CB FARM FRESH’S SMALLHOLDER BUSINESS MODEL: THE CASE OF HORTICULTURE IN MOZAMBIQUE

CASE STUDIES ON PUBLIC-PRIVATE AGRICULTURE INVESTMENTS

Dalberg GROW AFRICA
HALF OF ME IS A BUSINESSMAN WHO WANTS TO BUILD A BUSINESS THAT WORKS AND MAKES A PROFIT FOR EVERYONE INVOLVED, AND HALF OF ME IS AN AFRICAN WHO GREW UP IN AFRICA AND SEES THE POTENTIAL OF THE RURAL DISTRICTS AND THE POTENTIAL TO CHANGE THE LIVES OF PEOPLE IN THOSE COMMUNITIES.

- SHAUN CAWOOD, Chief Executive Officer, CB Farm Fresh

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GROW AFRICA

Founded in 2011, Grow Africa is focused on accelerating investments for sustainable growth in African agriculture. Since then, Grow Africa partners have committed over $10 billion of planned investment.

Grow Africa also promotes accountability and learning through targeted case studies on the effectiveness and performance of public-private investment partnerships, in particular their impact towards achieving the goals of poverty reduction and agricultural growth in Africa.

In this context, Grow Africa launched a series of studies on investments taking place by members of the Grow Africa partnership platforms to identify successes and challenges, characterize the potential and actual impact of these investments, and extract lessons and recommendations for their future direction as well as for other initiatives in the sector.

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Dalberg has a global network of offices, including four in Africa: Copenhagen, Dakar, Geneva, Johannesburg, Lagos, London, Mumbai, Nairobi, New Delhi, New York, San Francisco, Singapore, and Washington DC. In Africa, it has worked in 45 countries, working closely with international and local private-sector actors, federal and state governments, multilateral agencies and non-government organizations in a range of sectors including agriculture/FMCG, financial services, education and health.

ACKNOWLEDGEMENTS

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The report was written by Tanis Beard, Samuel Miles and Wijnand de Wit from Dalberg Global Development Advisors for Grow Africa.

EXECUTIVE SUMMARY

TWO DECADES AFTER THE END OF A 15-YEAR STRUGGLE FOR INDEPENDENCE, MOZAMBIQUE IS OFTEN HERALDED AS AN AFRICAN SUCCESS STORY. SUSTAINED PEACE AND POLITICAL STABILITY HAVE ACCOMPANIED DECADE-LONG GROWTH RATES OF 7%.

However, behind this impressive growth story lies intractable poverty rates, rooted in the limited development of the agriculture sector and rural markets, which employ 80% of the national population. The agriculture sector has great potential to alleviate rural poverty, but the sector has not been performing as well as expected. Despite agricultural growth rates of 8% a year, the growth of the sector is largely driven by the expansion of land under cultivation rather than an increase in productivity, with yields remaining stagnant across food and cash crops. Overall, productivity remains below that achieved pre-independence, with farming failing to meet its potential to alleviate rural poverty.

Commercial agriculture in Mozambique remains underdeveloped and successful cases of smallholder inclusive business models are rare. In addition to “doing business” constraints at a macro level, smallholder inclusive business models – whether in “out-grower” schemes or other arrangements – pose additional challenges to competitiveness. Low-quality product, insufficient and inconsistent supply, mutual issues of mistrust and a post-war culture of hand-outs can make it more profitable for some companies to import primary produce or work with large-scale farmers. CB Farm Fresh is a smallholder-inclusive vegetable processor and distributor serving the extractives industry in Tete. This case study aims to understand how smallholder-inclusive business models can be successfully implemented by assessing CB Farm Fresh’s end-to-end model. Evidence from the initial proof-of-concept highlights two interventions of the CB model that ensure successful integration of smallholder farmers:

1. Upskilling local farmers and incentivizing performance. Evidence from the proof of concept suggests that, with CB’s support, local farmers can produce the quality and quantity of horticulture yields necessary to feed CB’s processing factory. Orlando Vareta, CB’s first farmer and now production director, is producing irrigated yields of ~50 tonnes, ~35 tonnes and ~27 tonnes per hectare for tomatoes, onions and lettuce, respectively, which represent a staggering increase of 6,000% on rain-fed yields. Unlike many outgrower programmes that tend to work with one-hectare subsistence farmers, CB Farm Fresh prefers to work with farmers who are already on the road to semi-commercial status. Through a three-week, hands-on capacity-building programme at the CB model, the company aims to equip farmers with the right skills to produce more and better. Demonstration farms, owned and tended by local farmers, incentivize farmers through tangible results.

2. Supervising, irrigating and connecting farmers to markets. Perhaps the most important component of the CB model is access to new, guaranteed markets. Without this, horticulture farmers struggle to sell any surplus, given that the local market is too small and linkages too fragmented to absorb current production. On average, CB pays farmers a 15% mark-up on the local market price for fresh vegetables. On one hectare of irrigated mixed vegetables bought at CB prices, Orlando Vareta can earn a net profit of ~$6,000 per hectare per year. Through a farmer-to-farmer supervision model, CB aims to scale up, training and sourcing from 200 additional farmers in the next five years.

The preliminary results of the proof-of-concept are positive; however, additional evidence needs to be gathered as the company scales up. Three potential risks and considerations have been identified and should be monitored to sustain success. These include:

1. Ensuring financial sustainability by diversifying markets and funding streams
2. Reinforcing back-office support to maximize efficiency
3. Monitoring the introduction of new elements to the model and adjusting accordingly
1. AGRICULTURE IN MOZAMBIQUE: A STORY OF UNTAPPED POTENTIAL

TWO DECADES AFTER THE END OF A 15-YEAR STRUGGLE FOR INDEPENDENCE THAT KILLED 1 MILLION PEOPLE, DISPLACED A FURTHER 5 MILLION AND DECIMATED THE COUNTRY'S INFRASTRUCTURE, MOZAMBIQUE IS NOW REGARDED AS AN AFRICAN SUCCESS STORY.

Sustained peace and political stability have accompanied decade-long growth rates of 7% driven by foreign direct investment in large-scale and mega projects focused on the extractive sector. The “Mozambican miracle”, however, has not been matched by an improvement in the country’s social indicators, given the capital-intensive nature of these investments and their limited contribution to poverty reduction. Between 2002 and 2009, poverty rates increased from 54.1% to 54.7%, and in 2014, the United Nation’s Human Development Index, which measures individual country performance across health, education and life expectancy, ranked Mozambique 178th of 187 countries. As such, the benefits of Mozambique’s upward economic trajectory have not yet resulted in a positive development story.

The agriculture sector has great potential to alleviate rural poverty, but the sector has not been performing as well as expected.

Agriculture in Mozambique employs 80% of the labour force and accounts for 80% of rural income. Given the country’s significant natural endowments and its strategic location at the intersection of landlocked Southern and East African markets, Mozambican agriculture could lift rural populations out of poverty if yields and market linkages were improved. However, this potential has yet to be realized, with 95% of farming households oriented towards subsistence, and over half of these are food insecure.

Despite agricultural growth rates of 8% a year, the growth of the sector is largely driven by the expansion of land under cultivation rather than an increase in productivity, with yields remaining stagnant across food and cash crops (See Figure 1). Where production has increased, this tends to be a result of large investments in commercial, export-oriented agriculture, although even these are relatively limited.

The smallholder sector in Mozambique, as elsewhere in Africa, is characterized by limited agricultural know-how and low uptake of technology, compounded by insufficient government budget allocation (3%-5% of national budget, compared with the African Union CAADP target of 10%). Overall, productivity remains below that achieved pre-independence, with the agricultural sector failing to meet its potential of alleviating rural poverty.

Commercial agriculture in Mozambique remains underdeveloped and successful cases of smallholder inclusive business models are rare.

High finance, input and transport costs, and poor infrastructure make Mozambique relatively uncompetitive for commercial agriculture. In the Beira Corridor, the focus of this case study, only 0.3% of total arable land is farmed commercially.

Smallholder inclusive business models pose additional challenges to competitiveness. Low quality product, insufficient client and inconsistent supply, issues of mutual mistrust and a post-war culture of hand-outs can make it more profitable for some companies to import primary produce or work with large-scale farmers. While policy developments can reduce the costs of doing business at a macro level over the mid to long term, agribusinesses can make direct smallholder sourcing profitable in the short term and contribute to poverty reduction.

Through an end-to-end model centred on a core processing business, CB Farm Fresh, the focus of this case study, has gradually increased its reliance on locally sourced produce by building relationships and capacity among high-potential local farmers.

As such, CB is an example of an agribusiness tackling a number of these constraints, providing lessons for others working in this space.

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1. Mosca (2011) argued that the international community has emphasized the Mozambican “success story” to demonstrate the validity of their work and obtain political gains from it.
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7. In the female labour force, this figure rises to 90%. Rosario (2012), “From Negligence to Populism: An Analysis of Mozambique’s Agricultural Political Economy”.
8. Around 117 of 128 districts received some extension services in 2007, with only half of this from the government. Poor agronomic techniques among the farming population are compounded by low and stagnant irrigation penetration (7.8% irrigation penetration since 2003 and low use of fertilizers 6.64kg/ha, compared with the African average of 15.8kg/ha).
10. For example, fertilizer costs per tonne are $1,023, compared with $760 in Zambia, $682 in Tanzania and $514 in Kenya. The cost of credit (17% base rate) is on a par with that in other countries such as Tanzania and Ghana, out of reach of most SMEs. The legacy of civil war has left Mozambique’s paved roads and electricity grid penetration at 27% and 11.6%, respectively, posing challenges for aggregation and distribution, as well as effectively doubling the costs for irrigation given the high cost of diesel.
2. CB’S APPROACH TO BUILDING SUSTAINABLE AGRIBUSINESS

CB FARM FRESH (CB) IS A COLD STORAGE, PROCESSING AND DISTRIBUTION BUSINESS FOR FRESH VEGETABLES SERVING THE EXTRACTIVES INDUSTRY IN TETE.

In Mozambique, it is one of only two companies adding value to fresh vegetables through basic processing like washing, peeling, cutting and packaging. Founded in 2009, the company began sourcing its fresh produce from South Africa, given the highly perishable nature of the product and the inability of the local market to meet high standards for quality.13

Six years later, through a tightly integrated end-to-end model where CB provides education, oversight and access to inputs for production-related activities, the company is now able to source 85% of its produce locally to feed its 120 tonne/month processing factory. As such, CB is on track to reach a target of 100% locally sourced produce by the end of 2015.

Currently, Mozambique imports ~$1.3 million fresh vegetables per month, growing by a year-on-year rate of 10% to feed the country’s rapidly growing supermarkets, catering companies and hotels.14 CB’s Chief Executive Officer Shaun Cawood explains that sourcing from local smallholder farmers is a viable alternative model, provided they receive support to produce the right quality required by this high-end market.

CB takes responsibility for every step of the value chain, from inputs to transport, distribution and marketing of the final product.15

CB has taken a proof-of-concept approach to building the business. By starting small and emphasizing quality over quantity, CB has worked to ensure the key elements are in place at production, processing and marketing before it scales up. On the production side, CB’s first farmer and public face of the company won the prestigious Mozambican Farmer of the Year award in 2012 for the quality and quantity of his yields achieved with CB’s support. On the processing side, CB’s 120-tonne factory is operating at 80% capacity and has created ~50 local jobs. On the marketing side, CB has built a solid reputation for the quality and reliability of its service and now has an annual turnover of $6 million a year. Over the next five years, CB will expand its operations, aiming to train up and source from around 200 irrigated vegetable farmers and create about 3,000 additional farm-labouring jobs through...
CB has established long-term relationships with Mozambican farmers and invested in a model school to build the capacity of the next generation of farmers to feed its processing factory.

This capacity-building element finds alignment with the mission of the local government development agency, Agencia do Vale de Zambeze, to spur social and economic development in the region through enabling private-sector growth with a focus on capacity-building. As a result, Agencia do Vale de Zambeze has invited CB to sit on an advisory panel for agribusiness developments in the region. The company has also achieved recognition at a national level, receiving visits from the former president of the Republic of Mozambique, who inaugurated the model school in 2014, and the vice-president, who visited the company to learn more about CB’s local sourcing model and how it benefits local farmers. Orlindo Vareta, CB’s first farmer and now production director, has become the public face of the company and his central role in CB’s business further legitimizes the company in the eyes of local and national governments. Building relationships with local government from the outset and providing regular updates on the socioeconomic impact of the project helps build operational credibility.

**CB Farm Fresh’s long-term goal is to improve farmers’ and rural communities’ livelihoods through the development of the local horticulture ecosystem.**

**CB’s approach to effecting change is visualized in Figure 3; this approach encompasses the development of the horticulture ecosystem, but the company also has plans to apply the same model to staples and oil-seed value chains in the immediate future. A full list of indicators to track progress of the programme based on its theory of change can be found in annex.**

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<th>2. LEAD FARMERS</th>
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<tbody>
<tr>
<td>Model schools provide training on good agronomic techniques and demo farms incent or farmers to produce more and better.</td>
<td>Lead farmers oversee ~20 farmers providing technical support and channeling inputs from CB through a tiered management and learning structure.</td>
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**FIGURE 2. CB FARM FRESH MODEL FOR HORTICULTURE**

**THE CB FARM FRESH MODEL FOR HORTICULTURE**

**FIGURE 2. CB’s end-to-end approach to develop the horticulture value chain**

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<th>3. MICROBUSINESSES</th>
<th>4. PRE-PROCESSING DEPOTS</th>
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<tr>
<td>CB-supported microbusinesses will provide packaging and processing services to farmers.</td>
<td>Each lead farmer will have a small depots and cold storage to ease aggregation, in-season cool, and for refrigeration before the CB truck arrives.</td>
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**PAST SUCCESSFULLY COMPLETED**

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<tr>
<th>5. FROZEN PROCESSING PLANT &amp; CB COLD STORAGE</th>
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**FUTURE PLANS**

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<td>CB currently serves the mining industry in Tete, but has plans to target supermarkets in its two core markets in Zimbabwe and Zambia.</td>
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**IN-PROGRESS**

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**THE CB FARM FRESH MODEL FOR HORTICULTURE**

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Increase in high-quality, locally sourced vegetables, oil seeds and staples

Support farmers and rural communities improve their livelihoods through the development of the local horticulture ecosystem

INTERVENTIONS

Establish model schools and demonstration farms and provide high-potential farmers with training and incentives

Establish farmer management and learning structures where ‘lead’ farmers oversee 20 other farmers in their semi-commercial activities

Install irrigation on lead farmer lands and give them access to quality inputs and mechanization for all farmers, repayable in kind

Support the growth of micro-businesses in tangential activities such as packing, development and composting

Establish cold storage, processing and seed facilities to transform fresh veggie into cut and packaged veggie and oil seeds into mal feed and oil

Establish frozen processing facility to transform fresh veggie into frozen veggie

Provide a guaranteed end market for farmers’ product

Establish storage and distribution centres and deliver CB branded products to clients in Mozambique and abroad

OUTPUTS

Farmers use improved agronomic techniques, quality inputs and irrigation

Improved facilities for inputs, outputs and value addition are up and running

Farmers get a fair price for their product

Storage and distribution centres are up and running in Mozambique & abroad

MARKET ACCESS

PRODUCTION RELATED ACTIVITIES

PROCESSING

FIGURE 3. CB Farm Fresh Theory of Change
3. CB FARM FRESH: RESULTS ACHIEVED & LESSONS LEARNED

UPSKILLING LOCAL FARMERS AND INCENTIVIZING PERFORMANCE

UNLIKE MANY OUTGROWER PROGRAMMES THAT TEND TO WORK WITH ONE-HECTARE SUBSISTENCE FARMERS, CB FARM FRESH PREFERS TO WORK WITH FARMERS WHO ARE ALREADY ON THE ROAD TO SEMI-COMMERCIAL STATUS.

CB farmers tend to be older, experienced farmers who have more than three hectares each and are producing above-average yields (see Table 1).

To be considered for integration in the company’s sourcing model, CB farmers’ commitment to further improving their yields, incomes and livelihoods. As such, CB does not start from ground zero, but selects farmers they consider to have high potential to increase their chances of success. To do this, CB looks at their yields for maize as an indication of their potential for irrigated agriculture production. All farmers are selected within a 20 km radius of the CB factory, given that CB trucks will be travelling to each of the lead farmer aggregation points to pick up produce during the harvest.

Orlindo Vareta, CB’s first farmer and now production director, has a four-year track record of successful collaboration with the company. A retired police commissioner who started farming on one hectare, Orlindo Vareta is now farming eight hectares of horticulture and 10 hectares of maize, producing international best practice yields. Through a package of drip irrigation, technical advice and high quality inputs, Orlindo Vareta was honoured as Mozambican Farmer of the Year in 2012. Orlindo Vareta is now tasked with training the next generation of farmers to produce similar yields to supply CB’s vegetable processing factory.

To train and select the best farmers, CB provides a three-week, hands-on capacity-building programme at Orlindo Vareta’s farm in the district of Moatize, not far from Tete.

The training programme is twofold: to teach farmers how to produce high quality, high yielding vegetables through provision of practical agricultural advice; and to screen and select the most promising farmers who will conscientiously apply what they have learned to their own fields in the second week of training. The best will receive reimbursable, zero-interest installation on their lands, and CB Farm Fresh will source vegetables directly from these high performers to feed the CB processing factory.

The training is longer than standard 2-3 days provided by NGOs or other agricultural businesses in the region, and the cost is relatively high, at $100 per student, currently funded by local government. CB believes that investing in farmer training and selection is the first step towards building a sustainable smallholder supply base to feed CB’s processing factory, given the high yields and quality necessary for commercial viability. This is supported by the literature that suggests that training last a single day is not as effective as longer offerings.

However, CB should re-evaluate the financial sustainability of the model, given unpredictable government funding streams, and consider alternative financing options. Given the net income achieved by CB-supported farmers (see Figure 5), deducting a portion of this from revenue may be a viable option.

When asked what makes this training programme different to any other ‘schooling’ they have received, farmers pinpoint a greater degree of practical exposure and much less emphasis on theory.

The school, called the ‘Centre for the Transfer of Agricultural Technology’ (C.T.A.T.) and covering a cost of $100 per student, currently funded by local government.

21. This first school and demonstration farm are both located on Orlindo Vareta’s land. The school was funded in full by CB’s largest buyer, the catering company SERCO, as a corporate social investment contribution. The demonstration farm is financially supported by CB Farm Fresh, which pays $500 - $100 per month to the farmer to compensate him for the loss of income associated with use of fields for trials, experiments and the demonstration effect of poor technique crops. Vareta’s school has classroom capacity and built-in dorms for up to 30 students, and also benefits from a small cold storage facility.

22. This cost covers food, transport and accommodation, as well as a contribution towards teacher salary.

<p>| TABLE 1: Yields comparison for non-CB farmers, ex-ante CB selected farmers, and Orlindo Vareta |</p>
<table>
<thead>
<tr>
<th>YIELDS</th>
<th>SMALLHOLDER (EX-ANTE)</th>
<th>CB FARMER YIELDS</th>
<th>IRREGATED CB FARMER YIELDS (ASPIRATIONAL)</th>
</tr>
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<tbody>
<tr>
<td>Maze</td>
<td>0.7 tonnes/ hectare</td>
<td>1-4 tonnes/ hectare</td>
<td>10 tonnes/ hectare</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>0.7 tonnes/ hectare</td>
<td>-</td>
<td>49.2 tonnes/ hectare</td>
</tr>
<tr>
<td>Onions</td>
<td>0.6 tonnes/ hectare</td>
<td>-</td>
<td>35.9 tonnes/ hectare</td>
</tr>
<tr>
<td>Lettuce</td>
<td>0.5 tonnes/ hectare</td>
<td>-</td>
<td>26.6 tonnes/ hectare</td>
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niques” in Portuguese, aims to provide practical opportunities to ensure farmers remember what they have been taught.24  

Classroom learning is complemented by in-field instruction on the demonstration farm, also located on Orlando Vareta’s land, where students have the opportunity to learn by doing, under the supervision of their teachers.25 In addition to practical exposure to improved techniques, the demonstration farm has an important role in overcoming the scepticism often prevalent in older farming communities after years of donor projects and programmes implemented with little success. Since the end of the civil war, Mozambique, often termed a “donor darling”, has been the recipient of myriad in- ventions to help the country get back on its feet, not least in agriculture. In Tete, farmers explained that these projects had not been successful for a number of reasons, either because they were advised to plant one crop over another without any consideration for whether a market exists, or because training was provided as a “one-off” without any follow-up. As a result, the CB Farm Fresh team highlighted a degree of resistance among the older farming community to non-traditional techniques and technologies, often branded coisa dos brancos (“white people’s things”). Government extension workers also face similar resistance. To combat this, the CB demonstration farm, owned and tended by a Mozambican, illustrates that tangible results can be achieved by Mozambican farmers with rewards accruing to farmers themselves. On the demonstration farm, small plots of trial land are cultivated using traditional techniques, illustrating the differences in crop yields and health. CB provides a further layer of incentives to undo what agronomists criticize as a prevailing culture of hand-outs, another legacy of the “donor darling” phenomenon. This is particularly prevalent with regard to agricultural lending, with financial institutions in Mozambique explaining that farmers do not understand what it means to pay back a loan after years of free money.26 To combat this, CB provides an additional layer of incentives at the start of the training: Orlando Vareta explains to farmers that the greatest rewards will be given to those who work and “if you’re looking for hand-outs, there’s the door.” In a similar vein, once farmers are selected, CB offers to mechanize land preparation but looking for hand-outs, there’s the door.” In a similar vein, once farmers are selected, CB offers to mechanize land preparation but not planting; if yields are poor, farmers will blame CB rather than themselves. To address these needs, CB aims to establish farmer-to-farmer management and learning structures, where “lead” farmers oversee around 20 others in their semi-commercial activities. Lead farmers are expected to play a critical role in the CB supply chain, both in their role supervising other farmers and as an irrigated supplier of fresh vegetables feeding the CB processing factory. Each lead farmer, selected for their role in the community, land size (1-10 hectares) and commitment to farming, selects 15-20 farmers in their area to support the fulfillment of production contracts signed with CB (see annex for lead farmer profiles).30 These farmers cultivate their own land, but receive ongoing support from their lead farmer, who provides trouble-shooting advice, as well channeling CB-facilitated inputs, drip irrigation and mechanization, reimbursable in kind. Drip irrigation is a critical determinant of higher quality and quantity yields, but requires a certain level of technical knowledge for operationalization and upkeep. A management and supervision structure of this kind tends to drive adoption of new agricultural techniques, assurance quality control and ease aggregation challenges at harvest.31 Following harvest, CB sends its own trucks to pick up the produce and bring it back to the factory for rapid refrigeration and processing. Lead farmer structures have been employed in a range of value chains across Africa, especially when technological uptake and behavioural change are important challenges.32 However, for lead farmer structures to be successful, research indicates that careful farmer selection, training, and an understanding of farmer motivations are important factors to consider when scaling up.33 First, the assumption underlying lead farmer models is strengthened by a number of value chains across Africa. Additionally, where technological uptake and behavioural change are important challenges.32 However, for lead farmer structures to be successful, research indicates that careful farmer selection, training, and an understanding of farmer motivations are important factors to consider when scaling up.33 First, the assumption underlying lead farmer models is strengthened by a number of precedents for this model in Africa, such as the role of farmer group leaders in horticulture chains in Kenya and local farm managers in South Africa. A company recruiting for a farm manager or technical production agronomist

### FIGURE 4: Farmers testing correct spacing

<table>
<thead>
<tr>
<th></th>
<th>Revenue</th>
<th>Cost</th>
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<tbody>
<tr>
<td>Fertilizer</td>
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<td>Herbicides</td>
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<td>Fungicides</td>
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<td>Insecticide</td>
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<td>Seed</td>
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<td>Labor</td>
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<td>Fuel</td>
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| $158 Additional Revenue for farmers

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<tr>
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<th>Average Net Income/Tax</th>
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### FIGURE 5: Orlando’s net income per hectare ofaving original horticultural cultivation

24. Centro de Transferência de Tecnologias
25. The school curriculum, partly developed by CB’s Shaun Cawood and Orlando Vareta, is made up of five basic modules: seedling development, composting (organic and chemical), land preparation (digging, fertiliser application), spacing and pest control.
26. Stakeholder interviews.
28. Ensuring the right incentives are in place to optimize performance, is also a mechanism applied to CB’s own cold storage and pack house staff. CB awards monthly bonuses to heads of department (cold storage, processing, transport and maintenance) with staff receiving the bonus only if they reach their targets for the month. This is an example of a typical incentive on Orlando’s farm split between butterfish, carrots, onion, potatoes and sweetcorn.
29. As CB scales up, each lead farmer will have a small depot and cold storage in their area to ease aggregation, to remove cost, and for refrigeration before the CB truck arrives.
30. Orland Vareta takes a hands-on scouting approach to look for the right people to take on the lead farmer role. It is a conscious decision that has all of the lead farmers identified for 2015 are retired public-sector workers. In this way, their financial and people-management skills and education equip them with business leadership.
31. As CB scales up, each lead farmer will have a small depot and cold storage in their area to ease aggregation, to remove cost, and for refrigeration before the CB truck arrives.
32. There are many precedents for this model in Africa, such as the role of farmer group leaders in horticulture chains in Kenya and local farm managers in South Africa. A company recruiting for a farm manager or technical production agronomist
that farmers learn best from their peers, or those of slightly high-
er social status.34 As such, CB might complement their current
approach by increasing the role of the community in lead farmer
selection to ensure buy-in and sustainability. CB should also be
wary of selecting farmers who already hold a leadership role in
their communities, as these will likely have less time to devote to
their lead farmer responsibilities.35
Second, periodic training can be important in ensuring farmers’
skills are maintained, given trends to offer one-off training at re-
cruitment. CB is already offering a full training package through
the model school, but could consider refresher sessions throughout
the year.
Third, a survey of lead farmers in Malawi indicates that knowledge
improvement and altruism are two of the most cited motivating
factors that drive farmers to take on a lead farming role. For those
motivated by altruism, public recognition such as certificates, ap-
preciation from local leaders and T-shirts are a means to further
incentivize these farmers. For those driven by improving their
knowledge, training and study tours with other lead farmers can
be an effective way to sustain their motivation. Understanding this
could be the basis of low-cost incentives that ensure CB’s lead
farmers perform to the best of their ability.
Social branding is another way to achieve behavioural change. CB
is already taking a social marketing approach, through caps and
T-shirts, to further increase success of this scaling mechanism. CB
could consider taking these further, designing tools like rural
signposts, mass SMS campaigns and word-of-mouth campaigns
to drive increased adoption of new techniques.36

Perhaps the most important component of the CB model is access to new, guaranteed markets.

CB sends its own trucks to pick up produce at farmgate following harvest, connecting farmers to markets. Without this access to formal assured markets, horticulture farmers struggle to sell any surplus, given that the local market is too small to absorb current production and trade through other channels is highly fragmented and unreliable.
In addition, the perishable nature of vegetables, exacerbated by poor transport links and high temperatures, leads to losses in excess of 30% if produce is not harvested and sold quickly.37

Side-selling is not a problem in this situation; however, it may become more of an issue when moving into maize and oilseed, and warrants further study from CB.38,39

As an off-taker working to develop upstream activities, CB supports farmers to increase the quality and quantity of their yields, but only insofar as the market exists to absorb the increase in production, scheduling farmer planting based on forward delivery contracts secured with CB’s clients to ensure little is wasted.

CB looks first at the market opportunities, and then moves backwards down the chain to facilitate farmers’ access to these opportunities. CB’s market-oriented approach distinguishes it from the existing programmes farmers are familiar with in the region which, they explained, tend to focus on production without con-
sideration for whether a market currently exists, and tend to be short-lived given the nature of donor funding cycles. As an off-tak-
er issuing contracts with market sustainability in mind, CB en-
sures that very little of farmers’ produce goes to waste.40

The rewards for the resulting increase in quality and quantity are significant.

On average, CB pays farmers a 15% mark-up on the local market price for fresh vegetables. On one hectare of irrigated mixed veg-
etables bought at CB prices, Orlindo Vareta can earn a net profit
of $5,500 per hectare per year (see income table below). This is
significant, and compares extremely favourably to the minimum
wage paid to employees of the extractives industry ($2,000/year),
or the minimum agricultural wage (~$1,080/year).41

The demonstration effect is strong, with other farmers citing
Orlindo Vareta’s success as a key motivating factor for integration
into the CB programme.

1. Starting small and proving the concept can provide a solid basis to optimize a smallholder-sourcing model before scaling up
2. Building relationships with local government from the outset and providing regular updates on the socioecon-
omic impact of the project builds operational cred-
ibility
3. Careful screening and selection of farmers can be the first step to creating a reliable smallholder supply base
4. Demonstration farms, owned and tended by local farmers, incentivize farmers through tangible results
5. Well-structured farmer-to-farmer supervision models tend to facilitate quality checks, ease aggregation challenges and incentivize behaviour change when scaling up.

Where CB Farm Fresh currently sources the bulk of its local pro-
duce from first farmer Orlindo Vareta, the training of the next
generation of farmers (~15 per month) commenced in February
2015, with sourcing relationships established as of April 2015. To
sustain success as CB scales up, a number of considerations and
potential risks have been identified that should be closely moni-
tored. Three main categories of considerations are described in
the following paragraphs:

Ensuring financial sustainability by diversifying markets to ensure consistent sales.

Given CB’s current market reliance on Tete’s extractives indus-
try, there is limited local potential to absorb the additional supply
that will result from CB’s scale-up. As such, CB should continue to
prioritize securing new domestic markets. While the frozen pro-
cessing initiative will absorb a portion of this and foreign markets
seem very promising over the mid to long term, there are short-
to mid-term opportunities for new fresh-produce customers in
Mozambique. Mozambique’s supermarkets currently import up
to 93% of total produce from elsewhere, given challenges finding
high-quality, reliable sourcing relationships with suppliers who have their own transport and distribution.42

SUSTAINING SUCCESS AS CB FARM FRESH SCALES UP

THE INITIAL PHASE OF CB’S OPERATIONS, IN WHICH THE
COMPANY HAS PROVED ITS BUSINESS CONCEPT ON A
SMALL SCALE, PROVIDES A SOLID BASIS FOR SCALING UP.

at scale would not necessarily be a fresh graduate from the national agricultural
university, but a successful and respected local farmer who already works with
the company and can be trusted.

Nairobi, World Agroforestry Centre.
34. Feder and Sauerland (2006). The role of opinion leaders in the diffusion of new
knowledge: the case of integrated pest management”. World Development 34 (7).
35. “Side-eating” is also a potential risk. Risk-averse smallholders cultivating maize,
soybeans and sorghum may eat their own produce to ensure consumption and improve their own
food security if market prices are low, as they tend to be after harvest.
36. Farm-Flux, currently active in Tanzania and Uganda, is in good prac-
tice example of an effective channel for social marketing at scale.
37. Commercial horticulture production requires irrigation, fertilization and rapid
refrigeration post-harvest to avoid spoilage.
38. CB recognizes that side-selling may become an issue when working in maize and
soy and, as such, is investing in the development of professional business rela-
tionships based on trust and fairness.
39. “Side-eating” is also a potential risk. Risk-averse smallholders cultivating maize,
soybeans and sorghum may eat their own produce to ensure consumption and improve their own
food security if market prices are low, as they tend to be after harvest.
40. Social branding is another way to achieve behavioural change. CB
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sideration for whether a market currently exists, and tend to be
short-lived given the nature of donor funding cycles. As an off-tak-
er issuing contracts with market sustainability in mind, CB en-
sures that very little of farmers’ produce goes to waste.
42. MMJ Safarian 2013-2014.
Sourcing from CB would help supermarkets fulfill desired local content quotas and provide fresh vegetables in areas such as Nampula, where very limited amounts are stocked at all. In the next year or so, new supermarkets will open in Tete, as well as the North-Eastern provinces (Nampula, Pemba, Palma, Quelimane and Beira), which will be easily accessible via the train planned to connect Tete with this region over the next few months. To maximize uptake of CB produce in supermarkets, CB should consider investing in quality packaging and branding, given anecdotal evidence which points towards a Mozambican bias for products produced in South Africa. As CB grows, it may be worth investing in hiring a professional marketing agency to this end. CB could also consider diversifying funding for the training programme to ensure financial sustainability. While the cost per student (~$100) is currently covered by local government, which has committed to funding this cost in the short to medium term, CB should explore options to diversify its funding base. One option could be to include this cost in the initial input package deducted from the final price paid for farmers’ produce. Given the high projected net incomes they are expected to achieve as a result of their earnings from the final price paid for farmers’ produce, this could be to include this cost in the initial input package deducted from the final price paid for farmers’ produce. Given the high projected net incomes they are expected to achieve as a result of their

refurbish back-office support to enhance efficiency and scale.

CB currently employs 35 people, the bulk of these working at the CB cold storage and pack house. On an administrative level, Shaun Cawood as CEO is responsible for general management, accounting and oversight of the day-to-day running of his operation. As CB grows, the CEO will not have the capacity to continue taking on this multipurpose role alone and this will create business continuity dependence on one individual. CB will need more and different types of leadership, skills and broader mission ownership to succeed, as is common to founder-led organizations when they grow. Beyond a professional audit of the company, which is a necessary step requiring external financing, CB will need to hire a professional accountant to manage the company’s books to professionalize the company. The logistics of paying farmers after harvesting will also become a challenge as CB scales. Mobile payment solutions have great potential to address this bottleneck, facilitating agricultural transactions and access to financial products. However, the costs for implementing mobile solutions are high and penetration of these products is very low in Mozambique. The Connected Farmer Alliance (CFA), a public-private partnership that seeks to promote commercially sustainable mobile agriculture solutions and increase productivity and revenues for 500,000 smallholder farmers across Kenya, Tanzania and Mozambique, could be a good place to start to understand some of the particular challenges and opportunities in Tete.

Monitor and adjust the model as new business elements are introduced.

While the considerations above relate to scaling up, CB will also introduce new business lines and other elements to their model that should be closely monitored. To begin with, while the local CB model for horticulture has proved successful on a small-scale, branching into soya and maize will bring a different set of issues. These crops have an alternative local market, which opens up the potential for side-selling as well as subsistence consumption. To mitigate this, lead farmers should be trained to understand and pre-empt the risk, as well as ensuring open channels of communication between Orlindo Vareta and lead farmers if and when this occurs. Instruments to mitigate this risk include introducing a floor price into the contract, which would ensure that CB prices never drop below the market rate. For all crops, the incorporation of multiple outgrowers with the scaled farmer-to-farmer model will also bring new challenges, requiring close management to ensure that every recruited farmer can achieve results similar to Orlindo Vareta. Careful recruiting will be necessary to find lead farmers that display the good farming practices and leadership qualities key to Orlindo Vareta’s success, as well as continuing to invest in relationship building evident in CB and Orlindo Vareta’s business partnership. Lastly, seeking and obtaining new market outlets for CB’s produce may introduce new and more complex quality or delivery requirements along with greater sales opportunity, especially if accessing export buyers with stringent requirements such as GlobalGAP. This may imply a greater investment in product management, marketing and branding to optimize CB’s profitability.

5. ANNEX

THIS CASE STUDY IS BASED ON A DEEP DIVE INTO THE CB FARM FRESH PROJECT CARRIED OUT IN FEBRUARY 2015 IN MOZAMBIQUE. THE STAKEHOLDERS CONSULTED DURING THE DEEP DIVE ARE AS FOLLOWS:

<table>
<thead>
<tr>
<th>TYPE OF STAKEHOLDER</th>
<th>NAME OF ORGANIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agribusiness</td>
<td>CB Farm Fresh Staff</td>
</tr>
<tr>
<td>Buyer (current)</td>
<td>Leading catering company</td>
</tr>
<tr>
<td>Buyer (potential)</td>
<td>Leading supermarket</td>
</tr>
<tr>
<td>Community leaders</td>
<td>Cateme community leaders, district of Moatize</td>
</tr>
<tr>
<td>Development actor</td>
<td>SNV</td>
</tr>
<tr>
<td>Farmers</td>
<td>Farmer Group 1: Future CB irrigation farmers</td>
</tr>
<tr>
<td>Farmers</td>
<td>Farmer Group 2: Future CB irrigation farmers</td>
</tr>
<tr>
<td>Farmers</td>
<td>Farmer Group 3: Future SNV dry crop farmers</td>
</tr>
<tr>
<td>Farmers</td>
<td>Farmer Group 4: Future SNV dry crop farmers</td>
</tr>
<tr>
<td>Government</td>
<td>Agencia do Vale de Zambeze</td>
</tr>
<tr>
<td>Irrigation provider</td>
<td>KSB Pumps</td>
</tr>
<tr>
<td>Other</td>
<td>Leading audit company</td>
</tr>
</tbody>
</table>
DONA MESSI

AGE 56

PROFESSION Lead Irrigated CB Farmer & Retired Public Servant

HECTARES 25

CROPS Maize, potatoes, tomatoes, cabbage

FARMER SUPERVISION 12 farmers

INTERESTING FACT Dona Messi has a 100 tonne storage warehouse on her farm

MOTIVATION “I love my land and working in the field, potatoes especially. My objective is to advance and get higher yields. I chose to work with these people as they are in my area and I know how they work.”

SENHOR MILIONE

AGE 58

PROFESSION Lead Irrigated CB Farmer & Retired Teacher at Public University

HECTARES 25

CROPS Maize, potatoes, tomatoes, cabbage, butternut, carrots, beetroot

FARMER SUPERVISION 15 farmers

INTERESTING FACT Milione has installed a make-shift irrigation system fed by a two-metre deep hand-dug reservoir

MOTIVATION “I’ve never seen drip irrigation - I want to learn about it. When I start working with CB, I’ll do more strawberry production. They can grow 9 months a year.”

The metrics and indicators below have been developed to measure the outputs, outcomes and impact of the Theory of Change. Two sets of indicators will be collected to measure incremental change: ex-ante data to describe the context prior to CB Farm Fresh’s intervention; and final data to capture incremental changes in early 2016. The ex-ante data does not include yields achieved by Orlando Vareta but rather captures data from new CB farmers who are to start supplying the company in April 2015.

FARMERS USE IMPROVED AGRONOMIC TECHNIQUE, QUALITY INPUTS AND IRRIGATION

2015 FINAL (2016)

# of model schools 1 schools - schools

# of farmers receiving training at the model school 30 farmers/year - farmers/year

# of farmers receiving the CB input and irrigation package 115 farmers - lead farmers

# of hectares of irrigation installed on farmer lands 8 hectares - farmers

IMPROVED FACILITIES FOR INPUTS, OUTPUTS AND VALUE ADDITION ARE UP AND RUNNING

2015 FINAL (2016)

Number of micro-businesses supplying CB farmers (specify which microbusinesses) 0 seeding nurseries - seeding nurseries

Total cold storage capacity 0 composting - composting

Total fresh horticulture 1500 tonnes - tonnes

Total frozen storage capacity 120 tonnes/month - tonnes/month

Total frozen processing capacity 0 tonnes - tonnes

Total estimated losses on-farm 0 tonnes/month - tonnes/month

FARMERS GET A PRICE PREMIUM FOR THEIR PRODUCT AND CB EXPERIENCES A GROWTH IN SALES

2015 FINAL (2016)

Price premium paid to farmers per kilo of product 0 lettuce %/kg - lettuce %/kg

0 onion %/kg - onion %/kg

1500 Tomato %/kg - Tomato %/kg

CB turnover 17.3 million mzn/month - mzn/month

Note: Lettuce, onion and tomato are CB’s top growing horticulture products. Interviews with Shaun Cawood.
**ACKNOWLEDGEMENTS**

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---

<table>
<thead>
<tr>
<th>DISTRIBUTION CENTRES ARE UP AND RUNNING IN MOZAMBIQUE AND ABROAD</th>
<th>2015</th>
<th>FINAL (2016)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of distribution centres in Mozambique</td>
<td>0 depots</td>
<td>- depots</td>
</tr>
<tr>
<td>Number of distribution centres elsewhere (specify where)</td>
<td>0 depots</td>
<td>- depots</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FARMERS USE IMPROVED AGRONOMIC TECHNIQUE, QUALITY INPUTS AND IRRIGATION</th>
<th>2015</th>
<th>FINAL (2016)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average CB farmer yields for horticulture</td>
<td>1-4 tonnes/hectare of crop (specify)</td>
<td>- tonnes/hectare of crop (specify)</td>
</tr>
<tr>
<td>Total volumes of produce CB sources locally</td>
<td>72 tonnes/month</td>
<td>- tonnes/month</td>
</tr>
<tr>
<td>Total % of vegetables CB sources locally</td>
<td>80%</td>
<td>- %</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SUPPORT FARMERS AND RURAL COMMUNITIES TO IMPROVE THEIR LIVELIHOODS THROUGH THE DEVELOPMENT OF THE LOCAL HORTICULTURE ECOSYSTEM</th>
<th>2015</th>
<th>FINAL (2016)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CB farmer net incomes from horticulture</td>
<td>0 mzn/hectare/cycle</td>
<td>- mzn/hectare/cycle</td>
</tr>
<tr>
<td>Farmer gross margins (revenue-costs/revenue)</td>
<td>n/a %</td>
<td>- %</td>
</tr>
<tr>
<td># of jobs created</td>
<td>80% farm labourer jobs</td>
<td>- farm labourer jobs</td>
</tr>
<tr>
<td></td>
<td>35 fresh processing jobs</td>
<td>- fresh processing jobs</td>
</tr>
<tr>
<td></td>
<td>8 other jobs48</td>
<td>- other jobs48</td>
</tr>
</tbody>
</table>

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48 These include jobs created in logistics (drivers), administration and finance.