



Knowledge  
Products

## Research Report

January 2015

### Sustainable Markets

Keywords:  
Sustainable markets, value chains,  
small-scale producers

This report presents insights from collaborative research on the inclusion of smallholder farmers in the oilseed value chain in Uganda. The results challenge some common precepts of value chain development (VCD). The influence of risk in farmers' decision making, the dominant role of cash, the competition provided by independent traders, and the limitations of producer organisations all point to a need to design VCD interventions and 'inclusion' around the reality of smallholder engagement in markets. It also points to the fundamental importance of sector coordination to address the provision of public goods that can raise the inclusiveness of the sector as a whole.

IIED is a policy and action research organisation. We promote sustainable development to improve livelihoods and protect the environments on which these livelihoods are built. We specialise in linking local priorities to global challenges. IIED is based in London and works in Africa, Asia, Latin America, the Middle East and the Pacific, with some of the world's most vulnerable people. We work with them to strengthen their voice in the decision-making arenas that affect them — from village councils to international conventions.



International Institute for Environment and Development  
80-86 Gray's Inn Road, London WC1X 8NH, UK

Tel: +44 (0)20 3463 7399  
Fax: +44 (0)20 3514 9055  
email: [info@iied.org](mailto:info@iied.org)  
[www.iied.org](http://www.iied.org)

# Growing inclusion? Insights from value chain development in Ugandan oilseeds

Bill Vorley, Els Lecoutere, Sarah Mubiru, Rodney Lunduka,  
Jan Ubels, Bernard Conilh de Beysac, Daniel Ikaaba



This research was funded by UKaid from the UK Government and the Netherlands Directorate-General for International Cooperation (DGIS). However, the views expressed do not necessarily reflect the views of the UK or Netherlands Governments.



**About the authors**

Bill Vorley, Principal Researcher, Sustainable Markets Group, IIED

Email: [bill.vorley@iied.org](mailto:bill.vorley@iied.org)

Els Lecoutere, Lead Local Researcher, R4ED, Associated to Department of Conflict and Development Studies, Ghent University.

Sarah Mubiru, Senior Advisor-Agriculture, SNV Netherlands Development Organisation.

Rodney Lunduka, Socio-economist, International Wheat and Maize Improvement Centre CIMMYT, Harare, Zimbabwe (formerly Environmental Economist, IIED).

Jan Ubels, Senior Strategist, SNV Netherlands Development Organisation.

Bernard Conilh de Beyssac, Agriculture and Inclusive Business Advisor, SNV Netherlands Development Organisation

Daniel Ikaaba, Researcher, MSc student Agricultural Production Chain Management, Van Hall Larenstein University of Applied Sciences, Wageningen.

**Produced by IIED's Sustainable Markets Group**

The Sustainable Markets Group drives IIED's efforts to ensure that markets contribute to positive social, environmental and economic outcomes. The group brings together IIED's work on market governance, business models, market failure, consumption, investment and the economics of climate change.

**SNV**

SNV is an international not-for-profit development organisation. By sharing our specialist expertise in agriculture, renewable energy, and water, sanitation and hygiene, we contribute to solving some of the leading problems facing the world today – helping to find local solutions to global challenges and sowing the seeds of lasting change.

Published by IIED, January 2015

Vorley, W, Lecoutere, E, Mubiru, S, Lunduka, R, Ubels, J, Conilh de Beyssac, B and Ikaaba, D. (2015). Growing inclusion? Insights from value chain development in Ugandan oilseeds, IIED, London.

<http://pubs.iied.org/16563IIED>

ISBN: 978-1-78431-003-5

Printed on recycled paper with vegetable-based inks.

International Institute for Environment and Development

80-86 Gray's Inn Road, London WC1X 8NH, UK

Tel: +44 (0)20 3463 7399

Fax: +44 (0)20 3514 9055

email: [info@iied.org](mailto:info@iied.org)

[www.iied.org](http://www.iied.org)

[@iied](https://twitter.com/iied)

[www.facebook.com/thelIIED](https://www.facebook.com/thelIIED)

Download more publications at [www.iied.org/pubs](http://www.iied.org/pubs)

Cover photo: Branded and unbranded cooking oil for sale, Lira town.

Photo credit: Bill Vorley

# Growing inclusion? Insights from value chain development in Ugandan oilseeds

Bill Vorley, Els Lecoutere, Sarah Mubiru, Rodney Lunduka,  
Jan Ubels, Bernard Conilh de Beyssac, Daniel Ikaaba

# Contents

<b>Abbreviations and acronyms</b>	<b>4</b>
<b>Preface and acknowledgments</b>	<b>5</b>
<b>Executive summary</b>	<b>7</b>
What are the drivers of smallholder inclusion?	7
A dynamic context	8
Trading channels and producer choice	10
Recommendations for VCD interventions	11
<b>1 Introduction</b>	<b>15</b>
1.1 'Inclusiveness' and value chain development	16
1.2 Objectives and focus of the study	16
1.3 Methodology	17
<b>2 Context of oilseeds in Uganda: a smallholder cash crop</b>	<b>21</b>
2.1 Trends in oilseed production in Uganda	23
2.2 Value chain configurations	26
2.3 VCD interventions	28
2.4 Summary and implications of Section 2	29
<b>3 Drivers of engagement in the oilseed market</b>	<b>31</b>
3.1 Characteristics of oilseed producers	32
3.2 Drivers of decisions by other chain actors	38
3.3 Summary and implications of Section 3	38
<b>4 The main oilseed market channels and farmer choice</b>	<b>41</b>
4.1 The trader channel – resilient middlemen	42
4.2 The large processor channel – models of vertical coordination	50
4.3 Producer organisations and their role in the market	56
4.4 Producer choice of channel	59
4.5 Summary and implications of Section 4	61

<b>5 Conclusions</b>	<b>63</b>
5.1 Location is a primary determinant of market inclusion	64
5.2 Risk associated with market volatility puts a brake on market 'inclusion' and crop intensification	65
5.3 Entrepreneurial attitude is as important as assets for 'inclusion'	65
5.4 The informal trader channels for oilseeds are dynamic and can be more inclusive of smallholders	66
5.5 The market effectiveness of producer organisations can be severely limited	67
5.6 Buyers must adjust their business models in a competitive commodity market	69
5.7 Who then invests in upgrading?	72
5.8 Reaching the majority: the role of sector coordination	73
<b>References</b>	<b>76</b>
<b>Annexes</b>	<b>80</b>
Annex 1: Regression analysis of variables associated with probability of a farmer growing oilseeds, and the allocation of more land to oilseeds	80
Annex 2: Comparison of oilseed 'commercialisers' and 'risk avoiders' – 2012	83
Annex 3: Trader survey 2012 – perceived constraints for smallholders to market oilseeds and expand production	85

# Abbreviations and acronyms

AFARD	Agency for Accelerated Regional Development
APEF	Agricultural Productivity Enhancement Forum
BDS	Business development services
CBO	Community-based organisation
COMPACI	Competitive African Cotton Initiative
DFA	District Farmers Association
DFID	Department for International Development, UK
IFAD	International Fund for Agricultural Development
IIED	International Institute for Environment and Development
LRA	Lord's Resistance Army
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MSP	Multi-stakeholder process
NAADS	National Agricultural Advisory Services
NGO	Non-governmental organisation
OPV	Open pollinated variety
OS	Oilseed
OSSUP	Oilseed Sub-sector Uganda Platform
PMA	Plan for Modernisation of Agriculture
PO	Producer organisation
PP	Public policy
PPP	Public-private partnership
SACCO	Savings and Credit Cooperative
SNV	Netherlands Development Agency
UBOS	Uganda Bureau of Statistics
UNFFE	Uganda National Farmers' Federation
USh	Ugandan Shillings
VC	Value chain
VCD	Value chain development
VODP	Vegetable Oil Development Project
VSLA	Village Savings and Loan Association

# Preface and acknowledgments

'Value chain development' (VCD) and 'inclusion' have become two prominent buzzwords in agricultural development strategies and programmes over the last decade. And SNV is no exception to this trend. Private sector engagement, farmer-firm relations and partnerships, inclusive business (IB) models and chain-wide multi-stakeholder engagement are now normal elements of SNV programmes carried out in close collaboration with private sector parties. NGOs still play a major role in VCD and IB programmes: helping actors in often antagonistic relations to engage more closely and productively, addressing public good issues and showing the larger picture, strengthening producer agency and capacity, developing and testing new (business) models, helping improve professional and business services, and facilitating multi-stakeholder platforms.

The research presented in this document revisits the aspect of 'inclusion' in value chains. The collaborative research project is part of SNV's 'Knowledge Networking Agenda', in which SNV collaborates closely with reputed knowledge partners to test assumptions and validate its work, thus also generating more general feedback on development practice and policy. For this particular project SNV engaged with IIED's Sustainable Markets Group to carry out collaborative field and analytical work on a concrete, complex value chain: the oil seeds sub-sector in Uganda, particularly selected because it combines the characteristics of both industrial and food crops.

The results of the intensive field work have been relevant and interesting and are presented in this report, in particular in the concluding section and in the executive summary. They will also be made available in a short Policy and Practice Brief. Here it suffices to say that the work has confirmed and offered possibilities to sharpen approaches towards inclusion in value chains. In particular, the nuanced findings on the roles of risks, cash, informal traders and farmers' organisations are influencing the ongoing evolution of SNV's VCD, IB and public-private partnership (PPP) practices and strategies. The results are already used in both the specific Ugandan environment, as well as in broader solutions and approaches in our work in the agricultural sector.

This study was a truly collaborative effort between SNV, IIED and many Ugandan actors. In particular we would like to thank:

- Field researchers: Daniel Ikaaba, Derrick Magaya, David Okello, Frances Viko, Jackson Olema, Martin Munu
- Metajua for Smartphone enabled questionnaires
- SNV Country Director Jeanette de Regt and SNV advisors Peter Mugisha, Anthony Agaba, Peter Okaje, Michael Opiyo and Hilda Achayo
- OSSUP facilitators: Nick Obot, Andrew Ocen, Samson Musimbi, Isaac Abwa, John Ariko Okelai
- Farmers, business and other respondents in Arua, Mbale and Lira hub
- OSSUP participants and VODP resource persons for comments on preliminary findings presented in MSP
- Reviewers: Miet Maertens, Sabdiyo Bashuna Dido, Michael Waithaka, Nico Janssen, Eelco Baan, Joost Nelen, Sietze Vellema
- Funders: DGIS through a subsidy to SNV; DFID through Accountable Grant to IIED
- And finally, of course, I want to thank fellow research team members: Bill Vorley, Els Lecoutere, Sarah Mubiru, Rodney Lunduka, Bernard Conilh de Beyssac, Daniel Ikaaba, Barbara Adolph for a piece of solid dedicated teamwork. We hope the readers will enjoy the material.

Jan Ubels, SNV, Senior Strategist and Corporate Programme Manager,  
Knowledge Networking, The Hague, October 2014

# Executive summary

## What are the drivers of smallholder inclusion?

The central questions of this research are: (1) what drives and limits farmers' inclusion in the oilseed value chain in Uganda, and (2) what light does this shed on the implicit assumptions of the value chain development (VCD) approach?

In VCD, the goal is to create value for farmers through access to more lucrative markets and market information, fewer layers of middlemen, durability of trading relationships, and improvements in productivity and quality, leading to better employment, household income, food security and wellbeing.<sup>1</sup> Value is created for the agro-industry through access to new and reliable sources of supply.

VCD has three main elements that use a different entry point in the market system: a) **push**, whereby small-scale farmers 'cooperate to compete' through producer organisation (POs); b) **pull**, whereby agro-industry adopts inclusive business models that are adapted to the realities of small-scale agriculture; and c) **sector/market development**, whereby the necessary institutions, infrastructure, service and finance provision, an adequate overall business climate are in place, and there is the right facilitation.

IIED and SNV set out to interrogate the theory of change of VCD and smallholder inclusion with an initial focus on the oilseed sector in Uganda. The research was divided into two phases. Phase 1 was conducted in three oilseed 'hubs': Arua in the northwest, Lira in the north and Mbale in the northeast of Uganda, each with different market structures and degrees of commercialisation. Each has a long history of VCD interventions by multiple development agencies. Phase 2 focused on the Lira hub and the role of market- and price-related risks in shaping marketing strategies and choice of market channel of oilseed producers and their organisations, buying strategies of different types of oilseed buyers, and implications for VCD interventions.

<sup>1</sup> SNV 2010.

## A dynamic context

Oilseed production in the Northern Region of Uganda, comprising sunflower, soya bean and sesame, is, along with palm oil in the wetter south, promoted as a smallholder cash crop for import substitution. Under the right conditions, oilseeds can – like cereals – be stored to exploit higher market prices between harvests. Oilseeds in Uganda are medium value cash crops, with no strong market premium for quality.

Demand and production of oilseeds have been growing. Increases in production have been achieved through area expansion, not intensification through improvements in productivity. There is also increasing competition on the buyers' side, between independent traders, agents for the industrial processors, and POs.

So, in theory, there is good potential for improvements in farmer income and inclusive economic development through oilseed VCD. Many development organisations, including SNV, have made significant VCD investments in all three modes. After many years of a focus on POs and inclusive business models, attention is now also paid to the third, based on a growing understanding that the chances of expanding to a commercial scale are improved in sectors that are well coordinated, and where the provision of public goods – especially infrastructure – allows markets to develop.

But to what degree are farmers following the VCD route, and what are the drivers of inclusion? We asked farmers themselves through quantitative and qualitative surveys, and also asked other actors in the oilseed market.

### The reality of inclusion and (self-)exclusion

The research made a number of insights, first on the decision to grow oilseeds (i.e. committing land, labour and financial resources to this cash crop), and second to expand the proportion of land allocated (i.e. to specialise).

- 1. Inclusiveness of the market is very much driven by location.** It was clear that the basic inclusiveness of the market is contingent on proximity to the market. The association between location and specialisation in oilseeds was very marked in the survey results, with farmers around the Arua and Lira hubs – where the oilseed market and commercial infrastructure is more strongly developed – much more likely to commit a larger proportion of their land to these cash crops. These regions have enough critical mass of demand from processors and traders to become commercial hotspots. Infrastructure, especially roads, was mentioned frequently by traders as a key constraint to venturing into more remote areas, especially in the rainy season.
- 2. Risk is a key determinant in inclusion.** Farmers indicated clearly that risk plays a prominent role in their decision to grow oilseeds. Farmers' perception of risk is less associated with production and agronomy, and more with the marketing of the produced crop; top of farmers' perceived risks were low and volatile market prices,

and the possibility of no buyer at all. However, the reliability, quality and affordability of *seeds* were also mentioned repeatedly as a barrier to market participation. Risk, when weighed against the (relatively) high cost and uncertain quality of inputs, is a dominant factor in farmers' decisions. There is a large category of households, including many female-headed ones that maintain a risk-avoidance strategy and have sound practical reasons for doing so. Male-headed households were found to be much more likely to grow oilseeds.

- 3. Assets are less important in market inclusion, but are important in specialisation.** The correlation between growing oilseeds and land ownership was found not to be significant, but oilseed-growing households with larger land acreage allocated a significantly higher proportion of their land to oilseeds. Thus land can provide a buffer in the transition to more specialised and more commercial production. As women often lack ownership over land, this induces a gender constraint. The majority of oilseed producers in all three hubs see themselves, and are perceived by value chain actors, as better off than average, and there was a significant correlation between farmers' own ranking of their perceived wealth level and the probability of them growing oilseeds.
- 4. Attitude is a significant factor in driving producer self-inclusion or self-exclusion.** The research has demonstrated that smallholder farming is differentiated by more than location or assets. We can divide farmers who produce oilseeds crudely into two populations based on attitude and strategy. There are the *risk avoiders* who have some resources to invest in cash crops but will not risk committing a large proportion of land, labour or capital resources to oilseed production. The other group are the *commercialisers* who are ready to accept greater levels of risks to specialise in cash crop production. The *commercialiser* group was significantly younger and less risk-averse in attitude. There was also a significant difference between the two clusters in their attitude towards farming. The *commercialisers* were more likely to view farming as a business and less likely to view farming as a survival strategy.
- 5. Farmers' organisations may be exclusionary in order to survive in the market.** The research showed that POs operated a certain level of exclusiveness to achieve their place in the market and maintain social cohesion; the percentage of PO members was highest among business-oriented farmers. Poorer farmers are said to lack the capacity, do not attend meetings or do not have the right attitude to produce for the market. Some interviewed POs felt that the youth are too impatient to be part of the PO, where coordination, storage and collective marketing are important. Women, on the other hand, are well represented within cooperatives; some POs also evolved from women groups.

## Trading channels and producer choice

There are two types of market channel for oilseeds in Uganda.

The first is the **trader** channel, which has many of the characteristics of informal trade, and is cash-based. Independent traders – from large-scale cross-border traders to itinerant entrepreneurs dealing with small quantities – represent a highly relevant segment of the market.

The second is the **processor channel**, with varying degrees of vertical coordination, that supplies the industrial processors for manufacturing into branded consumer products for the domestic market. Mukwano and Mount Meru Millers are the main enterprises, with Mount Meru Millers about to follow Mukwano's lead in establishing a dedicated supply based around a contract farming model. The principal mechanisms of that model are product aggregation around processor-driven producer organisations, access to quality seeds, technical support and a price guarantee (which may not always be realised in practice), in exchange for a guarantee that the farmers sell exclusively to the processor. Unlike many contract farming schemes, inputs are not pre-financed by the company; seeds are supplied at cost price. Part of the supplied volume may be paid in cash, but usually farmers reported waiting two to three months for payment, which was a major barrier to inclusion of this ostensibly 'inclusive' business model.

It is misleading to present the oilseed market as two distinct channels. The market picture is one of a **network of interconnected streams** that weave into one another and compete for supply rather than distinctly separate channels. Farmers operate a diversification and risk management strategy. Farmers who have engaged with contract farming also sell significant volumes through itinerant traders ('side selling'). And the big processors also buy significant volumes from traders outside of their contracts ('side-buying') to supplement their supply.

For small farmers, direct payment in **cash** at the farm gate was found to be a key factor in choosing the trader channel. Traders also have the advantage of providing farmers with the option to sell at different moments, and of buying small volumes.

### **Mukwano's business model was found to be facing competitive challenges**

from this growing market, with indications that the company is having to adjust its contracting model – especially around finance – to stay competitive.

**Producer organisations** usually operate with the promise of connecting their members to more remunerative markets and aim at the large processor channel and the large cross-border traders; some POs have been established by Mukwano to operate as their agent networks. Others are autonomous membership-driven organisations with strong leadership. The research found that the widespread inability of POs to pay cash clearly limits their ability to de-risk oilseed marketing for their members. In this environment small

local traders, paying cash, maintain a strong presence in the market. POs' comparative advantage is more in social services and forms of informal insurance.

**Sector coordination has some important blind spots.** The research uncovered key public good issues that determine the inclusivity of the oilseed market as a whole, especially the functioning of the **seed** market and the quality of **road infrastructure**. Individual value chains cannot fill these gaps. The oilseed sector development platforms (OSSUPs) in Uganda were established for this coordination purpose, but some key actors that link smallholders to the markets – especially the **traders** and **small-scale processors** – are hardly represented in these platforms.

## Recommendations for VCD interventions

For VCD interventions to be more 'inclusive', we propose a straightforward set of recommendations.

- 1. Understand risk and its implications for the 'inclusion' of the poor.** Risk is key in smallholder household strategy – especially of the poorest and female-headed households – but is not always addressed specifically enough in interventions. VCD interventions should be preceded by a more deliberate value chain risk analysis to permit more precise targeting. Interventions that improve profit without reducing risk will not allow the majority of farmers to shift to a more commercial footing and invest in productivity; they will instead remain diversified as a coping strategy. Practical tools or field guides for (market) risk analysis would be of great benefit in this regard.
- 2. Understand the importance of location in 'inclusion'.** The presence of large-volume buyers (commercial processors or exporters) creates hotspots of production supported by physical access, business linkages, services, informal knowledge exchange, organisation and other forms of social capital. VCD interventions outside of hotspot districts will have a much lower probability of success unless large volumes of product can be aggregated.
- 3. Understand producers' attitude and its implications for 'inclusion'.** It is the entrepreneurial farmers (*commercialisers*) who are most likely to respond to VCD in cash crops. Practitioners and support organisations should look at categories of farmers more precisely in analysis, programme development and monitoring and evaluation. Risk avoiders need interventions that de-risk oilseed production and marketing; 'commercialisers' may benefit from productivity enhancing VCD. But it is valid and justified to work with the 'commercialisers' in market-based interventions, while also working to de-risk this trade so that a larger share of smallholders have the opportunity to be entrepreneurial.

- 4. Understand and adapt to the importance of independent traders.** The trader channels for oilseeds are dynamic and can be more inclusive of smallholders than the formal channel, especially for smaller or more remotely located farmers. Traders are an important category to work with if we want to make a sub-sector more inclusive, but this challenges our thinking on VCD and 'inclusion'. Rather than excluding the 'middlemen', practitioners and support agencies should look at all options for inclusive trading including informal routes, and investigate options for upgrading the performance of trader channels. A first step would be experiments with models for inclusive local trading and promoting standards in this field.
- 5. Ensure that inclusive business models can adapt to competitive market conditions.** In recent years, the competition between buyers for oilseeds in Uganda appears to have increased due to rising demand and entry of regional traders. Our research indicates that the formal chain and its procurement model based on contract farming is being undermined by increased side-selling as farmers take advantage of alternative marketing options. Side-selling can be viewed differently, as an important secondary channel within a maturing market. VCD interventions should accept that this may mean a transition to more open business models in which the business – whether a processor or a trader – competes on the reliability and transparency of transactions rather than locking in farmers as captive suppliers. The model has to provide incentives that attract good traders, including producer organisations. Those incentives will include reliability and transparency, presence at the farm gate, use of certified weighing scales, and short payment terms. But there is a downside: the withdrawal of agro-processors from primary production comes with a reluctance to invest in farmer organisation, productivity and technical upgrading or quality. This implies a more prominent role of the state, which runs counter to the trend towards a reliance on private initiatives and public–private partnerships.
- 6. Be aware of the limitations of producer organisations as vehicles for inclusion.** In the oilseed sector there are some very well-run, autonomous and powerful POs that operate as social enterprises. But the research also shows POs' limited capacity to scale up inclusion in terms of de-risking oilseed production and trade, cutting out the 'middleman', or linking small farmers to agro-industry. Their constraints to pre-finance or pay in cash seems to be critical and is not easily overcome in reality; there is still much work to be done in building revolving funds and supporting the establishment of savings and credit schemes. But finance is not the only constraint to POs. It has also to be acknowledged that entrepreneurial and younger farmers are often more individualistic and less motivated to collaborate. And poorer and more diversified households see much less value in meeting the heavy

transaction costs that come with PO membership. They may however be relatively more inclusive for women than other channels. VCD interventions should check the inclusive potential – also from a gender perspective – of producers' organisations more precisely and realistically before seeing them as vehicles for inclusion.

- 7. Involve the core market players in sector coordination.** Sector (organisation) is usually critical to the inclusive operation of agricultural markets, and was seen clearly in this research in terms of infrastructure and the functioning of the seed market for quality and affordability. If better conditions can be created, this would help de-risk the environment and allow more farmers to allocate (more) land to oilseeds, and invest in sustainable intensification. Practitioners now have a real opportunity to distinguish between investments in **inclusive markets** (which raise the overall performance of the sector) vs inclusive chains or businesses (which create 'islands of success', limited to farmers in a particular value chain). Raising the performance of a sector cannot all be done through vertical chain-based interventions. **Sector coordination** institutions are already in place for Ugandan oilseeds, in the form of the OSSUP multi-stakeholder platforms (MSP). But like many other MSPs, the OSSUPs show a tendency to be **dominated by the players and interests closest to the donor organisations**, namely formal producer organisations, NGOs and agro-industries. The MSPs currently lack the participation of traders and small-scale processors – despite the importance of these actors to the poorest producers and young entrepreneurs – and the voice of those smallholders who are not organised in the market, and of female farmers. Local government bodies may also not be centre stage, despite their importance in the provision of public goods. Expectations should be raised from sector organisation, beyond formal market and donor-funded project interventions, to ensure market inclusiveness. Interventions should develop an approach to integrate inclusion in MSPs functioning and facilitation.
- 8. Apply a diversified strategy.** For VCD to be effective, we recommend a more conscious combination of these elements, to de-risk the market for small farmers (including risk sharing strategies by the buyer), support intensification for those who can take the risk, and support the provision of public goods to improve the performance of the sector as a whole.





# 1 Introduction

*Oilseed trade, Lira town. Photo: Bill Vorley*

## 1.1 ‘Inclusiveness’ and value chain development

Rural areas in developing and emerging economies are in rapid transition. The inclusiveness of that transition depends not just on choices of farmers but on deliberate choices by business and by policymakers.

The objective of inclusive growth is now widely endorsed.<sup>2</sup> In rural development it is small-scale farmers who are usually the focus of this ‘inclusion’, not just because of their poverty but because smallholders are seen as guardians of food security, adaptation to climate change, natural resource management, managed urbanisation and social cohesion. And since contemporary development policy relies on a much bigger role for markets and business, it is inclusion of smallholders in the supply chains of modern agribusiness through Value Chain Development (VCD) that has drawn wide attention (Box 1).

### Box 1. Value chain development and smallholder agriculture: a question of definition

VCD in small-scale agriculture is widely viewed as the inclusion of smallholders in the supply chains of modern agribusiness – supply chains that have degrees of value-added, formality and vertical coordination – supported by producer organisation, closer trading relationships and inclusive business practices. Value is created for farmers through improvements in productivity and quality, access to more lucrative markets and market information, fewer layers of middlemen, and durability of trading relationships, leading to improvements in employment, household income, food security and wellbeing. Value is created for the agro-industry through access to new and reliable sources of supply.

There are however definitions that encompass the wider aspects of market-oriented development of smallholder agriculture, that cover improved access to inputs, sector coordination, market access that includes ‘traditional’ local and informal markets, and the role of a favourable policy environment (see for example SNV, undated). This wider definition is important when interpreting the results of this oilseed research.

The huge interest in rural development through VCD manifests itself in numerous guides, case studies and ‘inclusive business models’, as well as large donor investments, public–private partnerships (PPPs), and commitments to smallholder inclusion by large food companies.

<sup>2</sup> See [www.ipc-undp.org/](http://www.ipc-undp.org/)

This consensus on smallholder development through ‘inclusion’ and VCD has become established despite a looseness in terminology (Box 1) and a shortage of robust evidence of its real opportunities and constraints. It is still unclear how much ‘inclusive’ development of agriculture and food systems can be achieved through integration of smallholders into modern value chains and ‘cutting out the middleman’, compared to investments that raise the performance of traditional and local markets. There is uncertainty around the capacity of modern business to ‘include’ the poorest farmers (Vorley *et al.* 2012a). And there is a shortage of producer perspectives about how they, as entrepreneurs, see the opportunities and risks of being ‘included’ in value chains (Vorley *et al.*, 2012b).

Before investing further to ‘scale up’ VCD interventions, it is important to test our assumptions and theories of change around VCD and inclusion of smallholder farmers, and provide evidence-based guidance for practitioners, policy and businesses. A partnership between SNV and IIED in 2012–13 set out to do that. This report summarises the findings of that partnership.

## 1.2 Objectives and focus of the study

The IIED–SNV collaboration set out to interrogate the theory of change of VCD and smallholder ‘inclusion’ against the reality of smallholder engagement in markets. Our initial focus was on the oilseed sector in Uganda, where many development organisations, including SNV, have made significant VCD investments, and where a national oilseed subsector development platform (OSSUP) has been established.

Inclusion is defined in the research as the participation by smallholders in the value chain (here primarily from farm gate to processor), through committing a part of the farm enterprise to the production of oilseeds. That participation can be viewed from two sides: (a) the inclusiveness of the chain, and (b) the agency of producers. The inclusiveness of the chain describes the formal and informal opportunities and barriers to participation (for example if only farmers with a certain minimum farm size can join a cooperative, or if certain groups are *de facto* excluded due to their geographical distance or their social status or gender. Inclusion from a farmer agency perspective is the result of women and men farmers’ choice to participate or not participate in the value chain. Our focus was mainly on the latter: what motivates or drives choices of women and men farmers and other value chain actors to influence their inclusion in practice.

## 1.3 Methodology

The study was divided into two phases.

**Phase 1** of the action research (September 2012–January 2013) was exploratory. It was conducted in three oilseed producing regions (‘hubs’): the areas around Mbale in

the East of Uganda, Lira in the North and Arua in the north west. First we looked at the context – the characteristics of the Ugandan oilseed sector and the specific value chain configurations in each specific hub/region. We also reviewed the theory of change behind VCD interventions (especially of SNV) with regard to achieving inclusion in the oilseed value chain, and how it has been implemented in practice. We cross-referenced that theory of change to underlying drivers of engagement within the oilseed value chain, using surveys of men and women farmers, producer organisations (POs) and other value chain actors such as processors, input dealers, research stations and particularly traders in the oilseed 'hubs'. Drivers that were investigated at the farmer level were both internal to the household (assets including land, relative household wellbeing, household strategy and allocation of production means, including for food security; attitude; risk perception; relational network) and external to the household (including development interventions; access to technology; access to information; access to buyers; and location relative to markets). We could then point to the connects and disconnects between the theory of change and value chain interventions on one hand, and the drivers of value chain engagement on the other. From that comparison, we could make observations about the effectiveness in achieving inclusion and draw implications for the theory of change in relation to VCD.

**Phase 2** (September 2013–December 2013) focused in on specific research questions related to one of the drivers of farmer and value chain actor engagement in the oilseed value chain identified in Phase 1: risk. Phase 1 analysis suggested that the management of risks shapes marketing decisions both on the demand side (traders, producer organisations involved in marketing, and processors), and on the supply side (oilseed producers and producer organisations as bulking agents). In Phase 2 we therefore asked how market- and price-related risks and uncertainties shape the marketing strategies and choice of channels by oilseed producers and producer organisations, and the strategies of different types of oilseed buyers. This phase focused on the Lira hub, as the region with the most developed market. We then analysed the implications of such buying and marketing strategies for self-inclusion and self-exclusion in the oilseed value chain; and what strategies could reduce market and price uncertainties and related risks within the existing producer, trader and processing institutions in the oilseed value chain in Uganda.

## Farmer and value chain actor surveys

The research tools included interaction with OSSUP members, five focus group discussions, and semi-structured interviews around the three hubs with key value chain actors, traders and smallholder producers, supported by a team of six field assistants. The aim of the semi-structured interviews was to understand the underlying reasons for choices of chain actors, traders and smallholder producers to participate – or not – in the oilseed value chain and for their opinions about inclusion and scale in the chain.

A total of 311 individual **smallholder producers** were interviewed using a semi-structured questionnaire. Although this was not a randomised sample, diversity in the sample of smallholder producers was sought in terms of type of oilseeds produced, producing or not producing oilseed at all, age group, gender, wealth category, geographical remoteness, the level of NGO/CBO/government intervention and membership of producer organisations. To capture intra-household decision making and gender dynamics, in 92 smallholder producer households, two decision makers of different gender were interviewed separately. The sample is neither exhaustive nor representative, but includes a realistic diversity of value chain actors. The surveys were snapshots; analysis of trends would require repeated data collection in the same households (panel data).

Semi-structured interviews were conducted with a total 128 key value chain actors (including local government, processors, input vendors, value chain financing actors, producer groups, cooperatives, NGOs, exporters and research bodies), plus 33 traders, using a tailored questionnaire. Value chain actors were identified through the OSSUPs, through regional SNV offices and local capacity builders and through 'snowball' sampling (i.e. by accumulating a chain of recommended informants by asking 'who else should we be talking to?' Patton 1990).

Supplementary data collection for Phase 2 research was concentrated on the Lira hub, where all of the main marketing channels are present: different types of trader, local markets, processors, and producer organisations. A selection of respondents on both the demand and supply sides that represent the diversity in the oilseed value chain in the wider Lira hub were traced. In-depth interviews and group discussions using mixed methods (participatory, qualitative and quantitative) were conducted with these respondents. The objective was to gain a better understanding of the dynamics of decision making with regard to marketing and inclusion by these respondents.

The analysis is placed in context of related studies of smallholder-based commodity chains in Uganda, such as that conducted on the bean market and rice markets (Mauyo *et al.* 2010; Kilimo Trust 2012a), the rice market and value chains (Kilimo Trust 2012b), and of the maize, sunflower and cotton chains (USAID 2005, 2007), and studies of bulking in sunflower (Bella 2008; Ton *et al.*, 2010), and the wider literature.

The report integrates the analysis of Phases 1 and 2. Section 2 presents the context and trends in the Ugandan oilseed sector, and summarises the theory of change behind VCD interventions, with a focus on SNV. Section 3 explores motivations and drivers of choices that farmers and other value chain actors make that influence their inclusion in the oilseed market. Section 4 describes the main oilseed market channels and farmers' choices between them. Section 5 draws conclusions and implications for our understanding and theories of change when intervening in smallholder cash crop markets.



Rural northern Uganda. Photo: Bill Vorley

# 2

## Context of oilseeds in Uganda: a smallholder cash crop

Poverty and food insecurity are endemic in rural Uganda. In what is still a largely rural economy (the population is around 16 per cent urban), agriculture accounts for two-thirds of Ugandan employment and a quarter of GDP (MAAIF 2011). Agriculture is dominated by small-scale production, so smallholder-driven agricultural growth is seen as key to inclusive growth. While subsistence still forms an important part of smallholder production, farmers are increasingly linked to the market. In 2005, 58 per cent of agricultural output and 46 per cent of food production in Uganda was marketed, and 77 per cent of farmers were selling part of their produce (IFAD 2011). For the drier Northern Region of Uganda, oilseeds are an important part of transformation of subsistence agriculture to market-oriented farming, and of post-conflict economic reconstruction. Oilseeds are particularly well suited for smallholder production, being short cycle crops (four months from sowing to marketing) and requiring few external inputs.

The Ugandan commercial oilseed sector dates back at least eight decades, and has been identified by the Ugandan government as a focal area under the Plan for Modernisation of Agriculture (PMA) (MAAIF 2010) and has attracted much donor and NGO interest. The Vegetable Oil Development Project (VODP), a collaboration between the Ugandan government and the International Fund for Agricultural Development (IFAD), has been a major push for the sector, with the objective of increasing household income by increasing domestic vegetable oil production (palm oil in the south and oilseeds in the north) in partnership with the private sector. The first phase (VODP1) ran for eight years until the end of 2011, with a budget of \$21.5m. VODP used a value chain approach in support of the subsector, and has had a significant impact on the promotion of oilseed cultivation and processing. There are some areas where it has been less effective, including the timely release of improved open pollinated varieties (OPVs) of sunflower, linkages between research and extension, effective collaboration with private seed suppliers, and deepening extension provision (IFAD 2011).

VODP2 started in 2012. Its goal is again to increase domestic production of vegetable oil and its by-products which will increase rural incomes for smallholder producers and contribute to sustainable poverty reduction. It aims to continue up-scaling of Lira in northern Uganda to a modern agro-industrial hub for oilseeds, to promote Mbale as an eastern Uganda oilseeds hub and support Gulu and West Nile as emerging commercial hubs that reach out to South Sudan. There is specific attention to seed production and breeding of improved varieties and hybrids, as well as extension services to farmers groups with private sector support and VCD through the Oilseed Sub-Sector Uganda Platform (OSSUP). The target group for oilseed development comprises emergent oilseeds farmers and (semi-) commercial smallholders. Compared to VODP1 there are more specific measures to address gender and youth issues (IFAD 2010).

## 2.1 Trends in oilseed production in Uganda

It is difficult to accurately evaluate trends in the Ugandan oilseed sector, as regular and reliable data on volumes and number of farmers producing oilseeds are absent or incomplete. FAO statistics from 1999–2012 (Figure 1) show a robust growth in production of all three major oilseed cash crops over the period. Sunflower production has been increasing steadily, after a steep decline in production in Lira district from 2000 to 2003/4 during the Lord's Resistance Army (LRA) insurgency. What is clear from the data is that the increase in production is largely due to extensification (growing oilseeds on more land) rather than the intensification of production (improving productivity on the same area), as yields have remained low and fairly static. This echoes findings of the AFRINT time series study of smallholder producers of staples (Djurfeldt *et al.* 2010) and other research in sub-Saharan Africa (e.g. Baudron *et al.* 2012).

The drier Northern Region is by far the most important for oilseed production (Figure 2). The reality is however that most farmers in Uganda do not grow oilseeds, as reflected in national data sets (Table 1). Even in the northern 'heartland' of oilseed production, only 6 per cent of cropland was planted to oilseeds in 2010.

Table 1. Percentage of cropland allocated to oilseeds in 2006 and 2010 using national data sets

		Central	Eastern	Northern	Western
2006	soya beans	0.16	1.07	0.21	0.25
	sunflower	0.00	0.04	1.73	0.03
	sesame	0.03	0.54	5.89	0.06
2010	soya beans	0.19	0.70	2.66	0.91
	sunflower	0.00	0.05	2.31	0.00
	sesame	0.05	0.49	1.52	0.02

Sources: UBOS, Uganda National Household Survey 2005/2006 – Agricultural module; UBOS, Uganda 2009/10 National Panel Survey. Living Standards Measurement Survey

Figure 1. Production, area and yield of sunflower, soya and sesame in Uganda, 1999–2012



Source: FAO statistics

Figure 2. The oilseed belt of Uganda.



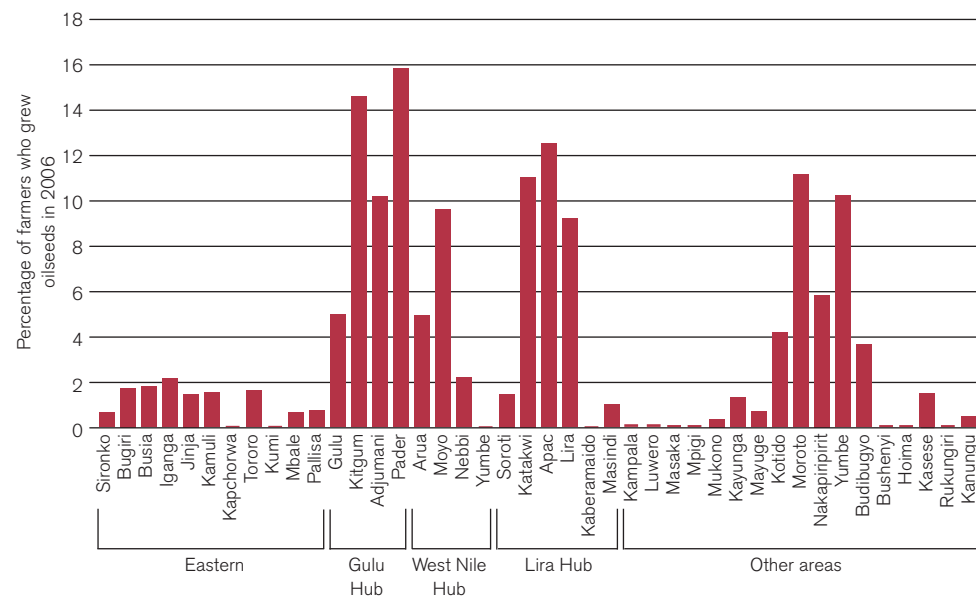
Shaded area marks those districts where >6 per cent of farmers were growing oilseeds in the 2006 national household survey

Source: UBOS, Uganda National Household Survey 2005/2006 – Agricultural module

Looking more closely at 2006 national household survey data, however, it becomes clear that in some hotspot districts in the north such as Kitgum and Pader, and in districts close to the processing centre of Lira, up to 16 per cent of farmers were growing oilseeds, even in 2006 (Figure 3). Even within districts there is great diversity, probably with a concentration of oilseed production closer to road infrastructure and associated business and information linkages, and access to services. Selection bias in oilseed-focused projects can lead to an exaggeration of the extent of production.

The ‘inclusiveness’ of the market is first determined by geography; if a farmer is to be included in an oilseed value chain, then location in those ‘hotspot’ districts of the oilseed belt where the commercial infrastructure supports the market is a major driver of ‘inclusion’.

Figure 3. 'Hotspot' districts of oilseed production in Uganda, 2006



Source: UBOS, Uganda National Household Survey 2005/2006 – Agricultural module

## 2.2 Value chain configurations

We now look in more detail at the characteristics and value chain configurations in each oilseed producing region or 'hub'.

In the **Arua** hub in the West Nile sub-region, sesame is the principal oilseed crop and is a National Agricultural Advisory Services (NAADS) priority crop. It is traditionally grown as a food crop, but for many it has also turned into a cash crop. There is one major commercial buyer of sesame in the region: the multinational commodity producer and trader Olam, which has its own agents and exports to Asia. There are no local processors in the region. Soya bean was introduced in the area around 2010 and has grown in popularity for vegetable oil production, but there are indications that the market for soya beans weakened in 2012 due to oversupply and weak demand. This was reflected in some of the interviews with producer organisations. Yumbe District Farmer Associations (DFA) invested in soya bean production and attracted the processing company Mount Meru Millers as a buyer in 2011, but their produce did not get sold in 2012. Sunflower was introduced in the region, but most farmers stopped cultivating due to low prices, and the only local processor of sunflower has ceased operation. Larger scale sunflower processors who are based in Lira hardly reach out to this region. In the Arua hub, District

Farmer Associations (DFAs – federated under the Uganda National Farmers' Federation UNFFE) are much more active compared to cooperatives. There are a few NGOs that operate a business element as social enterprises, including in Arua the Agency for Accelerated Regional Development AFARD (an NGO with 100 farmer groups), the Agricultural Productivity Enhancement Forum APEF (a consortium of producer organisations), and Nile Pro Trust. AFARD and APEF have recently started to offer services supporting sesame production and collective marketing.

The **Lira** hub is the most commercially developed region, with sunflower and soya beans the main oilseed cash crops. Farmers also produce significant volumes of sesame, and larger-scale traders deal in sesame alongside sunflower, soya and other agricultural crops. Major processors like Mukwano Industries and Mount Meru Millers Uganda largely focus on this hub, with processing plants in Lira town, and they lead the oilseed sector in the region. The area around Lira garnered most attention in the VODP and the oilseed crops are priorities of the national extension programme (NAADS). The processors set the prices and often display them at the processing plant. The major processors buy from farmers through a network of field-based agents and site coordinators, with Mukwano having the most elaborate network. But they also buy from traders. There is an increasing number of smaller scale local processors, many in the hands of the Indian business community. There are numerous POs in the Lira hub, many of them cooperatives. Some POs focus on supporting production, bulking and marketing and some combine this with local processing. There are numerous larger and smaller scale traders who deal in a diversity of crops, oilseeds being important among these. Input dealers are well represented in the Lira hub.

In the **Mbale** hub in eastern Uganda, sunflower is the major commercial oilseed crop, though oilseed production is not as widespread as in the Lira hub. Soya beans and sesame are also grown but mainly for food and not for oil. There are two areas with significant sunflower production, trade and processing. One is the area around Bukedea where P'KWI, a local cooperative, creates a demand and locally processes sunflower. P'KWI members receive capacity building, group strengthening, social services and can sell their produce to P'KWI to process it into oil and seed cake. P'KWI does not offer cash as it needs to sell the oil before it can pay the producers. As P'KWI crushes an OPV (open pollinated variety) of sunflower, producers are bound to sell it to P'KWI as few other buyers want this variety. The other area is around Bulambuli where various small-scale, largely informal, sunflower oil processors are concentrated, which creates a local demand for sunflower. These local processing plants generally have a low capacity; most are also traders at the same time. Sunflower is not a priority for NAADS in the Mbale hub. There are quite a number of producer organisations but, with the exception of P'KWI and the Bunambutye Area Cooperative Enterprise, many are weak and no longer offer significant commercial benefits to the farmers. The Busiu United Farmers Marketing Group

(BUFAMAG) is strong as a cooperative, but oilseeds are less important than other crops such as maize. For most traders in the Mbale hub, oilseeds are not their only activity.

Regional trade is reported to be growing; to Kenya (from the Lira and Mbale hubs); and to South Sudan from the Arua hub. Much of this cross-border trade is informal, despite the policy of duty-free trade within the East African Community (EAC).<sup>3</sup>

## 2.3 VCD interventions

There are generally four types of intervention in VCD that use a different entry point in the market/value chain system: support to producer organisations as a 'push' into the market; strengthening of service and finance provision via value chain financing, market information and business development services (BDS); a receptive private sector buyer as a market 'pull'; and a favourable business climate that provides the necessary institutions, public goods. In Ugandan oilseeds, SNV has worked in all modes. The collaboration with Farmer Cooperative Society P'KWI in Bukedea and Kumi districts of the Mbale hub has been a showcase for supporting PO capacity development (Lecoutere *et al.*, 2012). In terms of inclusive business, SNV Uganda and the large national enterprise Mukwano signed a partnership agreement in 2008 to strengthen the capacity of producers under their contract farming programme. In support of a favourable business climate, SNV takes the role of facilitator via multi-stakeholder platforms, with the OSSUP as the main coordination and dialogue mechanism. Regional OSSUPs have been set up with SNV support in Arua, Mbale, Rwenzori, Lira, and most recently in Gulu; IFAD wants to empower the OSSUPs to inform and monitor implementation of VODP2.

SNV has also supported service and finance provision with other VCD interventions in a demand-driven and ad hoc manner, including value chain financing, strengthening value chain service providers, and market intelligence.

Our analysis drew up a timeline of interventions in the Ugandan oilseed sector between 2007 and 2011. It showed the intensity of engagement by NGOs, government and private actors, with 50 interventions recorded in the Lira hub, 40 in Arua and 39 in Mbale between 2007 and 2011. The biggest focus has clearly been on capacity building and service delivery (Table 2).

Whether these can all be counted as 'value chain development' is however contestable. The most common type of intervention in the period was capacity development and extension services. Ranked second were efforts to improve access to inputs including seeds. The third most mentioned type of direct interventions is marketing and market information. Little has been done about contracts with processors or traders and risk

<sup>3</sup> 'The informal trade thrives due in part to the physical nature of the border points, the reluctance on the part of customs officials to record 'small' transactions, the lengthy documentation procedures and the reluctance of the traders to pay 'high' clearance fees' (Mauyo *et al.* 2010).

Table 2. Summary of VCD interventions in the three oilseed hubs, 2007–2011

	MSP	PP	GR	VCF	SER	MI	IB	CB
Arua	9	1	11	9	21	30	4	24
Lira	4	0	16	9	19	11	0	22
Mbale	4	0	12	7	33	16	0	20

MSP Multi stakeholder processes; PP Public policy influencing; GR Group strengthening; VCF Value Chain financing; SER Strengthening value chain service providers; MI Market intelligence; IB Inclusive business development; II Impact investment advisory services; CB Capacity building.

Source: Stakeholder survey.

sharing between producers and processors and traders. Infrastructure and storage get little attention and few interventions appear to have focused on access to finance. This begs the question whether VCD is a defined set of methodologies, or can be seen more usefully as a higher level strategy of market-driven agricultural development that may or may not have the value chain at its core, depending on the local priorities.

## 2.4 Summary and implications of Section 2

Northern Uganda has a long history in producing oilseeds including as subsistence food crops. There are large expectations from the commercialisation of oilseeds as cash crop. The basic inclusiveness of the market is very much driven by **location**, with the regions such as around Lira having enough critical mass of demand from processing and trading to become commercial hotspots.

The different hubs vary with regard to value chain configuration and type of oilseed crop. The Lira hub, which has the most developed oilseed value chain, attracted most VCD interventions. The focus of VCD interventions in all three hubs has been on capacity building and service delivery. There has also been attention to improve access to inputs including seeds, to markets and market information. The question arises, whether the inclusion of more regions and more poor farmers in that success will be encouraged by VCD interventions.





# 3

## Drivers of engagement in the oilseed market

Soya beans in co-op store. Photo: Bill Vorley

Surveys conducted in Phase 1 of the research set out to understand the underlying reasons for choices of key value chain actors, traders and smallholder producers to participate – or not – in the oilseed value chain and for their opinions about inclusion and scale in the oilseed value chain.

### 3.1 Characteristics of oilseed producers

The majority of oilseed producers in all three hubs see themselves and are perceived by value chain actors as relatively better off than average (Table 3). Without baseline data or a controlled trial set up we cannot be conclusive about causality, whether it is the better off who can take up oilseed production, or oilseed growers become better off by growing oilseeds.

The big difference between (asset-)rich and (asset-)poor farmers in making those decisions is the degree to which they are cushioned against risk. Only farmers who can carry risk will likely take up oilseed production, with major consequences for inclusion and scale.

Membership of producer organisations was higher among oilseed growers in all three hubs, but many growers were not PO members (Table 4).

Table 3. Farm decision makers’ perceived relative wellbeing in oilseed producer households in Lira, Mbale and Arua hubs, 2013 survey data (percentage of respondents)

Subjective relative wellbeing	Lira – Soya beans	Lira – Sunflower	Mbale – Sunflower	Arua – Sesame	Arua – Soya beans
Much better off	3	9	8	7	5
Better off	59	51	75	71	76
Same as others	24	27	11	13	10
Worse off	3	7	6	9	10
Much worse off	10	7	0	0	0
N	29	45	36	45	41

Table 4. Percentage of producer organisation members among oilseed growers and among non-oilseed growers and drop-outs

Hub		PO member	N
Arua Hub	Among non-OS growers or drop-outs	66.7%	6
	Among OS growers (continuously or off and on)	82.6%	69
	All (growers/non-growers)	81.3%	75
Lira Hub	Among non-OS growers or drop-outs	15.4%	13
	Among OS growers (continuously or off and on)	53.6%	97
	All (growers/non-growers)	49.1%	110
Mbale Hub	Among non-OS growers or drop-outs	16.4%	61
	Among OS growers (continuously or off and on)	58.5%	65
	All (growers/non-growers)	38.1%	126
All hubs	Among non-OS growers or drop-outs	20.0%	80
	Among OS growers (continuously or off and on)	63.6%	231
	All (growers/non-growers)	52.4%	311

Low or volatile market price at the time of sale (relative to high production costs) was consistently cited by farmers in the producer survey as a very high risk, as well as the related risk of uncertainty in finding a market (Table 5). If we categorise the risk factors it is clear that risks associated with the market (price, likelihood of achieving a sale) are perceived to be at least as important as risks associated with production (costs and reliability of inputs, risk of crop losses, knowledge).

In terms of production, the farmer survey singles out the quality, integrity and cost of the oilseed **seed supply** as a key limitation. Access to (hybrid) seeds was mentioned as a reason to stop sunflower production by all types of farmers. Also there are perceptions of monopoly (and monopoly profits) of one company over the import of hybrid sunflower seeds. Also noteworthy is the high rating of labour requirements.

When farmers who had dropped out of producing oilseeds were asked why, low and fluctuating prices was the main reason to stop producing sunflower in Lira and Mbale. High production costs and low profits were the top reason for stopping soya bean production in Lira, where the better developed market presents a lower risk of not securing a sale.

Table 5. Perceptions of risk: percentage of producers who rate factors as high risk when producing oilseeds for the market in different districts

	Lira hub			Mbale hub			Arua hub			Average (% total sample)	
	Alebtong	Kole	Lira	Apac	Kaberaido	Mbale	Bukedea	Yumbe	Arua		Moyo
Low or volatile market prices at time of sale	100	98	100	100	100	97	96	82	78	85	93.6
Low access to the right equipment or quality seeds	93	69	100	100	84	98	77	36	78	74	80.9
Major loss of yield due to pests, diseases, birds, monkeys	80	65	100	22	42	95	64	55	73	62	65.8
No market for oilseed or not sure to get market	78	45	67	0	84	81	47	36	63	71	57.2
Too high requirement of labour	25	33	58	0	26	36	40	100	81	79	47.8
Insufficient knowledge and training results in low harvest	10	10	17	0	89	88	73	36	67	74	46.4
Food insecurity from allocating land to cash crop instead of food crop	53	47	100	0	26	54	44	9	19	21	37.3
Oilseeds can exhaust the soil or spoil soil fertility	28	29	25	44	0	29	16	0	11	3	18.5
Unfavourable government policies or regulations	3	9	0	0	23	15	9	9	19	18	10.5
N	40	49	12	9	19	59	48	11	27	34	Total 308

In terms of de-risking, it is striking to see a drop in the number of farmers who worry about finding a market for oilseeds when there is a reliable buyer in the area, such as in the area around Kole (Alito) in Lira due to the presence of the Alito Joint Christian Farmer Group, or in Bukedea where P'KWI has an important presence, or in Yumbe, where a DFA is active promoting and marketing soya beans (Table 5). Concerns about low or volatile prices, however, are more difficult to allay. Around the Arua hub, for example, the presence of a big buyer of sesame, market brokerage by some organisations, and efforts to improve market intelligence by different organisations have apparently not been very effective in reducing fears of uncertain markets and volatile or low prices for oilseeds. These players are not insulated from market forces or other constraints – such as the need for cash or transport costs – which render it difficult to realise benefits of improved market information.

To better understand the drivers of farmer decision making in producing oilseeds, we can interrogate the farmer interview data in two ways. Firstly we look at the drivers of decisions to grow oilseeds, by comparing growers and non-growers. Secondly we can look at the drivers of commercialisation/specialisation in oilseeds by looking at the proportion of farm acreage that is committed to oilseeds.

### What increases the probability of growing oilseeds?

When the farmer survey data across the three hubs is pooled and the probability of growing oilseeds is related to farmers' characteristics and risk perceptions using regression analysis (Annex 1, Column 1), we find a significant positive correlation between farmers' own ranking of their perceived wealth level and the probability of growing oilseeds. While this is not proof of causality (growing oilseeds could increase wealth, rather than wealth being a requirement for oilseed production), it is an interesting pointer that would need to be followed up with panel data in the same households over a number of seasons.

More significant correlations are found between engagement in oilseeds and membership of POs, though here there is a possible selection bias.<sup>4</sup> Producer households that were not growing oilseeds (or had dropped out of oilseed production) were less likely to belong to producer organisations than farmers who do grow oilseeds, especially around the Mbale hub. But there are oilseed producers who are **not** members of POs. We shall see later (Section 4.3) that membership of a PO is not always associated with marketing through that organisation.

<sup>4</sup> The percentage of producers that sells through a cooperative is possibly inflated as samples were often drawn in areas where producer organisations are active. Furthermore, the category 'Through a cooperative/producer group who does bulk marketing' may include bulk marketing via an 'independent' PO, but may also include collection points or Mukwano related cooperatives bulking to sell to Mukwano.

The perception of relevance of certain risks related to oilseed production was also strongly correlated with the likelihood of growing oilseeds; growers of oilseeds were less concerned about the risk of food insecurity, soil exhaustion, or access to the right equipment. High and low perception of risk of major yield loss were both associated with producing oilseeds, indicating that this population is aware of risks and are risk takers.

Male-headed households were found to be much more likely to grow oilseeds. Qualitative evidence however revealed that women are increasingly involved in the oilseed sector, but still lack control over incomes and benefits from it. This is partly due to gender roles assigning many production tasks to women and marketing to men and partly due to lack of land ownership by women. Women and poorer households are also more likely to have cash flow constraints to access inputs (in particular seed, fertiliser, and labour or ox ploughs). Generally, the poorer segment of smallholder producers and female farmers are more concerned about risk of allocating resources to cash crops and about food security, also about the high labour requirement such as for soya bean. Especially in the Mbale hub, some women find it risky to grow cash crops as men do marketing and do not spend money on household welfare. When women farmers were asked what it would take for women to have a stronger role in and gain more benefit from oilseed production and marketing, the priorities were on labour-saving, access to finance, and group formation and group strengthening.

Interestingly the correlation between the probability of growing oilseeds and area of land ownership is not significant; neither was access to credit.

## Who is specialising in oilseeds? The path to commercialisation

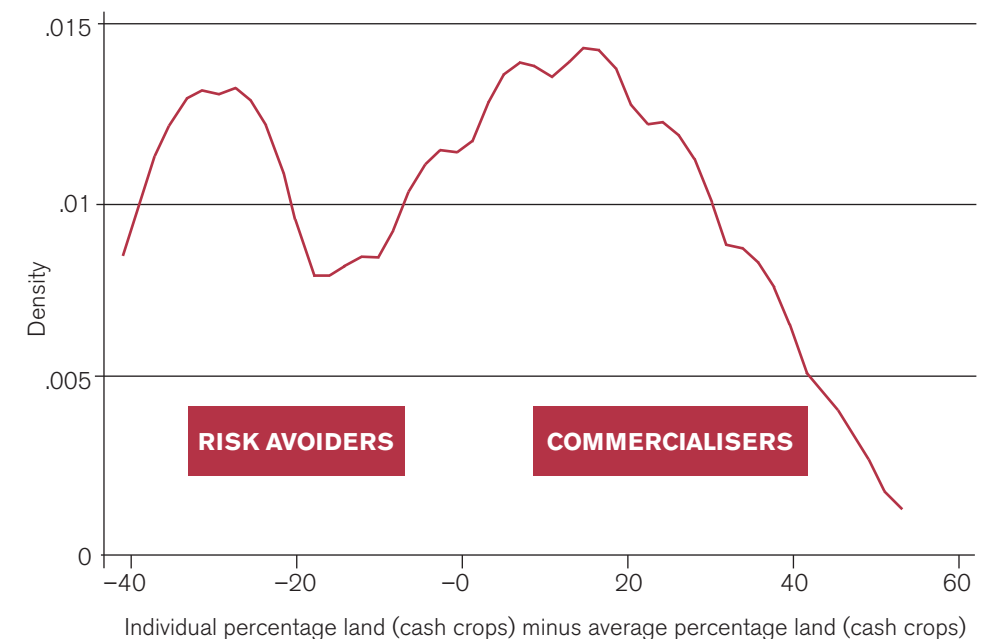
Beyond the decision to grow oilseeds, we can assume that farmers who allocate a higher proportion of their land to oilseeds are more deeply included in the oilseed market and thereby more specialised in oilseed production, i.e., more engaged in commercialisation.

From regression analysis (Annex 2, Column 2) we see that households that allocate a higher proportion of their land than average to oilseeds own significantly more land resources. It seems that land is a much more important factor in specialisation than in growing oilseeds *per se*.

In terms of attitude these 'specialiser' households are distinctly entrepreneurial, seeing farming as business. In addition, they are also less concerned about the risk of food insecurity from diverting land from food crop to oilseed cash crop production.

The association between location and specialisation in oilseeds was very marked, with farmers around the Arua and Lira hubs – where the oilseed market and commercial infrastructure is more strongly developed – much more likely to commit a larger proportion of their land to these cash crops (see Section 2.1).

Figure 4. Distribution of farmers according to inclusion in the oilseed market



Kernel density estimate of engagement in oilseeds measured as percentage of land allocated

If we plot the distribution of oilseed-producing farms according to the depth of their inclusion in/exposure to the oilseed market – measured as proportion of their land allocated to oilseeds – we can see a bimodal distribution (Figure 4). There is a cluster with a higher than average engagement in the oilseed market – who we may think of as 'commercialisers' or 'specialisers'; and a cluster with lower than average engagement who we can think of as 'risk avoiders'.

Comparison of the two clusters delivers some important insights (Annex 2). The 'commercialiser' group was significantly younger and less risk-averse in attitude (when questioned about allocating more than half of land and labour resources to produce cash crops rather than food crops). There was also a significant difference between the two clusters in their attitude towards farming. The 'commercialisers' were more likely to view farming as a business and less likely to view farming as a survival strategy. The 'commercialisers' tend to have slightly more land, but this was not significant at the 95 per cent level. The 'risk avoiders' are predictably more likely to rate highly the risk of allocating a large proportion of resources to oilseed production.

## 3.2 Drivers of decisions by other chain actors

The overriding importance of market-based risk in decision making was echoed in the trader survey. When asked about constraints to achieving a stable supply of oilseed for their businesses, the most consistently cited constraint by traders was the lack of and variability of supply due to farmers being discouraged by low and unreliable yields, high price of seeds and uncertain quality of seeds (including fakes), high price of other inputs, unstable and low market prices (Annex 3). There are seasonal peaks and troughs of production, in part from climatic variability, and poor quality of produce, but especially as a result of farmers being encouraged by high prices in the previous season, or discouraged by low prices. They also cited poor road infrastructure as affecting supply, especially in the rainy season, and lack of transportation from remote areas.

## 3.3 Summary and implications of Section 3

Section 3 looked at motivations and drivers of choices of women and men farmers and other value chain actors that influence their inclusion in the oilseed market.

What emerges is a cash crop that presents farmers with a complex risk equation, under conditions of cash scarcity, market and price uncertainty, high input costs, periods of high labour requirements, and unpredictable harvests. Small-scale farmers must balance opportunities against (uninsured) risks of low price; investing in inputs and diverting of land and labour from food production to cash cropping can expose a household to indebtedness and food insecurity.

Farmers' primary decision making on self-inclusion or self-exclusion in oilseed markets in Uganda seems to revolve around risk minimisation and mitigation rather than profit maximisation. Despite oilseed demand exceeding supply on a regional or national scale, risks at the farm level strongly influence farmer decisions. Of these, low or volatile market price at the time of sale relative to high production costs was consistently cited by farmers in the producer survey as a very high risk; as was the related risk of uncertainty in finding a market, especially in locations away from Lira where market development and commercial infrastructure are less well developed.

To engage in oilseed production, the most significant key drivers – apart from location – appear to be associated with gender, perceived wealth (assets can insulate a household from risk), a tolerance of risk, and membership of a PO (which is linked to social capital, peer support and market access).

However to become more specialised in oilseed production (i.e. allocate a larger proportion of productive resources to oilseeds), the survey data shows the key factors are associated with location, with an increased probability of finding a buyer around the Lira commercial hotspot of processing and trade, with an entrepreneurial attitude, i.e. seeing farming as a business, and with having more land. The importance of attitude is of particular interest. The surveys reveal a subset of smallholders who are more entrepreneurial and more ready to specialise in oilseed production.

What does this mean for value chain interventions? Value chain interventions have often framed small-scale producers as profit maximisers rather than risk managers. But VCD interventions that improve profit without reducing risk will not allow the majority of farmers to shift to a more commercial footing.

This analysis should in theory be a strong vote of confidence for schemes which guarantee smallholders a market, via contracts with a processor or membership of a PO with an effective marketing strategy, or with its own processing facilities. Contract farming and outgrowing with agro-industry, POs or produce marketing associations are all designed to manage risk. But we shall see in Section 4 that contract farming – at least in its currently form – works for a minority of farmers who can afford the inputs and cover the delays in payment, and may not be resilient in the face of market competition.

It is therefore important to look at the different marketing channels and their role in de-risking and 'inclusion'. The next section looks at how those channels are structured, building on the key determining factors identified in this section around risk, organisation and entrepreneurial attitude.



# 4

## The main oilseed market channels and farmer choice

Billboard advertising branded sunflower oil. Photo: Bill Vorley

The flow of oilseeds along different market channels is presented schematically in Figure 5. There are two main channels – the cash-based trade to traders and small-scale processors, and the trade to the large-scale processors like Mukwano, which largely operates through credit. Product that is channelled to the market via producer organisations is mostly destined for the large processors, but the trader channel is still an important buyer for many POs. The relative importance and resilience of these channels is directly associated with the issue of risk described in Section 3.

A more detailed breakdown of the flow of product and finance, based on interviews with the market actors, is presented in Figures 6. The oilseed market is not a linear flow from farmer to processors. The market is more like a web of informal and formal actors and channels, with complex interdependencies. Farmers do not exclusively stick to one channel but different volumes go through different channels. Because of the complex interactions and high degree of informality, we could not get an accurate estimate of relative market shares of each of the channels. Consequently accurate data on exported volumes and values are difficult to come by and unreliable.

We now look at each channel in more detail (including finance flows, and interactions between the channels) and the actors in them, in the following sections.

## 4.1 The trader channel – resilient middlemen

The research showed that in Lira and elsewhere traders retain a high level of importance for farmers to convert their harvest to cash.

There is a huge diversity in traders, from the itinerant part-time collector trading in small volumes, to large rural and urban traders with an established connection to large processors, to traders based on the Kenya-Uganda border dealing in large quantities of interregional trade (Busia traders).<sup>5</sup> Traders have different degrees of autonomy and different degrees of specialisation. They carry high amounts of risk and live with market fluctuations and transportation uncertainties and take winning or losing as it comes, relying on diversified trading business. The profiles of a cross section of real traders operating in the Lira hub are presented in Box 1.

<sup>5</sup> Busia is one of the main border crossings between Uganda and Kenya, and many traders involved in cross-border trade are based there. The launch of the East Africa common market in June 2010 by the member states of the East African Community allowed Kenyan traders to enter Uganda and buy grain directly from farms.

Figure 5. Scheme of oilseed product channels, Lira hub

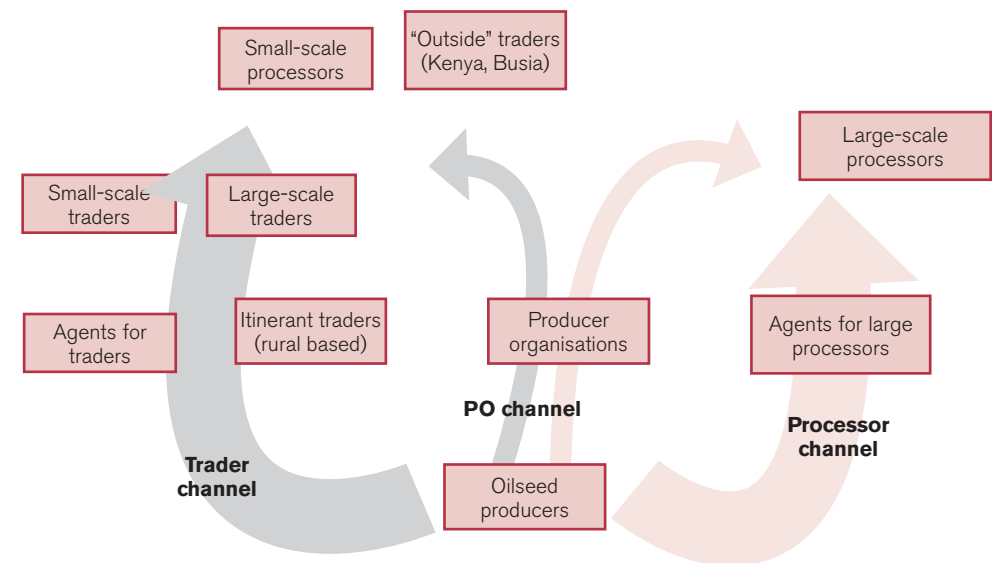
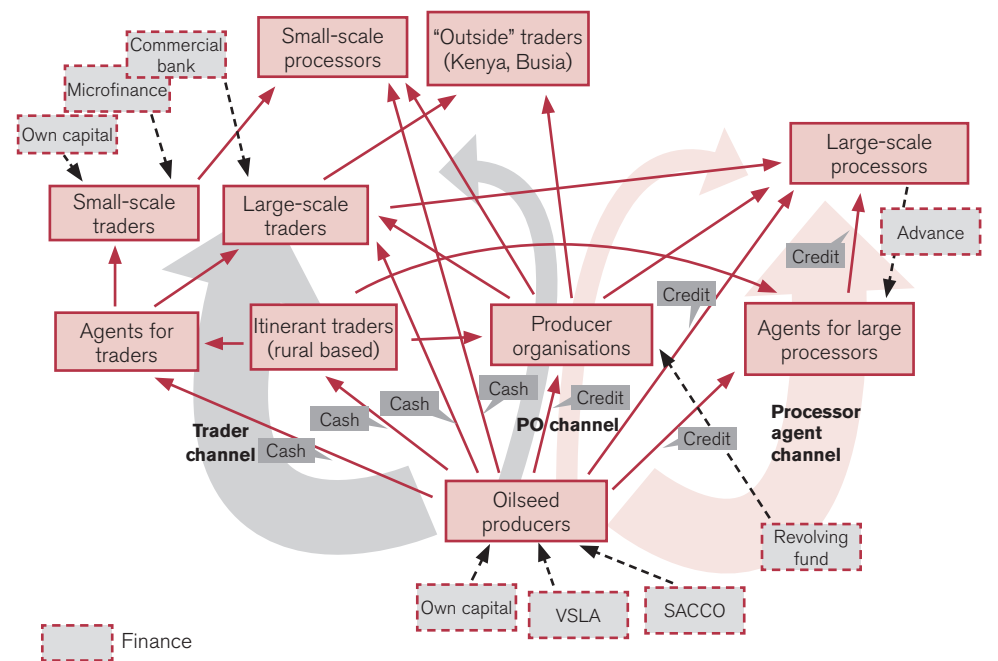


Figure 6. Detailed scheme of flows of oilseeds and finance, Lira hub



### Box 1. Profiles of three traders in the Lira area (names have been changed to protect anonymity)

#### A 'top trader' based in 'Produce Lane' in Lira town

George Ocen started trading in 1993. He slowly grew into the business and is now regarded as one of the top traders in Produce Lane in Lira town. Oilseeds like sunflower, soya beans and sesame are his main focus but he also trades in other agricultural produce like maize. Like many other larger scale traders based in Lira town, George Ocen works through agents based in rural areas, to whom he advances money to buy produce for cash. His network of agents has their own network of producers, which enables him to efficiently collect a substantial quantity of produce while economising on transaction costs. Such networks form an environment where trust regulates market transactions. There are still trust issues though; one of the major challenges George Ocen and other traders face is agents misusing the advances or side selling to other buyers.

In the second season of last year, George Ocen procured 1 100 tons of sunflower and 240 tons of sesame. He sold one quarter of the sunflower to Mount Meru Millers. The rest he sold to smaller scale processors, who he sees as less picky about the moisture and oil content of the sunflower and more willing to negotiate around the price. He sold the sesame to Olam, a global agribusiness company, and to 'Busia traders', who export to Kenya.

George has earned his 'top trader' reputation from his trade in soybeans. He traded 620 tons of soybeans in the last season. He recently secured a deal with Mount Meru Millers to supply as many soybeans as he could at an agreed price. He still sold a small portion of his soybean supply to 'Busia traders'.

For George Ocen, the major challenges of the oilseed trade include cheating agents, high transport costs due to poor infrastructure, tough competition for oilseeds when production is low, and decreasing prices after he already bought stock. But despite these challenges, George Ocen is doing well and, like many other traders, he appreciates the nature of the trading 'game' where you sometimes win and sometimes lose.

#### A rising star: a young successful trader agent building his own trading empire

Tony Agera, who lives about two hours' drive from Lira town, is a rural based agent for some traders, but also operates independently. He started as an itinerant trader but is rising fast up the ladder and, compared to other members of the rural communities, Tony Agera is well off. He uses both advances from traders and some of his own capital to buy from the farmers. He has his own motorcycle and owns a rural based store. He buys from his network of producers and even from itinerant traders in his network. Itinerant traders sometimes use bicycles and some farmers bring their produce to the store. He bought 4 tons of sunflower from farmers in July of which he sold three-quarters to Mukwano and a quarter to traders. He bought 4.5 tons of sunflower in December. In July he bought 20 tons of soya, of which he sold 60 per cent to Mukwano and the rest to other traders. In December he also bought 20 tons of soya. He hires transport or informs the traders he has enough bulk in store to be picked up.

#### A young farmer engaging in petty oilseed trade

Eddy Otim buys small quantities of soya beans from neighbouring farmers. Last season he collected 650 kg of soya. He makes a small profit on it. He sells it on to other rural based trader agents or independent traders who deal in larger quantities. His trading business is restricted by his limited working capital, although he has accessed Village Savings and Loan Association (VSLA) credit. There is also quite a lot of competition among petty traders. Poor roads make it costly and difficult for buyers to reach him or for him to bring his produce to buyers.

Traders based on the Kenya-Uganda border are considered by farmers to be an attractive market, as are traders coming across from Kenya. This part of the oilseed story would deserve an investigation in its own right. A number of research reports (Mauyo *et al.*, 2010; Kivuva and Magara 2012; Nile Basin Initiative 2012) point to the predominance of informality in this cross-border trade despite the introduction of tariff-free trade within the East African Community in 2010. These traders favour bulking to reduce search costs. They pay in cash with competitive prices, and develop long-term relationships with urban traders and some POs.

Urban traders in Lira are mainly congregated in 'Produce Lane' in the centre of town (Figure 8). They trade in large volumes, with a diversified portfolio of storable commodities (including oilseeds, beans, groundnuts and maize) to cushion the effects of demand and price fluctuations in individual commodities. Urban traders work through agents (commission agents) who collect produce in villages. Large-scale traders have up to 30–50 agents in the field. They work with cash transactions, often using their own capital; some use bank or microfinance loans. Hardly any trader advances loans to





Trading in Lira's 'Produce Lane'.  
Photo: Bill Vorley

farmers, though one rural trader stated that he advances seed to farmers to ensure quality produce. Traders from Produce Lane respect each other's procurement 'territory' for buying oilseeds. When competition is stiff traders sometimes venture deep into rural areas to secure supplies. They can store and speculate for higher prices, and they can sell to the highest bidder. Selling to industrial processors is preferred, as they are seen as giving a higher price if quality (cleanliness, moisture) is good; otherwise their produce goes to small processors or outside traders who are not so particular and who are seen as more flexible on price. When it comes to selling, there was little difference in price paid to traders by the large processors and price paid by other buyers (Table 6). Margins in oilseed trading are small: for sunflower on average 145 USh/kg when comparing average sale price to highest price traders offered to producers (N=14).

Table 6. Prices reported to be paid to traders by producers and other buyers, oilseeds, March–June season 2013 (USh/kg)

Average selling price	Sunflower	Soya	Sesame
Selling to large processors	1250	1321	
N	11	10	
SD	124	134	
Selling to other buyers	1297	1250	4137
N	10	10	4
stdev	69	170	95

Unlike agents, who seem to be exclusively male, there were four women among our survey of large-scale traders, who seem to do as well as men.

**Rural-based traders** are sometimes tied to urban traders by social and business relationships built up over time. They may be full time or mix farming with bulking (aggregating) volumes for trading. Some serve several traders or sell to whoever comes by. They use their own capital or small informal loans to buy oilseeds with cash and to deliver to the buyers, sometimes taking loans from friends to pay for transport. The rural based traders rent or own small stores in rural trading centres. The main limitation for rural-based traders is working capital.

Of the **field agents** who operate on behalf of traders, some are designated agents for certain traders, and working with cash advance from traders to buy oilseed from farmers with cash, and calling for transport to pick up produce. They receive a commission of USh 50–100/kg. Agents are often young farmers who start small and climb up the ladder in the trading business, building up their capital and network. Storage is essential. We did not come across female agents.

**Itinerant traders** trade in small volumes (up to 300kg) and buy for rural based traders. Even small and itinerant traders diversify the crops they deal in. Sometimes itinerant traders get an advance from a rural based trader to buy produce or pay for transport; others get credit from Savings and Credit Cooperative Organisations (SACCOs) or VSLAs (Village Savings and Loans Associations), but business is still often limited by shortage of working capital as well as limited storage capacity. Itinerant traders will frequently be farmers themselves – an especially important role for youth who combine farming and trading.



Rural-based store. Photo: Derrick Magaya

At the level of **itinerant traders**, traded volumes are much smaller – buying by the cup of produce. In the case of soya, the reported buying price was US\$ 800/kg and the selling price was 900 or 1000. Itinerant traders face intense competition from other small buyers – mostly youth – especially during the low season.

Producers do not make a distinction between farm gate traders and agents for traders. They see the advantages of the trader channel compared to other channels as timely cash transactions, no transport costs, less strictness about quality, availability, and room for negotiation. Farmers appreciate itinerant traders as they reach locations where others do not and they can sell small quantities since some farmers only have small plots of oilseed, or prefer to sell in portions to pay emerging household expenses. Even if there is a well-run PO or group delivering to a Mukwano agent, producers still report selling about 40 per cent of their harvest to traders. Producers reported keeping quality oilseed for the PO or Mukwano and selling lower quality to traders.

From the price survey data (Table 7) it can be seen that, in the March–June season 2013, traders paid between US\$ 960 and 1230/kg for sunflower, US\$ 965–1300 for soya and US\$ 3550–3900/kg for sesame. A premium of approximately 15 per cent on maximum price was paid to farmers who bulked their harvest. Only a small quality

Table 7. Prices reported to have been offered by traders to producers (as individuals or bulked from multiple farmers) and other traders, oilseeds, March–June season 2013 (US\$/kg)

Average buying price		Sunflower	Soya	Sesame
Offered to bulking producers	Lowest	960	1025	3550
	n	5	4	2
	Highest	1230	1280	3800
	n	5	4	2
Offered to individual producers	Lowest	964	965	3800
	n	11	10	1
	Highest	1059	1115	3900
	n	11	10	1
Offered to other traders	Lowest		1050	3850
	n		1	1
	Highest		1300	3900
	n		1	1

premium of around 3–4 per cent was reported by producers, traders and processors in the interviews.<sup>6</sup>

**Trust** is an issue all along the trader channel.<sup>7</sup> Producers complain that traders cheat through using biased weighing scales or counterfeit money, and take advantage of illiterate farmers' urgent cash needs by offering low prices. But small traders also say they get cheated by larger buyers at weighing. Traders report that their agents are often untrustworthy and use cash advances for other (personal) purposes or side sell to other traders. For agents, earnings are limited in seasons with low supply as they live off the commission per kilogram, and also limited by insufficient working capital to buy in large quantities. For traders who get hold of sufficient supply, seasons with low supply can offer opportunities for selling at high prices.

6 Premium of US\$ 50/kg quoted by Mount Meru Millers for bulked and good quality soya, on top of US\$1400/kg base price. Interviewed traders said that the difference between clean and dirty oilseeds of US\$30 in a 1000–1030 range.

7 For example, see Fafchamps and Minten 1998.

## 4.2 The large processor channel – models of vertical coordination

There are two large commercial processors in northern Uganda: Mukwano Industries and Mount Meru Millers Uganda. We focus here on Mukwano, which has pushed its business model furthest towards vertical integration and 'inclusive business models'. Mukwano has the strongest hold on sunflower even if it also buys soya for processing it into oil, though as will be discussed later, Mukwano's first mover advantage in sunflower is under threat. Mukwano's contract farming programme started in 2002 with 6,000 farmers in the districts of Lira and Apac, and rapidly expanded to seven other districts in the Lango sub-region (Ogwal, 2013). The programme is designed to assure and lock in supply through contracting with farmers, providing quality hybrid seeds, technical support, a guaranteed market and minimum price, in exchange for exclusive rights to the harvest. Mukwano also has some in-house production on large estates within easy reach of Lira. The company has a huge network of site coordinators (270 in the Lira hub). These site coordinators are not Mukwano employees, but are supervised by a Mukwano employee. They receive a commission based on their group's production. Site coordinators each work with agents – the site coordinator we interviewed had 35 agents (see Box 2).

### Box 2: Profiles of a Mukwano site coordinator and a rural-based agent

Moses Okello is a **site coordinator for Mukwano**. He works with 35 agents – or store assistants – who each work with (loose) farmer groups of about 25 to 30 members. He organises training for these groups on agronomic practices and post-harvest handling of oilseeds, and links the groups to Mukwano or input dealers to buy the hybrid sunflower seeds.

At harvest time, Moses' agents contact him to organise collection of the produce. Moses checks and weighs the bulked production. He is dependent on Mukwano's trucks for transporting the products to the factory. He gets his income from a commission on the total volume, but faces several 'unforeseen' costs. He needs to give some side payments to people at the factory gate and at quality control to speed up offloading. Generally there is a two to three month delay in payment after intake. Once Moses receives the Mukwano payment he disburses to his agents who then pay the farmers on the basis of the receipt issued at collection.

Some seasons back there was an overproduction of sunflower. The price dropped drastically and many farmers decided to sell half of their products to traders who paid cash and offered a slightly higher price than Mukwano (800 versus 750 Ush/kg). Moses acknowledges the competition from Mount Meru Millers and traders but is confident that agents in the Mukwano network will keep on selling through the Mukwano channel to maintain the relationship. Moses is not optimistic about Mukwano's plan to pre-finance their agents with a bank loan. In his opinion, if Mukwano will still delay paying site coordinators and agents, agents will sell a larger proportions to other buyers who pay faster, as the agents will be personally responsible to pay back the loan on a monthly basis.

Martin Ojok is a **rural-based agent for Mukwano**. He is the intermediary between oilseed producers and Mukwano and reports to a site coordinator. At planting time he sells the hybrid sunflower seeds that Mukwano wants farmers to grow. At harvest time, he collects sunflower and soybeans and issues receipts upon which farmers will be paid when he receives the money from Mukwano. He needs to respect other Mukwano agents' boundaries for collecting produce. Martin hires stores himself and when he has bulked a large enough quantity – a minimum of 100 bags – he calls for Mukwano to pick it up by truck. Sometimes storage capacity is a challenge.

Martin lives off the commission he gets per kilogram. So he strives to get large volumes. Last season was not a good season for him as he only collected 13 tons whereas other seasons he collects double or triple that amount. Volumes were smaller as the seeds did not germinate well, there was little rain and fewer farmers had planted sunflower because they were demoralised by delays in payment in the previous season. With soybean Martin feels he incurs losses as its moisture content drops significantly between the time of collection from the farmers and the time of collection by Mukwano. The financial implications of the reduced weight or any other unexpected cost increases, like higher loading fees, are his. Martin thinks the plan of Mukwano to have their agents access bank loans could be advantageous for producers as they will be paid on time. This can benefit agents as well because farmers will be less hesitant to sell through them. But he also sees the risks of having his land title as a security for the loan.

Most farmer-suppliers are now organised by Mukwano into farmer groups for the purpose of lower transaction costs in aggregation and capacity building. These groups are more like produce and service hubs rather than autonomous produce marketing organisations. Site coordinators work with 35 farmer groups and have store assistants in each group (i.e. each farmer group has one agent/store assistant attached to it). The farmer groups are composed of about 20 to 30 farmers. A programme to upgrade the farmer groups to become autonomous cooperatives, with support of SNV, was not continued beyond its

pilot phase with four POs, including Angetta United Farmers' Cooperative Society. Clearly a producer organisation could outgrow an exclusive trading relationship with one buyer, and it is not necessarily in Mukwano's interest to trade with a fully empowered PO if it builds agency to seek out alternative markets.

Mukwano's model is what USAID (2007) describe as a 'directed governance structure': the firm contracts to be the sole input provider and buyer of the farmers' production. Mukwano organises sales of hybrid seeds of sunflower (sold at cost), and provides agronomic and post-harvest training and collection of produce through these channels. The Mukwano agents and site coordinators are responsible for collecting produce from farmers and storing it. Upon buying hybrid sunflower seeds through Mukwano agents, farmers receive an agreement that Mukwano will buy the harvest. In some cases the agreement states a minimum price though farmers reported that the minimum price is not always filled in or not always respected. Farmers sell their hybrid sunflower through the Mukwano agents.

In the main sunflower season (July–December), a Mukwano rural-based agent in 2013 typically bought 200–270 tons from farmers; at that time the price for sunflower ranged between Ush 800 and 1000/kg. Some site coordinators/agents get an advance from the company to buy soya and sunflower from those to whom they sell seeds, but this is generally less than one third of the total value of the produce they bulk. For the largest share they issue receipts to farmers for the volume delivered at the prevailing Mukwano price. After the site coordinators/agents receive the payment for their bulked produce delivered to Mukwano, they pay farmers – often with a two to three month delay – which contradicts published analysis (e.g. USAID 2005; USAID 2007) that describe Mukwano's business model as paying cash on delivery. The change from paying cash on delivery to paying upon receiving bulk produce probably denotes a tightening of Mukwano's pre-financing over time, towards the company's complete withdrawal from financing which they initiated in 2014. The cost of storage and reduced weight (moisture reduction during storage) at the time of delivery to Mukwano and other 'unforeseen' costs are at the expense of the agent. Agents receive USh 50/kg commission. Even some Mukwano agents diversify in the crops they deal in, to protect themselves from risk and to build working capital.

Mukwano has recently made a radical change in its model of financing its agents for the purchase of contracted oilseed harvest. Rather than pre-financing its agents (a strategy that is clearly failing, considering the widespread reports of delayed payment), Mukwano recommended for the 2014 season some of its site coordinators/agents to Centenary Bank to get a loan (with the agents rather than the company providing security) in order for them to buy farmers' harvest with cash rather than using a credit note. In the first season, 150 agents (out of total of 250) received a loan, averaging USh 10 million. There is an important research question about whether this change will be improving



Oilseed purchase price displayed at gates to Mukwano processing plant.

Photo: Mirjam Schoonhoven

or worsening the proportion of farmers who are paid cash on delivery. First signs are quite positive, with agents reporting that they can now better compete with other buyers. Mukwano also faces lower risk and transaction costs. Mukwano has operated with an expectation of exclusivity, so that their investment in embedded services (technical support, transportation, group development, etc.) can be recouped with loyalty at the time of harvest. The contract that farmers sign when they receive seeds from Mukwano stipulates exclusivity in selling only to Mukwano, along with stipulations of quality parameters. The contract includes the option of legal action to force compliance and forbid side-selling, but for a number of years Mukwano has been aware of the limitations of forcing compliance through the legal route (Ton *et al.* 2011).<sup>8</sup> The only available sanction is to refuse access to hybrid seed in the following season.

Mukwano's rural-based agents also buy soya beans for the company. Quantities procured vary substantially between agents and between seasons: one agent bought about 10 tons in the July–December season and the March–June season; another one bought 100 tons in the March–June season but only 2 tons in the July–December season. Trade in soya, however, is more open as it is less tied to a specific variety, so Mukwano is in a more competitive market.

<sup>8</sup> One of those limitations is a widely held perception that Mukwano is exploiting a perceived monopoly position over imports of hybrid seed.

Stated advantages of the processor–agent channel for farmers are many. In the case of Mukwano, contracted farmers gain access to hybrid seed. Yields of hybrid varieties are normally high and the harvest commands a premium over local and open pollinated varieties of around 60 per cent (Table 8). One Mukwano agent claimed that a farmer can get a profit of Ush 500,000 if he/she plants 2 kg of hybrid sunflower seed on an acre of land. Farmers are always assured of a market. There are no transportation costs since produce is transported by Mukwano from their collection point. Mukwano also provides free bags to producers. And since Mukwano started a programme of promotions in 2012, when a farmer buys 2 kg of hybrid seed he/she is given a free basin (bucket) for use in the home. Farmers also get access to training through the coordinating agents.

Table 8. Reported prices paid for sunflower by seven oilseed processors in the Lira hub, 2012–13

Variety		July–Dec season 2012 Price (Ush/kg)	March–June season 2013 Price (Ush/kg)
Hybrid	Avg	900	1110
	N	5	5
	SD	212.1	194.9
Open pollinated varieties	Avg	567	667
	N	3	3
	SD	493.3	577.4
Local varieties	Avg	540	680
	N	5	5
	SD	313.0	408.7

Benefits reported by farmers however were less clear-cut. They complain about the high price of hybrid seeds they need to buy from Mukwano (between Ush 16,000 and 25,000/kg, compared to open pollinated varieties that cost Ush 4,500–5,000/kg), representing a major cash outlay at the time of sowing. There were also frequent references to bad seeds (poor germination) and delayed delivery of seeds. Several times it was mentioned the bags did not come, came too late or were of bad quality; and that transport was delayed. One of most commonly heard complaints from farmers was that, at harvest time, prices are much lower than expected (and lower than promised). There are also complaints that the processors' agents did not pay the minimum price stated on their agreement and farmers get a lower price than that advertised at the factory (despite the policy of informing farmers of prices by radio and via factory gates so that agents cannot cheat); farm gate price is lower than advertised price at factory to cover commissions and transport. But delay in payment was the most common grievance, as it disorganises farm household budgets and farmers need deep pockets to bridge the long gap between buying seeds and being paid at harvest. Delayed payments are an inducement for farmers to side sell to buyers paying cash. Even in 2007 it was estimated that 40 per cent of Mukwano's contracted oilseed were 'poached' by traders offering higher (cash) prices (USAID 2008).

But the processor also faces risks, especially of volatility in supply, whereby farmers react to low prices by not producing in the next season, then resulting in low volume and high price (and much side-selling) in the following season. Processors also face variable quality due to poor agronomic and post-harvest practices.

Even though vertical integration is ostensibly designed to cut out the middleman, Mukwano appears to buy large volumes from the trader channel. The rationale for this 'side buying' and volumes involved warrants further investigation; if volumes are higher than required simply to meet shortfalls in contracted supply, then impacts on market functioning and prices could be considerable.

The main competitor of Mukwano, Mount Meru Millers, has 180 agents in the field. Mount Meru Millers pays cash to producers, often slightly more than Mukwano. Mount Meru Millers processed 30,000 tons of sunflower (mixed varieties) over the course of the year Sept 2012 – Sept 2013, bought at USh 1,000/kg. They also processed 30,000 tons of soybeans which they bought at USh 1000/kg. For both sunflower and soya oil production they require 3 kg oilseeds per litre of oil. Sunflower oil is sold at 5,800 USh/litre and soya oil at 5,500 USh/litre (factory price). Their mill in Lira, with a capacity of 300 tons/day, was operating at less than 60 per cent capacity at the time of this research. Mount Meru Millers gives its agents 5 per cent commission. The company is planning to emulate the Mukwano contract farming model, by importing their own hybrid seed and contracting with farmers.

## 4.3 Producer organisations and their role in the market

The economic organisation of producers involved in Ugandan oilseeds covers a range of models, from those established by processors, to more autonomous social enterprises. Not all are engaged in collective marketing. Insights here are based on an in-depth analysis of seven different POs. Names have been anonymised.

General characteristics are as follows. Producer members pay a membership fee, and receive services related to production as well as social services. Income of the PO may also come from commission on quantities sold (1 per cent in one case). The income is used for running the group, renting stores and other operational costs. POs often put a lot of effort into stimulating farmers to provide quality produce, and POs use reputation mechanisms like incentives for high achievers, or public shaming for producers who offer bad quality. Producers are expected to sell a proportion of their harvest through the PO, though the amount actually sold by members through the PO varies considerably. Purchase is on condition of good quality, for which additional investment is required from farmers. Some POs operate as traders in order to aggregate sufficient volumes, employing agents who buy from non-members using cash payments (Box 3).

POs that deliver to Mukwano are somewhat different. As they are dedicated POs bound to sell to Mukwano (by seed access and link to the Mukwano agent), they have less room to search for better prices; they function more as an aggregation centre than an autonomous producer group striving for the collective benefit of members. Side-selling is still an issue while they wait for payment from the processor.

### Box 3. Profiles of three POs in the Lira area

#### Cooperative Society A: a hybrid form of commercially oriented cooperative and social enterprise

Cooperative A is a relatively large and established PO, and has been able to garner donor support for example for building a store. It started as a small self-help group, which explains why it has evolved into a hybrid form of commercially oriented co-op and social enterprise, with community work including a young farmer programme. That combination of social support and collective marketing builds membership loyalty. But even though this co-op is one of the most successful in collecting significant volumes from farmers, they still estimate that only 60 per cent goes through co-op and other portions go for cash in the trader channels.

Cooperative A collects from members using the receipt system but also has five agents in the field on commission (Ush 20–30/kg) procuring oilseeds in a similar way to traders, paying cash at current market price from non-members. The organisation estimates that 20 per cent of its soya is procured from non-members. Sunflower is mostly sold to Mukwano. Mukwano collects when they have bulked a significant amount. Last year Cooperative A sold 256 tons of soya and 585 tons of sunflower to Mukwano; it also sells to outside traders if they offer a high price. For soya they look for a buyer who offers a good price. They avoid informal processors as the co-op needs to pay taxes otherwise it will be shut down.

The co-op takes a commission on profits from selling oilseed. This is used for operating the co-op but also for social enterprise activities.

#### Cooperative B: A buyer-driven producer organisation

Cooperative B was formed with SNV/Mukwano support. It has 600 members with the largest proportion being women. This co-op does not take commissions but has funds from an annual subscription fee. Having been established with the aid of their buyer, Cooperative B is less autonomous than Cooperative A and acts more as a collection point than as an independently operating co-op. Its capacity to benefit from group strength to negotiate better prices with Mukwano is limited. Their need to access the Mukwano supplied hybrid seeds makes them bound to sell through Mukwano, though farmers still side-sell for cash. Their lack of storage also forces them to sell smaller quantities, which reduces their bargaining power. Their options for selling soya collectively are more open.

#### Collective Marketing Group C

This collective marketing group was formed out of different VSLAs that came together. They collectively sell sunflower and soya (and occasionally maize) and they hire a store as a group. They have 420 members, many of whom are women. This marketing group sells smaller quantities (15 tons and less) through Mukwano or trader agents. If they have larger quantities they contact outside (Busia/Kenya) traders or Lira traders and sell to the highest bidder. They would like to store and wait for a better price but farmers are impatient for payment. Mukwano also threatened not to provide hybrid seeds anymore if they sold sunflower through other channels. But despite them selling elsewhere, Mukwano did come back and sell them hybrid seeds. Their group relies on a market prospecting team that they send out and group members eventually witness sales to avoid cheating. The group takes 1 per cent as commission for operational costs and store rental.

Farmers' reasons to sell through their PO include better prices achieved by the organisation through bulking and market speculation. But price is only one factor. Other reasons include obligation and loyalty (to maintain access to social services which provide a safety net in times of crisis), access to quality seeds, training, and access to small loans. In all cases, farmers side-sell via other channels to get cash. Some farmers will sell for cash to agents of traders and small processors, and even sell to agents buying for the PO itself. Farmers may sell their higher quality produce through the PO, and the rest through traders. Farmers also expect representation and stronger voice through their membership, as well as access to networks of NGOs and development projects.

Typically the PO collects and stores, and searches for buyers offering a good price. The buyer can be a big processor, a Busia/Kenyan trader, or an urban Produce Lane trader. The PO sends out marketing prospectors who inform the members of market opportunities and prices (via key farmers) who then collectively decide to whom to sell. For example, Cooperative B sold half of its bulked soya to Mukwano and the other half on the open market. For the open market sales the PO called a meeting and discussed whom to sell to and at what price. In the case of Cooperative B, all sunflower harvest was designated for Mukwano. This collective marketing is not always successful; for example Cooperative Society A reported achieving a price of only Ush 850–750/kg for its bulked soya. Bulking sufficient produce (e.g. more than 15 tons) and having sufficient funds to pay or advance farmers cash gives a PO more flexibility to sell direct to processors or traders in Lira, or to call in outside (Busia) traders, at a higher price and for cash. Smaller quantities (less than 15 tons) will be sold locally to agents of Mukwano or Mount Meru Millers or agents of traders, with reduced bargaining power. This was shown by a cooperative which reported selling both sunflower and soya at Ush 1000/kg to Mukwano but they had expected 1500 for sunflower and 1300 for soya.

Price data from this research does not show consistent higher prices when selling through a PO. Shortage of working capital means that POs generally do not have sufficient reserves to pay farmers in cash; they will instead issue a receipt, and the farmer member gets paid after the PO has managed to sell. Of the surveyed POs, one had a revolving fund with which it can pay cash for some volume of produce, and another had a pool of capital with which they can pay cash. These funds are limited, and, especially in years with high production all surveyed POs resorted to using receipts and payment after selling.

The trust of PO members in the organisation's capacity to deliver on objectives of bulking and temporal arbitrage (ie, selling at the top of the market, rather than selling at harvest time) depends on their trust in the quality of storage. Oilseeds are storable commodities but quality can deteriorate rapidly depending on pre- and post-harvest handling. Value during storage can decline rather than increase.



Newly constructed grain store, Acwec Omio Cooperative Society. Photo: Bill Vorley

## 4.4 Producer choice of channel

As described in Section 3, the oilseed market presents farmers with relatively high risk when investing cash, cropland and labour in a cash crop in a volatile market. Indeed the findings show the extent to which farmers' decision making on self-inclusion or self-exclusion in oilseed markets revolve around risk minimisation and mitigation. Producers seek to convert part of their crop to cash quickly for immediate cash needs (school fees, medical expenses, dowry expenses etc.), and to avoid risks associated with storage and price fluctuations. But there is a more entrepreneurial category of small farmer who are prepared to accept higher risk. This segmentation of small-scale farmers by attitude has a strong bearing on producer choice of channel.

According to our farmer survey, traders continue to play a very important role as market intermediaries in all three oilseed crops and all three hubs (Table 9). In Lira, traders were reported to account for around three-quarters of sales of soya beans and half of sales of sunflower. Traders or their agents, as reported by farmers, offer certain advantages from a risk and accessibility perspective. Those advantages are that they conduct cash transactions, they come to the farm or collection centre, they accept small quantities, are flexible on quality, are always available and reach areas where others don't, and there is room for negotiation. Even for farmers contracted to sell exclusively to Mukwano, side-selling to traders is a way of getting cash quickly and of maintaining relationships with

traders. Farmers weigh the positive aspects against the main risks associated with the trader channel, perceived to be cheating through manipulated weighing scales, counterfeit money, taking advantage of small and illiterate farmers, breach of trust, low price, and only taking small quantities (though this is not the case for Busia traders).

Producer organisations generally appear to play a limited role in bulking and marketing of oilseeds. In fact, only about one-third of surveyed PO members in each of the hubs chose to sell through their organisation. Even the Cooperative Society A (Box 3), as one of most successful in collecting significant volumes from farmers, still estimate that 40 per cent of members' production is marketed through cash channels.

The processor channel is an important market for sunflower in Lira, where the big processors are based; in Mbale where there are no industrial buyers, the trader route predominates. In Arua soya beans are mainly traded through a number of farmer associations who have been promoting the crop (Table 9). Farmers' decision to avoid the processor channel is driven by barriers to entry and the perceived advantages of the trader channel described above, especially the high cost of seeds and delays in payment. The resulting demotivation of farmers was seen in one of the areas where a Mukwano agent was the main buyer for sunflower and soya; none of the respondents had produced sunflower or soya in the last two seasons. In the focus group discussion the farmers complained about broken promises about a minimum price, late payment and possible misappropriation of working capital by the agent.

Table 9: Marketing channels used by oilseed producers (%)

	Trader channel			Processor channel	n
	Individually to a trader at a collection point	Individually to a trader at a local market	Individually to a trader at farm gate	Through a cooperative/ PO which does bulk marketing	
Lira – soya beans	23.9	30.4	19.6	26.1	46
Lira – sunflower	17.9	22.4	11.9	47.8	67
Arua – soya beans	16.0	27.8	2.8	52.8	36
Arua – sesame	2.7	51.4	24.3	21.6	37
Mbale – sunflower	23.8	19.0	47.6	9.5	42

## 4.5 Summary and implications of Section 4

Different oilseed channels present farmers with complex decision making at the time of planting, contracting, and marketing. They take into account price volatility, requirements for labour, risk of losses and food insecurity, need for cash, and previous seasons' selling prices.

Most producer organisations are not bridging the finance gap; their effectiveness is hampered by their lack of capital to pay for deliveries from their members. This phenomenon is well recognised in many rural grain markets where brokers and rural wholesalers who can pay cash on delivery remain the dominant market participants (e.g. Shiferaw *et al.* 2006).

Trader channels are more inclusive of poorer farmers with immediate cash needs. What looks to be traditional or informal trade via middlemen may be better suited to smallholder realities.

With sunflower, farmers have needed to sell to Mukwano if they want access to hybrid seeds. The cost of those hybrid seeds and delay in payments at harvest time create high barriers to entry to Mukwano's vertically coordinated supply chain. But with the market maturing and becoming more competitive, partly driven by local processors and inter-regional trade as well as the entry of Mount Meru Millers, there is more choice even for sunflower. The market for soya beans is less vertically integrated, with lower barriers to entry, but just as much volatility.

Increased competition seems to be pulling the sunflower market in a similar direction to soya bean. Mukwano's model of contracting and outgrowing that was so successful in the early phase of market growth and which gave Mukwano first mover advantage, is now presenting the company with risks to competitiveness and security of supply. Contracting companies have expectations that technical investment comes with a degree of producer 'lock in'. If a company loses that leverage and farmers can take the skills and technology to other buyers, it is a major disincentive to investing in smallholders. The business model has to be adapted to a more competitive environment. This is seen in Mukwano's withdrawal from pre-financing its agents, its lack of enforcement of side-selling, and its partial reliance on the trader channel to feed its supply chain. We might then question why Mount Meru Millers is emulating the outgrower model; one of the reasons may be to improve the quality of oilseeds through improved seeds and agronomic practices.

Who then invests in the upgrading of smallholder oilseed production, in terms of productivity, quality and natural resource management? This is a fundamental question for the wider development of smallholder agriculture under liberal economic policy, and is picked up in Section 5.





# 5 Conclusions

'Produce Lane', Lira town. Photo: Els Lecoutere

This research set out to interrogate our theory of change of VCD and smallholder inclusion in value chains within the reality of smallholder engagement in agricultural markets. Oilseeds are not a 'typical' sector for VCD interventions, in that it is a relatively low value bulk commodity produced by semi-subsistence households and destined mainly for the domestic and regional markets. So testing out the principles and approaches of VCD to oilseeds can provide SNV and the wider development community with especially useful insights for pro-poor interventions. Oilseeds have certainly been a development success in the post-conflict areas of northern Uganda. The sector has grown, competition has increased, and buyers are crowding in, especially around the most commercial centre of Lira. But attributing that success to the inclusion of more and poorer farmers into the formal oilseed market is risky. The two phases of research provide some reality checks and pointers to the nature of 'inclusion' and the factors that VCD approaches and support organisations need to consider in order to drive inclusive development.

We highlight eight main insights on inclusion from the research.

## 5.1 Location is a primary determinant of market inclusion

The majority of Ugandan smallholders do not grow oilseeds for the market. This is partly a function of household poverty and subsistence orientation, or orientation to the labour market and off-farm income. But the research shows that location – proximity to a market – sets the context for 'inclusion'. The association between location and specialisation in oilseeds was very marked in the survey results, with farmers around the Arua and Lira hubs – where the oilseed market and commercial infrastructure is more strongly developed – much more likely to commit a larger proportion of their land to these cash crops. This importance of location is especially prominent in liberalised commodity trade where infrastructure is poorly developed. Poor infrastructure raises transportation and search costs, and oilseed production remains quite tightly clustered in a limited number of districts (see Figure 3). This shows the importance to VCD of investment in infrastructure, which is largely a public sector role, and the importance of aggregation/bulking (Ton *et al.* 2010; 2011). The presence of large volume buyers (commercial processors or exporters) creates hotspots of production supported by physical access, business linkages, services, informal knowledge exchange, organisation and other forms of social capital. VCD interventions outside of those 'hotspot' districts will have a much lower probability of success unless large volumes of product can be aggregated. Traders and agents including those coming from Kenya and border areas can reach further into the hinterland if there are worthwhile volumes to collect.

## 5.2 Risk associated with market volatility puts a brake on market 'inclusion' and crop intensification

Low and volatile market prices rank top of farmers' perceived risks associated with growing oilseeds for the market (Table 4). This dominant perception of market risk has a prevalent but poorly understood link with smallholders' choice to extensify rather than intensify production. VCD interventions that improve profit without reducing risk will not allow the majority of farmers to shift to a more commercial footing. Most smallholder household production will remain **diversified** as a **coping strategy**, and will dip in and out of cash crop production based on cash needs and prevailing prices. Galtier (2013) has noted that the effects of risk-averse farmers being exposed to price instability are greatly underestimated by the contemporary market doctrine, in that price instability will very likely discourage those farmers from investing in productivity or specialisation in a crop like oilseeds. Baudron *et al.* (2012) found the same phenomenon in Zimbabwe and observe that interventions to intensify smallholder agriculture often fail when those farmers are faced with a typical mix of limited cash, labour peaks, low output and high input prices, and high risks.

There are some indications that Mukwano as a large commercial buyer is not absorbing uncertainties (in terms of price and demand uncertainty) for producers through its vertically integrated model, and may even be adding to volatility. In the sunflower market at least, Mukwano is a price setter. Farmers report that once the company's supply requirements are met, Mukwano drastically lowers the price, which in turn discourages farmers from planting the following season. If Mukwano did not transfer these signals so abruptly to the market and instead used its storage capacity to buffer and stabilise the market, then farmers would not be confronted with such volatility and could plant with more market security. But there is also an important role of public policy and sector coordination (Section 5.8).

Support organisations should analyse risk more deliberately and precisely before designing interventions. Practical tools or field guides for (market) risk analysis would be of great benefit in this regard.

## 5.3 Entrepreneurial attitude is as important as assets for 'inclusion'

The research has shown how significant **attitude** is in driving producer self-inclusion or self-exclusion, and how smallholder farming is differentiated by more than location or assets. We can divide farmers who produce oilseeds crudely into two populations (Section

3.1). There are the 'risk avoiders' who have some resources to invest in cash crops, but will not risk committing a large proportion of land, labour or capital resources to oilseed production. The other group are the 'commercialisers' who have the resources and attitude to be able to specialise more in oilseeds and play different channels.

The 'commercialisers' are an important subset of entrepreneurial farmers, ready to accept greater level of risk to specialise in cash crop production. This role of attitude in smallholder agriculture is under-researched, but has echoes in other studies. A Farmer Focus research study for the Gates Foundation in Tanzania and Mali in 2009 identified several distinct smallholder segments in each country, each one with unique needs, constraints, and receptivity to innovation. An 'entrepreneur' segment was evident in both countries, marked by self-driven individuals who actively engage in pursuing knowledge to develop themselves and who mitigate against setbacks by taking calculated risks.

Despite the frequently stated intentions of VCD interventions to target 'smallholders', it is these entrepreneurial farmers who are most likely to respond to VCD in cash crops; they are a valid target even if looking for impacts on the poorest of the poor. Practitioners and support organisations should look at categories of farmers more precisely in analysis, programme development and monitoring and evaluation. Many farmers see the future of their descendants as off the farm or at least out of full-time agriculture. By no means does every farmer want to be 'included' in modern value chains – whether via contract farming, outgrowing or new export crops. Rather than measure 'inclusion' we should perhaps be looking for indicators of rural economic development as an outcome. To aim at full 'inclusion' in VCD is to misread the realities of smallholder households.

## 5.4 The informal trader channels for oilseeds are dynamic and can be more inclusive of smallholders

In Ugandan oilseeds the informal market, which pays cash and serves local and regional traders and processors, is dynamic and resilient. Buyers range from petty traders working with small volumes to large traders serving cross-border trade (Section 4.1). It is in the uncertainty and market volatility that the skill of traders comes into its own. Traders operate under conditions of high variability of supply, market inefficiencies and high transportation costs, poor roads, taxation and 'facilitation' fees, intense competition, and shortages of working capital. Against these existing 'institutional, legal, and market infrastructural barriers' traders' marketing margins look quite narrow (Mauyo *et al.* 2010).<sup>9</sup>

<sup>9</sup> For the bean trade (which has marked similarities with oilseeds), estimated at 33 per cent for the commission agents, 42 per cent for trader/middlemen, and 46 per cent for the exporters to Kenya (Mauyo *et al.*, 2010).

The preference of many producers for the trader channel and the barriers smallholder producers face in selling into the formal processor channel challenge our thinking on VCD and 'inclusion'. VCD models of contract farming and outgrowing are intended to de-risk smallholder participation by improving links to technology and market, and create value by cutting out traders, as 'middlemen', from the chain. But the research makes it clear that farmers still see high risks and high barriers to entry to this channel, compared to informal trader (cash) channels. Practitioners and support agencies should look at all options for inclusive trading including informal routes, and investigate options for upgrading the performance of trader channels.

## 5.5 The market effectiveness of producer organisations can be severely limited

We have seen that the term 'producer organisation' covers a very wide spectrum, from a production hub linked to a large processor on one hand, to an autonomous social enterprise such as P'KWI or the Acwec Omio Cooperative Society on the other. POs can contribute to smallholder development well beyond a role of aggregation. Collective marketing can be combined with social programmes and advocacy, so that the PO is able to draw in external support on its own terms.

But this research raises questions about the potential of POs to de-risk oilseed production and trade, or act as a route to 'cut out the middleman' or to link small farmers to agro-industry. Farmers see risks in selling through a PO, especially delay in payment, since most POs do not have enough working capital to pay in cash. A higher price can be achieved for bulked and stored produce but only on condition of good quality, for which additional investment is required from farmer members. The main potential advantage of POs – having storage so they can wait for a better price – is hampered by farmers' impatience for payment, insufficient storage space and risk of deterioration while in PO custody, and poor skills in negotiation with buyers. Our interviews found that post-harvest handling and storage may reduce the quality of produce to such an extent that sometimes the produce is refused. POs with limited storage cannot bulk the kind of volumes to extract better prices from processors. Hence farmers sell to traders for cash but at lower prices. POs also face stiff competition from other agents, including Mukwano's own agents.

There are signals from this study that POs are seen by farmers as one market intermediary among many. With the advent of widespread access to mobile phones as well as radio and publication of processor prices, the role of POs in reducing market information asymmetries is over. POs must aggregate enough volume to attract in traders or transport to the city, and create enough of a surplus to part-pay producers on delivery *and* run a social programme. The apparent inability of POs to build up enough financial

resources to pay their members in cash is a major constraint to being an effective market player.

As far as inclusion and inclusiveness are concerned, only farmers who are willing and able to wait for payment until the PO sells produce – the ‘commercialisers’ in Section 5.3 – will benefit from membership. POs need a certain level of exclusiveness to achieve their place in the market and maintain social cohesion; the percentage of PO members is highest among business oriented farmers. It has also to be acknowledged, however, that entrepreneurial and younger farmers are often more individualistic and less motivated to collaborate through producer organisations (Farmer Focus 2010). Indeed some interviewed POs felt that the youth are too impatient to be part of the PO where coordination, storage and collective marketing is important. Functional POs often prefer to work with business-oriented, larger-scale farmers, and in this research we heard how they want to avoid lazy, uncooperative, old-fashioned, non-business oriented farmers with little land. Poorer farmers are said to lack the capacity, do not attend meetings or do not have the right attitude to produce for the market. This is understandable; the less commercial and more pluriactive ‘farmers’ will see little point in paying the heavy transaction costs that come with PO membership when they are not specialised in that commodity. Farmers whose cash needs are immediate or who do not intend to specialise in oilseed production will get little economic benefit in exchange for the cost (in cash and in time) of PO membership.

POs should not be viewed by support organisations as a panacea for strengthening the position of smallholders in the market. The incentive for farmers to organise collectively in marketing depends on the nature of the commodity, in line with incentives for VCD (Section 5.6). In Central America, Hellin *et al.* (2007) observed that, ‘In the case of a low-value commodity crop such as maize, there was practically no evidence that it was in farmers’ interests to organise themselves for market sales. This was because the costs of organising were not compensated for by any increased income generated through maize sales or facilitating access to markets. Farmer organisations only made sense when it came to improved access to agricultural inputs such as seed and fertiliser. Furthermore, in some cases these benefits could be secured through informal or even short-lived organisations, such as groups of farmers coming together to access the seed subsidy, rather than more demanding formal ones’. In fact, farmers’ use of temporary informal trust-based institutional arrangements in marketing may be much more common than formal POs, including in Uganda (Bihunirwa *et al.* 2012).

VCD interventions should check the inclusive potential of producers’ organisations more precisely and realistically before seeing them as vehicles for inclusion.

## 5.6 Buyers must adjust their business models in a competitive commodity market

Vertical coordination and VCD based on contract farming have their benefits. When supply is limited (as when a company is setting up a new supply base, or when commodity markets are tight as in 2007–8) it allows a firm to secure supplies. In Northern Uganda, Mukwano set out to raise production and ensure supply through making hybrid seeds available to farmers,<sup>10</sup> through establishing a network of agents (and latterly clusters of producers) as channels for inputs and technical advice and aggregation of the harvest, and also through providing an assurance of purchase through a verbal or written forward contract which stipulates a minimum price (Conilh Beyssac *et al.* 2012; USAID 2005). Mukwano’s business model has been a success and its investments have contributed to the renaissance of oilseed production in Lira.<sup>11</sup>

VCD based on contract farming also has its costs, including the costs of establishing effective POs, and the establishment and enforcement of contracts. Mukwano built its contracting business model for sunflower in a ‘frontier’ situation, and under those conditions costs could be carried by the contracting company and recouped in the value of the product and through improved assurance of supply to keep the processing factory running close to capacity.

It is well known that contract farming works best when the contracting company has a monopsony of the particular crop (Smalley 2013). The monopsony of Mukwano has been steadily eroded over time, as the market gets ‘thicker’ and more buyers compete for oilseed harvests, from petty traders to buyers of large quantities for interregional trade. This stronger competition, with traders paying in cash and/or procuring directly from the farm, creates incentives for cash-strapped farmers to side-sell, to the point that the sunflower market is headed in the direction where soya has always been: open and competitive trade. Instead of labelling this situation as negative, side-selling can be viewed differently, as an important secondary market without which smallholders would be highly dependent on one chain. A certain degree of flexibility for farmers to use that secondary market can be built into trading agreements.

But in a more competitive market it is increasingly difficult to recoup investments in contract farming, to a point where the model may be unsustainable without donor funding. Such a transition was already observed by a Wageningen research team in 2008 (Ton *et al.* 2011). A similar trend is being observed elsewhere. An analysis of agribusiness investments in outgrower schemes by the UK development finance institution CDC points to the vulnerability of schemes to market competition unless they are sheltered

10 Unlike many other outgrower and contract farming schemes, Mukwano did not advance inputs on credit with repayment at harvest.

11 In the Arua hub it is the demand for sesame by Olam that is driving an oilseed revival.

from competition by 'natural' protections such as remote geographical location (Tyler and Dixie 2012). In Zambian cotton, the Competitive African Cotton Initiative (COMPACI), is designed to support 175,000 smallholders with provision of seed cotton, pesticides and fertiliser on credit (with repayment at harvest) plus technical advice, and has multi-donor support and involvement of Cargill and Dreyfus. But the viability of this initiative is reported to be undermined by side-selling to Asian traders who have set up shops and enticed farmers away, so that the market is reverting to a straight economic model. The growth of inter-regional and so-called south-south trade will only accelerate this trend.

The stakes against contract and outgrower models are raised where smallholders are operating under high risk of market volatility and potential food insecurity, which create incentives for producers to pass risk onto buyers at the earliest opportunity. Furthermore, if we are dealing with a bulk commodity that has little premium for quality and food safety, and if supply is reasonably assured through an open market, then the benefits of vertical coordination become very marginal. This appears to be the case with oilseeds. The small quality premium reported by producers and traders in the interviews – of around 3–4 per cent – is a testament to the marginal benefit of vertical coordination for oilseeds in a competitive market.<sup>12</sup> In this light, a more thorough comparison of the three types of market (sunflower, soya, sesame) could provide useful insights.

In order to assure supply and keep processing plants operating close to capacity, Mukwano's model has to evolve. It becomes questionable in a maturing and open market whether a company should seek to combine the functions of organising and financing production, as well as transportation and processing when there are specialist solutions and players in each. They can focus on their core business of manufacturing and reaching consumers via their brands. This change of business tactics is indeed being observed. Mukwano are moving away from assuring supply through vertical coordination (via locking farmers into contracts and supplying agents with crop finance), to a system of incentives and attracting in good traders who have their own working capital. Traders can also reach areas where the big processors cannot reach.

The evolution of a business model to operate in a more competitive market does not mean that the notion of 'inclusivity' has to be discarded. But it will be structured in a different way than the 'closed' models of vertical integration of smallholders as contract farmers and outgrowers (Table 10). The business – whether a processor or a trader – has to compete on the reliability and transparency of transactions, rather than locking in farmers as captive suppliers. It has to understand farmers, traders and POs as active economic agents who have a choice, and see them as principal clients (and suppliers). It has to provide incentives that attract good traders including producer organisations.

<sup>12</sup> However, Delgado (1999) predicted a higher tendency for vertical integration in oilseeds, thanks to higher levels of transaction costs in processing/marketing.

Table 10. Two different takes on 'inclusive business models'

	<b>1. Inclusive chain/business model Inclusive business via the 'closed' model: vertical integration via contract farming and outgrowing</b>	<b>Model 2. Inclusive market model Inclusive business via 'open' model: fairness and efficiency in competitive trading</b>
Business objective	Securing supply through improving small farmer access to productivity-increasing inputs and an assured market.	Securing supply and participation of larger groups of farmers in open market through effectiveness in trading.
Framing of 'inclusivity'	Resource-poor farmers vertically integrated into supply chain through contracted access to inputs and a guaranteed market/price.	Smallholders included in supply chain through trading relationships that are fair, transparent and durable. They have a choice!
Tools of business model	Contracts that lock farmers into sole trading relationship, inputs (often on credit, though not in the case of Mukwano), technical support, buyer-driven producer organisations, aggregation. Pre-financing of agents to buy harvest.	Incentives that attract in good traders (including POs): reliability, transparency and durability in trade, adapted to smallholders:  Payment terms: preferably in cash (through direct or bank-financing of traders/agents), max 1–3 weeks delay in payment.  Certified weighing scales  Transparent quality control.
Situations where works best	Frontier market, protected from competition as first mover or through geographical isolation  High value perishable product with requirements for quality and/or food safety, traceability.	Competitive market with many buyers and sellers.  Commodity product that is storable and processed. Lower market requirements for quality or safety.
Strengths	Removes poorer farmers' constraints to market participation (access to technology, credit, and market). Some technology transfer.	Works in a competitive market.  Improved trading environment for farmers. Farmers have full agency to trade where they choose  For lead firm, no requirement to invest in production or aggregation – can focus on strengths (e.g. processing, marketing).
Weaknesses	Higher transaction costs – organising supply, enforcement of contracts.  High level of farmer dependency. Company is monopsonist buyer; economic inefficiency allows company to reap excessive profits; also risk of company over-paying when market price is below contract price. Farmers lose decision making power.  Risk of side-selling when market price is above contract price.  Will not work well under high levels of trader competition.	Fewer incentives for business to invest in improved agronomy for productivity and post-harvest handling; therefore greater reliance on others (especially the state, farmer networks, NGOs, service providers and other market and non-competitive arrangements) to provide extension services.  Farmers and/or traders must raise their own capital.

Those incentives will include reliability and transparency, such as presence at the farm gate, use of certified weighing scales, and ensuring there is no corruption when the goods are received at the factory. Another important incentive is payment terms. Delays in payment are particularly bad news for traders and POs who are servicing bank loans for their working capital; payment should preferably be in cash as soon as oilseed is delivered; but with a maximum delay of three weeks.

In this framing of 'inclusivity', the inclusiveness of the market as a whole is higher, though the business model *per se* no longer reaches into the countryside to integrate smallholders into a specific value chain. The role of **finance**, though not a focus of the study, deserves a mention here. The oilseed case highlights the opportunities and challenges of financing *producers* (who need capital to buy inputs, and high labour) vs financing *buyers* (the agents and traders who need capital to buy the harvest with cash). Considering the weaknesses of producer organisation and the riskiness of rain-fed agriculture, the focus of VCD in terms of finance has been on the buyer.

The shift in policy by Mukwano from pre-financing agents to recommending agents for bank loans – a form of value chain finance (KIT and IIRR 2010) – is of particular interest, and deserves further research. The shift in policy elicited a mixed response from Mukwano agents (Box 2), since they are responsible for securing the loan with their own collateral, though the ability to pay cash now gives them an advantage over other buyers.

## 5.7 Who then invests in upgrading?

The withdrawal of agro-processors from primary production (Section 5.5) has resulted in a reluctance to invest in farmer organisation, productivity and technical upgrading or quality. That extends to agro-ecological techniques such as composting and soil conservation. But those investments will be critical to drive sustainable intensification and reverse the trend of extensification and low yields (Section 5.2). Also investment in improved pre- and post-harvest handling will be critical to improve storage, which in turn is a fundamental part of any strategy of producer organisations to achieve a competitive position in the market.

So the big question is who will make those investments in productivity, sustainability, handling and quality in the future? This question has wider relevance for the development of smallholder agriculture under liberal economic policy. For all but a small minority of producers who are part of formal value chains, it is not realistic to pass the baton to agribusiness and 'inclusive business' initiatives. Government policy and budgets will remain key to ensuring that the majority of producers have access to extension and infrastructure, that locally relevant research and development is taking place, and that the performance of the agricultural sector in general is raised.

## 5.8 Reaching the majority: the role of sector coordination

We have taken a farmer perspective (and also trader and PO perspective) in analysing and interpreting 'inclusion'. We have seen how the overall inclusiveness of the market is determined by how risk, price volatility and the need for cash determine farmer self-inclusion or self-exclusion. Low and volatile price has a dramatic influence on farmers' decision making in the following season.

Practitioners now have a very interesting opportunity to distinguish between investments in inclusive market (model 2 in Table 10) or inclusive chain or business (model 1). In that sense it is appropriate to look at 'inclusiveness' rather than inclusion. Attention can be focused on horizontal and sectoral approaches to raise the performance of the **sector as a whole** (Vorley *et al.* 2012b), going beyond the actions of processors and development agencies and what they can achieve at the VCD project level.

What would an inclusive market look like for oilseeds? Reduced volatility would make the market more accessible to farmers who are more risk averse. Better institutions in the seed market, with emphasis on quality and integrity, and more investments in local varieties, should be made for sunflower to reduce the probability of crop failure. Training on pre- and post-harvest handling should reduce wastage in storage and processing. Investment in productivity, agronomy and soil health should allow oilseed production to be sustainably intensified without expansion of cropped area. Group strengthening and producer organisation can allow a stronger voice of producers both in the market and in the allocation of public investments, and better access to VC financing for producers.

These investments in sector and market inclusiveness are especially important when business disengages from primary production in an environment with fewer incentives for business to invest in improved productivity and post-harvest handling. Guides to Value Chain Development can sometimes give the impression that private actions of agro-industry and development agencies to 'include' smallholders can somehow deliver these public goods alone. To further that impression would be a disservice to smallholder agriculture in Uganda and beyond. But government appetite to continue the sort of investment is unclear, to say the least, when attention is on public-private partnerships and 'inclusive business'.

Sectoral investments require pre-competitive (or more accurately, non-competitive) collaboration of the main private players. Sector coordination institutions are already in place for Ugandan oilseeds, in the form of the OSSUP multi-stakeholder platforms (MSP) (Section 2), which SNV has promoted to help build a favourable business and policy environment with a pro-poor, inclusiveness agenda. The OSSUPs have been effective

in stimulating dialogue and coordination in the oilseed sector. The multi-stakeholder platforms provide the opportunity for partnering, sharing experiences and in some cases jointly address the emerging challenges. The main outcome has been that the stakeholders themselves have identified their own priorities and negotiated cooperation and coordination on those priorities, such as access to seeds. Impact on policy includes incorporation of oilseeds in the warehouse receipt system and input and monitoring of Vegetable Oil Development Plan Phase 1 and Phase 2 in the future. But how representative and effective are the OSSUPs in driving inclusion?

Currently the OSSUPs seem largely focused on the formal market and donor-funded project interventions. But like many other MSPs, the OSSUPs show a tendency to be dominated by the players and interests closest to the donor organisations. The most active participants in the OSSUPs have been the big POs such as P'KWI, district farmers associations, NGOs and local government. Small-scale processors provide an important market for oilseeds but have been absent from MSPs and have until recently received very little support for VCD. None of the traders mentioned the existing coordination mechanisms especially the OSSUPs, except one who said that 'traders should be included in the MSP meetings organised in West Nile'. The lack of trader and informal processor participation is a huge lacuna considering the resilience and importance of the trader channel. Another trader commented that 'Middlemen should be integrated within the value chain and not only be looked at as a necessary evil because they are doing a great work of buying produce from farmers deep down in remote areas. The capacities of middlemen also need to be built'. Despite the individualistic nature of trading and an assumption that they might want to stay in the shadows because they operate in the informal economy, the trader survey revealed a surprising emphasis on the need for coordination between actors. They expressed interest to get growth moving in the oilseed sector as a whole, through information and knowledge sharing, addressing issues that are affecting the sector, and establishing clear division of roles, and in reducing price volatility and the uncertainty of the market.

Interventions that upgrade and professionalise traders and agents, improve their trading practice and reduce the incidence of exploitative trading can also have a positive influence on market inclusivity. Training agents on quality control and post-harvest handling (use of tarpaulin, moisture measurement, sun drying, accurate weighing with certified scales, use of grids to remove stones) could yield real dividends, and allow traders to compete on reputation.<sup>13</sup> Part of the professionalisation process may be the formulation of trader associations. Smith and Luttrell (1994) argue that these associations can reduce members' transaction costs by expanding access to transport and credit facilities, collecting and disseminating information that individual traders find too expensive to acquire on their own, and provide physical and institutional infrastructure

<sup>13</sup> It was reported that Olam in Kitgum is also interested in professionalising its trader network.

where it is lacking. The risk of forming cartels may be outweighed by reductions in transaction costs, lower market prices and higher marketed quantities.

More attention may also be needed for direct outreach to and participation of smallholders, in OSSUP and policy dialogues. Currently there is no guarantee that smallholders' views are represented in the MSPs. Representation of farmers in MSP is often via producer organisations, but poor and women producers are often not included or represented in MSPs. Even if the poorer farmers are not targeted as direct beneficiaries, their exclusion from OSSUPs may be an impediment to understanding their inability to absorb market-related risks including risk of food insecurity. The inclusion of more women in MSPs is essential to incorporate their perspectives in VCD and address specific problems that women face.

MSPs have a specific function to drive effective public policy management, and the provision of public goods. Roads are a fundamental public investment in market-based development, especially to areas where oilseed production makes commercial and agronomic sense. Another area for public investment that the farmer and trader surveys singled out is improving the quality, integrity, availability and cost of the oilseed supply as a key limitation (Table 4). Access to (hybrid) seeds is mentioned as a reason to stop sunflower production by all types of farmers. A quasi monopoly of one company importing and distributing hybrid sunflower seeds is unhealthy. Uganda has a privatised seed market. But good public policy is required to ensure that the seed system (as a public good) has (a) quality assurance; (b) affordability, e.g. through appropriate open pollinated sunflower varieties that can also be processed locally as alternatives to costly hybrids; and (c) accessibility. This is an important public policy agenda, for which local interventions are not enough.

# References

- Baudron, F., Andersson, J.A., Corbeels, M. and Giller, K.E. 2012. Failing to Yield? Ploughs, Conservation Agriculture and the Problem of Agricultural Intensification: An Example from the Zambezi Valley, Zimbabwe. *Journal of Development Studies* 48 (3), 393–412.
- Bella, A.F. 2008. *Bulking Practices in the Vegetable Oilseed Sub-sector: The case of sunflower in Lira District, Northern Uganda*. Masters project report, Larenstein University of Applied Science. <http://edepot.wur.nl/196>
- Bihunirwa, M., Kinyua, H., Mugoya, M., Mohammed, S. and Rwakakamba, M. 2012. *Innovating to compete: Smallholder farmers' agency and markets in East Africa*. IIED/Hivos/Mainumby, London/The Hague/La Paz. <http://pubs.iied.org/pdfs/16520IIED.pdf>
- Conilh Beyssac, B., Kamoga, E. and Luseesa, D. 2012. *Oilseeds in Uganda: Combining business-led development and multi-stakeholder dynamics in boosting a diverse national sub-sector*. Paper prepared by SNV for Seas of Change Conference, The Hague, 11–13 April 2012. [www.snvworld.org/en/regions/world/publications/soc-oil-seeds-in-uganda-combining-business-led-development-and-multi](http://www.snvworld.org/en/regions/world/publications/soc-oil-seeds-in-uganda-combining-business-led-development-and-multi)
- Delgado, C.L. 1999. Sources of growth in smallholder agriculture in sub-Saharan Africa: the role of vertical integration of smallholders with processors and marketers of high value-added items. *Agrekon*, Vol 38 (Special issue), 165–190. [www.ifpri.org/sites/default/files/publications/delgado99\\_01.pdf](http://www.ifpri.org/sites/default/files/publications/delgado99_01.pdf)
- Djurfeldt, G., Aryeetey, E. and Isinika, A. 2010. *African smallholders: Food crops, markets and policy*. CABI, UK.
- Fafchamps, M. and Minten, B. 1998. *Relationships and Traders in Madagascar*. Discussion Paper No. 24, International Food Policy Research Institute (IFPRI), Washington, D.C. [www.ifpri.org/sites/default/files/publications/pubs\\_divs\\_mtid\\_dp\\_papers\\_dp24.pdf](http://www.ifpri.org/sites/default/files/publications/pubs_divs_mtid_dp_papers_dp24.pdf)
- Farmer Focus. 2010. *Qualitative farmer research overview*. Unpublished presentation to Gates Foundation Advisory Panel January 25–26, 2010.
- Galtier, F. 2013. *Managing food price instability in developing countries: A critical analysis of strategies and instruments*. Cirad and AFD, <http://www.afd.fr/webdav/shared/PUBLICATIONS/RECHERCHE/Scientifiques/A-savoir/17-VA-A-Savoir.pdf>
- Hellin J., Lundy, M. and Meijer, M. 2007. *Farmer Organization, Collective Action and Market Access in Meso-America*. CAPRI Working Paper No. 67, October 2007. [www.capri.cgiar.org/pdf/capriwp67.pdf](http://www.capri.cgiar.org/pdf/capriwp67.pdf)

IFAD. 2010. *Vegetable Oil Development Project, Phase 2 (VODP2)*, Project design report, Volume 1 – Main report and appendices, IFAD Web Draft – Post-Negotiations, 9 March 2010, International Fund for Agricultural Development.

IFAD. 2011. *Republic of Uganda. Vegetable Oil Development Project Interim Evaluation*. March 2011, International Fund for Agricultural Development.

Kilimo Trust. 2012a. *The Nature and Markets of Bean Value Chains in Uganda*. Development of Inclusive Markets in Agriculture and Trade (DIMAT). [www.ug.undp.org/content/dam/uganda/docs/UNDP%20Uganda\\_PovRed%20-%20Beans%20Value%20Chain%20Report%202013.pdf](http://www.ug.undp.org/content/dam/uganda/docs/UNDP%20Uganda_PovRed%20-%20Beans%20Value%20Chain%20Report%202013.pdf)

Kilimo Trust. 2012b. *Development of Inclusive Markets in Agriculture and Trade (DIMAT): The Nature and Markets of Rice Value Chains in Uganda*. Development of Inclusive Markets in Agriculture and Trade (DIMAT). [www.ug.undp.org/content/dam/uganda/docs/UNDP%20Uganda\\_PovRed\\_Value%20Chain%20Analysis%20Report%20Rice%202013%20Report.pdf](http://www.ug.undp.org/content/dam/uganda/docs/UNDP%20Uganda_PovRed_Value%20Chain%20Analysis%20Report%20Rice%202013%20Report.pdf)

KIT and IIRR. 2010. *Value chain finance: Beyond microfinance for rural entrepreneurs*. Royal Tropical Institute (KIT), Amsterdam; and International Institute of Rural Reconstruction (IIRR), Nairobi. [www.kit.nl/net/KIT\\_Publicaties\\_output/ShowFile2.aspx?e=1610](http://www.kit.nl/net/KIT_Publicaties_output/ShowFile2.aspx?e=1610)

Kivuva, A.W.K. and Magara, Z. 2012. *Agricultural cross border trade between Kenya, Uganda and Tanzania*. Report for Kenyan Ministry of Agriculture, Market development Division of Agribusiness, Market Development Directorate, April 2012. [www.kilimo.go.ke/kilimo\\_docs/reports/CROSS\\_BORDER\\_TRADE\\_REPORT\\_2012.pdf](http://www.kilimo.go.ke/kilimo_docs/reports/CROSS_BORDER_TRADE_REPORT_2012.pdf)

Lecoutere, E., Conilh de Beyssac, B. and Kamoga, E. 2012. *A Case Study of the P'KWI Farmer-to-Farmer Cooperative*. SNV. [www.snvworld.org/sites/www.snvworld.org/files/publications/pkwi\\_making\\_the\\_best\\_better\\_july\\_2012.pdf](http://www.snvworld.org/sites/www.snvworld.org/files/publications/pkwi_making_the_best_better_july_2012.pdf)

MAAIF. 2010. *Agricultural Sector Development Strategy & Investment Plan: 2010/11 – 2014/15*, Ugandan Ministry of Agriculture, Animal Industry & Fisheries July 2010. <https://extranet.who.int/nutrition/gina/sites/default/files/UGA%202010%20Agriculture%20Sector%20Development%20Strategy%20and%20Investment%20Plan.pdf>

MAAIF. 2011. Statistical abstract. Agricultural Planning Department, Ugandan Ministry of Agriculture, Animal Industry & Fisheries. [www.agriculture.go.ug/userfiles/Statistical%20Abstract%202011.pdf](http://www.agriculture.go.ug/userfiles/Statistical%20Abstract%202011.pdf)

Mauyo, L.W., Chianu, J.N., Nassiuma, B.K. and Museb, R.O. 2010. Cross-Border Bean Market Performance in Western Kenya and Eastern Uganda. *J. Service Science & Management*, 2010, 3, 501–511.



Nile Basin Initiative. 2012. *Analysis of Cross-border Trade in Agricultural Products along Selected Corridors of the Nile Basin Region*. Nile Basin Initiative, Uganda.

Patton, M. 1990. *Qualitative evaluation and research methods* (pp. 169–186). Sage, Beverly Hills, CA.

Shiferaw, B., Obare, G. and Muricho, G. 2006. Rural Institutions and Producer Organizations in Imperfect Markets: Experiences from Producer Marketing Groups in Semi-Arid Eastern Kenya. *SAT eJournal* Volume 2 Issue 1. ICRISAT, Andhra Pradesh, India. [www.icrisat.org/journal/mpii/v2i1/v2i1rural.pdf](http://www.icrisat.org/journal/mpii/v2i1/v2i1rural.pdf)

Smalley, R. 2013. Plantations, Contract Farming and Commercial Farming Areas in Africa: A Comparative Review. *Working Paper 55*, Future Agricultures Consortium. [www.future-agricultures.org/publications/research-and-analysis/working-papers/1710-plantations-contract-farming-and-commercial-farming-areas-in-africa-a-comparative-review/file](http://www.future-agricultures.org/publications/research-and-analysis/working-papers/1710-plantations-contract-farming-and-commercial-farming-areas-in-africa-a-comparative-review/file)

Smith, H.M. and Luttrell, M. 1994. Cartels in an 'Nth best' world: the wholesale foodstuff trade in Ibadan, Nigeria. *World Development* 22, 323–335.

SNV. undated. *SNV Agriculture: Value Chain Facilitation and Inclusive Business*. Profiling Document, SNV, the Netherlands.

SNV. 2010. *Value Chain Facilitation*, Netherlands Development Organisation, SNV, the Netherlands. [www.snvworld.org/en/regions/world/publications/value-chain-facilitation](http://www.snvworld.org/en/regions/world/publications/value-chain-facilitation)

Ton, G., Opeero, D.M. and Vellema, S. 2010. 'How Do We Get it to the Mill?' A Study on Bulking Arrangements that Enable Sourcing from Smallholders in the Ugandan Vegetable Oil Chain. VC4PD Research Paper. [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1636204](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1636204)

Ton, G., Opeero, D.M. and Vellema, S. 2011. *Enabling social capital formation: Upscaling bulking arrangements in the Ugandan oilseed sector*. VC4PD Research Paper, No. 16, March 2011. [www.wageningenur.nl/upload\\_mm/c/8/d/93c28be0-1456-453f-bf66-7d7ef6243769\\_VC4PDResearchPaper16Uganda.pdf](http://www.wageningenur.nl/upload_mm/c/8/d/93c28be0-1456-453f-bf66-7d7ef6243769_VC4PDResearchPaper16Uganda.pdf)

Tyler, G. and Dixie, G. 2012. *Investing in Agribusiness: A Retrospective View of a Development Bank's Investments in Agribusiness in Africa and Southeast Asia and the Pacific*. The World Bank, Washington, DC.

USAID. 2005. *Value Chain Analysis: Mapping maize, sunflower and cotton chains*. Final report by Chemonics International Inc. for USAID Uganda. [http://pdf.usaid.gov/pdf\\_docs/Pnadk158.pdf](http://pdf.usaid.gov/pdf_docs/Pnadk158.pdf)

USAID. 2007. *Value Chain governance and access to finance: maize, sugar cane and sunflower oil in Uganda*. microREPORT # 88. [www.ruralfinance.org/fileadmin/templates/rflc/documents/1205146927823\\_Final\\_microREPORT\\_88\\_Value\\_Chain\\_Governa-619578901.pdf](http://www.ruralfinance.org/fileadmin/templates/rflc/documents/1205146927823_Final_microREPORT_88_Value_Chain_Governa-619578901.pdf)

USAID. 2008. *Moving from Subsistence to Commercial Farming in Uganda: Agricultural Productivity Enhancement Program final report*. [http://pdf.usaid.gov/pdf\\_docs/PDADM231.pdf](http://pdf.usaid.gov/pdf_docs/PDADM231.pdf)

Vorley, B., Cotula, L. and Chan, M.K. 2012a. *Tipping the balance: Policies to shape agricultural investments and markets in favour of small-scale farmers*. Oxfam GB, Oxford; IIED, London.

Vorley, B., del Pozo-Vergnes, E. and Barnett, A. 2012b. *Small producer agency in the globalised market: making choices in a changing world*. IIED, London; Hivos, The Hague; Mainumby, La Paz.

# Annex 1

## Regression analysis of variables associated with probability of a farmer growing oilseeds, and the allocation of more land to oilseeds

Pooled data from Mbale, Lira and Arua hubs, 2012 N=311<sup>14</sup>

Variable	(1) Probability of growing oilseeds (Probit model with bootstrap standard errors)	(2) Percentage of land allocated to oilseeds (Tobit regression)
Location (with Mbale as baseline)		
Arua	-0.421 (0.44)	22.042*** (5.05)
Lira	0.775 (0.53)	32.986*** (4.31)
Total land	0.030 (0.02)	0.414** (0.14)
Perceived wealth of household <sup>a</sup>	1.270** (0.45)	1.996 (4.06)

14 By comparing the sample with national survey from 2006, we could establish that, while there was some bias in the sample towards larger land holdings, we could conduct regression analysis on the pooled farmer survey data, confident that our variables meet regression model assumptions. However, our sample is not representative of a wider population e.g. smallholder farmers in Uganda hence our results only reflect the characteristic of oilseed farmers in the hubs to a lesser extent and the oilseed growers in the producer organisation to a larger extent. We use conditional probability model with bootstrap standard errors (clustered at household level) to estimate the probability of growing oilseeds (sunflower, soya beans and sesame seeds) and a multinomial logistic model to assess the factors that influence oilseeds producers' choice of markets. We also use bootstrap standard errors clustered at household level. All the Risk variables have No Risk as basis. Therefore only low risk and high risk are used with NO risk as baseline.

Variable	(1) Probability of growing oilseeds (Probit model with bootstrap standard errors)	(2) Percentage of land allocated to oilseeds (Tobit regression)
Gender of household head <sup>b</sup>	1.840*** (0.51)	-0.791 (5.33)
Perceive farming as a business	0.193 (0.54)	11.922** (4.23)
Member of a producer organisation	1.729*** (0.40)	3.353 (2.96)
Access to credit (cash or in kind) from traders or buyers	0.286 (0.33)	-3.942 (2.90)
Perceived low risk major loss <sup>c</sup>	1.635** (0.52)	13.135 (6.96)
Perceived high risk major loss	2.788*** (0.54)	17.336** (6.44)
Perceived low risk exhausting soil	-1.253*** (0.37)	-2.924 (3.31)
Perceived low risk food security <sup>d</sup>	1.558** (0.49)	9.347* (4.03)
Perceived high risk food security	-0.292 (0.43)	7.517 (4.25)
Perceived low risk low access to equipment	-2.824** (0.95)	0.838 (3.43)
Low risk high input requirement	-0.144 (0.41)	1.164 (4.59)
High risk high input requirement	-0.113	0.838

Variable	(1) Probability of growing oilseeds (Probit model with bootstrap standard errors)	(2) Percentage of land allocated to oilseeds (Tobit regression)
	(0.42)	(3.43)
Low risk low access to equipment	-2.824**	0.838
	(0.95)	(3.43)
Low risk insufficient knowledge	0.232	0.984
	(0.44)	(4.78)
High risk insufficient knowledge	-0.513	2.376
	(0.51)	(5.31)
Low risk no market	1.030	
	(0.61)	
High risk no market	0.318	
	(0.52)	
Low risk low price	-0.180	
	(0.97)	
Low risk unfavorable policies	0.482	
	(0.40)	
_cons	-6.168***	-13.591
	(1.86)	(15.11)
sigma _cons		20.763***
		(1.03)
Prob > chi2	0.000	0.000
Number of observations	311.000	311.000

\*, \*\*, \*\*\*, \*\*\* indicate significance at the 5%, 1% and 0.1% level respectively. N=311

<sup>a</sup> Farmer's own ranking: 'In your opinion, is your household better off (in terms of income and consumption) than other households in your community? (Much better off, better off, same as others, worse off, much worse off)'

<sup>b</sup> Female =1 male =2.

<sup>c</sup> Rating of risk of major loss of yield from growing oilseeds due to pests, diseases, birds, monkeys.

<sup>d</sup> Rating of risk to food security from allocating land to cash crop instead of food crop.

## Annex 2

### Comparison of oilseed 'commercialisers' and 'risk avoiders' – 2012 Survey data pooled from Arua, Lira and Mbale hubs

Variable	Risk avoiders N=149		Commercialisers N=162		Significance of difference Two sample t-test (ex. Gender: Pearson chi <sup>2</sup> )
	Mean	Std. Dev.	Mean	Std. Dev.	
Age of household head	43.50	14.8473	38.94	13.0240	p = 0.0042**
Gender of household head (female = 1; male = 2)	1.91	0.2928	1.97	0.1735	p = 0.020*
Total land owned	7.46	8.9926	9.26	9.5266	p = 0.0915
Member of producer organisation (non-member = 0; member = 1)	0.46	0.4998	0.59	0.4940	p = 0.0218*
<b>Perception of risk related to cash crop production</b>					
Rating of risk towards allocating more than half of land and labour to produce crops for the market instead of food	3.00	0.9227	2.57	1.0019	p = 0.0001***
Perception of risks related to growing oilseeds for the market					

Variable	Risk avoiders N=149		Commercialisers N=162		Significance of difference Two sample t-test (ex. Gender: Pearson chi <sup>2</sup> )
	Mean	Std. Dev.	Mean	Std. Dev.	
Rating of risk of major loss of yield from growing oilseeds due to pests, diseases, birds, monkeys	1.44	0.7295	1.30	0.5470	p = 0.0544
Rating of risk to food security from allocating land to cash crop instead of food crop	1.83	0.7861	1.75	0.7164	p = 0.3570
<b>Attitude towards farming</b>					
See farming is a business	0.36	0.4803	0.56	0.4984	p = 0.0004***
Hoping to find a future outside of farming	0.15	0.3560	0.11	0.3074	p = 0.2573
Farming is the only way to survive	0.37	0.4842	0.26	0.4396	p = 0.0368*
Farming as a way of life, as part of my culture	0.13	0.3347	0.08	0.2725	p = 0.1716

\*, \*\*, \*\*\*, \*\*\* indicate significance at the 5%, 1% and 0.1% level respectively

## Annex 3

### Trader survey 2012 – perceived constraints for smallholders to market oilseeds and expand production

#### Number of traders (out of 27) mentioning factors as main constraints for smallholder oilseed producers to have a steady market:

Lack/variable supply, inadequate supply (quantity)	16	59%
Transport challenges	11	41%
Variable) price offered for oilseed harvest	9	33%
Lack/variable demand, lack market for oilseed harvest	5	19%
Storage collection points	5	19%

#### Number of traders (out of 27) mentioning factors as a main constraint for the oilseed sector to expand

Insufficient/inadequate market information	13	48%
(Variable) price offered for oilseed harvest	9	33%
Lack/variable demand, lack market for oilseed harvest	6	22%
Lack/variable supply, inadequate supply (quantity)	5	19%
Insufficient/inadequate grouping of farmers	5	19%