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EXECUTIVE SUMMARY

Root Capital started investigating the seed sector when prominent players in the sector, such as the Alliance for Green Revolution in Africa (AGRA) and African Agricultural Capital (AAC), requested that Root Capital start providing working capital to its grantees/clients and further throughout the sector. The manager of an equity fund working with seed companies in East Africa has identified a lack of working capital as the greatest challenge facing seed companies.

This industry analysis is developed from pilot experience in Africa, and is highly targeted towards this region. While some industry basics will transfer across regions, the specifics in this analysis are written for Africa. The seed industry in Latin America is much more highly developed than in Africa and leads to very different industry characteristics.

Demand and Impact Potential

As population increases and land dedicated to agriculture becomes scarce, it is important that we produce as efficiently as possible. The FAO estimates that in order to satisfy the expected food and feed demand, it will require a substantial increase of 70 percent in food production by 2050. In developing countries, it is estimated that a mere 20 percent of this will come from agricultural land expansion and the remaining 80 percent will have to be met via increases in yield and crop intensification. Availing improved seed varieties can have a significant impact on food security and smallholder farmer income:

- Improved seed can increase yields 3 to 8 times versus farmer-saved seed
- Average farmer income increase is approximately USD 440 per season
- A $100,000 loan can reach approximately 27,000 smallholder farmers

Sector Overview

i. Issues

The majority of improved seeds on the market in Africa are imported by multi-national companies and do not meet the agro-ecologies of the regions (e.g. climate, rainfall patterns, disease, insects, etc.) or farmer preferences (e.g. early maturing, color, taste, texture, etc.). Distribution networks for such seed are also usually confined to larger cities and hub market towns, making what is available for improved seed inaccessible or difficult to access by smallholder farmers. And finally, imported seeds are expensive and unaffordable for the majority of smallholder farmers.

ii. Developments

To combat this, national research centers/institutions, universities, international seed developers, etc. have been working on developing local seed varieties specifically suited to African growing conditions. Organizations like AGRA, International Fertilizer Development Center (IFDC), and Citizen’s Network for Foreign Affairs (CNFA) have been educating and training agro-dealers and building up dealer networks with rural reach. Local SME seed companies are now emerging and producing low-cost, high-quality seed inputs for smallholder farmers in rural areas.

iii. Challenges and obstacles

Local seed companies are facing major hurdles in accessing financing for their working capital needs from local commercial banks and other social lenders with a presence in the region. Other social

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1 AGRA aims to ensure that smallholders have what they need to succeed: good seeds and healthy soils; access to markets, information, financing, storage and transport; and policies that provide them with comprehensive support. http://www.agra-alliance.org/
2 AAC is a leading agribusiness investment fund in Africa primarily focused on long-term facilities and equity or quasi-equity products. http://www.aac.co.ke/web/
3 FAO: How to Feed the World in 2050
4 Impact figures based on current portfolio of seed sector deals - this can vary significantly by country, region, product, etc
investment funds active in the agricultural space are primarily focused on long-term facilities and have approached us to provide short-term working capital to their clients. This gap has created a significant opportunity for Root Capital to finance local seed businesses, thereby impacting smallholder farmers and improving local food security.

**Primary Risks and Return**
The primary risks of lending to local seed companies are in *off-take of product* and *collections management*. Depending on the country, local seed companies may distribute and sell product via many small agro-dealers. This makes it impossible for loan payments to be made through buyers and much more important for clients to have strong collections management procedures. (Root Capital typically mitigates repayment risk by triangulating with buyers and securing the loan through contracts with buyers. The payments come directly to Root Capital from the buyer once the product has been received and therefore, the risk of repayment is on the delivery of goods rather than collections management and repayment direct from the client.)

Social returns to Root Capital are strong and compelling. Lending to local seed companies enables greater quantities of affordable, improved seed to reach smallholder farmers in rural areas. An average loan of USD 150,000 can reach over 40,000 smallholder farmers, verses an average of 1,000 smallholder farmers with our core lending. The indirect social impact on smallholder farmers is increased yields and increased incomes and can easily be realized and communicated. By helping farmers become more efficient, we are also supporting food security efforts.

**Fit with Root Capital Model and Capabilities**
Local seed companies are the perfect definition for the missing middle. Their financing needs are larger than that of micro-lending schemes and yet they are locked out of the commercial banking system due to stringent collateral requirements and repayment schedules that are not adapted to the needs of agricultural businesses. Financing needs in this sector are heavily in short-term working capital and fit seasonal cycles of financing operations and earning revenues.

**Recommendation**
There is a huge need for supply of improved seed adapted to local agro-ecologies, providing Root Capital with a great opportunity in this sector to increase its lending portfolio and make a huge social impact. It is recommended to continue leveraging AGRA’s network of seed companies and build experience and a presence in this sector.
INTRODUCTION TO SEED

Types of Seed

- Farmer Saved Seed - seed that is saved from the previous harvest. With each planting and harvesting cycle, seed becomes genetically weaker, lower yielding and more susceptible to disease. However, this seed is essentially free, only incurring a small opportunity cost versus selling it or consuming it, and readily accessible to farmers.

- Open Pollinated Varieties (OPV) - traditional seed varieties certified by a governing body that generally produce yields of three to four times that of farmer saved seed.

- Hybrid Seed - first generation offspring of two parental lines of the same species. Hybrid seed offers much higher yields up to eight or ten times that of farmer saved seed. However, it is more expensive and does require higher fertilizer use. Hybrid seed is different from genetically modified (GM) seed. Hybrid seeds are an outcome of naturally crossbred seeds whereas GM seeds have had specific changes made to their DNA through genetic engineering and unnatural processes.

Multiplication Process

Seed goes through four major stages:
1. Breeder Seed - a registered breeder, within a certified and registered seed development center, develops breeder seed in the form of public and proprietary varieties. These centers can be private or publicly owned and controlled, and play a large role in a seed company’s ability to access breeder and foundation seed.
2. Foundation Seed - the first progeny of a breeder seed that is certified and traceable directly to a breeder seed. Depending on the capability of the seed company (land ownership or access to land, outgrower relations and management, etc.), it can propagate its own foundation seed from breeder seed provided by the seed development center. Alternatively, it can procure foundation seed directly from the seed center.
3. Basic Seed - foundation seed that has been planted and harvested for multiplication before treatment and certification.
4. Certified Seed - basic seed that has been treated and certified for sale.

Production Process

The production of seed is a fairly simple operation, but does require high technical aptitude in order to comply with strict governing bodies. Foundation seed is planted and multiplied either by the seed company itself or contracted outgrowers. After basic seed is harvested and arrives at the factory, it is sorted for quality, eliminating broken, discolored, and small seed. This can be done mechanically, by hand, or by a combination of both. Seed then passes through a chemical treatment/dressing and is packaged for retail sale.

MARKET OPPORTUNITY

Supply

The seed industry in Africa is highly underserved; supply is far from reaching demand and smallholder farmers often have no choice but to use farmer saved seed from the previous harvest.
The graph above shows the seed situation in seven of the African countries in which Root Capital has a presence.

Amongst these seven countries, there is a shortage of over 132,000 metric tons of maize seed; Tanzania falling short by 52,000 metric tons alone, and Ghana and Mali falling short by nearly 100 percent of their need. The East African seed sector has proven to be more progressive than the West Africa sector in terms of providing foundation seed for local seed companies and building up a local seed sector.

**Formal and Informal Markets**
The formal market consists of supply direct from seed companies, agro-dealers, and imports. The formal market makes up a mere 15 to 34 percent of the market and imports can range from 15 to 100 percent of this in some countries.

The informal market consists of government and NGO donations and subsidies and of farmer-saved seeds. The informal market fills the remaining 66 to 85 percent of seed used by resource-poor farmers in SSA. Donations and subsidies are unsustainable and farmer-saved seed is of poor quality and deteriorating germination rates.

**Market Size & Climate**
Rough calculations indicate that market demand for seed in the following ten countries in which Root Capital has a presence is USD 245.6 million: Burkina Faso, Ghana, Kenya, Malawi, Mali, Rwanda, Senegal, Tanzania, Uganda and Zambia. The below table provides a snapshot of the current market size, unmet demand, political landscape for the sector and the current private sector scene.

<table>
<thead>
<tr>
<th>Market size</th>
<th>Sales</th>
<th>Unmet demand</th>
<th>% of demand</th>
<th>Political landscape</th>
<th>Multi-registered seed companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burkina Faso</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>Poor governmental policies making it difficult for private companies to survive</td>
<td>2</td>
</tr>
<tr>
<td>Ghana</td>
<td>19,000</td>
<td>201</td>
<td>18,799</td>
<td>99%</td>
<td>Planning to enter 10</td>
</tr>
<tr>
<td>Kenya</td>
<td>39,000</td>
<td>28,000</td>
<td>11,000</td>
<td>Government has a parastatal seed company and control over its supply, management is independent, but the government is the main buyer and has first right to supply, private companies exist and run their operations without government hurdles however and are able to access foundation seed</td>
<td>2 4 7</td>
</tr>
<tr>
<td>Malawi</td>
<td>35,600</td>
<td>7,900</td>
<td>27,700</td>
<td>Government does not have a stake in seed and the systems are straightforward and transparent, private companies access public varieties without hassle, making it easy for them to survive and do business</td>
<td>2 1 3</td>
</tr>
<tr>
<td>Mali</td>
<td>8,000</td>
<td>21</td>
<td>7,979</td>
<td>99.7%</td>
<td>There is virtually no local supply of seed save 2 start up companies and the government is trying to support the build up of local supply either via private companies or starting a parastatal with the help of AGRA</td>
</tr>
<tr>
<td>Rwanda</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>Government has a parastatal which controls the supply of foundation seed for public varieties, private companies have a hard time accessing public foundation seed and in order to survive it is crucial for private to develop their own varieties and access to foundation seed</td>
<td>1 n/a</td>
</tr>
<tr>
<td>Senegal</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tanzania</td>
<td>64,600</td>
<td>11,200</td>
<td>53,400</td>
<td>83% Government has a parastatal which controls the supply of foundation seed for public varieties, private companies have a hard time accessing public foundation seed and in order to survive it is crucial for private to develop their own varieties and access to foundation seed.</td>
<td>2 4 15</td>
</tr>
<tr>
<td>Uganda</td>
<td>17,000</td>
<td>5,700</td>
<td>11,300</td>
<td>66% Government does not have a stake in seed and the systems are straightforward and transparent, private companies access public varieties without hassle, making it easy for them to survive and do business</td>
<td>2 4 5</td>
</tr>
<tr>
<td>Zambia</td>
<td>14,000</td>
<td>10,200</td>
<td>3,890</td>
<td>27% Government does not have a stake in seed and the systems are straightforward and transparent, private companies access public varieties without hassle, making it easy for them to survive and do business</td>
<td>2 2 4</td>
</tr>
</tbody>
</table>

**Key Determinants of Basic Seed Price**

i. **Commodity market price**

Basic seed is priced based on current market prices of the commercial product. A seed company pays a small premium on market prices because seed production requires more technical
expertise than simply growing grain and also requires land isolation. This helps to mitigate off-sale to the commercial market.

Even though prices are set at the time of contracting before the planting season, these prices can and will fluctuate with market prices. If prices rise dramatically due to drought or whether conditions, it is in the best interest of the seed company to fluctuate with the market in order to mitigate off-sale to the commercial market. Relief buyers can also come in and distort prices through subsidiaries and donations influencing market prices.

ii. Outgrower model

A seed company’s outgrower model plays a role in pricing. If it does all of its own outgrowing or a portion of its own outgrowing (assuming it is efficient), cost of basic seed could be much lower. Additionally, whether a seed company has many outgrowers producing small quantities or a few larger outgrowers can affect its negotiation power and also operational costs at the outgrower level and for the seed company itself (i.e. managing ten outgrowers verses two costs a lot more).

iii. Timing

If a seed company has the means and cash to purchase basic seed just after harvest, the contract price is usually respected. If, however, the seed company is late to purchase basic seed, the outgrower may grow restless and seek other options to sell and/or demand a higher price from the seed company, which is why it is important to have timely access to credit.

Demand of Improved Seed

i. Education

Adoption of and demand for improved seed varieties is highly dependent on the education of consumers and also by country. Farmers in rural areas are often not educated on the benefits of improved seed varieties and therefore will show no interest in them. It is important for local seed companies to work with governments, local and regional NGOs, research centers, etc. to educate rural farmers and market improved seeds.

In Tanzania, Tanseed has made great strides in increasing the adoption of improved seeds with the help of AGRA through demonstration plots showing real-life results of the improved seeds. The Tanzanian Ministry of Agriculture also has fair grounds throughout the country and holds agricultural fairs throughout the year, providing opportunities for Tanseed to showcase its seed. Kenyan farmers have proven to be much more progressive and less risk averse, willing to try new seeds, with a higher adoption rate of improved seeds.

ii. Price point

Rural consumers are price sensitive. If the price point is too high, there will be little demand for improved seed varieties when the alternative is farmer-saved seed, which is an opportunity cost rather than a direct cost. Farmers are willing to pay for seed, but they need to be educated about the benefits of buying improved seed and feel it is worth the cost.

iii. Weather

Demand and off-sale are highly dependent on the weather. Farmers react to weather conditions and if rains are late or do not come, farmers will push off their purchases and sometimes even refuse to invest in seed if they perceive it to be too risky, given the possibility of low rains for the season.

Smallholder Farmers

There are about 500 million smallholder farmers in developing countries, supporting nearly 2 billion people. These farms range from one to five acres, and farmers usually plant cash crops as well as

8 IFAD Rural Poverty Report 2011
engage in subsistence farming. Most of these farmers live below the poverty level, making less than two dollars a day.

i. Africa

In Sub-Saharan Africa, 40 to 70 percent of rural households earn more than three quarters of their income from on-farm sources and roughly 79 million households in SSA are engaged in smallholder farming to some degree. Smallholder farming, therefore, affects nearly 400 million people out of a total population of 1 billion people in SSA.

ii. Latin America

In Latin America, only 10 to 20 percent of rural households derive the highest portion of their income from farming and agricultural labor. However, this 10 to 20 percent make up the poorest of the rural population and smallholder farming still affects 21.6 million households and nearly 90 million people out of a total population of 590 million.

Demand for Root Capital Financing

i. Financial gaps in the value chain

There is a large need for working capital within the seed industry. Seed companies either need to finance the planting and harvesting of basic seed during one harvest season if outgrowing, or purchase basic seed from outgrowers after the harvest. Then seed needs to be processed and packaged for resale. At which time, processed, certified seed may be sold on cash or credit to wholesalers, agro-dealers, or farmers and a seed company will have to wait for full payment depending on the terms with the buyer.

In a region with two rainy seasons, this results in a seven day to six month lag between the moment the company purchases/pays for production and the moment they receive revenues. It can be even longer in regions with only one rainy season, as the time between harvesting of the basic seed and planting of the next season, when farmers purchase seed, is much longer and therefore, off-take takes much longer.

ii. Existing financing sources/mechanisms

Commercial banks and other social lending firms do provide financing to the seed industry. However, this is limited primarily to larger dollar capital expenditure products.

Furthermore, commercial banks tend to be very risk adverse, requiring large amounts of collateral, accepting limited types of collateral, and using low valuing mechanisms for land and assets. Most banks also do not adjust their lending terms to meet the needs of the agricultural sector. Given the seasonality of seed sales, seed companies cannot meet general repayment schedules banks offer.

Most of the social lending firms active in this space (i.e. Africa Agricultural Capital, Injaro Investments, Africa Enterprise Challenge Fund, Acumen, etc.) are focused on long-term facilities and equity or quasi-equity investments. For this reason, AGRA and AAC, among others, came to Root Capital to request that we provide working capital loans to local SME seed companies.

Financial fit for Root Capital

i. Current presence

The Root Capital team in Nairobi did its first pilot loan in the seed sector in October 2010 with a Tanzanian company called Tanseed International Ltd. It carried out its second pilot loan the following month with a local seed company in Kenya, Freshco Kenya Ltd, and is currently closing its third deal with another Kenyan seed company, Leldet Ltd.
ii. Is it similar to what we already do?

**VALUE CHAIN ANALYSIS**

**Seed Value Chain**

<table>
<thead>
<tr>
<th>Similarities</th>
<th>Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Product: short-term working capital</td>
<td>• Sector: seed is a new sector</td>
</tr>
<tr>
<td>• Clients: small, grassroots businesses</td>
<td>• Off-take: local consumption</td>
</tr>
<tr>
<td>• Impact: supporting the missing middle</td>
<td>• Currency: local currency lending</td>
</tr>
<tr>
<td>• Impact: smallholder farmers</td>
<td>• Risk: types of security</td>
</tr>
</tbody>
</table>

**Value Chain Actors**

i. **Seed Company**

The seed company plays a direct role in the planning and processing of seed. It plays an indirect role throughout the other operations of the value chain. During the planning process, it works closely with the seed development center from which it contracts breeder/foundation seed. After providing the foundation seed to outgrowers, it takes an indirect role in managing the outgrowers and ensuring compliance with growing regulations and the certifying body. However, if it produces its own basic seed, it of course continues to play a direct role throughout the production step.
After the production of basic seed the seed company takes a direct role again in processing the seed for certification and resale. During the entire process from planning to distribution, the seed company is in close contact with the seed certifying body. After distribution, it has close relations with wholesalers, agro-dealers, etc. to off-sale the seed and collect revenues.

ii. Certification & QA

The certifying body, usually a governmental body or contracted by the government, plays an important role throughout the entire value chain and interacts with all major actors. During breeding and propagation, the certifying body carries out germination and other qualifying tests with the breeder. Before planting foundation seed, the certifying body inspects the grower for proper growing conditions. Throughout planting and harvesting, it makes frequent visits to the outgrower to ensure compliance and afterwards certifies the basic seed before distribution to the seed company. After the seed company sorts and processes the seed, the seed goes through its final certification and becomes certified seed.

iii. Outgrower

The outgrower has limited involvement throughout the entire value chain process, but the involvement it does have is very important to the process. The seed company contracts the outgrower during the planning phase and once the outgrower receives the foundation seed he/she is the main player in the growing process. During the entire growing process, it is in close contact with the seed company and certifying body.

iv. Wholesaler/Retailer

The wholesaler, agro-dealer, retailer, etc. does not enter the value chain until the end for off-sale of the seed to farmers. The retailer interacts with the seed company and potentially other dealers or directly with farmers.

Porter’s 5 Forces

i. Threats of new competition

Seed production has medium-level barriers to entry. Seed production does not require a lot of capital investment; however, it requires technical know-how and access to foundation seed, meaning the right relationships with research and/or governmental institutions. A seed company can choose to produce public varieties which takes no time to develop, but requires access to supply of foundation seed from the breeders that developed, or hold the rights to, the variety. Currently, this requires strong, developed relationships as foundation seed is limited. If a company chooses to develop its own varieties, this process takes 4-6 years and, thus, does not attract a lot of new companies.

ii. Threats of substitutes products or services

The major substitute for locally produced, improved seed varieties is farmer-saved seed. A farmer’s loyalty to improved varieties depends on two main things, (1) having the cash to purchase improved inputs before the planting season and (2) positive past experience with improved seed. Adoption is growing throughout Africa; however, if a farmer has a bad year with low yields, s/he will be hesitant to invest the following year. Given that farmer-saved seed is essentially free, farmers easily go back to it when money is not available.

Multi-national and international varieties are also substitutes. However, not in a largely threatening way given the high cost, limited availability in the rural areas, and, general inability of these varieties to meet many of the demands of smallholders (e.g. drought resistance, early maturing, etc.). Other crop varieties can also be substitutes. If a client only produces a few
varieties of crops, its customers may choose to switch crops and thus, purchase different seed from another company.

iii. Bargaining power of customers (buyers)

Customers have a significant amount of bargaining power because, ultimately, they have an alternative option, farmer-saved seed, which is free. So, if they do not feel that the price or quality is right, they will not purchase. Seed companies are wise to control pricing at the retail level so that agro-dealers keep their margins to a minimum and seed is priced right. Governmental buyers play a significant part in the market and, depending on the country, can have powerful control on the market, choosing seed companies to support and providing subsidy for those companies’ products.

iv. Bargaining power of suppliers

Outgrowers have some bargaining power, but after they are contracted by a seed company, their power is limited. Price is generally agreed on during contract negotiations and is based on a set premium to market prices; this is fairly standard. During the growing season, certification takes place and is necessary for seed production. Certification is done in the name of the particular seed company that contracted the grower. So, an outgrower cannot sell seed to another seed company after the harvest. It can side-sell grain at that time, but this garners a lower price and is less attractive.

v. Intensity of competitive rivalry

Local seed companies are quickly growing in popularity and brand recognition. Some countries are more developed in local seed production than others and the market relies more heavily on brand than ones that are less developed. Adoption rates are growing and demand for improved seed continues to grow and go unmet. The handful of local seed producers in each country are fighting for market share, and with AGRA’s expectation of developing seed companies that produce 10,000 tons or more a year, they are fighting for growth. This nascent industry currently has room for many players, but given AGRA’s influence and goals, the next 5-10 years will be about weeding out the small, less promising companies and focusing on a few companies with great potential to reach the 10,000 ton per year targets.

SECTOR RISK

Money Tracking

i. Financing need along the value chain

The value chain figure earlier showed that the financing need is largely working capital at the time the seed company purchases seed from the outgrower until it receives payment from the retail outlets. This can be up to six to nine months for a region with two rainy seasons and up to twelve to fifteen months for a single rainy season region.

ii. Financing application

The largest allocation of cash is intended for the purchase of basic seed from outgrowers. Cash is also intended for operational expenses such as chemicals, bags, labor, overhead, transportation, certification, etc.

However, the reality may be a different story. Financing might actually be applied to arrears that are not communicated or transparent to Root Capital. For instance, one seed client had salary arrears of four months and applied the Root Capital loan to pay these arrears without our knowledge.
Cash may also be applied to growing capacity for the next season. This could be buying inputs to provide to outgrowers (fertilizer, bags, etc.), outreach costs to contract more outgrowers, hiring or buying land, and possibly buying irrigation systems for land. This makes it very important to schedule a rigorous repayment schedule so that the company does not have extra cash to spend and is under pressure to pay back the loan amount first.
## Value Chain Risk Assessment

### i. Risks identified along the value chain and mitigation techniques

<table>
<thead>
<tr>
<th>Obligee Risk Category</th>
<th>Value Chain Stage</th>
<th>Risk</th>
<th>Mitigation Techniques</th>
<th>Risk Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product</td>
<td>Production</td>
<td>Quality</td>
<td>Basic seed does not pass in-field certification and cannot be moved from the outgrower to the seed company.</td>
<td>Seed should have passed 3 certification steps at the time of RC intervention – obtain copies of those certifications</td>
</tr>
<tr>
<td>Product</td>
<td>Production</td>
<td>Access to Raw Materials</td>
<td>The outgrower does not actually have the quantities which he/she has promised to produce.</td>
<td>The above mentioned certifications will list the certified quantities, verify those with the amounts to be purchased</td>
</tr>
<tr>
<td>Product</td>
<td>Production</td>
<td>Selling</td>
<td>The outgrower sells seed and does not have the quantities promised.</td>
<td>This results mainly from companies not treating their outgrowers well or not holding up their end of the contract and can be mitigated by proper outgrower treatment and timely purchase of basic seed adhering with the contract. Seed companies can also choose to purchase smaller quantities more often when they have the cash so as to keep the outgrowers “comfortable” while they wait for more cash</td>
</tr>
<tr>
<td>Product</td>
<td>Production</td>
<td>Competition</td>
<td>Competition for the purchase of basic seed comes mainly from large commercial buyers trying to undercut prices in lieu of processing and distribution.</td>
<td>These buyers pay lower prices than seed companies usually and seed is for personal use and cannot be sold on the open market (it has not been fully certified at this point) - understanding outgrower relationship management and timely purchase of seed is crucial. Seed cannot be purchased and processed &amp; packaged by another seed company because during certification, all seed is marked for the appropriate seed company and a certifying body would not certify seed produced by another seed company</td>
</tr>
<tr>
<td>Product</td>
<td>Production</td>
<td>Quality</td>
<td>After in-field inspection and harvest, seed samples are sent to a lab to test germination, vigor, etc. Seed companies pick-up seed and pay a percentage of the total estimated value before these results are in. There is a risk that the seed will not pass these tests and the seed company will be stuck with unsalable seed.</td>
<td>This is uncertain if seed does not pass certification this usually happens in the field. Ensure that (a) the seed company does not process until the germination results are in and (b) that the outgrower contracts cover the seed companies for a refund should this happen – ask for copies of the contracts</td>
</tr>
<tr>
<td>Product</td>
<td>Production</td>
<td>Procurement</td>
<td>Price of basic seed is set slightly above indigenous/market grain prices and contracted with the outgrower prior to planting. However, if grain prices fluctuate drastically from the time of contracting to post-production of basic seed, price will be adjusted and the seed company may have to pay higher prices for basic seed than originally planned.</td>
<td>At the time of RC financing, it should be fairly clear what the market grain prices are and if there have been major shifts to the originally contracted prices</td>
</tr>
<tr>
<td>Product</td>
<td>Processing</td>
<td>Processing</td>
<td>Clear seed is lower than the expected rate</td>
<td>Verify in the contract between the outgrower and seed companies that payment is only for clear seed and full payment is only made after certifying has been conducted</td>
</tr>
<tr>
<td>Product</td>
<td>Processing</td>
<td>Transport</td>
<td>Damage or theft of seed while in transport</td>
<td>Insurance</td>
</tr>
<tr>
<td>Product</td>
<td>Processing</td>
<td>Storage</td>
<td>Damage or theft during storage</td>
<td>(a) Ensure proper storage conditions - temperature, moisture, pests, etc</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(b) Insurance</td>
</tr>
<tr>
<td>Collateral/Buyer</td>
<td>Storage &amp; Distribution</td>
<td>Dealer Payment</td>
<td>Seed companies often sell on credit to agro-dealers and/or wholesalers and there is a chance of default from these borrowers.</td>
<td>Seed companies should have contracts with their buyers and all deliveries should be accompanied by a delivery note and signed by the receiver. It is also important to understand the seed company’s historical default rate and collections management procedures</td>
</tr>
<tr>
<td>Content</td>
<td>Retail &amp; Selling</td>
<td>Retail Price</td>
<td>Having third parties sell products decreases a seed company’s control over final retail prices.</td>
<td>Seed companies should agree on a final maximum price with dealers and include it in the contract. A further mitigation tactic is for the seed company to stamp the suggested retail price on the packaging so that there is no opportunity for heightened pricing by the dealer</td>
</tr>
<tr>
<td>Content</td>
<td>Retail &amp; Selling</td>
<td>Off-season</td>
<td>Seed will not sell</td>
<td>Marketing and brand image/recognition are very important aspects for the off-season of improved seed varieties. Since there are typically new varieties, farmers are reluctant to purchase with out seeing the value and benefits in the field. Demonstration plots and farmer field days are important in first education consumers. Secondly, brand recognition/image, word of mouth, etc are equally important to grow their consumer base year to year</td>
</tr>
<tr>
<td>Collateral/Buyer</td>
<td>Retail &amp; Selling</td>
<td>Govt/NGO</td>
<td>Government/NGO subsidized seed or donations of seed can undercut market prices.</td>
<td>This is most likely in post-disaster situations and cannot be avoided</td>
</tr>
</tbody>
</table>
ii. Additional documentation

In order to mitigate risk, the following documentation should be obtained in addition to what is normally required:

- Outgrower purchases for the last one to three years - including outgrower name, quantity of foundation seed given, basic seed produced, percentage of clean seed, value of purchase
- List of expected outgrower purchases - including outgrower name, quantity of foundation seed given, expected tonnage of basic seed produced, expected date of purchase, value of purchase
- Copies of outgrower contracts/letters of understanding
- Seed certifications - seed should have been certified at least once by the time of engagement if not twice
- Cash collection records for the previous one to three years of sales - including dealer name, quantity delivered/sold/returned, price, repayment schedule and percentage paid
- Agro-dealer contracts/purchase orders/agreements
- Verification of seed performance - improved yields

SECTOR RETURN

Financial

i. Income potential

Loan size varies depending on the size of the company and its access to basic seed quantities. However, for a small/medium-sized company that is relatively young, average working capital needs are between $75,000 and $200,000. Disbursement for loans on the larger side can likely be disbursed in two installments; the first should be a larger proportion to cover the procurement of basic seed, transportation and processing. The second disbursement will be smaller to cover the ongoing production/operational expenses. As previously mentioned, the term of the loan for a region with two rainy seasons can be between six and twelve months. For a single rainy season the loan term would likely be over twelve months up to two years.

Growth potential is huge for renewal loans. Seed companies are hungry to grow and the market demands it. Therefore, a seed company performing well one year has potential to grow the next season, assuming its outgrowers have the capacity to grow or it can contract more outgrowers to take on the extra tonnage. The challenge is not growth, but rather supporting sustainable and successful growth; seed companies have ambitious growth targets and it is important to support realizable growth.

ii. Cost

Transaction costs (i.e. investment officer travel expenses, legal fees, etc.) will generally be the same as any deal in Root Capital’s core fund. An indirect cost incurred may be additional time spent on deals due to a greater need of learning and risk assessment. Repayment is made directly to Root Capital instead of via buyers, therefore incurring less processing costs of invoices and such. Heavier monitoring will be necessary, at least in the beginning, until we have a better risk assessment of the sector as a whole and can better identify low and high-risk clients.

Different to that of our core fund, we expect to also incur costs associated with local currency lending. We are in the process of determining the best practices for local currency lending and what costs are associated with this, as well as developing a pricing policy to inform Loan Officers and create a standard method for pricing across countries.
Social
Availing improved seed at affordable prices and with rural reach gives smallholder farmers the opportunity to improve yields, increasing both food security within the country as well as farmer income.

Environmental
By increasing crop yield and smallholder income, improved seeds may help to prevent agricultural expansion and thus reduce the degradation of natural landscapes associated with rural poverty.

SECTOR APPROPRIATENESS FOR ROOT CAPITAL MODEL

Cash Flow Characteristics

i. Seasonality

Seasons are in line with the rainy or growing season in each region. Foundation seed is multiplied during one growing season and off-sale takes place just before and during the next rainy season. Financing needs fall in between the season of multiplication and off-sale. The Root Capital model is structured to fit seasonal lending and this is not new to the model.

ii. Certainty of cash flow

Financing needs are fairly certain. At the time of a loan application, foundation seed is in the ground and it should be fairly certain how much tonnage the seed company will have access to (based on certification detailed earlier). Repayment however, is slightly more uncertain. Off-sale is highly dependent on the rains - farmers don’t purchase seed in anticipation of rains, but rather when the rains come. Therefore, if rains are delayed, off-sale will be delayed and the seed company may not be able to make repayments as scheduled. If rains cease to come, farmers may be reluctant to purchase and invest in seed at all and rather choose to plant farmer-saved seed at a lower risk in case of drought.

Collateral

i. Common forms of collateral

Common forms of collateral vary quite significantly from our core fund and the traditional forms of buyer contracts. With seed produced and marketed to local consumers through a variety of agro-dealers and wholesalers, we are not able to secure seed-loans with contracts, as it would be too difficult and cumbersome. In addition, it would not be practical to make repayment arrangements with many small agro-dealers due to their numbers.

We are currently working on putting together a collateral policy, based on the deals that we have done in the Innovation Fund, to-date. This will help inform Loan Officers of acceptable forms of collateral, as well as how to value such.

Common forms of collateral for seed companies are the following:

- Mortgage on land (personal or owned by the business)
- Floating debenture over assets (i.e. inventories, receivables, cash)
- Personal guarantee from the shareholders/directors

ii. Reliability

Because the price of land does not depreciate and one would not need a court order to realize in need, mortgages are quite a secure form of collateral if available. Debentures are also quite strong securities allowing us to close in and place a company under liquidation without having to go to court either. Personal guarantees however, are more for the incentive value and also for obtaining a good level of commitment from the shareholders rather than a strong form of collateral.
**Transaction Costs and Repayment**

i. **Monitoring**

Monitoring of seed companies needs to be much more intense because we do not have relations with end-customers to verify the company's position with shipments and off-sale. There needs to be a fairly good level of relationship management/closeness, so as to be clear of what is happening at all times with more informal communication with the proprietors and their key staff whenever possible.

ii. **Repayment**

Repayment is direct from the seed company in the lending currency.

**KEY LESSONS**

i. **Grace period**

With both of our first two clients, we quickly realized that we should have factored in a slightly longer grace period. This was first because disbursement took longer on our end than anticipated sorting out new legal documents for the different kinds of security we were asking for. Also, the rains in the short rainy season were slightly delayed, delaying off-sale of seed. This is unpredictable, and we learned that to avoid having to restructure loans in the future, we should factor in a slightly longer grace period so as to allow for delays in disbursement as well as rain delays.

ii. **Advisory services**

In working with the current clients as well as interacting with various other companies in the sector, we learned that because local seed companies are quite new, there seems to be a lack of business acumen and especially financial capacity – even though many companies have access to technical expertise through their management team or third party players like AGRA. In the future we may need to ensure that we, or a partner organization, can provide financial advisory services to clients.

iii. **Grantee syndrome**

A key learning in working primarily with former grantees of AGRA is that prospective clients must understand what it means to take on debt. With Tanseed, even though we explicitly defined debt lending and talked a lot about operating as a for-profit company and rather than as a grantee, they still behaved like a grantee, allocating funds to salary arrears that were not discussed, missing scheduled payment dates without warning, avoiding communication, etc. After quite a bit of monitoring and advising from our end, management seem to be on a much better track now and have grasped what it means to take on debt - but this did not come without energy and effort on our end.

iv. **Government market involvement**

Government’s involvement can provide a seed company with strong demand, but the problem is that governments are not always prompt with payments and can significantly affect an SGB's cash flow and create working capital constraints. Most notably in our experience, the Tanzanian Government's delayed payments spill into the next harvest season so that Tanseed has large receivables on its books and is in default of its current facility when it should be taking on its next loan to purchase seed at the harvest. Unfortunately, governments can be a necessary evil in a seed company's customer base.
ADDITIONAL DOCUMENTS & RESOURCES
1. Food Security in Africa PowerPoint
2. Seed Industry Due Diligence Questions
3. Seed Client PPA's: Leldet, Tanseed, Freshco