

# We are IntechOpen, the world's leading publisher of Open Access books Built by scientists, for scientists

6,900

Open access books available

186,000

International authors and editors

200M

Downloads

Our authors are among the

154

Countries delivered to

TOP 1%

most cited scientists

12.2%

Contributors from top 500 universities



WEB OF SCIENCE™

Selection of our books indexed in the Book Citation Index  
in Web of Science™ Core Collection (BKCI)

Interested in publishing with us?  
Contact [book.department@intechopen.com](mailto:book.department@intechopen.com)

Numbers displayed above are based on latest data collected.  
For more information visit [www.intechopen.com](http://www.intechopen.com)



---

# The Struggles of Smallholder Farmers: A Cause of Modern Agricultural Value Chains in South Africa

---

Wolfgang Johann von Loeper, Scott Drimie and James Blignaut

Additional information is available at the end of the chapter

<http://dx.doi.org/10.5772/intechopen.75710>

---

## Abstract

The potential of sustaining smallholder farmers (SHFs), for long-term food security remains, within the context of rising modern food value chains, particularly in Africa, a threat. Support for a greener, lower carbon economy that creates jobs and improves human well-being as part of a sustainable and socially inclusive stable economic development should be driven, at least in part, by SHF.

To not disrupt African SHF, but rather support an economic inclusion of them in times of rising modern food value chains, requires an understanding of existing modern agricultural value chains, their functioning and constraints; taking South Africa (SA) as an example that has already seen a strong modernization of its value chains over the last 30 years. Several key questions arise: What are the main shortfalls in agricultural value chains and why are SHFs faced with challenges to feed into such existing structures? What blockages do value chain participants (VCP) themselves identify and how do these further entrench such blockages? From understanding VCPs, where must policy focus for a more inclusive farming system and better food security?

The empirical data we collected from an ethnographic qualitative participant research showed that interviewed VCPs are limited in acting within their economic constraints. We also gained sufficient evidence supporting the view that in contrast to the current struggles and spectacular failures VCPs have experienced with SHF, there is inherent continued willingness to engage with SHFs if risk and limitations were reduced and exposure was mitigated, through the establishment of comprehensive cooperative leadership and field extension that enabled reliability of production quantity and quality from SHF.

**Keywords:** smallholder farmers, food security, agricultural finance, inclusive socio-economics, food safety, land ownership

---

## 1. Introduction

Globally, IAASTD [1] counts 90% of farms to be SHF with less than 2 ha of land; similarly, the Food and Agricultural Organization [2] counts 92.3% of all farmers to be small farms of which 83% are less than 2 ha in size. These SHFs still supply the bulk of food to the global population. South Africa (SA) in contrast has an average farm size of 1400 ha [3]. None the less, 1.6 million citizens (3% of population) are engaged in some form of farming, of which 162,000 are considered formal rural farms whereof only 30,000 are commercial farmers that supply more than 80% of the food in South Africa [4].

With its mere 0.3% of the population involved in formal rural farming, SA has, compared to developing countries, a much more developed nation structure [5]. Merely 0.06% of the population makes up South Africa's commercial farms [4] and considering a global population of 7 billion with 500 million farmers [2] SA contributes 24 times less to the count of global farmers than it contributes to global population. Still 26% of its population lives in food insecure conditions [6, 7]. For Africa the development of modern agricultural value chains therefore poses a challenge to SHF and SA should be used as a study example, investigating the functioning of such value chains and the threat of a potential economic exclusion of SHF across the African continent.

Africa's SHFs mostly practice low external input and organic agriculture [8, 9]. They sit on small parcels of land with high genetic diversity and under such conditions Altieri et al. [10, 11] argue they have less environmental impact than high external input (HEI) agriculture, as practiced by commercial industrialized farms [12–14]. Soil water conservation practices by these farmers are important for increased yields with significant benefits showing particularly in heat and drought stressed areas and Marenya and Barrett [15] argue that integrated natural resource and soil fertility management have positive feedback on SHF household wealth. Organic farming is ideally suited to SHFs say Hine and Pretty [16] because it relies on naturally available fertility inputs, requires less operating costs, delivers more diversity, and is more resilient to plant stress [16].

These SHFs are less dependent on large multinational corporations for input supplies [11], allowing developing nations to support a less import dependent trading system; whose trade arrangements otherwise typically favor larger farming operations. Because SHFs produce food more organically they can regionally supply crops of higher nutritional value [17–21]. Ponisio [22] argues that organic crops need not be less productive and can still produce between 91 and 96% that of conventional farming [22]. Other research shows that it can also outperform synthetic fertilizers on the continent, increasing yield 2–3 times while remaining drought resilient, produce less CO<sub>2</sub> and use 2–7 times less energy [22–24].

While social challenges persevere, environmental degradation, disturbed ecosystems, loss of topsoil, modern human sicknesses, large CO<sub>2</sub> emissions [13, 25–28], all due to large scale industrialized conventional agricultural that form the foundation of our modern food system complex, add to the problems and raise the question of whether our food system sustains

long-term food security or rather puts it at risk for the benefit of a few large system operators. This lends weight to the argument that SHFs are a good possible route to a socially and ecologically just and intensified agricultural systems, with the potential, as Wiggings [29] argues, to produce more food per hectare than large farms.

Yet, as Baiphethi and Jacobs [30] contend, only 10% of food for South African households is sourced from subsistence production. The best way in enhancing access to food is through subsistence and SHFs' food production, and because that access is direct, it would also drive down food prices [30].

South Africa's government focuses on giving prospective farmers access to land through politically contentious land claims, and is assisting them to become larger commercial operations [31]. This has arguably resulted in a host of projects generally conceived as being unsuccessful. Aliber and Hall [32, 33] argue that instead of considering the base of SHFs as a source for building emerging black commercial farmers and focusing on a few expensive projects, efforts against massive unemployment and poverty should instead leverage the large numbers of subsistence farmers in regions with already existing smallholder farm concentrations in South Africa and to invest into these areas for adaptation, diversification, employment and better food security. This includes, they say, new and more refined market linkages with wider access to supermarkets, decentralized agro-processing supporting small-scale farmers, promotion of land rental and a more participatory approach to agriculture [32, 33].

We argue that SHFs are, by nature, already entrepreneurial in that they produce more than they can eat and sell their excess crops on informal markets and roadsides for economic gain. This entrepreneurial nature can effectively be leveraged by government to increase yields, on today still underperforming yield outputs of SHF.

### **1.1. Problem statement**

SHFs in South Africa struggle to survive and participate in food value chains, which currently maintain a flow of capital funds through a few large VCPs to a few selected and preferred large crop producers. Not being able to take part in these value chains means exclusion from the capital markets and a general struggle for economic survival, while rural areas remain with the stigma of low opportunity for young people. The system fails SHF on multiple levels, but mostly on access to education, land, technology, market, and financial services [34].

### **1.2. Research objective and methodology**

In this manuscript we identify existing blockages SHFs face in participating in modern agricultural value chains in SA, as well as which institutions, policies, and VCPs are responsible for such blockages. What blockages do VCPs experience themselves through circumstances exacerbating access problems and how do feedback loops in existing value chains further entrench obstructions inhibiting a participatory framework for SHFs?

This study was undertaken as an ethnographic research exploring business cultures and morals using qualitative semi-structured interviews. The selected research participants (VCPs) were based on their involvement in the food value chain and their general size and importance they played; they were not from any particular commodity type, however, because we also interviewed silos and millers of maize, answers from these VCP often hinged around maize, also a main crop type in South Africa [35].

The interviews were then transcribed to attain primary qualitative data and for the coding and categorizing we used grounded theory as an inductive systematic methodology to analyze qualitative data and give it conceptual structure through categorization of general themes emerging from the data [36–39].

## **2. Existing knowledge on challenges facing SHF**

### **2.1. Smallholder farmer challenges in accessing micro-loans**

In the view of Delgado [40] barriers arise primarily because markets fail to present solutions, such as micro-credit, to rural African populations. Kirsten and van Zyl [41] argues that credit availability, among others, is either imperfect or missing as accessible service to SHFs, while Ortmann and King [34] argue that high transactional costs for VCP is also due to language barriers; only 36% of SHFs spoke English in two regions in KwaZulu-Natal. Thirty six percent small-scale producers in South Africa, farming on less than 2 ha land, indicated that missing access to credit was the biggest hurdle why they would not be able to access water for irrigation [42].

Bain & Company [43] illustrate examples of other tried and tested models with a list of best practices that underlie the success factor for scalable operations supplying micro-lending that was developed by the Grameen Bank. Swilling [44] criticizes Grameen Bank replicas, saying that such systems either need a critical mass of over 2 million members to finance bureaucracies, or otherwise charge high interest rates. In contrast Blewitt [45] compares the Grameen Bank's principles of loan business to that of Green Entrepreneurship.

Naess et al. believe it is more the responsibility of the government to make farming profitable for SHFs, and ensure access to land, water, and other inputs such as seeds and "aprocredit" (appropriate credit) are available [46]. They criticize micro-loans in that they are too small and maintain a micro-status, limiting operational growth and appropriate infrastructure investment. They do not enhance labor's dignity nor do they raise the farmer's negotiation power against traders, or the ability to invest into storage and packaging to add value, altogether being unable to lift the farmer out of poverty [46].

### **2.2. Smallholder farmer challenges to accessing insurance**

Kirsten and van Zyl [41] argue that access to insurance is imperfect or non-existent for smallholders. Many smallholder households in Lesotho do not have any form of insurance [47].

Because insurance is hardly affordable in developing countries, only 1% of households in low income countries have catastrophe coverage [48].

Linnerooth-Bayer and Mechler also argue that with climate change, associated risks insurance for SHFs will become more important. To Challinor et al. [49], SHFs are expected to have a greater exposure to climate risk due to increased variability of crop productions and the absence of well-functioning crop insurance services. In order to increase SHFs' resilience, the establishment of alternative insurance schemes are required [49]. An example is Juhudi Kilimo in Kenya that adds insurance to its livestock loan at 4% of animal value to protect both itself and the insured livestock against illness and death [43].

### **2.3. Smallholder farmer challenges in accessing markets**

A reason why SHFs with sellable surplus crops stay trapped in poverty is the lack of access to markets [50]. A few national retail stores have risen from 10% market share around 1990, to 60% today [51] and dominate the formal food market in South Africa [52]. Large retailers from this "supermarket revolution" work with non-family, corporate agriculture to develop production systems that, via audits, could claim attributes of environmental sustainability and food safety [53].

Campbell criticizes that certification systems brought about by an "audit culture" that merely serves the interests of retailers and poses considerable hurdles for third world producers, for many of whom it is impossible to adhere to the compliance requirements [53]. While Qaim and Rao [54] argue that this, together with more vertical integration and stricter standards (developing nations' following the pattern of developed nations), can have far-reaching effects on rural development, Snider et al. [55] argue that certification system run through cooperatives in Costa Rica had little financial benefits for the SHF and has induced no widespread change.

Small producers not only face competition from larger and successively growing producers in their own countries, but also from other countries through increased imports [56, 57]. A large retailer in SA, Shoprite, procures 90% of its fresh fruits and vegetables from large-scale farmers, while Angola's Shoprite stores get 99% of their produce from South Africa. Pick n Pay also sources 70% of their produce in Southern Africa, from South Africa [58]. On the other hand SHF form the "structural backbone" of the rural economy [59], yet the pressure is high on SHFs to adjust to shifts in technology and changes in the market, as well as competition from imports, and if widespread exclusion is observed, SHFs will face difficult times [59].

This will spell a disaster of "highest magnitude" argues Magdoff [60], particularly if the "supermarket revolution" trend continues to drive out SHFs globally, a disaster not only for billions currently involved with small scale agriculture Magdoff [60] (p. 116), but also for an entire era of more expensive energy and climate change exacerbated by large industrial agriculture. Parker [61] says: They "... are, in the harsh terms of globalization, superfluous." Modern food systems place SHF on the edge of survival, while others see smallholder farming increasingly as an essential route out of poverty [62].

## 2.4. Smallholder farmers milling and agro-processing

Rural, low-income areas have small, informal traders to which SHFs sell. Supermarkets on the other hand are able to undercut informal traders who are exposed to the risk of being ultimately crowded out by supermarket stores, increasing the risk of SHF survival [5, 63]. However, Godfray et al. [64] argue that there is an opportunity for food security in poorer regions with improved technology for small-scale food storage in a network of small scale traders, millers and producers.

Mahlogedi and Thindisa [65] argue that agro-processing for SHF creates added value and has the ability to improve the livelihoods of SHF. However, they also say that would require sufficient human and social capital from the SHF.

Local and subsistence food production is the best readily available route to food security in South Africa [30]. Baiphethi and Jacobs also believe that “rural households continue to value the pursuit of farming activities and that subsistence production is important to improve household food security” [30]. Similarly, Jayne et al. believe that any “realistic discussions of poverty alleviation strategies in Africa need to be in the context of access to land, [...] there is a strong relationship between access to land and household income” [66].

## 3. Value chain research findings

Our research findings from the interviewed VCP are summed up as follows:

### 3.1. Banks

We interviewed four of the largest commercial banks in South Africa, all of whom have, in one way or another, engaged with supplying credit to SHFs or emerging commercial farmers. Their views around what constituted micro-lending or SHF loans, varied drastically, ranging from loans of R500 for one bank to R100,000 for another bank. One bank said a R3m turnover was a minimum limit.

While one bank had a classic agricultural micro-loan, all other banks did not have a product tailored for SHFs. Two banks responded saying that SHF could use their bank’s private loans of R500 instead of their classic agricultural loans which were designed for larger commercial farmers. One bank had an engagement another large VCP, through which SHF could access micro-loans for crop production.

The reasons why banks were unwilling to engage SHFs with products and services, they argued that their commercial mandate was focused on larger commercial farms that had collaterals, track records and economies of scale. Banks had an obligation, all respondents said, to find out where risk reducing factors existed that constituted repayment ability and affordability of the loan. This SHF with their experience, were not able to do. Access to decent financial histories to support an application for a loan were generally missing, without which it would be reckless lending and prohibited by the SA Credit Act.

Three of the four banks agreed with our question, whether crop in itself would suffice as an alternative form of collateral, but they said it would then need to be attached to an offtake agreements backed by an insurance that could pay the loan in case of failure.

The two banks that did not supply micro-loans said that access to common land would not qualify them for loans, it would have to be documented land tenure in form of ownership or lease agreements. Support in the form of a mentor, or a business development, most banks said would also constitute a de-risk for them in their decision making of supplying micro-loans. To them financial acumen mitigated production-, marketing-, and financial risks and would validate the supply of future micro-loan products, if education were able to drive a change in SHF mentality.

Historically, two banks had made bad experiences, where they had to write off debt: one bank lost 60% of a R3bn exposure. Subsequently one of the two banks backed off from supplying micro-loans and is not planning any new products tailored to SHFs. The other bank continues to supply SHFs with micro-loans. This bank also indicated that there were a host of challenges with micro-loans one being that their transaction costs were unprofitably expensive, making it a philanthropic offering to their bank.

All banks agreed that certain processes, compliance requirements and general customer costs they needed to bear made it unprofitable to serve very small loans. Getting FICA (Financial Intelligence Centre Act) requirements in place for clients far out in rural areas compounded the problem and with often missing identification documents, it would include having to establish identity and domicile in rural Africa, this alone disqualified many applicants. As opposed to one large farmer, with a R2m credit and little risk, 1000 SHFs with a credit each of R2,000, would be hugely more expensive, and at the same time expose them to high levels of risk and default because the loans were relatively unsecured.

One bank channeled their farmer micro-loan offering through their private loans division and not the agricultural business loans. They said their loans were used to buy seeds, repay debt, and to transport produce to market. First time applicants to their loans did not have it as easy as second or third time applicants. First time applicants would typically start with R500 and a tenure of 6 months, at prime plus 3%. In later rounds, the loans could increase to R1000 over 12 months and even up to R5000 with an established track record.

The three banks not supplying micro-loans argued that although they wanted to fund that market space, there was no specific model that would make business sense. The fourth bank that did supply micro-loans was offering it as a part of a total value offering and part of the financial services charter, assisting emerging agriculture. In Kenya, these banks stated, it had a successful micro-loan scheme because it had access to the applicants via cell-phone technology.

On our questions of government grants, one bank thought that knowledge and education were factors that made a farmer productive and would be better than grants. That bank argued that grants could kick-start businesses and create a success environment if applied correctly, but criticized the government for running unsuccessful grant projects, due to the disjuncture within government departments, that made SHF dependent on continued grant funding. Two of the four respondents were of the opinion that the primary responsibility for developing

emerging agriculture lay with the state and the Land Bank. In this light the Kula-Scheme was also criticized for burdening their bank with bureaucracy in form of qualifying criteria and project management.

The principle opinion of two banks was that, South Africa needed an integrated policy framework, where the Land Bank, with an increased mandate for SHFs, and other organs of state, all played a part in driving agricultural-entrepreneurship to alleviate poverty. Corporate social investment (CSI) funding could assist, but currently is “wasted” money, as most of the projects ended up as write-offs.

One bank suggested that the government could also institute a guarantee fund for commercial banks to claim from, if bad debt and failures specific to this market occurred. Preferably, this should work in combination with a farm-level two-year grant for inputs and education. Most banks perceived existing extension offices to be unsuccessful, nonetheless, all banks believed that a form of mentorship for life-, financial-, and farming skill was essential to make sure money was utilized responsibly. The banks could not provide extension services, as they would then take default risk to the loan they supplied.

Only one bank showed a concern around our question of land ownership. They suggested the creation of a system that would enable SHF to have title deeds, which would develop a local property economy where successful SHFs would be able to buy additional 2 ha close by. Having title to their land would enable them to fully secure their facilities and grow their business. This would create a spirit of entrepreneurship among SHFs this bank argued. Another bank claimed that land ownership would help as a collateral, it was of less importance to them if other collaterals were in place, such as access to market and offtake, coupled possibly to insurance.

Although all four banks quoted FICA and the Credit Act as posing challenges to supply micro-loans to SHFs, only one bank suggested a change of that legislation. One bank argued that policy makers should rather look for successes in other African countries where cooperatives created successful farming ecosystem that enabled the successful supplying of micro-loans. A government guarantee scheme for drought failure, for example, to de-risk banks, could work through cooperatives and target not just one, but 20 or 30 farmers, with one collateral manager who helped control production schemes. Cooperatives worked in the mind of this bank, because of scale, where many SHFs pooled their maize together, reducing transactional costs to market. The Land Bank could assist they said.

A cooperative, another bank believed, can be very important, if it is a commercial co-op with a good existing integration into the value chain that can function as a service provider in terms of information flow, technical expertise, and possibly a funds disseminator. This bank though, also said that it was not necessary to pool every SHF into cooperatives, especially if the SHFs had access to good local market they could serve.

### **3.2. Supermarkets**

Our interview base covered three major retailers in South Africa, all of whom had some form of engagement with SHFs or emerging farmers. The authors planned and conducted the

interview with senior employees of these organizations responsible for the purchasing of farm produce.

One of the retailers said that they almost exclusively bought commercial volumes and that SHFs were ever only going to be a very small part of that supply. They supplied reliable commercial growers with growing programs to which both parties committed. A SHF in comparison was an unreliable source for multiple reasons on which they could not rely. This retailer also said that SHFs lend themselves to niche, high value, out of season production and could make a success there. The new BEE code, requiring them to source more from SHF, would change things dramatically, but would nonetheless pose a challenge to them.

The second retailer said that they worked with fresh produce SHFs, mainly in Limpopo, through their formal pack-houses and central procurement. This retailer also said that they allowed their store owners to procure, outside of their central procurement system, directly from smaller farmers. This was mostly done without cooperatives being present, but nevertheless resulted in problems with consistency and uncoordinated supply, which the store owners accepted because of the higher margins they made by procuring directly from SHF.

That retailer considered SHF farmers as ones with more than 5 ha of land, and they did not think one could farm sustainably on 2 ha of land or less, other than maybe through a cooperative system. For these SHF the food safety and quality requirements like Global GAP, Tesco Nature's Choice, or GFSI, are almost impossible to adhere to they said and therefore they created their own "Local-GAP" for SHF as compliance capacity-building with a chance to step up to Global GAP. All three retailers are concerned about SHFs ability to comply with food safety standards, which was essential and needed to stay in place.

The third retailer claimed that they did not work with SHFs as their scale was too small and that they would need to pool 50 or 60 farmers together and manage them to get the produce they needed. They have had no SHFs projects in the past and are not planning any in the future. While this was their cooperate approach they said, their individual franchises would be able to procure directly from SHFs in their vicinity, which even then in their opinion would be too small in scale.

In response to how government could get involved, one retailer said that government should facilitate systems where successful commercial farmers mentored SHFs collaboratively alongside a market access to retailers. To them, the retailers have the expertise, the network and accountability, while the government has the money to facilitate such engagements.

The second retailer was of the opinion that there were three levels with which the government should engage. First, to assist SHF in attaining finance, second, to raise the skill of SHFs to run better farms and businesses, and third, to assist with entry level food safety and compliance schemes.

The third retailer was of the opinion that money was not needed, and that it was the infrastructure and system around SHFs that role players, such as banks, retailers, and especially government, needed to create. This retailer said that it would need to be a whole number of things that are required to fall in place, and that somebody needs to take control of and manage it; best would be the government.

### 3.3. Traders with silos and milling

Both interviewed traders were not buying from SHFs. They said they were mostly procuring from other traders and only in a very few cases directly from usually larger farmers. The new Black Economic Empowerment Code (BEE) in SA also did not require them to buy from SHFs. While both traders said that they were not giving credits, seeds, or input supplies to SHFs, one trader said that such support might be possible through their Enterprise Development funding, but that there was additionally also a new department in the making that was going to specifically focus on socially just procurement in the future for their company.

One of the traders said they would love to support small-scale farmers and pay them market-related prices, but these would need to supply trucks loads of greater than 30 tons for effective scale. For SHFs, getting to the market would be the biggest challenge, they said; they also did not think that any other traders wanted to take any risk with SHFs.

On the question of how government could play a role, one trader said it could assist in pulling together many small-scale farmers into a corporative, where it became viable to have one contract with a community to buy 30 or 100 tons, where minimum truckloads were 35 tons to get the crop to Randfontein. The second trader said the government needed to empower SHFs first, with subsidies to decrease input costs and secondly with field extension to increase outputs. Other than that, this trader responded, the government should just stay out of economics.

### 3.4. Insurers

We interviewed three of the largest insurers in SA, who together covered more than 80% of the insurance market in South Africa. Two of the three insurers claimed that they already had a product with which they served SHF, but with a focus on livestock and not crop insurance. The third insurance company said that they currently had no micro-insurance product for SHF, but that they have had engagements in the past. To this insurer the traditional underwriting model suited commercial farmers and not SHF because historic data and proof of affordability on their balance sheets was missing.

Nevertheless, this insurer indicated that they were busy with the Land Bank and the International Climate Insurance Fund to build a new product for SHF. Another insurer indicated that it was busy with a National Emergent Red Meat Producers' Organization (NERPO) and Grain SA project. Generally, all three insurances agreed that there was not sufficient historic financial data from SHF that would enable them to supply classical crop insurance. One insurer said that the high capital backup requirement of 120% was costly to run even for commercial farmers. The assessment of doing pre-emergence, post-emergence and loss-reporting further drove up the costs, in particular for SHF. Subsequently two insurers were of the opinion that the Financial Services Board (FSB) should deregulate indexed insurance which would vastly reduce costs of supplying insurance to both commercial and SHF, in which case simple climatic models would trigger pay outs. However, this would still need to be tested and two insurers indicated that attaining meteorological data for rural SHF was in most cases very difficult.

Two insurers also indicated that South Africa was one of the very few countries in the world where the government did not subsidize agricultural insurance. One insurance said that the government should think about subsidizing insurance as an alternative to a national backup fund, as such a subsidy would be able to reduce the cost burden of the high backup capital to be carried by the insurers. The private industry backup capital could replace the idea of having a national backup fund and with that reduce costs of operating premiums. The fall-outs would be easier to carry due to a potentially much larger client base, where even SHF could be served easier.

Other mentioned challenges were the transacting of payments from and to SHF and the expectations both parties had on and against a claim; unlike commercial farmers who understood insurance concepts very well. Subsequently a cost-effective service delivery is a challenge, particularly on products of less than R100, where agents would make next to no money.

## 4. Discussion

### 4.1. Summary of data

The collected qualitative data was transcribed and systematically coded and categorized using grounded theory methods to gain structure of more quantitative nature, summed up here into two tables (Table 1, Table 2):

While 77.1% of surveyed VCP do not engage with SHFs today, the willingness to engage in future with SHFs is three times the current engagement. This willingness was limited to the assumption that other VCPs would also start to engage SHF more than they did now. In other words a collective effort would entice a joint effort supported by 2/3rd of all VCPs.

Of all limitations landownership is the last issue why VCP do not to engage with SHF. However, relative to other limitations a higher standard deviation indicates that, in particular Banks disagree, which is understandable, as they use land ownership as collateral. Second least important to the financial institutions were FICA, credit act and FSB regulations. More important are compliance with food safety and Gap standards; both banks and retailers vote

SHFs	Serving SHFs today?		Serving SHFs in future?	
	Yes (%)	No (%)	Yes (%)	No (%)
Banks [4]	25.0	75.0	50.0	50.0
Insurers [3]	66.7	33.3	100.0	0.0
Traders [2]	0.0	100.0	50.0	50.0
Retailers [3]	0.0	100.0	66.7	33.3
TOTAL	22.9	77.1	66.7	33.3

**Table 1.** Serving SHFs today and tomorrow?

Limitations experienced by both SHFs and VCPs								
SHFs	Funding (%)	Land ownership (%)	Education (%)	Logistics (%)	Compliance (%)	FICA, credit act & FSB (%)	Access to market (%)	Cooperative leadership (%)
Banks [4]	87.5	50.0	100.0	90.0	95.0	50.0	88.3	90.0
Insurers [3]	80.0	33.3	86.7	80.0	53.3	66.7	71.1	80.0
Traders [2]	90.0	0.0	90.0	70.0	60.0	n.a.	80.0	100.0
Retailers [3]	66.7	33.3	73.3	100.0	93.3	n.a.	88.9	90.0
TOTAL	81.0	29.2	87.5	85.0	75.4	58.3	82.1	90.0
In agreement (stdev)	10.5	21.0	11.0	12.9	21.8	11.8	8.4	8.2

**Table 2.** Limitations inhibiting both SHFs and VCPs.

them as second most important. All interviewees agree that cooperative leadership is the most important limitation that SHF and their own institutions face. Ma and Abdulai [67] have also shown in their studies that cooperative membership has a significant positive impact for SHF on yields, net returns and household incomes.

Next important to all interviewees are education and logistics and after that access to market and funding where for both the VCPs also seem to agree, with a small standard deviation.

The reader must keep in mind that due to the concentration of large organizations in the South African value chain the sample size is relatively small. However, the comparatively low standard deviation lends value to the research findings; in particular, where more than 80% of VCPs agree that cooperative leadership, access to market, education and funding are the most important limitations that need solutions.

#### 4.2. Policy debate

While some VCP had “spectacular” failures working with SHFs in Africa, most do not engage SHFs to avoid risk. However, the willingness to engage SHFs in future within a more functional economic system favoring SHFs is high.

From our categorized limitations, all limitations increased the risk for any of the VCP to engage with SHFs. Subsequently reducing the exposure to risk for VCPs is likely to create a more interesting environment for them to working with SHFs. Policy therefore should focus on risk reducing concepts and limitations as prioritized in **Table 2**.

Within the current legal framework of the Credit Act, the rulings for insurance pay-outs by the Financial Services Board (FSB), and FICA, the financial industries, banks and insurances are limited to serve larger commercial farms and forced to ignore SHFs. Yet more important to the financial services as well as the traders and retailers were limitations related to cooperative

leadership, access to market, education, funding, and also logistics. Compliance to food safety standards was a very important limitation to banks and retailers. All these limitations were more important to the VCPs than legislative and regulative requirements or land ownership.

This raises the question, whether the SA, and other African, governments' policies are on an effective road by largely focusing on land ownership, often politically contentious. To all VCPs land ownership was by far the smallest concern. Even to banks, to whom an obvious de-risk factor is land as a collateral, land tenure with the ability to create profit was more important to them than land ownership, which neither is a guarantee for good land custodianship nor profitability. Lease agreements from communal land in a more traditional environment would be sufficient to the banks. The concept of dropping land ownership policies in favor of communal lease tenure and cooperative engagement with commercial farmers pose a challenge to many policy makers in SA, as most commercial farmers are considered historic rivals. Blignaut et al. [68] found in their field report, that only 1.8% of their respondent thought that landownership for emerging farmers was an important part for policy considerations.

Understanding the challenges of the system from all conducted interviews, for government in particular, we can say policy should focus on cooperative leadership in combination with larger commercial farmers and off-takers to solve limitations in form of access to market and logistics. Making funding available, for such new systems, that did not create SHFs dependencies on grants, together with education would have the potential to solve the most important problems facing SHFs. If education were then additionally to focused on low external inputs and agroecological principles, reducing the need for expensive inputs, it would not only reduce the dependency on multinational corporations, their product imports and complicated logistics, it would increase local food sovereignty and reduce the risk of engagement for financial institutions due to less credit needs.

Such a systems approach would likely raise the interest of existing VCPs to engage with SHFs, because as risk reduces, a chance for profitability increases. Two-third of all VCPs have indicated that they would increase their engagement within months after they saw risk was reduced and other VCPs started working with SHFs. However, any such commercialization effort to Poole et al. [69] should have a decided mindset and must consider local complexities in order to get into the "hearts and minds" of the SHF, as otherwise it may not be an attractive profession to pursue or make a success of.

## 5. Conclusion

We have challenged the notion whether South Africa's current food system has the ability to sustain long-term food security, in which the existing food complex dictates the flow of economies and favors large industrialized agriculture, while marginalizing small and micro-food producers. We furthermore argue that other African countries, in a development drive to modernize food value chains, should not exclude SHFs from benefitting as well, as there is a lot of food security potential residing with SHFs. Yet, as our interview results have shown,

there are a host of systemic challenges resulting in a broad-based resistance from multiple industries, particularly within the SA value chain to engage with SHFs.

Being unable to take part in these value chains, ranging from missing access to input products, micro-loans, micro-insurance, education and market, means an exclusion from revenue potential resulting in a general struggle for economic survival. Nevertheless, as we have argued in our literature review, there is a residing entrepreneurial nature within South Africa’s SHF that offers a great potential that could be leveraged.

On the other hand, we have risk averse VCPs avoiding SHF because of high perceived risk or failures made through own experience. Nonetheless, most VCPs remain very interested to increase engagement with SHF in future, if a new system reduced the risk. We have shown how government could reduce the most important risks and limitations, which in order of importance are: cooperative leadership (90%), education (88%), logistics (85%), access to market (82%), funding (81%), and food safety compliance (75%); all of which were perceived by the interviewees as more important than legislation, regulatory requirements and land ownership.

As economic viability is more important than land ownership, which is not a guarantee for proper land custodianship and profitability, government should rather focus funding and the establishment of cooperative leadership in conjunction with existing commercial farmers that assists with access to markets, logistics, plus education through field extension on how to practice low external input farming methods that reduce risk and the need for credit and imported input products, while increasing food resilience in rural areas and economic viability of SHF.

## Appendix

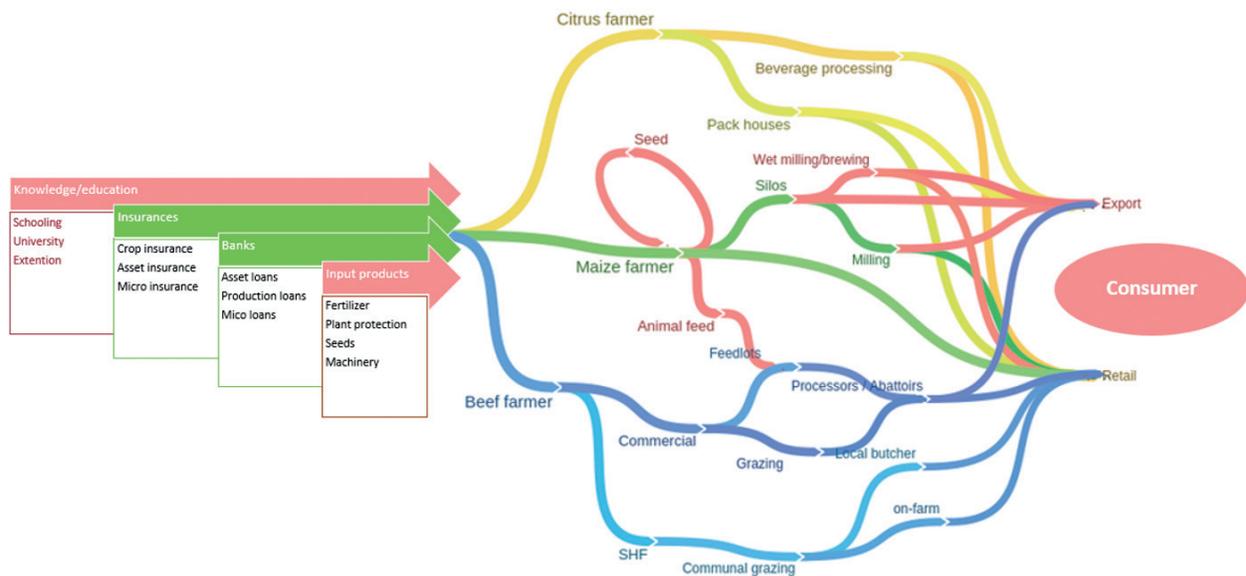


Diagram 1.

## Author details

Wolfgang Johann von Loeper<sup>1\*</sup>, Scott Drimie<sup>1</sup> and James Blignaut<sup>1,2</sup>

\*Address all correspondence to: [wolfgang@mysmart.farm](mailto:wolfgang@mysmart.farm)

1 School of Public Leadership, Stellenbosch University, Stellenbosch, South Africa

2 South African Environmental Observation Network, Pretoria, South Africa

## References

- [1] IAASTD. Agriculture at a Crossroads: Sub-Saharan Africa (SSA) Report. Vol. V. Washington DC; 2009
- [2] FAOSTAT. Global distribution of agricultural land [Internet]. FAO of the UN. 2014. Available from: <http://faostat3.fao.org/faostat-gateway/go/to/home/E> [Cited: April 20, 2005]. pp. 1-10
- [3] Ramaila M, Mahlangu S, du Toit D. Agricultural Productivity in South Africa: Literature Review. 2011
- [4] May J, Carter M. Agriculture: Analysis of the NIDS Wave 1 Dataset Discussion Paper No. 6. 2009
- [5] Heijden V, Vink N. Good for whom? Supermarkets and small farmers in South Africa – A critical review of current approaches to increasing access to. *Agrekon*. 2013;**52**(1):68-86
- [6] Labadarios D, ZJ-R MH, Steyn NP, Gericke G, EMW M, Davids YD, et al. Food security in South Africa: a review of national surveys. *Bulletin of the World Health Organization* [Internet]. 2011 Dec 1 [Cited 2014 Nov 9];**89**(12):891-899. Available from: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=3260897&tool=pmcentrez&rendertype=abstract>
- [7] SANHANES-1. The South African National Health and Nutrition Examination Survey. Cape Town: HSRC Press; 2013
- [8] De Schutter O. Report Submitted by the Special Rapporteur on the right to food. *Development*. 2010, December. p. 21
- [9] IFAD-UNEP. Smallholder, food security, and the environment. International Fund for Agricultural Development and United Nations Environments Programme; 2013
- [10] Altieri M. Agroecology, small farm and food sovereignty. *Monthly Review*. 2009;**61**(3): 102-113
- [11] Altieri M, Funes-monzote F, Petersen P. Agroecologically efficient agricultural systems for smallholder farmers: Contributions to food sovereignty. *Agronomy for Sustainable*

- Development [Internet]. 2011 Dec 14 [Cited 2014 Apr 28];32(1):1-13. DOI: Available from: <http://link.springer.com/10.1007/s13593-011-0065-6>
- [12] Altieri M, Nicholls CI. Chapter 7: Enhancing the productivity of Latin America. Traditional peasant farming. In: *Agroecology and the Search for a Truly Sustainable Agriculture*. 2005
- [13] Fischer J, Brosi B, Daily GC, Ehrlich PR, Goldman R, Goldstein J, et al. Should agricultural policies encourage land sparing or wildlife-friendly farming? *Frontiers in Ecology and the Environment* [Internet]. 2008 Sep [Cited 2014 May 5];6(7):380-385. Available from: <http://www.esajournals.org/doi/abs/10.1890/070019>
- [14] Diaz RJ, Rosenberg R. Spreading dead zones and consequences for marine ecosystems. *Science* [Internet]. 2008 Aug 15 [Cited 2014 Apr 30];321(5891):926-929. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/18703733>
- [15] Marenya PP, Barrett CB. Soil quality and fertilizer use rates among smallholder farmers in western Kenya. *Agricultural Economics*. 2009;40(5):561-572
- [16] UNEP-UNCTAD. *Organic Agriculture and Food Security in Africa* [Internet]. Geneva & New York. 2007. Available from: [unctad.org/en/docs/ditcted200715\\_en.pdf](http://unctad.org/en/docs/ditcted200715_en.pdf) [Cited: March 1, 2014]
- [17] Chassy AW, Bui L, Renaud ENC, Van Horn M, Mitchell AE. Three-year comparison of the content of antioxidant microconstituents and several quality characteristics in organic vs conv. *Journal of Agricultural and Food Chemistry* [Internet]. 2006 Oct 18 [Cited 2014 May 2];54(21):8244-8252. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/17032035>
- [18] Res M, Dangour AD, Allen E, Lock K, Uauy R. Nutritional composition & health benefits of organic foods—Using systematic reviews to question the available evidence. *The Indian Journal of Medical Research*. 2010 Apr;131(April):478-480
- [19] Huber M, Rembiałkowska E, Średnicka D, Bügel S, van de Vijver LPL. Organic food and impact on human health: Assessing the status quo and prospects of research. *NJAS - Wageningen Journal of Life Sciences* [Internet]. 2011 Dec [Cited 2014 May 2];58(3-4):103-109. Available from: <http://www.sciencedirect.com/science/article/pii/S1573521411000054>
- [20] Rodale Institute. *Nutritional Value of Fruits, Veggies is Dwindling—Health—Diet and nutrition—msnbc.com* [Internet]. Rodale Institute. 2012. Available from: [http://www.nbcnews.com/id/37396355/ns/health-diet\\_and\\_nutrition/t/nutritional-value-fruits-veggies-dwindling/#.U4SdkXKSySp](http://www.nbcnews.com/id/37396355/ns/health-diet_and_nutrition/t/nutritional-value-fruits-veggies-dwindling/#.U4SdkXKSySp) [Cited: May 27, 2014]
- [21] Volakakis N, Seal C, Sanderson R, Dominika S, Stewart GB, Benbrook C, et al. Higher antioxidant and lower cadmium concentrations and lower incidence of pesticide residues in organically grown crops: a systematic literature review and meta-analyses. *British Journal of Nutrition* [Internet]. 2014 Jun 26 [Cited 2014 Jul 11]:1-18. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/24968103>

- [22] Ponisio LC, M'Gonigle LK, Mace KC, Palomino J, de Valpine P, Kremen C. Diversification practices reduce organic to conventional yield gap. *Proceedings of the Royal Society B: Biological Sciences*. 2014 Dec 10; **282**(1799):20141396
- [23] Edwards S. Greening Ethiopia series. *Sci Soc*. 2004; **23**:4-8
- [24] Rodale Institute. *Regenerative Organic Agriculture and Climate Change: A Down-to-Earth solution to Global Warming*. Vol. 1400. Kutztown; 2014
- [25] Adhya T, Sharma P, Gogoi KA. Mitigating greenhouse gas emission from agriculture. In: *Climate Change and Crops*. Berlin, Heidelberg: Springer-Verlag; 2009. pp. 329-344
- [26] Ewers RM, Didham RK. Pervasive impact of large-scale edge effects on a beetle community. *Proceedings of the National Academy of Sciences*. 2008; **105**(14):4-7
- [27] Pimentel D, Harvey C, Resosudarmo P, Sinclair K, Kurz D, McNair M, et al. Environmental and economic costs of soil erosion and conservation benefits. *Science*. 1995; **267**(5201): 1117-1123
- [28] Pretty J. Agricultural sustainability: Concepts, principles and evidence. *Philosophical Transactions of the Royal Society of London [Internet]*. 2008 Mar 12 [Cited 2014 Apr 30]; **363**(1491):447-465. Available from: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2610163&tool=pmcentrez&rendertype=abstract>
- [29] Wiggins S. Can the smallholder model deliver poverty reduction and food security for a rapidly growing population in Africa? Brighton; 2009. Report No: 8
- [30] Baiphethi MN, Jacobs PT. The contribution of subsistence farming to food security in South Africa. *Agrekon*. 2009 Dec; **48**(4):459-482
- [31] Greenberg S. The Disjunctures of Land and Agricultural Reform in South Africa: Implications for the Agri-Food System 2013, (August). pp. 1-29
- [32] Aliber M, Hall R. Programme to support pro-poor policy development (PSPPD). In: *Development of Evidence-Based Policy Around Small-Scale Farming*. 2010
- [33] Aliber M, Hall R. Support for smallholder farmers in South Africa: Challenges of scale and strategy. *Development Southern Africa*. 2012; **29**(4):548-562
- [34] Ortmann GF, King RP. Agricultural cooperatives II: Can they facilitate access of small-scale farmers in South Africa to input and product markets? *Agrekon*. 2007; **46**(2(March 2015)):219-244
- [35] DAFF. *Crops and Markets*. Vol. 892008
- [36] Pettigrew SF. *Ethnography and Grounded Theory: A Happy Marriage?* <http://www.acrwebsite.org> [Internet]. 2016. Available from: <http://www.acrwebsite.org/search/view-conference-proceedings.aspx?Id=8400> [Cited: August 21, 2016]

- [37] Savin-Baden M, Major CH. *Qualitative Research: The Essential Guide to Theory and Practice* [Internet]. London and New York: Routledge; 2012 [Cited 2016 Aug 21]. 569p. Available from: <http://www.routledge.com/books/details/9780415674782/>
- [38] Gibbs. *Core Elements. Part 2: Grounded Theory* [Internet]. 2016. Available from: [https://www.youtube.com/watch?v=dbntk\\_xeLHA&feature=related](https://www.youtube.com/watch?v=dbntk_xeLHA&feature=related) [Cited: August 21, 2016]
- [39] Glaser BG. Grounded Theory Institute—The Grounded Theory Methodology of Barney G. Glaser, PhD—What is GT? [Internet]. 2014. Available from: <http://www.groundedtheory.com/what-is-gt.aspx> [Cited: August 21, 2014]
- [40] Delgado CL. Sources of growth in smallholder agriculture integration of smallholders with processors in sub-Saharan Africa: The role of vertical and marketers of high value-added items. *Agrekon*. 1999;**38**(sup001):165-189
- [41] Kirsten JF, Van Zyl J. Defining small-scale farmers in the South African context. 1998; **37**(4):551-562
- [42] Bryan E, Deressa TT, Gbetibouo GA, Ringler C. Adaptation to climate change in Ethiopia and South Africa: Options and constraints. *Environmental Science & Policy*. 2009;**12**(4): 413-426
- [43] Bain & Company. *Growing Prosperity: Developing Repeatable Models to Scale*. 2014
- [44] Swilling M. *Hear the Forest Grow: SDI Evaluation—Africa*. Stellenbosch; 2005
- [45] Blewitt J. *Understanding Sustainable Development*. London: Earthscan; 2008
- [46] Naess A, Coulibaly A, Alhaji J, Diop A, Solheim E, Webber F, et al. In: Naerstad A, editor. *Africa can Feed Itself*. Oslo: The Development Fund Norway; 2007
- [47] Ziervogel G. Targeting seasonal climate forecasts for integration into household level decisions: The case of smallholder farmers in Lesotho. *The Geographical Journal*. 2004; **170**(1):6-21
- [48] Linnerooth-Bayer J, Mechler R. Insurance for assisting adaptation to climate change in developing countries: A proposed strategy. *Climate Policy*. 2007;**6**(2006):1-17
- [49] Challinor A, Cochrane K, Howden M, Iqbal MM, Wgii I, Chapter AR, et al. IPCC WGII AR5. 2014. Chapter 7
- [50] Magingxa LL, Alemu ZG, van Schalkwyk HD. Factors influencing access to produce markets for smallholder irrigators in South Africa. *Development Southern Africa* [Internet]. 2009;**26**(1):47-58. Available from: <http://www.tandfonline.com/doi/abs/10.1080/03768350802640081>
- [51] Andersson CIM, Kiria CG, Qaim M, Rao EJO. Following up on smallholder farmers and supermarkets. *Glob Food Discuss Pap*. 2013;**23**:1-29
- [52] DAFF. *Maize Market Value Chain Profile*. Arcadia; 2012

- [53] Campbell H. The rise and rise of EurepGAP: European (re)invention of colonial food relations? *International Journal of Sociology of Agriculture and Food*. 2005;**13**(December):1-19
- [54] Qaim M, Rao EJO. The supermarket revolution and smallholder farmers. *The International Journal for Rural Development*. 2012 Apr;**2011**
- [55] Snider A, Snider A, Kraus E, Sibelet N, Bosselmann AS. Influence of voluntary coffee certifications on cooperatives' advisory services and agricultural practices of smallholder farm. *The Journal of Agricultural Education and Extension* [Internet]. 2017:1-19. Available from: <http://dx.doi.org/10.1080/1389224X.2016.1227418>
- [56] Louw A, Vermeulen H, Kirsten J, Madevu H. Securing small farmer participation in supermarket supply chains in South Africa. *Development Southern Africa* [Internet]. 2007 Oct;**24**(4):539-551. Available from: <http://www.informaworld.com/openurl?genre=article&doi=10.1080/03768350701577657&magic=crossref%7C%7CD404A21C5BB053405B1A640AFFD44AE3>
- [57] Muchopa CL. Agricultural value chains and smallholder producer relations in the context of supermarket chain proliferation in Southern Africa. *International Journal of Value Supply Chain Management* [Internet]. 2013 Sep 30 [Cited 2015 Jan 7];**4**(3):33-44. Available from: <http://www.airccse.org/journal/mvsc/papers/4313ijmvsc04.pdf>
- [58] Crush J, Frayne B. Supermarket expansion and the informal food economy in Southern African cities: Implications for urban food security. *Journal of Southern African Studies* [Internet]. 2011 Dec [Cited 2015 Jan 8];**37**(4):781-807. Available from: <http://www.tandfonline.com/doi/abs/10.1080/03057070.2011.617532>
- [59] McCullough EB, Pingali PL, Stamoulis KG. The Transformation of Agri-Food Systems: Globalization, Supply Chains and Smallholder Farmers. *Food & Agriculture Org.*; 2008
- [60] Magdoff F et al. Renewable Agriculture and Food Systems [Internet]. 2007 Jul 4 [Cited 2014 Feb 7];**22**(2):109. Available from: [http://www.journals.cambridge.org/abstract\\_S1742170507001846](http://www.journals.cambridge.org/abstract_S1742170507001846)
- [61] Parker G. The Megacity: Decoding the Legacy of Lagos. *The New Yorker* [Internet]. 2006. Available from: [www.soystats.com/2005/Default-frames.htm](http://www.soystats.com/2005/Default-frames.htm)
- [62] Page S, Slate R. Small producer participation in global food systems: Policy opportunities and constraints. *Development Policy Review*. 2003;**21**(5-6):641-654
- [63] van der Heijden T. Good for Who? Supermarkets and Small Farmers in South Africa—A Critical Review of Current Approaches to Market Access for Small Farmers in Developing Countries. Stellenbosch University; 2010
- [64] Godfray HCJ, Beddington JR, Crute IR, Haddad L, Lawrence D, Muir JF, et al. Food security: the challenge of feeding 9 billion people. *Science* [Internet]. 2010 Feb 12 [Cited 2014 Jul 10];**327**(5967):812-818. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/20110467>

- [65] Mahlogedi L, Thindisa V. Participation by Smallholder Farming Entrepreneurs in Agro-Processing Activities in South Africa. Johannesburg; 2014
- [66] Jayne TS, Yamano T, Weber MT, Tschirley D, Benfica R, Chapoto A, et al. Smallholder income and land distribution in Africa: Implications for poverty reduction strategies. *Food Policy* [Internet]. 2003 Jun [Cited 2014 May 10];**28**(3):253-275. Available from: <http://linkinghub.elsevier.com/retrieve/pii/S0306919203000460>
- [67] Ma W, Abdulai A. Does cooperative membership improve household welfare? Evidence from apple farmers in China. *Food Policy* [Internet]. 2016 Jan 1 [Cited 2018 Jan 21];**58**:94-102. Available from: <http://www.sciencedirect.com/science/article/pii/S0306919215001396>
- [68] Blignaut JN, De Wit MP, Midgley S, Crookes DC, Knot J, Drimie S, et al. Sustainable Farming as a Viable Option for Enhanced Food and Nutritional Security and a Sustainable Productive Resource Base—Deliverable 4 Field Report. Pretoria; 2015
- [69] Poole ND, Chitundu M, Msoni R. Commercialisation: A meta-approach for agricultural development among smallholder farmers in Africa? *Food Policy*. 2013;**41**:155-165