



International
Labour
Organization

Issue Brief No 1, March 2017

Improving market access for smallholder farmers: What works in out-grower schemes – evidence from Timor-Leste

1. Key findings

- Smallholder farmers often lack access to profitable, value-added markets. In the absence of critical supporting functions – such as infrastructure and service provision – farmers struggle to shift from subsistence and barter to more productive forms of exchange.
- Contract farming models – where buyers and farmers enter into a forward agreement for agricultural production – is one way of linking smallholders to value chains. Such ‘out-grower’ models can result in improved access to technical assistance and inputs such as hybrid seeds, as well as a secured market and stable prices.
- 30% of the farmers participating in the scheme increased their income by 14 % or more and rose above the national poverty line. These results point to the potential for large income gains and improvement in the productivity of self-employment. However, the sustainability of results should not be taken for granted. Impact faded away as half of the farmers dropped from the out-grower scheme.
- Interventions can maximize their chances of success by a) ensuring contract farming does not overload support to small holders in the early stages of the scheme, b) by ensuring constant information flows between buyers and suppliers, and encouraging transparent setting of price ceiling and floors, and c) being open to adapt and change the scheme over time to arrive at a commercially viable model.

2. The challenge

Across the developing world, people rely on agriculture to generate income and support livelihoods. For those in poverty, however, farming is often characterized by low-value added activities – such as subsistence, barter or selling in local markets. Smallholders find themselves ‘locked out’ of more lucrative markets serving regional, capital, or export value chains. The reasons for this are due to a lack of economies of scale, low awareness of market

What Works in SME Development

The What Works in SME Development Series is presenting key findings of interventions promoting small and medium enterprises as a means to create more and better jobs. It covers ILO programs as well as interventions of other agencies using ILO products.

The main objective of the new Series is to increase the take up of effective SME programs by leading actors in this field. The issue briefs target ILO constituents, other policy makers, development practitioners, and the private sector presenting key evidence at a glance. Preference is given to rigorous quantitative research, but the Series also covers other research approaches contributing to more evidence on what works and what does not work.

The What Works Series is coordinated by the SME Unit of the International Labour Organization, for more info see www.ilo.org/sme



demand – as well as insufficient knowledge about production practices required to meet this demand – and poor infrastructure leading to high transaction costs.

The situation is no different in Timor-Leste where, despite recent and rapid oil-fueled growth, poverty has remained acute with half the population living on less than a dollar a day. Three quarters of the poor live in rural areas, and most of them are farmers. While demand for vegetable products in the country's capital Dili is growing, it is largely satisfied by rising imports. Domestic production of vegetables is small-scale, scattered, and lacking in supporting services. The country's first dedicated agricultural input supplier, for example, only opened in 2012.

The ILO Business Opportunities and Support Services (BOSS) partnered with Josephina Farm, a company supplying organic vegetable produce for onwards retail in the capital¹. BOSS supported Josephina Farm to set up an out-grower scheme to source produce from farmers in Ainaro – one of the poorest districts in Timor-Leste, but with an altitude, climate, soil quality favorable for horticulture production. The arrangement was designed to help the company secure a reliable, low-cost supply of vegetable produce, and give smallholders access a higher value-added market to increase their profitability and on-farm productivity.

The development impact logic of contract farming models is based on an assumption that switching from producing for own-consumption (where family food needs are satisfied first, with only the excess being sold) to producing for commercial markets (where market needs are satisfied first, and farmers may have to purchase staple crops to feed their family) results in net positive outcomes. It also based on the assumption that once the economic benefits have been proven – and farmers and the firm realize economic gains – the arrangement will be sustained. In the real-world of dynamic markets, however, success cannot be taken for granted, and there are no guarantees that outcomes will endure.

The research presented here aims to provide new evidence on the different effects of a contract farming model in Timor-Leste – from food security to production, market access to profitability – with the ultimate aim of exploring the critical success factors influencing the sustainability of out-grower schemes.

3. The program and evaluation design

BOSS and Josephina Farm jointly identified a group of 45 farmers (16 women and 29 men) who had been growing 'traditional' produce such as tomatoes, cauliflower and cucumber for home consumption and local selling. Josephina Farm provided the farmers with a one-day on-site training on good farm management practice, including about irrigation and seed beds. Based on end-market demand, Josephina Farm then reached an agreement with farmers on what vegetables to grow, and provided a verbal buy-back guarantee for a specified quantity, and a minimum quality, of produce. Josephina Farm also provided improved seeds to farmers to encourage them to grow new varieties such as zucchini and coriander. During the growing season, farmers received at least one follow-up monitoring visit from the company to receive advice on horticulture production, including seed management, planting and watering.



The farmers received a further 2 days of training from Timor-Leste's Institute of Business Support (IADE), the government ministry where the BOSS project was embedded, to explain the concept of contract farming and simple marketing and business principles.

BOSS did not directly interact with the farmers, but supported Josephina Farm's business model in a number of ways. BOSS carried out market research for Josephina Farm, and paid for an international expert to undertake a technical assessment of the company's post-harvesting handling practices. BOSS

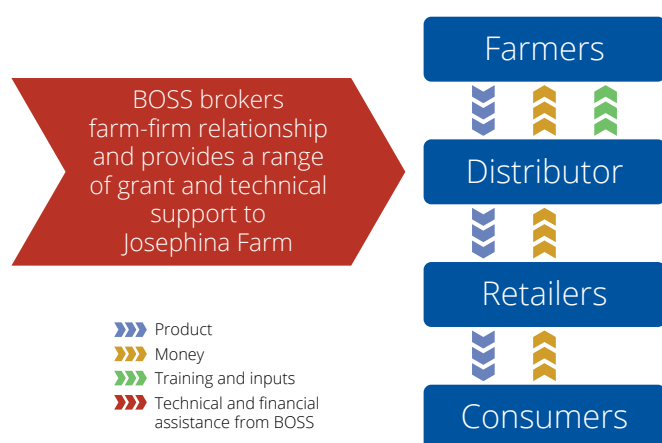
¹ Josephina Farm has three regular supermarket clients in Dili, with occasional buyers including restaurants.



also provided financial support for the construction of a compost production facility, a simple cool room facility, equipment for outdoor production and plastic to create protective tunnels. BOSS organized business match-making events for Josephina Farm, and funded the production of marketing material and TV commercials. BOSS also supported two farmers to undertake study programs in Bali to develop knowledge on indoor and outdoor horticulture.

Following the initial out-grower pilot, the company replicated the same arrangement with a further three farmer groups, reaching a total of 125 farmers in Ainara and Ermera Districts.

The model is mapped onto a simplified value chain as follows:



The study took place two years after the intervention began². This raised challenges of possible recall bias – since farmers may not be able to remember their practice prior to entering to the out-grower scheme – but had the benefit of being able to capture the sustainability of the model over three growing seasons.

Researchers took a random sample of 33 out-grower farmers across the 4 groups in 2 districts³. To isolate the effect of participation in the out-grower model on farm management practice, productivity and profits, researchers compared outcomes with a

group of farmers not part of the intervention. The 36 comparison farmers were selected from nearby geographic locations, based on matching criteria⁴. Comparing the treatment with the control groups helped account for changes not caused by the out-grower model, such as rainfall. A single survey was administered to both groups of farmers, asking them about current practice (in 2014) and past practice (prior to 2012).

4. What we found

Farm management

Farmers involved in the intervention adopted better horticulture production techniques than those not involved. Among the farmers in the out-grower scheme, the use of good farm management (including garden beds, seed nurseries and rain protection tunnels) averaged 61%, up from a pre-intervention figure of 44%. This compares to 31% in the comparison group.

In the absence of an effective system of public or private extension agents, embedded technical support from the company to farmers was critical in plugging a knowledge and skills gaps prohibiting higher productivity practices.

Selling patterns and food security

A clear behavior change took place with a shift from selling to the local market to selling through Josephina Farm. Prior to the intervention, farmers sold an average of 69% of their production at local markets. After the intervention, this fell to 17%, with 65% being sold instead to the company. Farmers reported that the production of food for household consumption slightly decreased (from 16% of harvest pre-intervention to 11% post intervention). However, the majority of farmers in the treatment group reported having enough food for their families during the last year. While 58% of farmers reported no change in food security, 30% reported a slight improvement, and 10% a slight deterioration. The study found an overall mixed effect on food security of switching from subsistence to market-selling, which would warrant further investigation.

² The impact assessment took place in 2014. The intervention began with the first farmer group in 2012. No useable baselines were collected at the time of intervention.

³ Research was led by the BOSS M&E officer, using local enumerators from the IADE team (who had not previously been involved in the intervention). The research design was supported by an international expert.

⁴ Four pre-qualifying criteria were used to check whether the farmers were eligible to be in the comparison group: proximity to a road-head, landholding size, extent of market-selling, and irrigation method.



Poverty and employment impact

Compared to the non-participating farmers, those in the out-grower scheme recorded net attributable income increases of \$274 per farm per year. Over the same period, farmers in the comparison group had net income increases of just \$31 per farm per year. The poverty impact was likely to be significant, since 71% of the farmers supported by Josephina Farm were estimated to be living below of the national poverty line (\$0.88 daily per capita consumption).

The researchers used a productive employment methodology (see www.ilo.org/thelab for guidance on measuring changes in productive employment) to measure whether an increase in income was significant for a farmer, relative to their existing earnings and number of dependents.



BOSS used a proxy based on Timor Leste's poverty gap – which is a World Bank figure that estimates how far, on average, poor people's incomes are from the poverty line. In Timor-Leste, the poverty gap was 14% - meaning the average family needs to earn 14% more to graduate from poverty. For 30% of farmers, the additional income from horticulture farming resulted in an overall household income increase of greater than 14% - and therefore they can be said to have significantly improved the productivity of their self-employment⁵. While remainder of the farmers recorded income increases from participating in the out-grower scheme, this represented less than a 14% rise in their household income. No farmers in the

comparison group improved the productivity of their self-employment.

Continuity of service provision

90% of out-grower farmers reported receiving seeds from Josephina Farm, although some did not receive sufficient quantities. In the first growing season, the technical assistance, inputs and wider services (including collection) provided by Josephina Farm to the farmers was rated highly. However, in the second year of operations, complaints grew: Farmers reported delayed collections and significant decreased company time spent monitoring production in the field. This was largely due to the company taking on more contract farmers, and without a commensurate rise in Josephina Farm's staffing levels, company resources became stretched.

Ability to consistently meet orders

During the first season, Josephina Farm was able to collect the expected volume of vegetables from its out-grower farmers. While some lower grade produce was rejected, the overall quality was good. Both quality and quantity suffered from year two, with some farmers switching to 'traditional' varieties, and others beginning to side-sell and not meeting their obligations to the company. This came despite real income gains from farmers participating in the scheme. The researchers found no correlation between drop-out farmers and their profits: in other words, those farmers stopping selling to Josephina Farm were equally likely to have been benefitting from the arrangement as those farmers continuing to sell. By the third growing season, the attrition rate was 47%, meaning just 59 (out of 125) farmers continued to be part of the out-grower scheme.

5. Policy recommendations

Smallholder out-grower schemes are inherently fragile. Progress is not linear, and success in one year is not a predictor of the continued success in the next. Indeed, arrangements can quickly unravel due to a number of factors, including prevailing market conditions such as prices, or exogenous factors such as droughts.

Interventions need to deploy models and methods that understand smallholders not only as rational economic actors, but also as humans shaped by

⁵ Note that this does not mean that 30% of out-growers moved from being 'poor' to 'not poor', since the 14.2% figure is a national average – not specific to the out-grower households. The benefit of using this proxy is that it allows poverty impact to be estimated where detailed and expensive household surveys (to capture consumptions and expenditure) are not possible.





their particular culture, context and history. Intervention teams need to know not just ‘what’ happened, but ‘why’. Research that involves quantitative analysis into commercial viability and qualitative methods such as interviews is therefore essential to provide actionable insight. Despite positive income gains, the contract farming model in Timor-Leste ultimately failed to scale or sustain due to complex reasons. Focus group discussions with farmers raised a number of issues such as poor information flows (changing market prices were not effectively communicated to farmers) as well as low motivation levels due to the perceived decrease in support from the company. The absence of agreed-on price ceiling and floors between the company buyer and the farmer produce proved to be an issue when market prices fell. While the contract farming remained a verbal, rather than written agreement, it is doubtful this would have made any difference given the weak nature of contract enforcement in Timor-Leste, and the fact that transaction completion is based more on trust than legalese.

In future, contract farming interventions should be careful to not overload too much support onto smallholders. Such ‘quick wins’ come at the expense of longer-term sustainability. Once key elements such as technical assistance – whether provided by the donor project or the company – are inevitably down-sized in subsequent years (as the model scales up), it risks undermining earlier gains.

From the company perspective, working towards a profitable business model to secure a supply chain is a process, not an event. Interventions need to be open to pivoting and supporting the adaptation of models, or the adoption of new ones. While continuing with a more limited out-grower scheme, Josephina Farm also began to experiment with greater backward integration. Instead of sourcing from smallholders, the company utilized three greenhouses to produce their own vegetables, using hired farm laborer rather than solely depending on farmers working their land. Production and quality can now be more cost-effectively monitored and controlled, at the same time as creating new jobs.

6. Further readings

Major, Annie and Ripley, Matt (2015), ‘The BOSS project in Timor-Leste; Thin markers, thick impact?’

The BOSS Project (2016), ‘Horticulture Sector Intervention Report’

Note on Impact Evaluation Technique: The methodology applied for this research was a quasi-experiment meaning that a control group was matched using nearby farmers with similar characteristics that did not participate in the scheme. Impact is the difference in outcomes between the treatment and control group. Baselines were reconstructed on a recall basis. As this method cannot fully exclude differences between the two groups **results are of medium reliability and cannot be generalized for other contexts or countries.**

Author: Matt Ripley, Senior Advisor The Lab, ILO (www.ilo.org/thelab)

Sponsors: Irish Aid, New Zealand Aid Programme, Swiss Confederation – State Secretariat for Economic Affairs

