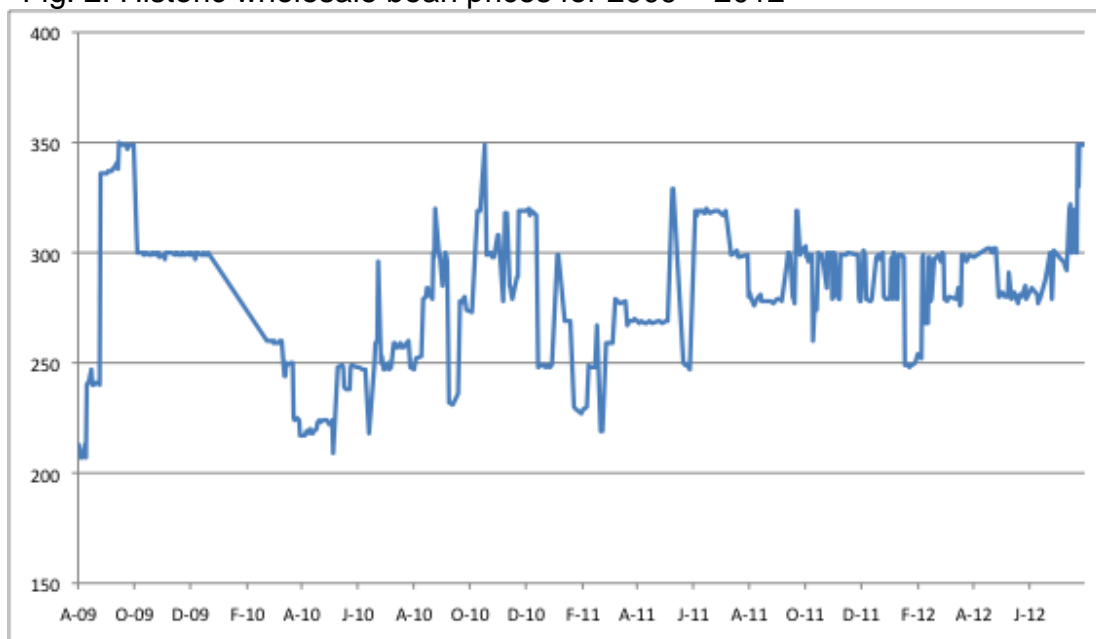


Beans produced in Rwanda are mostly consumed domestically and represent as much as 65% of the average protein source. Market demand is however not met by domestic production due to relatively low productivity and considerable post-harvest losses. The potential to

increase the productivity and more importantly reduce storage losses is very significant and accessible through the use of improved seeds, better farming techniques and adequate post-harvest handling techniques and storage.

Market price information is relatively scattered, however through some platforms such as RATIN (national wholesale prices) and Minagri's platform, e-soko (regional retail prices), it is possible to obtain regular price information across the country for many commodities. The independence of these price sources could not be verified. We also refer to your own (BPR) commodity data spreadsheet.

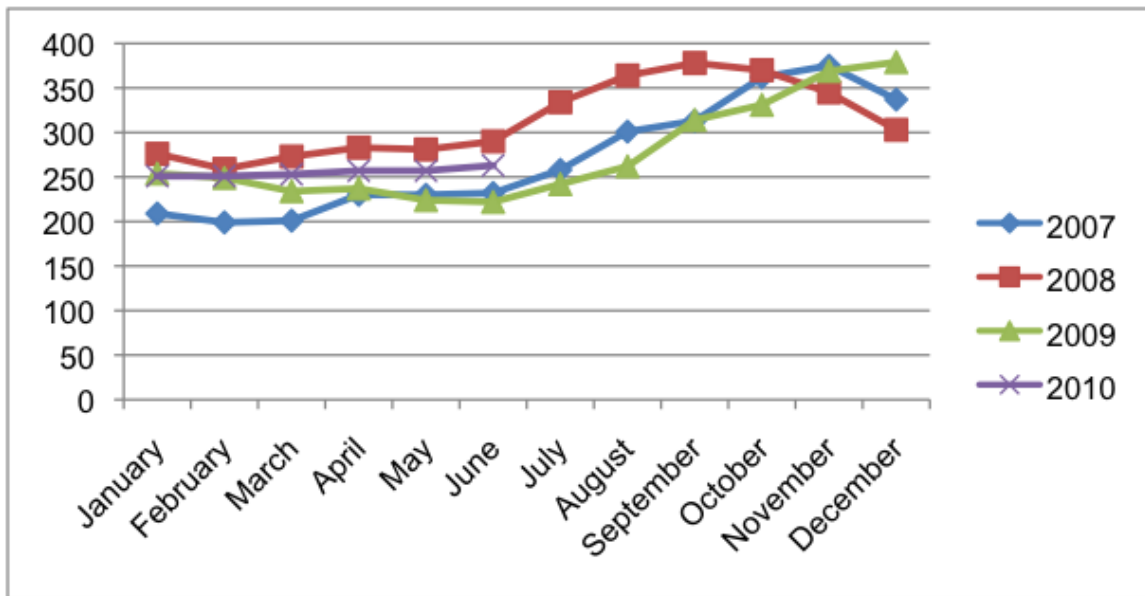
Fig. 2: Historic wholesale bean prices for 2009 – 2012



Source: RATIN

Market prices range between RWF 200 and 400/kg (2012), with a marked seasonality between 1<sup>st</sup> and 2<sup>nd</sup> half of the year, as illustrated in the graph below.

Fig. 3: Changes in bean prices from 2007 to 2010



Source: Minagri

Most of the beans consumed in the rural areas are of red or mottled varieties, mainly because of their colouring effect in the food. However urban and export markets tend to pay a premium for white or yellow beans, which will be the preferred varieties for commercial farmers. At present (July 2012) off-takers such as P4P do not impose specific colour grading, however this is expected to be introduced in the near future.

Largest specific buyers of beans in Rwanda are WFP, P4P, Minagri, Prisons, Schools and Hospitals.

*Key issues for market:*

- Demand per type of bean
- Price volatility
- Transport to market

### 3. Financing needs

Any financing opportunity in the bean business should be considered on the basis of the cash flow that will be generated and how secure this cash flow is. Because beans are traditionally grown in Rwanda for domestic consumption as a protein source, and that post-harvest is not a well-organised sector (the limited role of the cooperatives and relatively high level of informal sales), financing risks are relatively high in this sector despite its relatively good profitability.

|              | Input finance | Raw material collection finance | Inventory finance | Asset Finance |
|--------------|---------------|---------------------------------|-------------------|---------------|
| Farmers      |               |                                 |                   |               |
| Cooperatives | X             | X                               | X                 | X             |
| Traders      |               | X                               | X                 | X             |
| Warehouses   |               |                                 | X                 | X             |

### **a) Input Finance**

The needs for farming inputs in production of the traditional varieties are limited due to a tradition of own seed usage, no or little fertiliser applications and high level of own consumption. The performance risk (crop failure) is relatively lower for the traditional varieties beans than some other crops because of its widespread cultivation and experience, however very significant yield differences can be expected depending on regions, type of beans and the farmer skills.

The introduction of new climbing varieties requiring fertilisation and adequate stalks may significantly increase the pre-harvest financing needs and create lending opportunities through cooperatives.

In addition to the relatively limited financing needs for inputs, the high level of own consumption and side-selling does not make it attractive to finance either.

Financing bean-farming inputs is currently only conceivable for commercial farmers or those operating in the context of a well-organised cooperative.

If considered, input finance should only be made available during the sowing seasons (February-March for season B and September-October for season A).

### **b) Asset finance**

In most cases post-harvest set-up and equipment of farmers is the major bottleneck to a profitable development of this sector. Even though mechanisation would help farmers achieve timely crop operations, if access to adequate drying and storage facilities is not available the former could be detrimental to the farmer's profitability. All market players agree that without local drying and storage facilities, bean crops will suffer heavy post-harvest losses and may fail to attract buyers.



The first priority should be to finance drying and storage facilities. Provided storage facilities are available, other forms of (asset) finance may be considered and feasible.

### **c) Raw material collection finance**

There is a strong and relatively stable market for beans in Rwanda because production is not sufficient to meet demand. In addition to the strong domestic demand, Multi-lateral institutions (such as P4P) and Institutional buyers (HarvestPlus, RAB, Minagri), are potential off-takers that play a growing role in the sector.

The main difficulty of the cooperatives is their limited ability to aggregate the production of their members due to a lack of financing. Because beans are such a key component of the Rwanda food, farmers will easily find buyers for their harvest to access needed cash, rather than delivering the produce with the cooperative without immediate payment.

Secure storage facilities and financing availability at the cooperative level enables collection finance to be realised soon after harvest when the quality is at its best. Such financing is however only conceivable with the backing of an adequate off-take arrangement.

By making financing available to cooperatives to pay an advance to farmers delivering their beans to the cooperative, farmers will be less inclined to sell the surplus of their beans for cash outside the cooperative. By being able to aggregate a larger quantity of beans from its members, the cooperative will have a stronger bargaining position that will ultimately benefit the individual producers.

Raw material collection finance should only be required during and just after the harvesting periods (December-February for season A and May-July for season B)

### **d) Inventory finance**

Availability of adequate storage facilities could be extended to stored commodities under a “warrantage” or warehouse receipt finance structure with a manageable risk. This is particularly true for beans, as this is one of the few crops in Rwanda showing a clear seasonal price pattern (“Carry”). “Carry” is the seasonal price increase that makes it more attractive to sell the produce at a later date for a higher price, despite the related cost of storage, handling and financing.

These financing structures will not only offer farmers, cooperatives and traders access to financing for harvested crops, but also enhance their potential benefit by having the possibility to sell their produce later in the season, when prices are more attractive.



Inventory finance is a post-harvest finance product that could be needed for several months, however based on the seasonality of the bean prices in Rwanda, such financing would typically only make sense for periods running from May-June to September-October.

#### 4. Strengths, Weaknesses, Opportunities & Threats (SWOT)

The SWOT analysis of the bean sector is summarised in the table below

|  |  |
|--|--|
| <p><b><u>Strengths</u></b></p> <ul style="list-style-type: none"> <li>- Suitable soil &amp; climate (across Rwanda) for bean production</li> <li>- Short production cycle</li> <li>- Potential for 2-3 crops per year</li> <li>- Traditional crop in Rwanda</li> <li>- Very strong and stable domestic market demand</li> <li>- Export to most neighbouring countries</li> </ul> | <p><b><u>Weaknesses</u></b></p> <ul style="list-style-type: none"> <li>- Slow intake of improved varieties</li> <li>- Limited availability of adapted seeds</li> <li>- Shortage and cost of stakes for high yield climbing varieties in some regions</li> <li>- Lack of fertiliser use</li> <li>- Lack of “cooperative” experience and added value in beans</li> </ul> |
| <p><b><u>Opportunities</u></b></p> <ul style="list-style-type: none"> <li>- Significant reduction of post-harvest losses through adequate storage</li> <li>- Potential for significantly higher yields and nutritive value</li> <li>- Unsatisfied domestic demand and export market potential in neighbouring countries</li> </ul>   | <p><b><u>Threats</u></b></p> <ul style="list-style-type: none"> <li>- Lack of adequate storage at farm or cooperative level</li> <li>- Production sensitivity of new high yield varieties</li> </ul>   |

#### 5. Risks

The table below summarises the main risks and mitigants with regard to different financing opportunities the bean sector:

##### ***a) Input Finance***

Except for some ad-hoc situations, input finance is not a major opportunity in the bean value chain. The traditional cost of inputs is relatively small and the high level of own consumption, currently limited role of cooperatives and informal selling channels makes the recovery of finance difficult.

##### ***b) Raw Material Collection Finance***

Financing solution for cooperatives and possibly also traders to enable bean aggregation. This financing structure can be implemented with any cooperative or trader that has a trade relationship with a reputable off-taker, and is already implemented by BPR.

| <b>Risk</b> | <b>Description</b>   | <b>Mitigant</b>   |
|-------------|--|---|
| Usage       | Risk that financing is used for other purposes than bean purchase for aggregation                | Disbursement of finance facility subject to raw material collection receipts (“MCR”).<br><br>A MCR is a document issued by the store operator stating quantity and quality of a product received in store. At any point in time the tally of MCR must match the goods in store.   |
| Performance | Risk that the cooperative or trader fails to meet its obligations in storage and quality         | (i) Cooperative or trader must have adequate storage facility available and goods must be adequately insured;<br>(ii) To date no beans from cooperatives have been refused by P4P, despite strict quality standards; and<br>(iii) Storage should be regularly inspected for maintenance, procedures and commodity                           |
| Market      | Risk that the cooperative or trader is unable to sell the aggregated beans at a profitable price | (i) Purchases should be backed by an off-take <sup>3</sup> contract from a reputable party at an agreed quality-related price<br>(ii) Advance rate of X % of market value to mitigate market risk in case of default of off-taker<br>(iii) Facility only available during crop collection period (1 – 2 months) and for max stocks in store |
| Price       | Risk that the commodity price drops significantly after financing is disbursed                   | (i) Disbursements are made only on the back of off-take contracts with agreed price; and<br>(ii) Financing is only granted for part of X % of the market bean value (not the off-take price)<br>(iii) Facility only available during crop collection period (1 – 2 months) and for max stocks in store                                      |
| Off-take    | Risk that the off-take   | Agreement should be with  |

<sup>3</sup> See Off-take Risk

|         |  |   |
|---------|--|---|
|         | defaults   | reputable counterpart   |
| Payment | Risk that off-taker fails to pay or payment is not used to repay financing | Payment must be made against delivery through cooperative account with BPR (tri-partite agreement with the cooperative or trader, the offtaker and BPR) |

### **c) Inventory finance (Warrantage or WHR)**

Financing solution for farmer, cooperative, trader or processor. This financing structure is mostly of interest to farmers and cooperatives as it enables these to delay the sale of their crop to maximise their revenues. Financing is provided on the back of commodity stocks for an agreed percentage of their current market value (50-60%) and/or based on the seasonal low of the prices.

As the WHR system does not yet exist in Rwanda, “warrantage” can be used with caution given the limited right of the Bank over the secured commodity. This kind of financing is only conceivable under the following premises:

- The grains are adequately dried and fumigated to allow for a “prolonged” storage without risk of quality or quantity loss
- The commodity is stored in a reliable warehouse
- A reliable and independent price source is available for the commodity
- The commodity price is likely to improve after harvest, with the price difference sufficient to cover the cost of carry (storage and handling).

| <b>Risk</b> | <b>Description</b>   | <b>Mitigant</b>   |
|-------------|--|---|
| Usage       | Risk that financing is used for other purposes than bean inventory finance           | (i) Disbursement of finance facility subject to storage or warehouse receipts;<br>(ii) Release of stocks / warehouse receipts subject to repayment (documents against cash)   |
| Performance | Risk that the warehouse manager fails to meet its obligations in storage and quality | (i) Warehouse infrastructure and procedures should be acceptable and warehouse adequately insured;<br>(ii) Warehouse operator should be independent or operated under double lock system or independent monitoring;<br>(iii) Storage should be regularly inspected for maintenance, procedures and commodities; |

|         |  |   |
|---------|--|---|
|         |  | (iv) For formal WHR financing, performance of warehouse should be covered by Indemnity fund   |
| Market  | Risk that the commodity cannot be sold on the market                           | Generally commodities such as beans will always find a buyer if quality is correct and can be stored for prolonged periods if required  |
| Price   | Risk that the commodity price drops significantly after financing is disbursed | (i) Financing should be based on reliable market price information (e-Soko);<br>(ii) Financing is only granted for part of (X%) of the bean value (up to Y% if backed by a fixed-price off-take contract) and/or based on the seasonal low in the prices; and<br>(iii) In case of significant market price decline, borrower should top up (add quantity of beans to reach maximum advance rate of X% or repay part of the financing) |
| Payment | Risk that off-taker fails to pay or payment is not used to repay financing     | (i) Commodity is only to be released after payment is made or guaranteed (documents against cash);<br>(ii) Payment must be made through Borrower's account with BPR (tri-partite agreement cooperative / trader, off-taker and BPR) or Financing is to be repaid by the Borrower before the commodity is released   |

#### **d) Asset finance**

Financing solution for large commercial farms, well-managed and financially strong cooperatives or processors. This kind of financing could be considered to finance (the improvement of) post harvest infrastructure. Only when adequate post harvest infrastructure (like drying, storage, fumigation) is in place, also other assets like mechanisation etc could be considered since otherwise "improved" productivity as a result of mechanisation may be lost after harvest. Another opportunity is financing of transportation.